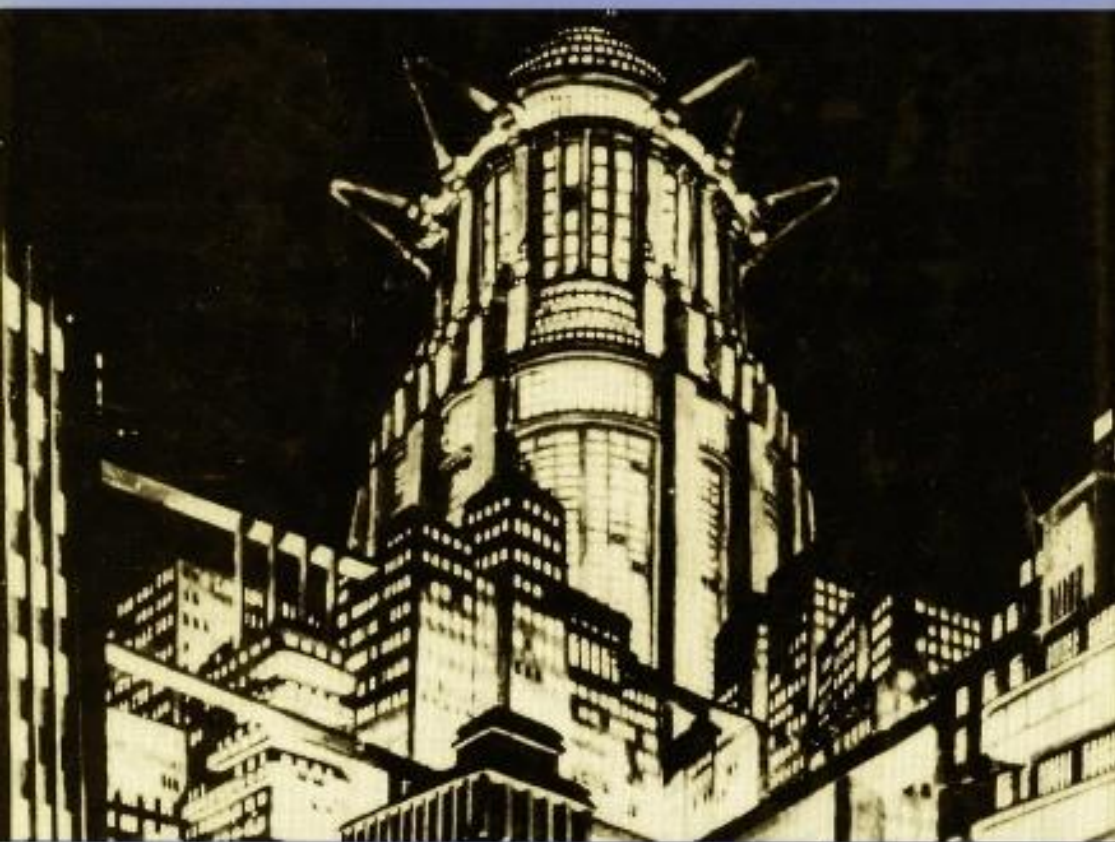


WRITING SCIENCE

SOCIAL SYSTEMS



Niklas Luhmann

TRANSLATED BY John Bednatz, Jr.
WITH Dirk Baecker



Niklas Luhmann (December 8, 1927 – November 6, 1998) was a German sociologist, philosopher of social science, and a prominent thinker in systems theory, who is considered one of the most important social theorists of the 20th century.

SOCIAL SYSTEMS

Niklas Luhmann

TRANSLATED BY John Bcdnarz, Jr. WITH Dirk Baecker

SOCIAL SYSTEMS

WRITING SCIENCE

EDITORS Timothy Lenoir and Hans Ulrich Gumbrecht

-- [NA] --

SOCIAL SYSTEMS

Niklas Luhmann

TRANSLATED BY John Bednarz, Jr., with Dirk Baecker FOREWORD BY Eva M. Knodt

STANFORD UNIVERSITY PRESS STANFORD, CALIFORNIA

Assistance for the translation was provided by Inter Naciones

Social Systems was originally published in German in 1984 as Soziale Systeme:
Grundriß einer allgemeinen Theorie,

© 1984 Suhrkamp Verlag Frankfurt am Main.

Stanford University Press, Stanford, California

© 1995 by the Board of Trustees

of the Leland Stanford Junior University Printed in the United States of America

CIP data appear at the end of the book

Original printing 1995

Contents

Foreword	10
The Postmodern Predicament	10
Contingencies	14
Complexities	17
The Autopoietic Turn in Social Theory.....	21
The Autopoiesis of Communication	25
Toward a Posthumanist Conception of the Social.....	31
Constructivist Perspectives: Toward a Non-Foundational Epistemology	34
Instead of a Preface to the English Edition: On the Concepts Subject and Action.....	38
Preface to the German Edition	46
Introduction: Paradigm Change in Systems Theory	56
Notes	67
Chapter 1: System and Function	72
I.....	72
II	76
III	101
IV.....	112
Notes	119
Chapter 2: Meaning	127
I.....	127
II	131
III	135
IV.....	137
V.....	139
VI.....	142
VII	150
VIII	154
IX.....	160
X.....	165
XI.....	167
Notes	171
Chapter 3: Double Contingency	178
I.....	178
II	182
III	189
IV.....	192
V.....	194

VI.....	198
VII	201
VIII	202
IX.....	204
X.....	209
Notes	212
Chapter 4: Communication and Action	216
I.....	216
II	218
III	224
IV.....	226
V.....	229
VI.....	233
VII	236
VIII	242
IX.....	250
X.....	253
Notes	255
Chapter 5: System and Environment	260
I.....	260
II	265
III	269
IV.....	271
V.....	278
VI.....	281
VII	285
VIII	291
Notes	294
Chapter 6: Interpenetration.....	300
I.....	300
II	303
III	308
IV.....	311
V.....	313
VI.....	319
VII	324
VIII	330
IX.....	334
X.....	342
Notes	345

Chapter 7: The Individuality of Psychic Systems	352
I.....	352
II.....	354
III.....	359
IV.....	364
V.....	368
VI.....	372
Notes	375
 Chapter 8: Structure and Time	 379
I.....	379
II.....	383
III.....	386
IV.....	391
V.....	393
VI.....	395
VII.....	399
VIII.....	404
IX.....	408
X.....	411
XI.....	414
XII.....	420
XIII.....	426
XIV.....	433
XV.....	435
XVI.....	441
Notes	458
 Chapter 9: Contradiction and Conflict.....	 474
I.....	474
II.....	476
III.....	478
IV.....	484
V.....	490
VI.....	493
VII.....	502
VIII.....	505
IX.....	510
X.....	514
Notes	522
 Chapter 10: Society and Interaction.....	 529
I.....	529
II.....	532

III	536
IV.....	540
V.....	546
VI.....	550
VII	554
VIII	556
Notes	561
Chapter 11: Self-Reference and Rationality.....	566
I.....	566
II	568
III	571
IV.....	577
V.....	579
VI.....	584
VII	589
VIII	595
IX.....	598
X.....	601
Notes	607
Chapter 12: Consequences for Epistemology	612
I.....	612
II	617
Notes	623
Index	625

Foreword

Eva M. Knodt

The Postmodern Predicament

The major challenge confronting contemporary thought, according to Mark Taylor and Esa Saarinen, authors of a recent study on media technology, is to overcome its fixation on written narratives and the culture of print. "Since texts are what count as primary, the diagnostics of our era are carried out vis-à-vis textualities. Reading postmodern theoreticians, one is puzzled to observe how the earthmoving implications of the technostuctures of world production and commerce, as well as the administrative networks, go unnoticed even in the writings of the brightest and wittiest." The indictment is symptomatic of a growing discontent with text-centered theories of culture, which have dominated the humanities since the heyday of structuralism. Behind the closed walls of the academy, the theoreticians of postmodernity "are looking for potential narratives in the shelters of written culture," narratives that capitulate in the face of the global economic and technological changes that continue to transform our social reality with a historically unprecedented speed.

According to Taylor and Saarinen, the popular appeal to the end of the *métarécit* obscures the fact that "the metanarrative of our age is not a written product. The metanarratives of ecocatastrophe, the world economy, the technologizing of the lifeworld are not first literary creations that are later materialized. To the contrary, incipient metanarratives involve material practices that have not yet been theorized." ¹

Philosophy, the authors maintain, will not survive into the

twenty-first century unless it overcomes its fear of contamination and embraces what it tends to "avoid at all costs: praxis and the media." 2 The irony is that the aestheticized techno-vision presented here feeds off precisely the nostalgia for a waning literary culture to which it wants to serve as an antidote. The promise (or premise) of liberation--from the cage of textuality to the vast, unlimited possibilities of cyberspace--makes the paradoxical sense it does only to those for whom the problems of contemporary theory boil down to the question: "What comes after deconstruction?" 3 The millions of engineers who live on the global net do not need a "media philosophy" any more than the current restructuring of the nation's trillion-dollar health care industry needed to await the outcome of the congressional health care debate. 4 Taylor and Saarinen's media philosophy thus reenacts once again the familiar axiology of impossibilities from which it seeks to escape: the message announcing the end of the book is contained between the covers of--a book.

But the questions remain. The need for more pertinent analyses of today's complex social reality and the corresponding demand for methodologies that can "illuminate convergences between disciplines" 5 is widely recognized. At the same time, postmodern ambitions remain preoccupied with expanding the list of what is no longer possible. Meanwhile, the flooding of the market with theory has reached a level of saturation more likely to generate indifference than to stimulate curiosity. The rhetoric of impossibility is beginning to wear thin. Niklas Luhmann, who in recent years has emerged as Germany's most prominent and controversial social theorist, suggests that postmodern theorizing has arrived at what Ilya Prigogine and Isabelle Stengers call a "bifurcation point," a state of instability in which a system can reorganize itself in unpredictable ways. 6 But unlike most of today's theoreticians, Luhmann is convinced that "something can be said about this," that, indeed, there are "theory materials already available" that can help us conceptualize the end of metanarratives as the "beginning" of something new. In his view, the postmodern semantics of impossibility is a belated reaction, on the part of modernity, to the shock of its own contingency: "There is no métarécit because there is no external observer." 7 The philosophical constructs designed to conceal this realization--from Descartes's insistence on a "God who does not deceive" to the invention of the transcendental subject

--have broken down, and linguistically based successor theories such as hermeneutics, structuralism, and analytical philosophy have been unable to halt the erosion of modernity's trust in its own self-descriptions. Once the classical problems of knowledge, objectivity, and truth were reformulated as problems of language, "reflexivity became unavoidable and, with the emergence of deconstruction, was linked to an inability to determine or establish origins. ⁸

Luhmann concedes that there is no longer a "binding representation of society within society," ⁹ but refuses to describe this situation exclusively in negative terms, as a loss of legitimation or a crisis of representation. Instead, he proposes that we search for new ways of coping with the enforced selectivity that marks any self-description under the conditions of a "functionally differentiated" modern society. For Luhmann, the end of metanarratives does not mean the end of theory, but a challenge to theory, an invitation to open itself to theoretical developments in a number of disciplines which, for quite some time, have been successfully working with cybernetic models that no longer require the fiction of the external observer. Much of Luhmann's discontent with contemporary theory is, of course, specifically related to the state of his own discipline, sociology. Luhmann started out as a sociologist and continues to describe himself as such, which is somewhat amusing, given his rather unflattering view of sociology as a discipline that compensates for its notorious theory deficit by constructing tribal genealogies and dissecting its classics. It is not without irony that Luhmann should respond to this situation by constructing something like a genealogy of his own, a kind of counter-genealogy that includes, among others, a cybernetician (Heinz von Foerster), ¹⁰ two evolutionary biologists (Humberto R. Maturana and Francisco Varela), ¹¹ an obscure mathematician (George Spencer Brown), ¹² not to speak of the Devil Himself. ¹³ This list of names does not merely replace one set of canonical texts with another, however. Rather, it is meant to define a constellation of problems that explodes the boundaries of sociology by linking social theory to recent theoretical developments in scientific disciplines as diverse as modern physics, information theory, general systems theory, neurophysiology, and cognitive science. In these disciplines, the erosion of classical paradigms, far from suggesting the end of

science, led to a fundamental revision of its theoretical premises. The timeless, machinelike universe of Newton was replaced by a "recursive universe," in which disorder, non-linear complexity, and unpredictability are the "rule" (whereas order, simplicity, and predictability constitute the exception), and the collapse of the boundaries between observer and observed has stimulated the exploration of theoretical models capable of handling problems of self-reference. ¹⁴ Consequently, the quantum-revolution in physics did not invalidate the laws of classical mechanics but merely redefined their scope within a more comprehensive theoretical framework. Nor did the realization of the inevitable circularity of observation entail renouncing scientific claims to objectivity and universality. Modern physics continues to dream of a "grand unified theory" that would explain the entire physical universe, including the theory's own possibility. ¹⁵ Likewise, the biology of cognition traces its own emergence as a result of the evolutionary process it describes. ¹⁶ There is mounting evidence that the recent focus on principles of self-organization in a great number of different disciplines signals a "fundamental paradigm shift in the sciences - a scientific revolution" in the Kuhnian sense. ¹⁷ For Luhmann, one important question is whether, and to what extent, the conceptual innovations of twentieth-century science can be brought to bear in the realm of social theory.

In *Social Systems*, Luhmann presents a comprehensive answer to this question. In response to the "theory crisis" in sociology (p. xiv, below), he proposes a general theory that exploits the conceptual resources of modern science for a study of social phenomena. Across more than six hundred pages, Luhmann lays out a theoretical groundwork which subsequently provides a frame for a description of modern society as a complex system of communications that has differentiated itself horizontally into a network of interconnected social subsystems. Each of these systems reproduces itself recursively on the basis of its own, system-specific operations. Each of them observes itself and its environment, but whatever they observe is marked by their unique perspective, by the selectivity of the particular distinctions they use for their observations. There is no longer an Archimedean point from which this network could be contained in an all-embracing vision. And yet - and this is perhaps Luhmann's most controversial proposition -

the theory of social systems, like any "supertheory," insists on the universality of its claims. This is not to say that the theory claims an exclusive right to some ultimate, non-contingent truth, but that it must account for the self-implicative nature of its own observations: a general theory of social systems must deal with *everything* social, including itself as a contingent part of the reality it describes.

Contingencies

The originality of the book's theoretical design--Luhmann himself prefers to speak of a capacity to "control heterogeneities through concepts" ¹⁸--is that of an outsider who ended up in sociology more or less by accident. Indeed, Luhmann's rather unusual professional career perfectly illustrates his conviction that biographies are little more than a "collection of coincidences" (*AW*, p. 134). Born in 1927 in Lüneburg, Germany, he obtained a law degree from the University of Freiburg/Breisgau in 1949, but soon became disillusioned with the repetitive routines of the legal profession. In 1955, he left the Lüneburg Administrative Court for a "more political" career in the Culture Ministry of Lower Saxony. Working on war reparation cases during the day, he spent his free time reading Descartes, Kant, Husserl, and the functionalist theories of Malinkowski and Radcliff-Brown. Yet the possibility of an academic career never crossed his mind--"regarding the university, I could only think of something small, something perpetually repeating itself" (*AW*, p. 131)--until his administrative duties began to interfere with his intellectual interests. In 1960 he obtained a year-long leave of absence to study with Talcott Parsons at Harvard. Upon his return, he resigned from his position as a senior government councillor to devote himself entirely to the pursuit of his theoretical interests. Sociology naturally suggested itself: "as a sociologist, one can do anything without being confined to a particular topic" (*AW*, p. 141). Between 1965 and 1968, Luhmann held various positions at the Academy for Administrative Sciences in Speyer, the Institute for Social Research in Dortmund, and the University of Münster. When the German Sociologist Helmut Schelsky invited him to join the newly founded Reform University of Bielefeld, however, a serious technical problem arose. Luhmann had already published several books, but he had no official degree in sociology and so

lacked the formal requirements necessary to teach as a professor at a German university. In 1966, two of his publications were retroactively accepted in lieu of these requirements,¹⁹ and two years later, Luhmann followed Schelsky to the University of Bielefeld, where he held a chair in sociology until his retirement in 1993.

In the early seventies, Luhmann quickly gained publicity as a relentless critic of Jürgen Habermas, the main representative of the then-dominant Frankfurt School sociology. A joint publication, which appeared in 1971 under the title *Theory of Society or Social Technology: What Does Systems Research Accomplish?*²⁰ sold more than thirty-five thousand copies in just a few years.²¹ As the title suggests, the Frankfurt-Bielefeld polarity was framed in political terms, as an opposition between the New Left and what it perceived as neo-conservative tendencies in the German "counter-Enlightenment." Insisting on continuing the Enlightenment project, Habermas accused Luhmann of a technocratic functionalism that undermined the very possibility of critique and an emancipatory politics. In response, Luhmann criticized Habermas's consensus-oriented discourse ethics as a hopelessly inadequate response to the complex issues that arise in highly differentiated postindustrial societies. In the politically charged climate of the seventies, however, Luhmann's disengaged intellectual style had little going for it. Yet despite, or perhaps even because of, continuing political attacks from the academic left, systems theory managed to establish itself on the German intellectual scene as a force that could not simply be dismissed as just another version of bourgeois ideology.

In the mid-eighties, the pendulum began to shift, and the German reception of Luhmann entered a distinct "second phase." Several factors account for what Luhmann describes as a generally more receptive attitude toward "solidly built theories" (*AW*, p. 125). With the appearance of *Soziale Systeme: Grundriß einer allgemeinen Theorie (Social Systems)* in 1984, a comprehensive outline of his theoretical position was available for the first time. Moreover, Luhmann's proposed "paradigm shift" in sociology signals a corresponding shift in his own work, marked by a break with the structural-functionalism of Talcott Parsons and by the adaption of theoretical models developed in the biology of cognition and second-order cybernetics. At the same time, the broad reception of post-structuralism and the subsequent theory boom of

the 1980's had created a heightened awareness of the paradoxical implications of linguistic self-reflexivity and an increasing demand for more complex theories. As Luhmann continued to elaborate his theory of social systems in the direction of a theory of modern society-- following the publication of *Social Systems*, several major studies appeared in rapid succession, among them *Ecological Communication* (1986), *The Economy of Society* (1988), *The Social System of Science (Wissenschaft)* (1990), *The Sociology of Risk* (1991), and *Observations of Modernity* (1992) ²²--his work began to receive serious attention in academic circles in- and outside of sociology. ²³

In the meantime, the German reception of Luhmann has advanced well into what might be called its "third phase," characterized by a strong emphasis on epistemological concerns and an increasing interest in the theoretical background of his work. As the writings of von Foerster, Maturana, and Varela, as well as other previously untranslated works in the cybernetic literature, become available in German, Luhmann is finding himself drawn into a theoretical controversy concerning the epistemological and political implications of the "autopoietic turn" for the humanities at large. Fueled by the proliferation of titles on chaos theory, invented realities, and the biology of cognition in the repertoire of major German publishing houses, a new discourse--the "discourse of radical constructivism"--is rapidly transforming the German intellectual scene. It is difficult to convey to an American readership the sense of intellectual excitement generated in Germany by the broad reception of authors who in the United States are barely known outside their own highly specialized disciplines. It is even more difficult to characterize in a few words a discourse that is transdisciplinary by nature and far from homogeneous. The label "radical constructivism"--a coinage by the cognitive psychologist Ernst von Glaserfeld ²⁴-- does not stand for a single doctrine or a unified theory, but refers to a growing body of literature that explores, from different angles and in a variety of contexts, a set of problems related to the idea of autopoietic closure. ²⁵

Luhmann remains skeptical of these developments, especially of popularized versions of constructivism that attempt to sell, under a new name, old forms of epistemological idealism or even solipsism. There is nothing more "annoying" to him than the instantaneous commodification of new ideas in terms of what has

been thought before (*AW*, p. 93). "Some exciting formulations are emerging fresh from the press--and already the matter is taken as established fact." ²⁶ When the introduction of a new paradigm almost coincides with what appears to be its almost instant normalization, ²⁷ misunderstandings and oversimplifications are unavoidable. As play with "tangled hierarchies" ²⁸ becomes the game of choice among German academic intellectuals, conceptual precision often yields to the evocative force of metaphors that promise a new language for familiar theoretical agendas. The potentially subversive connotations of information-theoretical concepts--complexity, chaos, entropy, and noise--are beginning to captivate the postmodern imagination, provoking an already ambiguous fascination with technoscience that combines with post-structuralist motives and political-aesthetic impulses to form an explosive mixture. ²⁹ To counteract "applause from the wrong quarters," Luhmann continues to cultivate the ironic attitude of the dispassionate observer who "provoke[s] rejection" as an antidote to an all too facile consensus --sometimes to underscore a point, sometimes "for no reason at all, out of a sheer delight in provocation, or delight in nonsense, or whatever" (*AW*, p. 93).

Complexities

Social Systems, as Luhmann readily admits, is a difficult book, ambitious in its scope and relentless in its abstraction. It cuts across the great divide between the "two cultures" and moves freely between (or above?) disciplines as it traverses their histories, quarrying those histories for conceptual tools or ideas and appropriating whatever is needed to solve a particular problem. The book's circular design invokes comparison to Hegel's system, though Luhmann begins and ends with difference rather than with unity or a grand synthesis. In a manner reminiscent of Husserl's phenomenological reduction, Luhmann invites us to bracket out all our habitual intuitions, yet offers little guidance to those unfamiliar with the enormous theoretical background of the book. Reading *Social Systems* for the first time can be quite an irritating experience unless the reader has enough "patience, imagination, intelligence, and curiosity" (pp. li-lilii, below) to adopt the "experimental attitude" (*AW*, p. 128) of its author and look at the world from the denaturalized perspective of its improbability.

To avoid false expectations, it is important to begin with a clear understanding of the book's objectives. *Social Systems* does not present a sociological analysis of modern society or a theory of society (*Gesellschaftstheorie*) but elaborates the general conceptual framework for such a theory. It supplies the instruments for observing a variety of social systems--societies, organizations, and interactions--not primarily such observations themselves. The distinction is far from trivial. In positing a difference between "what" questions and "how" questions, the theory of social systems situates itself within the "de-ontologized" realm of "second-order observations," a level of abstraction where, to speak in Kantian terms, questions concerning conditions of possibility arise.³⁰ But unlike Kant--and here Luhmann parts company with transcendentalism and all forms of foundational philosophy--systems theory turns away from the knowing subject to

a reality that consists solely of self-referential systems and their "empirically" observable operations. (It goes without saying that the self-referential operations of theory are part and parcel of that reality.) The observations of systems theory are both situated and interested observations. They focus on a specific *problem*--the problem of social complexity--from within one of society's particular subsystems, science (*Wissenschaft*).³¹ The Kantian question of how a subject can have objective knowledge of reality thus gives way to the question: How is organized complexity possible?

Luhmann defines complexity in terms of a threshold that marks the difference between two types of systems: those in which each element can be related to every other element and those in which this is no longer the case. In information-theoretical terms, complexity designates a lack of information that prevents a system from completely observing itself or its environment. Complexity enforces selectivity, which in turn leads to a reduction of complexity via the formation of systems that are less complex than their environment.

This reduction of complexity--Luhmann speaks of a complexity differential (*Komplexitätsgefälle*) between system and environment--is essential. Without it, there would be nothing, no world consisting of discrete entities, but only undifferentiated chaos. The need of systems to maintain an asymmetrical, "simplifying" relationship to their environment can perhaps best be illustrated in the psychic system. A psyche that becomes too complex runs the risk of turning "pathological" in the sense that it

will be unable to make decisions, perform simple tasks, or function in society. What we call "madness" is nothing more than the hyper-complexity of psychic systems that can no longer distinguish themselves from their environment.

While the ability to reduce complexity functions as a kind of protective mechanism, it also permits the system to build up internal complexity and thereby to transform unorganized into organized complexity. To the extent that complexity enforces selectivity, it implies contingency--every selection is one of several possibilities--and therefore risk. The wrong choice can threaten the system's integrity to the point of extinction. This link between enforced selectivity, contingency, and risk points to the other side of the initial problem: focus on the emergence of organized complexity, being itself a selection, includes the possibility that system formation may fail to take place. In fact, information-theoretical research suggests that the latter possibility is statistically infinitely more probable than the former.³² An adequate understanding of organized complexity must therefore include an awareness of its improbability; hence Luhmann's "methodological recipe" for cutting through the appearance of normality and searching for "theories that can succeed in explaining the normal as improbable" (p. 114, below).

The challenge, then, for a theory of social complexity lies in the paradoxical multi-dimensionality of a state of affairs that defies definition: strictly speaking, complexity cannot be observed. Any attempt to do so is already engaged in the process of reduction, of transforming unorganized into organized complexity. A theory of complex systems, in other words, cannot help but perform the very operations it describes, and everything it states about these operations refers "autologically" back to itself. In order to cope with this problem, theory must perform its reductions in a strategic manner, that is, with an eye toward a potential increase in theoretical complexity. *Social Systems* begins with what appears to be a simple ontological claim: "there are systems" (p. 12, below). (In sharp contrast to Parsons and some radical constructivists, Luhmann insists on the "empirical," i. e., more than analytical, status of systemic boundaries.)³³ However, this seemingly naive statement implies a powerful methodological reduction: the distinction between system and environment, which serves as the theory's

"guiding difference" (*Leitdifferenz*). With the introduction of further concepts (time, meaning, communication, etc.) and distinctions (element/relation, self-reference/external reference, structure/process, closure/openness, unity/difference, etc.), the initial distinction is elaborated to the point where it re-enters what it distinguishes,³⁴ and the theory is forced to encounter itself as one of its own objects. Systems theory, in other words, *simulates* complexity in order to *explain* complexity, and it does so by creating a flexible network of selectively interrelated concepts that can be recombined in many different ways and thus be used to describe the most diverse social phenomena.

It goes without saying that once social theory has passed the "threshold of complexity," it defies the linearity of the printed medium. Since there is no first principle or "natural" starting point for such a theory, any particular arrangement in chapters rests on a contingent choice, and it is possible to rewrite the theory in many different ways. Luhmann explicitly invites the reader to experiment with his theory and presents it in such a way as to facilitate recombination by constructing his text in small, relatively discrete units, which progressively open up and explore, with further and further amplification, a given question. Thus it is possible, for example, to start with the concluding chapter on epistemology and work back to the beginning, a strategy Luhmann adopts in many of his more recent publications. In fact, as he suggests elsewhere, a reverse presentation of his theory might have reduced the level of misunderstanding by facilitating an apprehension of its "autological" design.³⁵ One could also approach *Social Systems* by way of Luhmann's analysis of communication in the fourth chapter, or begin with Chapter 7, "The Individuality of Psychic Systems."

No matter what approach one takes, however, there is no shortcut through a book that "resembles a labyrinth more than a freeway off into the sunset" (p. lii, below), and a foreword must resist the temptation of providing what Luhmann expressly denies his reader. The most it can do is facilitate the reader's orientation in this labyrinth by tracing some of the multiple trajectories that link Luhmann's theory of social systems to a variety of intellectual traditions. Most readily apparent is perhaps the functionalist tradition in sociology from Emile Durkheim to Talcott Parsons, which sought to explain "social facts," regardless of the intentions of

individual actors, by reference to the role they play as variables within an interrelated whole. But there are also considerable ties to the philosophy of consciousness (Kant, Hegel) and phenomenology (Husserl), not to speak of numerous affinities with poststructuralist thought. But at the same time, the theory of social systems breaks with these traditions by recasting their insights within a conceptual framework borrowed from recent scientific theories of self-organization. The adaptation of these theories to the social realm represents Luhmann's unique achievement and a methodological decision with far-reaching consequences. In circumscribing the point of view from which systems theory apprehends social reality, the notion of "self-organization" (or "autopoiesis") fulfills an autocatalytic function within the theory itself: it simultaneously accounts for the theory's internal design as a self-limiting context (pp. xlvii-xlviii, below) and for its ability to synthesize the most diverse intellectual traditions in unexpected ways.

The Autopoietic Turn in Social Theory

Following Humberto Maturana, Luhmann uses the concept of "autopoiesis" to characterize the recursive operations of self-referential systems. According to Maturana, such systems constitute "networks of productions of components that recursively, through their interactions, generate and realize the network that produces them and constitute, in the space in which they exist, the boundaries of the network as components that participate in the realization of the network." ³⁶ What distinguishes autopoietic systems from machines and the closed systems of classical equilibrium thermodynamics is the recursivity of their operations: they "not only produce and change their own *structures*" but "everything that is used as a unit by the system is produced as a unit by the system itself" (*Au*, p. 3). Since autopoietic systems are incapable of operating beyond their own boundaries, they are "blind" with regard to their environment. At the same time, however--and this may at first sound paradoxical--they cannot "create a material world of their own." "Operational closure," in other words, requires the exteriority of "other levels of reality" (*Au*, p. 3); it cannot happen except under the ecological conditions of an environment that serves as the necessary correlate of the system's self-referential

operations. Once closure (on the level of the system's recursive operations) is redefined as a condition of structural openness, and vice versa, "(subsequently the classical) distinction between 'closed' and 'open' systems is replaced by the question of how self-referential closure can create openness" (p. 9, below), and the task becomes to formulate the limiting conditions under which the process of system formation takes place.

Although systems research is a relatively recent phenomenon-- its disciplinary status is still debated among scientists--it does not "operate in a theoretical vacuum." ³⁷ As Wolfgang Krohn et al. point out, the basic idea of self-organization is as old as philosophy, with roots reaching back well into antiquity. Speculations concerning the purposive finality of nature played an essential part in the metaphysical system of Aristotle, the *Monadology* of G. W. Leibniz, and Kant's *Critique of Judgment*. With the rise of bourgeois individualism toward the end of the eighteenth century, political theory, economics, and ethics began to explore the functional relationships between a given whole and its parts, and by the end of the nineteenth century, the problem of the emergence of organized structures was causing considerable "ideological turbulence." Despite nineteenth-century advances in experimental physiology and the theory of evolution, however, the problem of order remained shrouded in a veil of mystery, explicable only by way of a speculative appeal to teleological principles or occult forces.

General systems theory is the result of two subsequent paradigm shifts, which moved the problem of order from the fringes of metaphysical speculation to the center of scientific research. In the first of these shifts, initiated by the German biophysicist Ludwig von Bertalanffy in the mid-1950's, the metaphysical distinction between part and whole was replaced by the distinction between system and environment. In consequence, the results of biophysiological research could be systematically related to developments in cybernetics (Norbert Wiener), information theory (Claude Shannon), and computer design (Alan Turing, J. von Neumann). In a second shift, the system/environment distinction was redefined within a general theory of self-referential systems. With insight into the recursive closure of systems that use their own output as input, cybernetics was forced to abandon the classical input/output model, together with its emphasis on mastery and control. In 1960,

Heinz von Foerster introduced the "order from noise" principle as the defining characteristic of self-organizing systems.³⁸ A driving force in innovative systems research, von Foerster created a unique institutional context for interdisciplinary exchange at the Biological Computer Laboratory in Urbana, where physicists, cyberneticians, logicians, and biologists compared the results of their research in view of possible analogies and worked toward a conceptual generalization of their findings. Today, general systems research continues to focus on globalizing its concepts and exploring the epistemological implications of what is beginning to establish itself as a genuinely transdisciplinary paradigm. If the "order from noise" principle can be confirmed in the behavior of subatomic particles, cells, weather patterns, insect colonies, and the stock market, then theoretical models of sufficient generality are needed to account for such similarities, while these models must at the same time be flexible and specific enough not to blur the differences between such diverse phenomena.

For several decades, Luhmann has been working at the frontier of these developments, and it is no exaggeration to say that *Social Systems* accomplishes in the social realm what Maturana and Varela have done for cognitive biology and Prigogine's work on non-equilibrium thermodynamics for physics. Contrary to initial expectations, however, the adaptation of the concept of autopoiesis to realms other than biology encountered considerable obstacles. If social theory wants to employ this concept in more than a loosely metaphorical sense, it must be prepared to deal with longstanding prejudices concerning the transfer of scientific models into the humanities, for example, the belief that there is a categorical distinction between human and non-human nature. Although cybernetic models were commonly used in the social sciences throughout the 1940's and 1950's, their adequacy remained in dispute,³⁹ and the emphasis on systems maintenance and social engineering often met with political and ethical suspicion. Such an emphasis was quite obvious, for example, in Parsons's attempt to deduce from invariant systemic structures the functions necessary to maintain these structures.⁴⁰ With the autopoietic turn in general systems theory, the problem of adequacy gained an unexpected new twist. On the one hand, the problem of systems maintenance was replaced by the question of how systemic structures can be described

as emergent orders. Consequently, Luhmann rejected Parsons's four-function schema, together with the classical input-output model on which it was based. On the other hand, the concept of autopoiesis seemed *prima facie* inapplicable at the social level, at least in the form in which it was originally developed by Maturana and Varela to characterize living systems (cells and complex organisms). If one accepts the proposition that the basic components of social systems consist in living systems (i. e., people), it is unclear how such systems can fulfill the fundamental condition of autopoiesis, namely, recursive self-(re)production. While social systems may be described in terms of functionally interrelated components, they do not, as Maturana points out, literally *produce* "the network of production of [their] components." ⁴¹

In a brilliant move, Luhmann resolves this apparent dilemma by reconceptualizing the social in such a way that it does meet the condition of autopoietic closure. All we have to do, he proposes, is to give up the Aristotelian premise that social systems are living systems, and think of them instead as systems whose basic elements consist of *communications*, vanishing events in time that, in producing the networks that produce them, constitute emergent orders of temporalized complexity. Temporalization is, of course, not an exclusive characteristic of social systems. It can be observed in the reproduction of cells, simple organisms, brains, and psychic systems. But the features that distinguish these different types of autopoietic systems come into focus only when the concept of autopoiesis is abstracted from its biological connotations. The reproduction of cells is based on chemical processes, the brain works with neurophysiological impulses. By contrast, systems that operate on the basis of consciousness (psychic systems) or communication (social systems) require meaning (*Sinn*) for their reproduction. The concept of meaning plays a key role in Luhmann's theory of social systems. It is used, not in opposition to "meaninglessness" (*Sinnlosigkeit*), as in the hermeneutic tradition, but in its phenomenological sense: following Husserl, Luhmann defines meaning as the "horizon" of possibilities that is virtually present in every one of its actualizations. As the difference between the possible and the actual, meaning itself is a category "without difference" (*differenzlos*), which designates the medium through which social systems process world-complexity. Of course, the point of reference

for Luhmann is no longer the transcendental subject but the empirical operations of self-referential systems.

The conceptualization of the social in terms of a meaning-processing system of communication necessitates a revision of fundamental sociological and philosophical positions concerning, for example, the nature of social action, the role of language, the status of the subject, and the possibility of knowledge. In fact, much of the often-noted counter-intuitive quality of Luhmann's formulations can be credited to his striking combination of phenomenological and functional analysis. Yet precisely his attempt to bring together these two traditions opens up a space where traditional disciplinary configurations can be renegotiated in ways that may indeed lead the humanities beyond hermeneutics into the information age. ⁴²

The Autopoiesis of Communication

In the opening scene of *Danton's Death*, the nineteenth-century German playwright Georg Büchner dramatizes what is easily recognized as the primal scene of hermeneutic despair. In response to his lover's attempt to reassure herself of the bond of understanding between them, the protagonist makes a silent gesture toward her forehead and then replies: "--there, there, what lies behind this? Go on, we have crude senses. To understand one another? We would have to break open each other's skulls and pull the thoughts out of the fibers of our brains." ⁴³ The encounter radicalizes the longstanding hermeneutic suspicion, thematized well before the beginnings of Romanticism, that "the individual is ineffable" (J. W. Goethe), that subjectivity remains inaccessible, not only to the social sphere of language and communication, but even to its own introspective desire: "We go around with a vivid but confused idea of ourselves as if in a dream of which we occasionally recall one piece or another, cut off, incomplete, without connection." ⁴⁴

The history of hermeneutics is a history of failed attempts to mute such doubts with ever more elaborate theoretical constructs. First, hermeneutics devised a set of procedures to recover a transparent interiority behind the corrupted surface of the written word (Schleiermacher, Dilthey). Then, it declared its universality by pointing to the primordially of language as the ultimate horizon

of experience (Heidegger, Gadamer). And finally, to defend its ground against mounting attacks from genealogy (Nietzsche, Foucault), psychoanalysis (Freud), and deconstruction (Derrida), it retreated to the dubious position of a "communicative a priori" (Habermas, Apel), which, while being only counterfactually ascertainable, cannot be denied without performative self-contradiction. Post-structuralist interventions into the hermeneutic space have been frustrated by this difficulty: the critique of the idealizing assumptions of the hermeneutic tradition can always be shown to affirm, at least in a minimal sense, the practical validity of precisely that which it calls into question. ⁴⁵

Systems theory solves the problem of understanding by turning it on its head and, in doing so, displaces the entire hermeneutic tradition, together with its perpetual self-doubt. Instead of pondering the question of how understanding can take place *despite* the fact that the participating consciousnesses remain opaque to one another, Luhmann posits social and conscious systems as distinct, and then shows how autopoietic closure generates openness, or, to phrase the issue in evolutionary terms, how consciousness emerges together with and encourages the formation of social systems. For Luhmann, the intransparency of consciousness from the viewpoint of the social is no longer an obstacle to be removed but the very condition that makes communication possible.

What is at stake in the reformulation of the social in terms of communication is nothing less than the axiology of a philosophy of consciousness that has determined modernity's self-descriptions since the end of the eighteenth century. In a move that closely parallels the deconstructive decentering of Occidental metaphysics, Luhmann challenges this tradition at the level of its most fundamental presuppositions: (1) the principle of a unified, autonomous subject, (2) the idea of the social as a derivative sphere of inter-subjectivity,

(3) the corollary of communication as an interaction between subjects, (4) the notion of communication as a transmission of mental contents between separate consciousnesses, and (5) the corresponding idea of language as a representation of such contents.

The point of departure for Luhmann, as for Derrida, is the phenomenological tradition, and both search from within this tradition for tools to overturn it. But whereas Derrida attempts to

push Husserl's theory of language in the direction of a general theory of writing, Luhmann employs a systems-theoretical framework to rethink an analysis of consciousness that comes close to formulating the principle of autopoietic closure but refuses to draw the consequences of its own theoretical insights. For Husserl, the external world of material objects presents itself to consciousness in the form of a spatio-temporal field of unactualized perceptions that surround it like a "halo of *background intuitions*." ⁴⁶ The flux of actual experience is constituted in a series of "intentional acts" that seize upon particular objects within this field. As a specific aspect of a given object is actualized, others recede to the periphery of the perceptual field, where they reside as a latent, yet constitutive part of its differential structure: "the *stream of mental processes can never consist of just actualities [Aktualitäten]*," ⁴⁷ which is to say, it exists as meaningful experience only in the form of the distinction between actuality and potentiality. It is easy to see how the phenomenological analysis of consciousness can be reconfigured in the language of information theory and second-order cybernetics. Meaning is an effect of the production of information via the creation of differences that, in Gregory Bateson's words, "make a difference." ⁴⁸ No longer grounded in an external reality--as a representation or mirroring of that reality--meaning resides in the self-referential structure of a consciousness that consists solely in and through its autopoietic operations and that, in selecting from a self-generated horizon of surplus references, reproduces that horizon without ever exhausting its possibilities or transgressing its boundaries.

While borrowing from phenomenology in his analysis of the self-referential structure of meaning, Luhmann rejects its subject-centered frame of reference as incapable of accounting for the dimension of the social. For as long as communication is understood in terms of, and grounded in, the operations of a solitary consciousness, the "problem of 'intersubjectivity' thereby becomes insoluble" (p. 146, below), no matter whether one conceives of this consciousness as an empirical entity or a transcendental principle. Husserl can "solve" this dilemma only by way of a "transcendental theoretical enhancing of the psychic system" (ibid.), which obscures his best insights.

Luhmann is fond of exploding the fiction of the transcendental subject by asking: "Which one of the five billion?" ⁴⁹ The point is that from a systems-theoretical standpoint

there is no longer a privileged subject of cognition, nor can the principle of self-referential closure be attributed exclusively to consciousness. There are systems, and the directive is: observe the observer.

If Luhmann's critique of Husserl concurs with the Derridean objection that language cannot be grounded in the intuitive self-presence of a monadic subject, ⁵⁰ his concern is not with the differential *structure* of language, but with the *function* of language within the self-reproductive economy of social communication systems. Since social systems cannot be derived from a subject, psychic and social systems must be considered as two separate autopoietic systems, each of which draws its boundaries on the basis of its own systemic operations and conditions of connectivity (*Anschlußfähigkeit*) and, in so doing, demarcates what constitutes the environment for that system. Luhmann defines communication as a synthesis of three selections: information (a selection from a repertoire of referential possibilities), utterance (a selection from a repertoire of intentional acts), and understanding (the observation of the distinction between utterance and information). The first two of these selections roughly correspond to what Husserl called "expression" (*Ausdruck*) and "indication" (*Anzeichen*), ⁵¹ with the qualification that for Luhmann the distinction between information and utterance is entirely immanent with regard to the autopoiesis of a system that employs this particular schema to process complexity in the form of meaning.

Communication can "observe" consciousness, but only from the outside, and from within the boundaries established by its specific selectivity. Likewise, consciousness can do its own thing while communication is going on. Both systems run simultaneously without interfering with each other or intersecting at the level of their respective autopoiesis, which is not to say that they operate completely independently of one another. On the contrary, once the levels of conscious and social autopoiesis are clearly separated, their relationship can be analyzed in terms of what Luhmann, following Parsons, calls "interpenetration," a concept which characterizes the interdependencies between systems that emerge together as the result of a complex co-evolution. No social system could exist without the environment of conscious systems, and a consciousness deprived of society would be incapable of developing

beyond the most rudimentary level of perception. In the meantime, Luhmann has dropped the Parsonian term, mainly because of its spatial connotations, and speaks instead, with Maturana, of a "structural coupling" between systems that rely on each other's complexity to build up internal complexity. Consciousness can fascinate communication--by supplying its own complexity as a source of irritation or productive disorder--and can in turn be fascinated by it, but it can "participate" in communication only to the extent that it engages in the operations that delimit the autopoiesis of social systems as systems of communication. ⁵²

What distinguishes the systems-theoretical approach to communication from semiological, hermeneutic, and action-theoretical accounts is a probabilistic framework that subordinates structure to function and allows the former to be seen as an emergent order that is dynamic and constantly changing. With his explicit subordination of structure to function, which cannot be emphasized enough, Luhmann breaks not only with the conservatism of Parsons's "structural functionalism," but with all versions of linguistic structuralism as well. In accordance with the "order from noise principle," systems theory starts from the assumption that communication is contingent--that is, neither impossible nor necessary --and subsequently seeks to identify the conditions under which the improbable becomes probable.

Luhmann locates the major obstacle to the formation of social order in what Parsons described in action-theoretical terms as the problem of "double contingency," a state of potential paralysis that results from a situation in which two black boxes make their own behavior contingent upon the behavior of the other. Luhmann agrees with Parsons that action is impossible unless the problem of double contingency is solved--the "pure circle of self-referential determination, lacking any further elaboration, leaves action indeterminate, makes it indeterminable" (p. 103, below)--but rejects the idea that this problem can be taken care of once and for all, for example, as Parsons believed, with reference to a prior social consensus concerning cultural norms and rules of conduct. In Luhmann's view, it is precisely the paradoxical indeterminacy of pure self-reference that makes any such consensus susceptible to fluctuations and the unpredictability of random events. In provoking "undecidable decisions," the problem of double contingency fulfills a catalytic function

in the emergence of a constantly changing social order whose instability is the only source of its stability.

If communication is to solve the problem of double contingency, the tripartite selection of information, utterance, and understanding must be synthesized in an event that is capable of producing connections within the system. Only if the behavior of a given system is *observed* by another system in terms of the distinction between utterance and information does this behavior become relevant for the autopoiesis of communication in the sense that it yields further communications. Written texts that are not read, for example, are as lost for communication as a message accidentally erased from an answering machine. At the same time, understanding, while being an essential component of communication, is not its telos, as is the case in the hermeneutic concept of communication. Like any other autopoietic system, communication is autotelic, which is to say, it is primarily concerned with its own self-reproduction. Understanding, therefore, neither requires an accurate reconstruction of the "true" intention behind alter's behavior nor excludes the possibility of misunderstanding. A husband who responds to his wife's request for a late-night herring snack by wondering whether she is pregnant may find out in the course of subsequent communication that he missed the point.⁵³ From the perspective of the social system, however, the identity or nonidentity of the information, apart from being unverifiable, becomes irrelevant once we stop thinking of communication in terms of a transmission of a message from a sender to a receiver. What matters is solely the fact that the third selection--which never simply reiterates or repeats the first but creates a difference/deferral in the Derridean sense of *différance*--provokes a response and thus permits the continuation of the system's autopoiesis.

It follows from these considerations that communication is insufficiently understood in action-theoretical terms, for example, as consensus-oriented "communicative action" in the Habermasian sense. First of all, consensus can never be more than merely local and temporal because communication requires dissent in order to continue its operations. If universal consensus could ever be reached, it would terminate the system's autopoiesis--nothing more would be left to say. Second, the concept of action, central to the sociological tradition from Weber to Parsons, cannot ground a

social theory because it is an *effect* rather than a precondition of the social. The distinction between actions (purposive behavior of human subjects) and events (random behavior of objects) becomes relevant only at the level where the autopoiesis of communication requires self-observation, and the system faces the problem that communication--which in itself consists of nothing but a series of "subjectless" selections (p. 32, below)--cannot be observed as such. In order to observe itself, communication must simplify its operations with the help of conventions that protect the system, as it were, from its own complexity. From a functionalist perspective, then, the notion that "people communicate" is a mere convention, reflected in the subject-predicate structure of a language that, by attributing events to agents in the form of actions, enforces the habitual perception that the world consists of "things" and their characteristics. And yet, no matter how "misleading" this convention may be, it is indispensable, even if it is observed in its function as a necessary self-simplification of communication (pp. 84-85, below). To the extent that the systems-theoretical analysis of communication executes the very operations it observes, it too requires protection from its own latencies (*Latenzschutz*) even as it thematizes these latencies.

Toward a Posthumanist Conception of the Social

The insight into the conventional character of the subject position is, of course, nothing new. It figures as prominently in Nietzsche's critique of the Cartesian *cogito* as in Foucault's analysis of the "author function" as a conventional relationship of attribution that regulates the distribution of texts in the age of print culture. There is a clear awareness, in both, of what Derrida describes as the "contradictory coherence" of a self-referential critique that cannot escape the conventions it criticizes. ⁵⁵

It is instructive to place Luhmann's social theory within a broader context in order to bring its "methodological anti-humanism" (Habermas) into sharper focus. The point where Luhmann parts with the subject-critical tradition of post-Enlightenment thought is the question of language. Genealogy and its contemporary post-structuralist variants perform the shift from a subject-centered to a linguistic frame of reference commonly associated

with the "linguistic turn" and radicalize the subject-critical implications of this turn to the point where they run up against the limits of a language that reinstates the God-Subject through the very act that proclaims its death. Nietzsche knew that we cannot get rid of God as long as we still believe in Grammar,⁵⁶ and that he had no choice *not* to believe in it, even as he traced the subject to a seductive convention "which conceives and misconceives all effects as conditioned by something that causes effects."⁵⁷ And once the "disappearance of man" was programmatically linked to a "return of language" as pure auto-referentiality,⁵⁸ the project of thinking "an end of man" that, in the words of Derrida, "would not be a teleology in the first person plural"⁵⁹ became inseparable from the task of moving, as it were, "beyond" language, toward an unnameable exteriority or a post-metaphysical concept of writing that would no longer be determined by the classical concepts of meaning as presence, representation, or truth.

Ironically, the pan-textualist assumptions underlying contemporary critical thought turned out to be one of the toughest obstacles to the formulation of a consistently posthumanist position. On the one hand, the framing of the deconstructive project as a critique of language favored a predominantly negative semantics to which traditional aesthetic, political, and Utopian impulses could attach themselves in ways that permitted a re-normalization of deconstruction in terms of the humanist discourses it sought to displace. On the other hand, the linguistic turn and its subsequent problematization never seriously challenged the disciplinary boundaries between the sciences and the humanities. If Lyotard's assessment in *The Postmodern Condition* is correct and modern science has become self-legitimizing to the point where it no longer requires a grounding meta-discourse,⁶⁰ it is hard to see what, at least from the viewpoint of the sciences, should turn on the question of whether or not such a discourse is possible. At the same time, the exploration of potential convergences between the "two cultures" remains blocked as long as difference is modeled upon linguistic difference, and linguistic self-referentiality is considered the paradigm for self-referentiality in general.

Precisely such convergences constitute the vanishing point toward which the systems-theoretical ambition is headed. They come into view when the question of language is reinscribed within

the more general problematic of emergent order. Once the distinction between signifier/signified or language/world is replaced by the distinction between system and environment, the operations of language can be observed as events that produce and reproduce systems of communication, and the operational closure of such systems can be described as one specific instance of systemic self-referentiality among others.

The affinities between the theory of autopoietic systems and deconstruction are suggestive nonetheless--both move, in a sense, "beyond" language, albeit in reverse directions. Where Derrida problematizes language in order to formulate the infrastructural conditions of impossibility that prevent its formalization, Luhmann relativizes, one could almost say trivializes, language by rethinking it in information-theoretical terms: linguistically coded information constitutes one particular type of information, specific to systems that process complexity in the form of meaning, that is, conscious and social systems. For Luhmann, language itself is not a system. Neither consciousness nor communication are entirely dependent on it--we recall that consciousness can observe without language, just as social interaction can take place on a preverbal level. Instead of a unified notion of language-as-system, Luhmann proposes a number of operational concepts that designate functionally specific aspects of language: *meaning* (the unity of the difference between actuality and potentiality) and *communication* (the synthesis of information, utterance, and understanding) on the one hand, and, on the other, a notion of language as *medium*. Signs, whether verbal or nonverbal, facilitate the formation of social systems by regulating the difference between information and utterance via a process of "symbolic generalization." As a medium they serve as an interface between conscious systems and social systems and permit their structural coupling by encoding the difference between information and utterance in ways that stabilize the coordination between the two and in so doing increase their internal complexity.

Strictly speaking, there is of course no "beyond," and the proposal to move from a linguistic to a systems-theoretical paradigm should not be construed as an attempt to escape the problem of linguistic self-referentiality. The observation of communication as one type of system among others must discriminate between observation

and language--that is, between the selection that produces information and its linguistic encoding--a distinction that turns paradoxical the moment it is applied to itself and re-enters what it distinguishes. The distinction between observation and language is, after all, a linguistic distinction in the sense that it must be made by someone and coded in language if it is to become part of the social system of communication. Communication is always the reference point, and communication uses language. In the words of Maturana and Varela: "Every reflection, including one on the [biological] foundation of human knowledge, invariably takes place in language, which is our distinctive way of being human and being humanly active. For this reason, language is also our starting point, our cognitive instrument, and our sticking point." ⁶¹ The Derridean paradox that "there is nothing outside the text," is not dissolved by systems theory but reemerges at the level of communication, where it can be reconceptualized in terms of the operational closure of a system that cannot operate beyond its own boundaries. In order to observe society and to discriminate it from other types of systems, a boundary must be drawn from within society across which it can observe itself *as if* from the outside, but the construction of this outside is, and always remains, an operation of the system. "Whoever observes participates in this system--or he does not observe. There are no exempt positions." ⁶² The question of what systems theory can accomplish in the realm of social theory thus ultimately hinges on the question of how it handles its own self-reference.

Constructivist Perspectives: Toward a Non-Foundational Epistemology

Luhmann's theory of social systems does not pursue the epistemological implications of its own circularity until the final chapter on "Consequences for Epistemology." Is it accidental that *Social Systems* should *end* with a chapter on epistemology? The answer to this question is both yes and no. On the one hand, the problem of the theory's own self-reference can be thematized at any time, and given the theory's autological design, any linear arrangement is, as Luhmann points out, to some degree arbitrary. On the other hand, self-reference becomes a problem for theory only when it has

become complex enough so that the distinction between system and environment can re-enter the system and is problematized in terms of a distinction between knowledge (*Erkenntnis*) and its object (*Gegenstand*). In Luhmann's theory of social systems, this distinction remains at first unused; the theory begins with the description of a reality that is gradually revealed as a constructed reality. In bracketing epistemological considerations until the theory encounters itself among its objects--again phenomenology serves as the model--Luhmann underscores the point that the theory of self-referential systems is no longer grounded in a theory of knowledge. Rather than supplying foundations in the tradition of the grand legitimizing metanarratives, it seeks to explain the cognitive operations of theory within an evolutionary framework.

An epistemology that has been "naturalized" in this way can be called "constructivist"--despite Luhmann's reservations about the term--in the sense that it recognizes all knowledge as contingent, including its own. Whatever is observed is observed by an observer, who cuts up reality in a certain way in order to make it observable. Whatever distinction is selected, others remain possible. Each cut highlights certain aspects of reality and obscures others. Reality as such, the unity of the observing system and its environment, the paradoxical sameness of difference, of inside and outside, remains inaccessible; it is what "one does not perceive when one perceives it," the "blind spot" that enables the system to observe but escapes observation.⁶³ An outside observer can make this blind spot visible by distinguishing the observed system's distinction as a form that contains both of its sides, but in doing so, any such second-order observation must rely on its own blind spot and is bound to reproduce the paradox of observation at the operational level of its own distinction. Difference is both irreducible and paradoxical: without distinctions there would be no observable reality, yet reality itself knows no distinctions.

Despite the highly abstract and formal nature of a theory of knowledge that draws on the second order-cybernetics of von Foerster and the mathematical calculus of Spencer Brown, Luhmann insists on its *post*-transcendental status, which is to say that the epistemological question of how knowledge of an external world is possible under the conditions of autopoietic closure is inseparable from the specific socio-historical conditions under which

it arises. Historically, the theory of science is a "belated product of science-in-operation" (p. 478, below), a subsystem within the social system of science created for the purpose of the self-observation of science. It established itself at a moment when in the course of modernization the relationship between knowledge and reality became problematic. A post-transcendental epistemology, in other words, presupposes and is inseparable from a theory of modernity that includes a systematic reflection upon its own place within modern society. The final chapter of *Social Systems* marks the "connecting point" (*Anschlußstelle*) for such a reflection, and thus the beginning of another book, a "book within the book," which, in the meantime, has appeared under the title *Die Wissenschaft der Gesellschaft* (*The Social System of Science*, 1990).

The key to understanding Luhmann's conception of modernity is the idea of systems differentiation, which links the theory of self-referential systems to a theory of evolution. Like any other autopoietic system, social systems evolve through time thanks to their capacity to transform unorganized into organized complexity. In order to cope with a hypercomplex environment, they must increase their internal complexity, and they do so by replicating the difference between system and environment within the system. Within this general evolutionary framework, Luhmann can distinguish different types of social organization on the basis of their primary form of differentiation. This allows him to conceptualize the process of modernization in terms of a transition from a primarily "stratified" to a "functionally differentiated" society. In the course of this structural transformation, which was essentially completed by the end of the eighteenth century, the hierarchically ordered, "monocontextural" universe of pre-modern society broke apart, and the reproduction of society was distributed among a plurality of non-redundant function systems such as the economy, art, science, law, and politics, each of which operates on the basis of its own, system-specific code. "Functional differentiation" means, among other things, that no function system can control, dominate, or substitute for any other. In a modern, "polycontextural" society, science has lost its authority as the sole purveyor of truth, and theory cannot prescribe norms or recommend courses of action any more than politics can dictate the direction of scientific research, at least not without subjecting itself to contestation. "The

theorist of cognition himself becomes a rat in the labyrinth and must consider from which position he observes the other rats." ⁶⁴

Luhmann's diagnosis of modernity resonates in a number of striking ways with the familiar configuration of problems currently debated under the general heading of "postmodernism." And in view of such resonances, one may ask: What is gained by theorizing as *modern* a state of affairs that seems almost indistinguishable from a condition which today is quite often described as *postmodern*? What is the advantage of recasting such familiar insights as the crisis of representation, the impossibility of totalization, or the loss of legitimation within a general theory of social systems? What does such a theory have to offer beyond the recommendation to resign ourselves to the inevitable and to embrace, for better or worse, the current philosophy of "anything goes"?

There is no straightforward answer to this question. Whether one focuses on continuities or discontinuities may in the final analysis amount to little more than a difference in emphasis or a matter of terminological preferences. Perhaps the question itself may not be very useful to begin with. If there is a significant difference between Luhmann's diagnosis of modernity and the contemporary discourse on postmodernism, it would have to be sought, it seems to me, in the theoretical rigor with which Luhmann thinks through and embraces the consequences of modernization --*not* because the society in which we live is the best of all possible worlds, but because an acceptance without nostalgia of the structural limitations of modernity is a precondition, and possibly the only way, of finding creative solutions to its problems.

-- [xxxvii] --

Instead of a Preface to the English Edition: On the Concepts Subject and Action

This is not an easy book. It does not accommodate those who prefer a quick and easy read, yet do not want to die without a taste of systems theory. This holds for the German text, too. If one seriously undertakes to work out a comprehensive theory of the social and strives for sufficient conceptual precision, abstraction and complexity in the conceptual architecture are unavoidable. Among the classical authors, Parsons included, one finds a regrettable carelessness in conceptual questions--as if ordinary language were all that is needed to create ideas or even texts. But the problem proves to be a Hydra. Every explanation generates the need for further explanation, and at some point one must extricate oneself by means of a joke or some particularly elegant formulation. Fans of method will be put off by such admissions. But even the fans of method, faced with self-referential situations, cannot avoid creating a genuine appearance of truth.

Even when a theoretical edifice is offered under the brand name "systems theory," this does not mean that it is developed exclusively from the concept of "system." Many further conceptual determinations, which could have turned out differently, enter in, but must at least be compatible with the concept of system and with each other. Theory takes shape to the degree that combinatory leeway is narrowed down and loose coupling is transformed into tight coupling.

Translating the book into English multiplies the difficulties, because English, unlike German, does not permit one to transform unclarities into clarities by combining them in a single word. Instead, they must be spread out into phrases. From the perspective of English, German appears unclear, ambiguous, and confusing. But when the highest imperative is rigor and precision, it makes good sense to allow ambiguities to stand, even deliberately to create them, in order to indicate that in the present context further distinctions or specifications are not important.

Under these circumstances, what would be the task of a preface? Surely not once more an abstract recapitulation. Nor a subjective confession by the author, explaining how he came to write the book and what in it needs to be justified or excused. After one excludes such variants, however, many possibilities still remain. In what follows I would like to take up several points that have, up until now, stood out in discussions of the contemporary interpretation of systems theory. These concern the traditional themes of "subject" and "action," which heretofore seemed to offer an easy way of bypassing the difficulties. In particular, readers who have been inspired by the classics of sociology and see in them the essentials of all sociological analysis cannot forgive systems theory for setting aside something so important, so characteristic of humans and of such concern to them, and this just to be able to unfold its own theoretical acrobatics the more undisturbed.

One knows how "the subject" is endangered these days by French aerosols and the ozone hole of deconstruction. But what would there be to save? Is the nostalgia for the concepts "subject" and "action" more than the expression of an emotional attachment to the corresponding traditions? Have these concepts ever been precisely formulated? And what is their empirical reference anyway? Does the subject (in the singular) have teeth and tongues (in the plural)? Are consequences part of an action or not? And if not, what could interest us about an action besides its consequences?

Much depends on making an effort to reconstruct the concept "subject" with the precision that once gave it its meaning. One can find many fore-runners--in the concept of the soul and its cognitive parts, in the form of thought as reflexivity (*noesis noeseos*), or in the Cartesian concept of the "I think," which designates a self-certainty given independently of whether one is in error or not. But not until

the end of the eighteenth century was man understood to be a subject in the strict sense, and thereby unlinked from nature.

The particulars of the philosophical theories of a Kant or Fichte need not interest us here. In every case, one encounters a double self-reference--a self-referential structure that can be found in the reflection of consciousness as a matter of fact. Under the heading "subject," the modern individual conceives himself as an observer of his observing, which always operates with self-reference and reference to others; thus he understands himself as a second-order observer. One could then designate the subject as a unity that, as it itself knows, lies at the foundation of itself and everything else. Or, if one prefers a dynamic, active, voluntaristic version, it lays the foundations for itself and everything else. There is nothing to object to in any of this. But if it is not one's meaning, then one should avoid using the word "subject."

The effects of this semantics of the subject were enormous. One consequence, for example, was that a concept of an opposite, relative to the subject, had to be invented. This was called *Umwelt*, and then later "environment," *environnement*. Before this time there had been no environment. Instead, the world was understood as the totality of things or as the support (*periéchon*, literally, "envelope") of all their particulars. The schema subject /environment dissolved the compactness of this conception of the world. One began to think in terms of differences, and systems theory could later join in this heritage.

But that too had consequences. For now, stimulated by progress in the sciences, it was possible to imagine a multitude of self-referential systems: individual cells, the brain, the living organism (all the basis for the discovery of "autopoiesis"), and finally also social systems.

Should one call each and all of these unities a "subject"? The original meaning of the concept could have implied this consequence, but that would have taken away its historical limitation to the case of consciousness, broadening it to astronomical dimensions and thereby devaluing it. Whatever possibilities there might have been for a development in terminology, linguistic usage took a different course. The heading "subject" remained attached to the individual as a sobriquet without additional significance, but was still cultivated and protected against a "deconstruction" (however theoretically justified).

But, when it comes to theory, must one put up with the persistence in this way of speaking?

This question leads to a second analysis of the semantics of the "subject" and its place in the history of ideas, one inspired by the sociology of knowledge.

It is no accident that the modern concept of the subject, which describes the individual as self-reference, began its career at the historical moment when modern European society discovered that it could no longer describe itself in the old categories of a stratified society, its essential forms and essential hierarchy, but could not yet say what was the case instead. The experience of modernity available in 1800 was not sufficient. Instead, the concept of society was transferred to the domain of the economy to distinguish it from the "state"; one accepted or contested the ideas of the French Revolution; one noticed the first consequences of industrialization; or one observed the historicity of institutions to draw conclusions about the *Zeitgeist*. But all this created no concept and no security for a historical break of this magnitude. That may explain why stopgap concepts were accepted. One of these referred to the future. Contemporary society is what it is not yet: its own moral perfection, its unforeseeable material and mental progress. It is the (not yet) fully realized freedom and equality of all individuals. The other was called the subject. Modern society is the society of subjects.

Both cases concerned paradoxes, which were concealed by convenient distinctions or "unfolded," as logicians say. As far as time was concerned, one had to distinguish the present future from the (not yet determined) future presents--and then had to *think no more about this* distinction. At first, the assumption of a multitude of subjects was sustained by the theoretical and psychological impossibility of solipsism. This was fine so long as only a multitude of human beings, individuals, bodies, and conscious systems were involved. But when one tried to understand these individuals as subjects in the strict sense, one ran into difficulties. Because every subject conceives of itself as the condition for the constitution of all the others, those others could be subjects, but not real, so to speak, *subjective* subjects. From the perspective of each subject, every other one possesses merely a derivative, constituted, constructed existence. How could people have overlooked this for so long? Perhaps because one needed the concept? Or because, finally, one did not take it seriously but simply used it as an alternative expression

for human being, individual, person, and so forth, without any more ado?

Husserl, in his famous "Fifth Cartesian Meditation," made it impossible to deny the problem of "intersubjectivity" any longer. His answer, that the social is an "intermonadological community," is theoretically so weak that it can be read as an expression of embarrassment, indeed as an admission of defeat. There can be no "intersubjectivity" on the basis of the subject. Husserl formulated the problem so sharply because in his transcendental phenomenology he had begun with a fundamental unity, indissoluble for consciousness, of self-reference and reference to others. Consciousness experiences itself as reference to phenomena. It is, in the same moment, knowledge of itself *and* grasp of phenomena *in one*, noesis *and* noema, and therefore, in precisely this sense, intentionality in its fundamental mode of operation. Ever since people have continually fiddled with the famous "problem of reference" without anyone noticing that, after Husserl, the problem must be posed differently--namely, as the problem of the operative processing of the difference between self-reference and reference to others.

The reader must pardon a sociologist such digressions into philosophical themes. But the staggering naïveté with which sociologists (Durkheimians, social phenomenologists, action theorists --it makes no difference) have been content with the statement that, after all, there are such things as subjects, intersubjectivity, the social, and socially meaningful action, without anyone seriously questioning this, should not be accepted any more. The significance of the figure of "the subject" (in the singular) was that it offered a basis for all knowledge and all action without making itself dependent on an analysis of society. Since empirical individuals experience and act very differently, this required a nonempirical, a transcendental concept of the subject. The subject knows itself and wills itself as general. But today there is little hope for a continuation of transcendental reflection, probably because the distinction between empirical and transcendental is no longer convincing. This, of course, does not mean that questions like "How is X possible?" must be abandoned, and thus that no one asks any longer, "How is social order possible?" Husserl has taught us, however, that this question cannot be answered by beginning with the concept of the subject.

The embarrassments of this dead-end way of thinking lead us

back to an analysis of the semantics of the subject inspired by the sociology of knowledge. Why did people believe in it for so long, and why, even today, can't they--whether out of intellectual weakness or against their better knowledge--let it go?

Our answer does not employ the theoretical apparatus of Marx and Mannheim. We do not appeal to social positions--in the context of a market economy, competition, career structures, or a beneficial egocentrism. Nor do we resort to the Edinburgh "strong programme" of a sociology of science, that is, we do not maintain that theoretical figures produce in their adherents an interest in their preservation. All this may be the case. What is decisive is that the subject (in the modern understanding) was a part of a semantics of transition that had to cope with a situation in which it was impossible to provide an adequate description of a society that was accomplishing the transition from a feudal society to modern structures. Such thorough-going breaks, "catastrophes" in the precise technical sense of system theory, cannot be observed while they are occurring, for where would be the standpoint from which the difference could, as it were, be formulated in a neutral way? In such cases, all that can function are formal descriptions like "conservative/ progressive" (for actors) or "traditional/modern" (for observers), not descriptions that cannot be anchored either in the one (old) or the other (new) societal formation.

The hidden nonconstructability of "intersubjectivity" is the theoretical counterpart of the indescribability of society. And the incontestable evidence of the subject's logic of reflection initially gave sufficient support to this. Today, however, this situation has changed considerably. To be sure, we still have not been able to produce a theory of modern society. But we have experience enough with such things as: technology and ecology; the volatility of international investments; discrepancies in the progress and retardation of development; the indispensable yet problematic political differentiation into "states," with war as the result; the acceleration of structural change; the dependence of notions of society on highly selective mass media; the demographic consequences of modern medicine; careers as the main form of the (mobile) integration of individuals and society; the increasing dependence on decision making of future societal states, with the consequence that the future affects the present above all in the form of risk. The list could

easily be lengthened--only to make even clearer how helpless a sociology must appear that still attempts to reduce all of this to "subjects."

With the concept of the subject, it seems to me, goes sociology's preference for the concepts of action theory. In all narrative contexts (above all, of course, in the classical novel) action has the double function of characterizing actors and propelling the story forward. It produces information in two different contexts, specifies two different distinctions. While in the context of the person action refers to the distinction "event/identity" and thus is projected as personal identity (which one can never get at directly), in the context of the narrated story it refers to the distinction between before and after, transforming the former into the latter. One context guarantees identity, repeatability, and expectability. The other guarantees that the same thing will never happen again.

The mythologem of "action" seems to have been sustained by this double function until Max Weber's time. The novel in the meantime has abandoned it--whether because it renounced inferences about motives and returned to a "flat" characterization of persons, or because it concentrated the story in a single moment and no longer carried it forward, but only remembered. Sociology, by contrast, held fast to action, without heeding the signals that an art intellectually often in the vanguard (but not therefore necessarily "avantgardist") was transmitting everywhere. Why? Presumably only because one thought one could not forgo the empirically understood subject.

Of course, one can still say that human beings act. But since that always occurs in situations, the question remains whether and to what extent the action is attributed to the individual human being or to the situation. If one wants to bring about a decision of this question, one must observe, not the human being in the situation, but the process of attribution. Therefore actions are not ultimate ontological givens that emerge as unavoidable empirical elements that force themselves upon one in every sociological analysis. Anyone who ignores these warnings must work with imprecise concepts and seek to cover over their defects by forming ideal types (rational choice) or by methodological sophistication. Only by the inertia of tradition can one call this "empirical" and think that in this way one can gain access to reality.

Actions are artifacts of processes of attribution, the results of observing observers (or "Eigenvalues," in Heinz von Foerster's sense), which emerge when a system operates recursively on the level of second-order observation. The action theory preferred by contemporary sociologists is sustained by the *corpus mysticum* of the subject. It is also sustained by the empirical plausibility, the daily visibility of self-inspired actions by human beings. But conceptually as well as empirically these are superficial "frames." Progress in the development of sociological theory, especially in the direction of an adequate theory of modern society, depends on *implausible certainties*, which must be secured through protracted, conceptually controlled, theoretical work.

Or in any event that is the conviction out of which this book was written.

N. L.

Bielefeld, May 1991

Preface to the German Edition

Sociology is stuck in a theory crisis. Empirical research, though it has, on the whole, been successful in increasing knowledge, has not been able to produce a unified theory for the discipline. Being an empirical science, sociology cannot give up the claim that it checks its statements against data drawn from reality, no matter how old or new the bottles may be into which these data are poured. But it cannot use this principle of empirical scrutiny to account for the distinctiveness of its specific domain of research or its unity as a scientific discipline. Resignation about this is so widespread that no one even attempts such accounts any longer.

This dilemma has split the very concept of theory. On the one hand, theory means empirically verifiable hypotheses about relations among data, on the other, conceptual efforts in a broad, somewhat indeterminate sense. One minimum requirement, however, is common to both: a theory must make comparisons possible. Moreover, the question of which self-constraints permit one to call one's undertaking theory is still a matter of dispute. The ensuing debate and uncertainty are at once the cause and the effect of the discipline's lack of a unified theory, one that could be used as a model, a "paradigm," to guide it.

To a great extent, those interested in theory return to the classical authors. One constraint by which one earns a right to claim the title "theory" is recourse to texts that already bear this title or have been treated as if they have. Then the task becomes one of dissecting, criticizing, and recombining already-existing texts. What one does not trust oneself to do is assumed to be already at hand. The

classical authors are classical because they are classical authors; their use today is identified by self-reference. Reliance on illustrious names and specialization in them can then be proclaimed as theoretical research. On a more abstract level, this is how theory syndromes like action theory, systems theory, interactionism, communication theory, structuralism, and dialectical materialism arise: namely, as abbreviations for complexes of names and ideas. One then can expect new insights from combinations of those names and ideas.

Systems theory is injected into Marxism. Interactionism and structuralism are, it turns out, not as different as had been expected. Weber's

Gesellschaftsgeschichte, a concept acceptable even to Marxists, becomes systematized with the help of Parsons's cross-tabling method. Action theory is reconstructed as structural theory, structural theory as linguistic theory, linguistic theory as textual theory, and textual theory as action theory. Faced with such amalgamations, one can, indeed must, again concern oneself with reacquiring the true content of the classical authors. Every biographical detail spurs on the process and helps secure the classical authors vis-à-vis everything derived from them as theory.

All of this is not without interest and effect. But the further the classical authors recede into the history of a discipline, the more necessary it becomes to distinguish a theoretical from a biographical, an abstract from a concrete treatment of them. If one dismembers them in this way, however, can one manage without them? A sociology of sociology might say that, when analyzing tribal relationships, one cannot avoid a genealogical orientation. But then one might ask whether one must restrict oneself to tribal relationships that describe themselves as pluralism and whether the introduction of constraints via genealogy is the only way of justifying the claim to the title of theory.

As a result, the rapidly increasing complexity of the theory discussion confuses the observer. The better one knows the leading authors and the more one makes claims based on analyses of their texts within the secondary literature, the more one becomes involved in the play of combination and the more one changes the emphasis (e. g., de-subjectivization or re-subjectivization) from one theoretical context to the other--and the more complex becomes the knowledge that must carry research forward. The unity of sociology then appears, not as theory, and certainly not as the

concept of its object, but as pure complexity. The discipline not only becomes opaque, but it finds its unity in this opacity. Complexity can only be approached perspectively, and every advance varies more than it can control. Even if, sooner or later, one could reckon on exhausting the body of thought left by the classic authors, the ensuing self-produced darkness still provides enough to work on.

The issue, then, is the relation between complexity and transparency. One could also say, a relation between opaque and transparent complexity. Even the refusal to establish a unified theory for the discipline does not escape this problem. It merely avoids raising it. But this is precisely where work on such a theory begins. Theory establishes its relation to its object as a relation of opaque to transparent complexity. It claims *neither* to *reflect* the complete reality of its object, *nor* to *exhaust* all the possibilities of knowing its object.

Therefore it does *not* demand *exclusivity* for its truth claims in relation to other, competing endeavors. *But* it does claim *universality* for its grasp of its object in the sense that it deals with *everything* social and not just sections (as, for example, strata and mobility, particularities of modern society and patterns of interaction, etc.).

Theories that claim universality are easily recognized by the fact that they appear as their own object. (If they wanted to exclude themselves, they would have to surrender the claim to universality.) Thus it is--and this holds for all "global theories" (including, e. g., quantum physics)--that specific areas of the classical theory of science are suspended, in particular, everything having to do with independent confirmation of the theory's claim to truth. One could always say, then, that I had eaten of the wrong fruit-- one that was not from the tree of knowledge. In this way, every dispute can be pushed into undecidability. But let us then ask that the critic develop adequate alternatives for the descriptions a theory renders and that he not be content merely with reference to his theory that there is no comprehension of reality in the ideological deformations of late capitalism.

Therefore, theories that make a claim to universality are self-referential. At the same time, they always learn something about themselves from their objects. Therefore they are forced, as if by their own logic, to accept a limitation of their meaning: for example,

to understand theory as a kind of praxis, as a structure, a problem solving, a system, or a decisional program. The difference from other sorts of praxis, structure, and so on must be established in the specific domain of research. Thus a universal theory, even and precisely as a theory of differentiation, can understand itself as the result of differentiation. The constraint that justifies *for it* the title "theory" lies in the nonarbitrariness of its involvement with self-reference.

This already says much about the theoretical program of this book. Its intention is to go beyond a kind of threshold, behind which contemporary theoretical discussions in sociology stagnate. This threshold is marked by three differences:

Not since Parsons has anyone attempted to formulate a universal theory for the discipline. The corresponding specific domain of research, however, is no longer assumed substantively as a section of the world (*faits sociaux*), which sociology observes from outside. Nor is it only a correlate of the formation of analytical concepts in the sense of Parsons's "analytical realism." Instead, it is conceived as the entire world, related to the system reference of social systems, that is, related to the difference between system and environment that is characteristic of social systems.

A further aspect is the difference between asymmetrically and circularly designed theories. A universal theory observes its objects, and itself as one of its objects, as self-referential relations. It does not presuppose any transcendental epistemological criteria. Instead, following recent philosophers and scientists, it relies on a naturalistic epistemology. Again, that means that its own epistemic procedure and its acceptance or rejection of validating criteria for this happens within its own domain of research, in a discipline of the scientific subsystem of modern society.

By now one might expect the usual reproach of "decisionism." And it would not be entirely unjustified. A system's capacity to evolve depends on its ability to decide what is undecidable. This also holds true for proposals concerning systems theory, indeed, even for logics, as we have been able to prove since Gödel. But this does not amount to the arbitrariness of some (or even all) individual decisions. That is prevented by negentropy or complexity. To wit, there is a third mark of the threshold. A sociological theory that wants to consolidate the conditions of the discipline must

not only be more complex, it must be much more complex than the classical authors and their interpreters--even Parsons--had thought. This requires different theoretical precautions in regard to validity and connectivity, internally as well as externally, and it requires, not least, building the reflection of complexity (and the concept of complexity) into the theory itself. Thus the threshold problem also resides in a much greater, self-reflecting degree of conceptual complexity. This greatly constrains the possibilities of variation and excludes any kind of arbitrary decision. Every step must be fitted in. And even the arbitrariness of the beginning loses its arbitrariness (like in Hegel's system) as the construction of the theory proceeds. Thus a self-supporting construction arises. It does not need to be called "systems theory." But if one wanted to keep the other aspects of the construction constant and eliminate the concept of system, then one would have to find something that would be able to fulfill its function, take its place in the theory. And this would be something very much like the concept of system.

These differences from what the discipline is accustomed to make clear why sociology dams up behind such a threshold, churns, and gathers complexity with no clear outlet. Progress is possible in these respects--and indeed in all respects, all being connected with each other--only if one strives for a new kind of theory design. Sociology has hardly any models for this. Therefore we will have to borrow successful theoretical developments from other disciplines, and for this we have chosen the theory of self-referential, "autopoietic" systems.

In contrast to the usual theoretical representations, which at best take some few concepts from the literature, define them in critical discussion with existing meanings, and then work with them in the context of these concepts' traditions, in the following we will try to increase the number of the concepts that are used and to determine them *in reference to one another*. This applies to concepts like: meaning, time, event, element, relation, complexity, contingency, action, communication, system, environment, world, experience, structure, process, self-reference, closure, self-organization, autopoiesis, individuality, observation, self-observation, description, self-description, unity, reflection, difference, information, interpretation, interaction, society, contradiction, and conflict. One may readily observe that conventional theoretical

designations like action theory and structuralism disappear in this collection. We will retain "systems theory" as our trademark because in the domain of general systems theory one finds the most important groundwork for the type of theory we strive for here.

We do not use these concepts without reference (and often, with contrasting reference) to an already-existing body of theoretical knowledge. But the concepts should also, insofar as possible, hone one another. Every conceptual determination ought to be read as a constraint on the possibility of further conceptual determinations. Thus the entire theory is interpreted as a self-limiting context. As the number of such concepts increases, it becomes impossible, at least in a single textual presentation, to connect each concept with every other one. At the same time, preferred lines of connection centralize specific conceptual positions--for example, action/event, event/element, event/process, event/self-reproduction (autopoiesis), event/time. The theory composes itself along such preferred lines, while not definitively excluding other combinatory possibilities. Thus the presentation of theory itself practices what it preaches: the reduction of complexity. Yet for it, reduced complexity is not excluded complexity, but rather "sublated" [*aufgehobene*] complexity. It retains access to other possibilities--provided its conceptual determinations are observed or else changed in a way that is adequate for this place in the theory. Of course, if this level of conceptual determination is abandoned, then access to other possibilities for drawing lines in the fog would disappear, and one might once again have to deal with indeterminate, unmanageable complexity.

This theory design pushes the presentation to unusually high levels of abstraction. Our flight must take place above the clouds, and we must reckon with a rather thick cloud cover. We must rely on our instruments. Occasionally, we may catch glimpses below of a land with roads, towns, rivers, and coastlines that remind us of something familiar, or glimpses of a larger stretch of landscape with the extinct volcanoes of Marxism. But no one should fall victim to the illusion that these few points of reference are sufficient to guide our flight.

Abstraction, however, should not be misunderstood as pure artistry or as a retreat to a "merely analytically" relevant, formal science. No one would deny that there are such things as meaning,

time, events, actions, expectations, and so on in the real world. All of this is both an actuality that can be experienced and a condition of possibility for the differentiation of science. The corresponding concepts serve science as probes by which the system controlled by theory adapts to reality; with them indeterminate complexity is transformed into determinable complexity, usable within science. Following Saussure, Kelly, and others, one could even say that concepts form science's contact with reality (including, here as anywhere else, contact with its own reality) as the experience of difference. And the experience of difference is the condition of possibility for acquiring and processing information. Correspondences between concept and reality can be drawn point for point: for example, between the concept of meaning and the phenomenon of meaning, without which no human world could persist. The decisive fact is, however, that in forming systems science goes beyond such point-for-point correspondences. It does not restrict itself to copying, imitating, reflecting, representing. Instead, it organizes experiences of difference, and with them the acquisition of information, and it develops a complexity of its own adequate to do so. In the process, a reference to reality must, on the one hand, be safeguarded. On the other, however, science, especially sociology, should not allow itself to be duped by reality.

Viewed in this way, abstraction is an epistemological necessity. It remains a problem in writing books and a demand on the reader. This is especially true if the theory reaches a degree of complexity that cannot be rendered in a linear fashion. Then every chapter actually would have to begin anew, and be rewritten within, every other. Dialectical theories nevertheless attempt linear exposition, as most recently, for example, did Sartre's *Critique of Dialectical Reason*. Then, however, they run into the problem of transitions and there are faced with the temptation simply to rely on action.

The following effort is aware of this pitfall and therefore must place special value on avoiding it. It develops a polycentric (and accordingly polycontextural) theory in an acentrally conceived world and society. It is not primarily concerned with harmonizing the forms of theory and presentation. The book must be read in the sequence of its chapters, but this is only because that is how it was written. The theory could have been presented in a different sequence, and it hopes for readers who will bring with them enough

patience, imagination, intelligence, and curiosity to try out what would happen within the theory through such transcriptions.

Thus the theory's design resembles a labyrinth more than a freeway off into the sunset. The sequence of chapters chosen for this book is surely not the only one possible, and this also holds for the choice of concepts to be emphasized as the themes of the chapters. I could also have made different decisions about the questions concerning which concepts should be introduced as metadisciplinary and system comparative and which not, or in which cases references to material from theory's history are important and in which not. The same is true for the degree to which anticipations and cross-references are mindful of the nonlinear character of the theory, and for the choice of the necessary minimum of these.

Whereas the theory, with regard to the content of its conceptual frameworks and statements, wrote itself, the problem of arrangement cost me much time and deliberation. Thanks to the support of the *Deutsche Forschungsgemeinschaft*, I was able to dedicate a year to this problem. I hope that my solution is satisfactory.

N. L.

Bielefeld, December 1983

SOCIAL SYSTEMS

-- [1] --

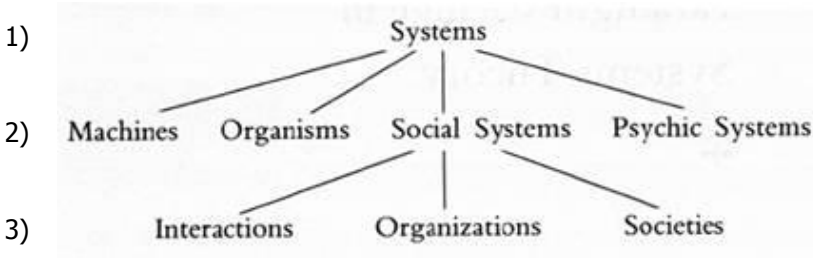
Introduction: Paradigm Change in Systems Theory

Today "systems theory" is a catchall concept for very different denotations and very different levels of analysis. The word refers to no unambiguous meaning. When one introduces the concept of system into sociological analyses without further clarification, then an illusory precision arises that lacks any basis. Thus controversies arise in which one can only suppose or infer from the argumentation that the participants have different ideas in mind when they speak of systems.

At the same time, one can observe how rapidly the field of research designated "general systems theory" is developing. In contrast to the sociological theory discussion, which adheres to the model of the classical authors and subscribes to pluralism, one finds profound changes in general systems theory and associated interdisciplinary efforts, almost "scientific revolutions" in Kuhn's sense. The ongoing construction of sociological theory could profit greatly if it could link up with this development. Changing configurations in general systems theory, above all in recent decades, mesh very nicely with sociology's theoretical interests, as one can, in general, assume. They also entail, however, a degree of abstraction and complication that has not been usual in theoretical discussions thus far. In the present work we will try to make this connection, to fill in this gap.

As an initial orientation, it may suffice to distinguish three levels of analysis and raise the question: How would a "paradigm

change" on the level of general systems theory affect the general theory of social systems? The accompanying diagram shows what we have in mind.



One can talk of a system in general as long as one keeps in view features whose absence would call into question an object's status as a system. Sometimes the unity of the totality of such features is also designated as a system. A general systems theory thus unexpectedly becomes a theory of the general system. ⁶⁵ This problem repeats itself on all levels of concreteness, with corresponding constraints. In the following we will avoid this way of speaking. We will not, in turn, call the concept (or model) of a system a system because we don't want to call the concept (or model) of an organism, machine, or society an organism, machine, or society, either. In other words, even in the highest registers of theoretical abstraction we don't allow ourselves to apply to the means of knowledge (concepts, models, etc.) the terminology of objects--precisely because such a decision couldn't endure in more concrete domains of research. Thus the statement "there are systems" says only that there are objects of research that exhibit features justifying the use of the concept of system, just as, conversely, this concept serves to abstract facts that from this viewpoint can be compared with each other and with other kinds of facts within the perspective of same/different.

This kind of (theoretically directed) *conceptual* abstraction should be carefully distinguished from the (structurally directed) *self-abstraction* of the object. Conceptual abstraction makes comparisons possible. Self-abstraction enables the reapplication of the same structures within the object itself. One must keep the two strictly separate. Then, and only then, can one tell if there is any overlap. There can be systems that use conceptual abstraction for self-abstraction:

namely, those that acquire structure by comparing their features with the features of other systems. Thus one can also ascertain to what degree conceptual abstractions rest on self-abstractions within the objects and to what degree they amount to structural comparison.

We will use the abstract scheme of the three levels of system formation as a conceptual schema. Basically, it helps compare different possibilities of system formation. But in working out this comparison one encounters self-abstractions within the objects themselves. Systems can and do apply features of the concept of system--for example, the difference between internal and external --to themselves. Insofar as they do so, more than an analytical schema is involved. Rather, the comparison of systems helps us test the extent to which systems are founded in self-abstraction and are thereby the same or different.

The distinction between the three levels of system formation immediately clarifies typical "mistakes," or at least obscurities, in the discussion until now. Comparisons among different types of systems must restrict themselves to one level. ⁶⁶ The same is true for negative delimitations. This rule already eliminates many unproductive theoretical strategies. It makes little sense, for example, to say that societies are not organisms or to distinguish, in the sense of the scholastic tradition, between organic bodies (composed of interconnected parts) and societal bodies (composed of non-interconnected parts). The attempt to construct general theories of the social on the basis of theories of interaction is equally "lopsided." The same is true of the recent tendency, stimulated by the invention of the computer, to apply the machine concept on the level of the general systems theory (a move that provokes an equally unjustified rejection). ⁶⁷ The distinction between levels ought to establish fruitful perspectives for comparison. Statements about similarities can then be examined on the next higher level. For example, social systems and psychic systems are alike in being systems. But similarities between them may hold only for a subdomain of the level of comparison. Psychic and social systems, unlike machines and organisms, can be characterized by their use of meaning, for example. From the perspective of problems posed by a general theory, one must then ask what machines and organisms use as the functional equivalent of meaning.

Specific types of systems may at first be assigned to specific levels more or less intuitively. Such assignments can be corrected as required by research results. This also holds true for the list of system types, which is initially acquired inductively. But such corrections can be carried out only if the difference between levels remains intact. If the difference between levels collapses--as, for example, when one applies "life" as a basic concept and not as the specific property of organisms--then a regression to simpler theoretical forms is unavoidable.

The following investigations hold strictly to the level of a general theory of social systems. They do not, for example, offer a theory of society--society understood as a comprehensive social system and thereby as one case among others.⁶⁸ Nor is general systems theory presented for its own sake. Nevertheless, adequate attention must be paid to it because we are guided by the question of how a paradigm change that becomes apparent on the level of general systems theory affects the theory of social systems.

A rough orientation will suffice to define what we have so far called a "paradigm change." We need not concern ourselves with finding out what Kuhn had in mind when he introduced the concept of paradigm. That is a pointless task today. What matters to us is a distinction:⁶⁹ namely, that between *supertheory*⁷⁰ and *guiding difference*.

Supertheories are theories with claims to universality (that is, to including both themselves and their opponents).⁷¹ Guiding differences are distinctions that steer the theory's possibilities of processing information. These guiding differences can acquire the property of a dominating paradigm if they organize a supertheory in such a way that in practice all information processing proceeds according to them. Thus, for example, Darwin and his successors channeled the supertheory evolution into the difference between variation and selection.

Previously, one had attempted to understand the totality of evolutionary consequences through their corresponding unities, through a beginning (*arché*, ground) or through a super-intelligent Providence, thus understanding evolution, in short, as development, or creation. Since Darwin, however, these interpretations of unity, which allow a distinction only from something indeterminately other, have been replaced by the unity of a difference (variation/selection, then variation/selection/restabilization,

and in part also accident/necessity, order/disorder). If a supertheory achieves a significant centralization of difference, then a paradigm change also becomes possible.

Systems theory is a particularly impressive supertheory. Disputed though it may be, one cannot deny it a certain process of maturation. We attribute this to the fact that it can look back upon a history characterized by super-theoretical ambitions, centralizations of difference, and paradigm change. Whether and to what extent this development can be designated as "progress" or has led to the accumulation of knowledge is a question more difficult to determine.

If one looks back about a hundred years, two fundamental changes become apparent in what one would come to call systems theory. In neither case can one simply declare the concepts that have been handed down to be wrong or useless; they are extended by deliberate changes, transferred into the new theory and thus "sublated" (*aufgehoben*). The new theory then becomes richer in content than the previous one; it achieves greater complexity. This is why it has gradually become more capable of dealing with social phenomena.

A tradition stemming from antiquity, older than the conceptual use of the term "system," ⁷² speaks of wholes that are composed of parts. The problem with this tradition is that the whole had to be understood in a double sense: as the unity and as the totality of its parts. One could then say that the whole is the totality of its parts or *is more* than the mere sum of its parts. But this does not explain how the whole, if it be composed of its parts, plus something else, can count as a unity on the level of parts. Since in the realm of social relationships one conceived of society as being composed of individual persons like a whole out of parts, one could conveniently formulate the answer in terms of insights into human beings' living together. Persons had to be able to recognize the whole in which they live, and they had to be ready to lead their lives according to this knowledge. This could be viewed as the condition of their being parts, as condition of their taking part, their participation, and thus of their nature. The risk of this pointing to knowledge (which can err) and to will (which can will the wrong thing) could be understood as a feature of the general corruption or imperfection of nature, which, in turn, necessitates the differentiation of dominating

and dominated parts. Accordingly, for the dominant parts the problem took on a special point: they had to have the correct insight and the correct will to be able to "represent" the whole within the whole.

The social conditions and the epistemic foundations of this concept have undergone a profound change in the transition to modern society. The most recent account, developed in the eighteenth century, used the concept of the universal. The entire world or the totality of humanity as the universal had to be present, it claimed, in man. The ensuing discussion concerned the *form* in which the world or humanity had to be present in man. The answer was sought in the concept of reason, the moral law, or similar apriorisms, in the concept of education, or in the concept of the state. The old sense of the insufficiency, of the corruptibility, of all things beneath the moon was overcome by idealization. Thus one could abstract to the greatest extent from social phenomena, postulating eventually even "freedom from domination" as the basic condition of the unrestricted presence of the universal in man. The universal was conceived as pure, free of risk, and in no need of compensation--and this in spite of all the counterevidence the French Revolution offered. The universal could appear with a claim to realization. Spirit or matter would have to take the long route of realizing the universal in the particular.

Today all of this is remembered with more or less admonitory overtones.⁷³ In fact, the intellectual gesture has not really been replaced; it has merely gone limp. Moreover, it is hard to see how one could surpass an effort of this type. If we are correct in assuming that all this was motivated and conditioned by the schema of the whole and its parts, then one must see whether this schema would not first need to be replaced before one could seek a guiding semantics capable of replacing the figure of the "universal within the particular." This is the historical background against which one must ask the question whether and how the systems theory that tries to do this separated itself from the paradigm of whole and part.

The first move in this direction was to replace the traditional difference between *whole and part* with that between *system and environment*. This transformation, of which Ludwig von Bertalanffy is the leading author, enabled one to interrelate the theory of

the organism, thermodynamics, and evolutionary theory.⁷⁴ A difference between open and closed systems thereupon appeared in theoretical descriptions. Closed systems were defined as a limit case: as systems for which the environment has no significance or is significant only through specified channels. The theory concerned itself with open systems.

What had been conceived as the difference between whole and part was reformulated as the theory of system differentiation and thereby built into the new paradigm. System differentiation is nothing more than the repetition within systems of the difference between system and environment. Through it, the whole system uses itself as environment in forming its own subsystems and thereby achieves greater improbability on the level of those subsystems by more rigorously filtering an ultimately uncontrollable environment. Accordingly, a differentiated system is no longer simply composed of a certain number of parts and the relations among them; rather, it is composed of a relatively large number of operationally employable system/environment differences, which each, along different cutting lines, reconstruct the whole system as the unity of subsystem and environment. Thus differentiation is handled according to the general model of system formation, and the question in which forms and to what degree of complexity system differentiation is possible can itself be tied back into the initial difference that constitutes the whole system.

A central problem of the schema of the whole and its parts can now be solved more satisfactorily. One had always demanded that parts be homogeneous with respect to the whole. Rooms, not cinder blocks, were called the parts of a house, and chapters, not letters of the alphabet, were termed parts of a book. Yet individual human beings counted as parts of societies. There were hardly any theoretically proven criteria for homogeneity, if only because it was very difficult, in this way of thinking, to distinguish between the concepts of part and element.⁷⁵ Besides, according to this paradigm, one division of reality excluded other (equally likely) ones. Thus a stratified society could not be understood any other way than as split up into strata (and not, e. g., or at least not with the same reality-value, as split up into city/countryside or into main focuses of function).⁷⁶ In all these respects, the theory of system/environment differentiation offers better possibilities for analysis,

specifically, both a more accurate understanding of homogeneity and an understanding of the possibilities of simultaneously using varying viewpoints within subsystem differentiation.

The advantages we have indicated for a transposition to the guiding difference between system and environment can also be detected in sociology. Classical sociology has been characterized with good reason as having an "intra-unit orientation" ⁷⁷ --specifically, in its concept of differentiation. More recent theoretical developments, especially in organizational research, insofar as they are oriented toward systems theory at all, prefer by contrast, concepts of a system related to an environment. The transposition to "open systems" has not, however, come to sociology without its own bias. It has promoted a critique of the "status quo" of social phenomena and has allied itself with tendencies toward the "reform" of social structures, toward planning, management, and control--not least because its main field of application lay in the domain of organized social systems. ⁷⁸ Environmental relations were understood in terms of the input/output schema; structures, as rules of transformation; and functions, as the transformations themselves, which one hoped to be able to influence by varying the structures.

While this open-systems paradigm has been asserted and accepted within systems theory, a surpassingly radical further step has been taken in the discussions of the last two decades. It concerns contributions to a *theory of self-referential systems*. At present there are neither adequately developed nor generally perceived (not to mention generally accepted) theoretical foundations for this theory; enough is apparent, however, for us to assess the consequences for a theory of social systems. Besides, this open situation invites work in the domain of social systems to contribute to a general theory of self-referential systems.

Initial efforts in the development of such a theory employed the concept of self-organization and attained a high point in the early 1960's in three large symposia. ⁸⁰ But the concept of self-organization referred--in hindsight, one must say "only"--to the structures of a system. Structures' change via their own operations was viewed, at the time understandably, as a particularly difficult and therefore particularly stimulating problem within systems theory. But this did not come close to what is understood today by self-reference.

In the meantime, reference to unity--be it that of the system or of its elements--has supplanted reference to structure (although, of course, it has not excluded it).

The theory of self-referential systems maintains that systems can differentiate only by self-reference, which is to say, only insofar as systems refer to themselves (be this to elements of the same system, to operations of the same system, or to the unity of the same system) in constituting their elements and their elemental operations. To make this possible, systems must create and employ a description of themselves; they must at least be able to use the difference between system and environment within themselves, for orientation and as a principle for creating information. Therefore self-referential closure is possible only in an environment, only under ecological conditions. ⁸¹ The environment is a necessary correlate of self-referential operations because these out of all operations cannot operate under the premise of solipsism ⁸² (one could even say because everything that is seen as playing a role in the environment must be introduced by means of distinction). The (subsequently classical) distinction between "closed" and "open" systems is replaced by the question of how self-referential closure can create openness.

Here too one comes to a "sublation" [*Aufhebung*] of the older basic difference into a more complex theory, which now enables one to speak about the introduction of self-descriptions, self-observations, and self-simplifications within systems. One can now distinguish the system/environment difference as seen from the perspective of an observer (e. g., that of a scientist) from the system/environment difference as it is used within the system itself, the observer, in turn, being conceivable himself only as a self-referential system. Reflexive relationships of this type don't just revolutionize the classical subject-object epistemology, don't just de-dogmatize and "naturalize" the theory of science: they also produce a very much more complex understanding of their object via a very much more complex theory design.

Relatively simple theoretical constructions were still possible within the context of system/environment theory. The theory could be interpreted, for example, as a mere extension of causal relations: you had to consider internal as well as external factors in all causal explanations; system and environment would come together

in a kind of co-production. The theory of self-referential systems bypasses this causal model. It considers causality (as well as logical deduction and every kind of asymmetrization) as a sort of organization of self-reference, and it "explains" the difference between system and environment by saying that only self-referential systems create for themselves the possibility of ordering causalities by distribution over system and environment. Such a theory requires formal concepts established at the level of relating relations.

In order to work out a theory of self-referential systems that incorporates system/environment theory, a new guiding difference, and thus a new paradigm, is necessary. The difference between identity and difference serves for this.⁸³ Self-reference can be realized in the actual operations of a system only when a self (whether as element, process, or system) can be identified through itself and set off as different from others. Systems must cope with the difference between identity and difference when they reproduce themselves as self-referential systems; in other words, reproduction is the management of this difference. This is not a primarily theoretical but a thoroughly practical problem, and it is relevant not only for meaning systems.⁸⁴ A science that wants to live up to such systems must construct concepts on the corresponding level, and only for such a science is the difference between identity and difference a guideline for theory formation, a paradigm.

In general systems theory, this second paradigm change provokes remarkable shifts--for example, from interest in design and control to an interest in autonomy and environmental sensitivity, from planning to evolution, from structural stability to dynamic stability. In the paradigm of the whole and its parts one had to accommodate inexplicable properties somewhere--whether as properties of the whole (which is more than the sum of its parts) or as the properties of a hierarchized apex that represents the whole.⁸⁵ By contrast, in the theory of self-referential systems everything that belongs to the system (including any possible apex, boundaries, or surpluses) is included in self-production and thereby demystified for the observer.⁸⁶ This admits developments that can make systems theory interesting for sociology in new ways.

The initiatives for neither of these moves have come from within sociology. The stimulus initially came from thermodynamics and biology as a theory of the organism, later from neurophysiology,

histology, computer science, and further, of course, from interdisciplinary amalgamations like information theory and cybernetics. Not only was sociology excluded from cooperative research, it proved incapable of learning within this interdisciplinary context. And because it lacks basic theoretical preparatory work of its own, it cannot even observe what is happening. Therefore it remains dependent on working with the data that it produces itself, and, where theory is concerned, on working with the classical authors that it has itself produced. The example shows, by the way, that not every kind of self-referential closure enables a more complex view of the environment. As is always the case in contexts of intensification, one will have to look for the specific conditions under which systems realize such intensification and thereby can participate in evolution.

Against this background in the actual history of science, the following considerations see themselves as an attempt to reformulate the theory of social systems via the current state of the art in general systems theory. General systems theory should be tested in an encounter with sociological material, and in this way the advances in abstraction and the new conceptual formations that already exist or are emerging in interdisciplinary contexts should be made usable in sociological research. One of the most important results of this encounter, from which I hope both sides will profit, resides in the radical temporalization of the concept of element. The theory of self-producing, autopoietic systems can be transferred to the domain of action systems only if one begins with the fact that the elements composing the system can have no duration, and thus must be constantly reproduced by the system these elements comprise. This goes far beyond merely replacing defunct parts, and it is not adequately explained by referring to environmental relationships. It is not a matter of adaptation, nor is it a matter of metabolism; rather, it is a matter of a peculiar constraint on autonomy arising from the fact that the system would simply cease to exist in any, even the most favorable, environment if it did not equip the momentary elements that compose it with the capacity for connection, that is, with meaning, and thus reproduce them. Different structures may exist to accomplish this, but only ones that can withstand the radical trend toward immediate (and not merely gradual, entropic) dissolution of the elements.

Notes

- [Note](#): 1. Mark C. Taylor and Esa Saarinen, *Imagologies--Media Philosophy* (New York, 1994), net effects, p. 7.
- [Note](#): 2. Ibid.
- [Note](#): 3. Ibid., styles, p. 5.
- [Note](#): 4. "Health Industry Is Changing Itself Ahead of Reform," *The New York Times*, June 27, 1994, p. 1.
- [Note](#): 5. To borrow a phrase from N. Katherine Hayles, *Chaos Bound: Orderly Disorder in Contemporary Literature and Science* (Ithaca, N. Y., 1990), P. 3.
- [Note](#): 6. Ilya Prigogine and Isabelle Stengers, *Order out of Chaos: Man's New Dialogue with Nature* (New York, 1984), pp. 160-61.
- [Note](#): 7. Niklas Luhmann, *Beobachtungen der Moderne* (Opladen, 1992), pp. 7-8. Unless otherwise indicated, translations are my own.
- [Note](#): 8. Hayles, *Chaos Bound*, p. xiii.
- [Note](#): 9. Luhmann, *Beobachtungen*, p. 7.
- [Note](#): 10. Von Foerster was instrumental in creating an interdisciplinary center for cybernetic research at the Biological Computer Laboratory at the University of Illinois at Urbana. For a comprehensive bibliography of von Foerster's work, see Siegfried Schmidt, ed., *Heinz von Foerster: Wissen und Gewissen* (Frankfurt, 1993), pp. 385-96.
- [Note](#): 11. In collaboration with Varela, Maturana developed a theory to account for the self-(re)productive operations of organisms who use their own output as input. Maturana coined the term "autopoiesis" to describe these operations.
- [Note](#): 12. A student of Bertrand Russell, George Spencer Brown developed a mathematical calculus that has been instrumental for Luhmann's formulation of a second-order "logic of observation." Spencer Brown has become sort of a cult figure in systems-theoretical research, mainly as a result of Luhmann's frequent references to his *The Laws of Form* (London, 1969).
- [Note](#): 13. Niklas Luhmann, "Sthenographie und Euryalistik," in Hans Ulrich Gumbrecht and K. Ludwig Pfeiffer, *Paradoxien, Dissonanzen, Zusammenbrüche: Stationen offener Epistemologie* (Frankfurt, 1991), pp. 62-66.
- [Note](#): 14. William Poundstone, *The Recursive Universe: Cosmic Complexity and the Limits of Scientific Knowledge* (New York, 1985), pp. 13-32, and Hayles, *Chaos Bound*, pp. 1-30.
- [Note](#): 15. Stephen W. Hawking, *A Brief History of Time: From the Big Bang to Black Holes* (New York, 1988), p. 12. See also Steven Weinberg, *Dreams of a Final Theory* (New York, 1992).
- [Note](#): 16. Humberto R. Maturana and Francisco J. Varela, *The Tree of Knowledge: The Biological Roots of Human Understanding* (Boston, 1992), p. 30.
- [Note](#): 17. Wolfgang Krohn, Günther Küppers, and Rainer Paslack, "Selbst-organisation --Zur Genese und Entwicklung einer wissenschaftlichen Revolution," in Siegfried J. Schmidt, ed., *Der Diskurs des Radikalen Konstruktivismus* (Frankfurt, 1991), p. 441.
- [Note](#): 18. Niklas Luhmann, *Archimedes und wir: Interviews*, ed. Dirk Baecker and Georg Stanitzek (Berlin, 1987), p. 260, cited hereafter as AW. The following biographical sketch is based on one of the interviews in this book, pp. 125-66. For a detailed chronology of Luhmann's career, see Walter Reese-Schäfer, *Luhmann zur Einführung* (Hamburg, 1992), pp. 205-6.
- [Note](#): 19. Niklas Luhmann, Funktionen und Folgen formaler Organisation (Berlin, 1964) and Recht und Automation in der öffentlichen Verwaltung (Berlin, 1966).
- [Note](#): 20. Jürgen Habermas and Niklas Luhmann, Theorie der Gesellschaft oder Sozialtechnologie: Was leistet die Systemforschung? (Frankfurt: Suhrkamp, 1971).
- [Note](#): 21. Robert C. Holub, "Luhmann's Progeny: Systems Theory and Literary Studies in the Post-Wall Era," *New German Critique*, no. 61 (1994): 114.
- [Note](#): 22. Niklas Luhmann, *Ökologische Kommunikation: Kann die moderne Gesellschaft sich auf ökologische Gefährdungen einstellen?* (Opladen, 1986), available in English as *Ecological Communication*, trans. John Bednarz, Jr. (Chicago, 1989); *Die Wirtschaft der Gesellschaft* (Frankfurt, 1988); *Die Wissenschaft der Gesellschaft* (Frankfurt, 1990); *Soziologie des Risikos* (Berlin, 1991); *Beobachtungen der Moderne* (Opladen, 1992), forthcoming in translation from Stanford University Press.
- [Note](#): 23. See Hans Haferkamp and Michael Schmid, eds., *Sinn, Kommunikation und soziale Differenzierung: Beiträge zu Luhmann's Theorie sozialer Systeme* (Frankfurt, 1987), and, more recent-

ly, Werner Krawietz and Michael Welker, eds., *Kritik der Theorie sozialer Systeme: Auseinandersetzungen mit Luhmanns Hauptwerk* (Frankfurt, 1992).

[Note](#): 24. Ernst von Glaserfeld, *Wissen, Sprache und Wirklichkeit: Arbeiten zum Radikalen Konstruktivismus* (Braunschweig, 1987).

[Note](#): 25. For a good introduction to this literature, see the selected bibliography in Heinz Gumin and Heinrich Meyer, eds., *Einführung in den Konstruktivismus* (Munich, 1985); further, see Siegfried J. Schmidt, ed., *Der Diskurs des Radikalen Konstruktivismus* (Frankfurt, 1991), and Schmidt, ed., *Kognition und Gesellschaft: Der Diskurs des Radikalen Konstruktivismus 2* (Frankfurt, 1992).

[Note](#): 26. Niklas Luhmann, "Das Erkenntnisprogramm des Konstruktivismus und die unbekannt bleibende Realität," in *Soziologische Aufklärung 5: Konstruktivistische Perspektiven* (Opladen, 1990), p. 31; my translation. An English version of the article without the introductory remarks appeared as "The Cognitive Program of Constructivism and a Reality That Remains Unknown," in W. Krohn et al., eds., *Self Organization: Portrait of a Scientific Revolution* (Amsterdam, 1990), pp. 64-85.

[Note](#): 27. *Ibid.*, p. 32. See also Siegfried J. Schmidt in an interview with Rudolf Maresch, in Maresch, ed., *Zukunft oder Ende? Standpunkte, Analysen, Entwürfe* (Vienna, 1993), p. 338.

[Note](#): 28. Douglas R. Hofstadter, *Gödel, Escher, Bach: An Eternal Golden Braid* (New York, 1979), p. 10.

[Note](#): 29. See, e. g., Maresch, ed., *Zukunft oder Ende?*

[Note](#): 30. Niklas Luhmann, "Identität--was oder wie?," *Soziologische Aufklärung 5*, p. 14.

[Note](#): 31. In German, *Wissenschaft* encompasses both the natural sciences and the humanities (*Geisteswissenschaften*). In this sense, "science" is roughly synonymous with "academic" or "scholarly" discourse, i. e., a discourse that uses the code true/false.

[Note](#): 32. Poundstone, *Recursive Universe*, pp. 22-23.

[Note](#): 33. Luhmann's persistent and often polemical use of the term "empirical" is somewhat puzzling and certainly ironic, for it is not entirely clear what it can mean after the collapse of the transcendental/empirical distinction. The question concerning the reality of the real is a thorny issue for any theory of knowledge that accepts the premise of autopoietic closure. Because, strictly speaking, this question is undecidable within the system, it cannot be answered in a nonparadoxical way. To quote Luhmann: "Reality, then, may be an illusion, but the illusion it-self is real." Niklas Luhmann, "Why Does Society Describe Itself as Postmodern?," forthcoming in a special issue of *Cultural Critique*.

[Note](#): 34. The notion of "re-entry," which Luhmann borrows from Spencer Brown, refers to the process by which the distinction between system and environment is copied within the system and is used to construct internal environments. The realization, for example, that the distinction between nature and culture is itself a cultural distinction can be explained in those terms.

[Note](#): 35. Niklas Luhmann, "Stellungnahme," in Krawietz and Welker, eds., *Kritik der Theorie sozialer Systeme*, p. 381.

[Note](#): 36. Humberto R. Maturana, "Autopoiesis," in Milan Zeleny, ed., *Autopoiesis: A Theory of Living Organization* (New York, 1981), p. 21; quoted from Niklas Luhmann, "The Autopoiesis of Social Systems," in Luhmann, *Essays on Self-Reference* (New York, 1990), p. 3. Luhmann's essay is cited as *Au* in the text hereafter.

[Note](#): 37. Krohn et al., "Selbstorganisation," p. 444. The following historical observations draw on Krohn's account of the history of the concept of self-organization.

[Note](#): 38. Heinz von Foerster, "On Self-Organizing Systems and Their Environment," in M. C. Yovits and S. Cameron, eds., *Self-Organizing Systems* (London, 1960), pp. 31-50.

[Note](#): 39. See Norbert Wiener, "Information, Language, and Society," in his *Cybernetics, or Control and Communication in the Animal and the Machine*, 2d ed. (Cambridge, Mass., 1962), p. 162.

[Note](#): 40. Parsons summarized these functions in a four-function diagram (the so-called AGIL scheme) as adaption, goal attainment, integration, and latent pattern maintenance. See Talcott Parsons, "Some Problems of a General Theory in Sociology," in his *Social Systems and the Evolution of Action Theory* (New York, 1977), p. 229.

[Note](#): 41. Humberto Maturana, in an interview with Vokler Riegas and Christian Vetter, in Riegas and Vetter, eds., *Zur Biologie der Kognition* (Frankfurt, 1990), p. 38ff.

[Note](#): 42. Hans Ulrich Gumbrecht, "Fare-well to Interpretation," in Hans Ulrich Gumbrecht and K. Ludwig Pfeiffer, eds., *Materialities of Communication*, trans. William Whobrey (Stanford,

1994), pp. 389-402.

- [Note](#): 43. Georg Büchner, *Danton's Tod*, in *Werke in einem Band* (Berlin, 1962), p. 2.
- [Note](#): 44. Johann Gottfried Herder, "Über Thomas Abbt's Schriften" (1768), in *Sämtliche Werke*, ed. Bernhard Suphan, 33 vols. (Berlin, 1877-1913), 2:258.
- [Note](#): 45. Paradigmatic for this type of self-defense is Jürgen Habermas's refutation of the so-called "counter-Enlightenment" in his *The Philosophical Discourse of Modernity*, trans. Frederic G. Lawrence (Cambridge, Mass., 1992).
- [Note](#): 46. Edmund Husserl, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy*, trans. F. Kersten, 2 vols. (The Hague, 1982), I, par. 35.
- [Note](#): 47. *Ibid.*
- [Note](#): 48. Gregory Bateson, *Steps to an Ecology of Mind* (New York, 1972), p. 453.
- [Note](#): 49. Luhmann, "Identität," p. 29.
- [Note](#): 50. Jacques Derrida, *Speech and Phenomena and Other Essays on Husserl's Theory of Signs*, trans. David B. Allison (Evanston, Ill., 1973).
- [Note](#): 51. Edmund Husserl, *Logische Untersuchungen*, ed. Ursula Panzer (The Hague, 1984), vol. 2, part 1, pp. 30-43.
- [Note](#): 52. Niklas Luhmann, "How Can the Mind Participate in Communication?," in Gumbrecht and Pfeiffer, eds., *Materialities*, pp. 371-87.
- [Note](#): 53. The example is from Peter Fuchs, *Niklas Luhmann--beobachtet: Eine Einführung in die Systemtheorie* (Opladen, 1992), pp. 135-37.
- [Note](#): 54. Michel Foucault, "What Is an Author?" in Foucault, *Language, Counter-Memory, Practice*, ed. Donald F. Bouchard, trans. Donald F. Bouchard and Sherry Simon (Ithaca, N. Y., 1977), pp. 123-24, 127.
- [Note](#): 55. Jacques Derrida, "Structure, Sign, and Play in the Discourse of the Human Sciences," in his *Writing and Difference*, trans. Allan Bass (Chicago, 1978), p. 279.
- [Note](#): 56. Friedrich Nietzsche, "Twilight of the Idols," in *The Portable Nietzsche*, trans. Walter Kaufmann (New York, 1954), p. 483.
- [Note](#): 57. Friedrich Nietzsche, *On the Genealogy of Morals*, trans. Walter Kaufmann and R. J. Hollingdale (New York, 1967), par. 13, p. 45.
- [Note](#): 58. Michel Foucault, *The Order of Things: An Archeology of the Human Sciences* (New York, 1971), pp. 384, 386.
- [Note](#): 59. Jacques Derrida, "The Ends of Man," in his *Margins of Philosophy*, trans. Alan Bass (Chicago, 1982), p. 121.
- [Note](#): 60. Jean-Francois Lyotard, *The Postmodern Condition: A Report on Knowledge*, trans. Geoff Bennington and Brian Massumi (Minneapolis, 1984).
- [Note](#): 61. Maturana and Varela, *The Tree of Knowledge*, p. 26.
- [Note](#): 62. Luhmann, *Die Wissenschaft der Gesellschaft*, p. 86.
- [Note](#): 63. Luhmann, "Cognitive Program," p. 76.
- [Note](#): 64. Niklas Luhmann, *Erkenntnis als Konstruktion* (Bern, 1988), p. 24.
- [Note](#): 65. Unexpectedly--or quite deliberately, as, for example, in Jean-Louis Le Moigne, *La Théorie du système général: Théorie de la modélisation* (Paris, 1977). For Le Moigne, the unity of a general system lies in the function that an artificial object possesses in serving as a model for objects pure and simple.
- [Note](#): 66. Donald M. MacKay, e. g., in *Brains, Machines and Persons* (London, 1980), holds to this rule without formulating it as a principle.
- [Note](#): 67. Perhaps in connection with A. M. Turing, "Computing Machinery and Intelligence," *Mind* 59 (1950): 433-60. See also Edgar Morin, *La Méthode*, vol. 1 (Paris, 1977), p. 155ff. Alessandro Pizzorno, "L'Incomplétude des systèmes," *Connexions* 9 (1974): 33-64; 10 (1974): 5-26 (esp. 61ff), takes a critical position on this matter by referring to unsolved problems of self-reference.
- [Note](#): 68. We thereby join an interpretation that has again and again been put forward in sociology, that sociology cannot or should not conceive of itself as a science of society--as, e. g., in Leopold von Wiese, *System der Allgemeinen Soziologie als Lehre von den sozialen Prozessen und den sozialen Gebilden (Beziehungslehre)*, 2d ed. (Munich, 1933), or as recently articulated in Friedrich H. Tenbruck, "Emile Durkheim oder die Geburt der Gesellschaft aus dem Geist der Soziologie," *Zeitschrift für Soziologie* 10 (1981): 333-50. We do this, of course, for the opposite reasons: not to *exclude* the theory of sociology (because of overburdening premises)

but to *include* it (with premises that can be clarified by sociology).

[Note](#): 69. For which I have found no evidence or parallels in the scientific literature.

[Note](#): 70. This is perhaps close to the "research tradition" in Larry Laudan, *Progress and Its Problems: Toward a Theory of Scientific Growth* (Berkeley, 1977).

[Note](#): 71. A brief outline of this appears in Niklas Luhmann, "Soziologie der Moral," in Niklas Luhmann and Stephan H. Pfürtnner, eds., *Theorietechnik und Moral* (Frankfurt, 1978), pp. 8-116 (esp. 9ff).

[Note](#): 72. For the history of this terminology, which begins only around 1600, see, e. g.: Otto Ritschl, *System und systematische Methode in der Geschichte des wissenschaftlichen Sprachgebrauchs und der philosophischen Methodologie* (Bonn, 1906); Mario G. Losano, *Sistema e struttura nel diritto*, vol. 1 (Turin, 1968); Alois von der Stein, "Der Systembegriff in seiner geschichtlichen Entwicklung," in Alwin Diemer, ed., *System und Klassifikation in Wissenschaft und Dokumentation* (Meisenheim am Glan, 1968), pp. 1-13; Hans Erich Troje, "Wissenschaftlichkeit und System in der Jurisprudenz des 16. Jahrhunderts," in Jürgen Blühdorn and Joachim Ritter, eds., *Philosophie und Rechtswissenschaft: Zum Problem ihrer Beziehungen im 19. Jahrhundert* (Frankfurt, 1969), pp. 63-88; Friedrich Kambartel, "'System' und 'Begründung' als wissenschaftliche und philosophische Ordnungsbegriffe bei und vor Kant," in Blühdorn and Ritter, eds., pp. 99-113. Also note-worthy is E. Fahlbusch, "Konfessionalismus," in *Evangelisches Kirchenlexikon*, vol. 2 (Göttingen, 1958), columns 880-84. Throughout, classificatory and epistemological interests have dominated, conditioned by uncertainties and an increase of complexity that were triggered in part by printing and in part by denominational disputes.

[Note](#): 73. See, e. g., Michael Theunissen, *Selbstverwirklichung und Allgemeinheit: Zur Kritik des gegenwärtigen Bewußtseins* (Berlin, 1982).

[Note](#): 74. A good survey is provided in I. V. Blauberg, V. N. Sadovsky, and E. G. Yudin, *Systems Theory: Philosophical and Methodological Problems* (Moscow, 1977), p. 15ff. See also: Ernst von Weizsäcker, ed., *Offene Systeme I: Beiträge zur Zeitstruktur von Information, Entropie und Evolution* (Stuttgart, 1974); Alfred Kuhn, *The Logic of Social Systems: A Unified, Deductive, System-Based Approach to Social Science* (San Francisco, 1974); Fred Emery, *Futures We Are In* (Leiden, 1977); Jacques Eugène, *Aspects de la théorie générales des systèmes: Une recherche des universaux* (Paris, 1981).

[Note](#): 75. A noteworthy attempt is Uno Saarnio, "Der Teil und die Gesamtheit," *Actes du XIème Congrès International de Philosophie Bruxelles 1953*, vol. 5 (Amsterdam-Louvain, 1953), pp. 35-37.

[Note](#): 76. See for this the distinction between two different points of departure for hierarchization-- namely, whole/part and center/periphery-- which lead to very different ideas of order, in Gerhard Roth, "Biological Systems Theory and the Problem of Reductionism," in Gerhard Roth and Helmut Schwegler, eds., *Self-Organizing Systems: An Interdisciplinary Approach* (Frankfurt, 1981), pp. 106-20 (esp. 111f).

[Note](#): 77. As in Gianfranco Poggi, "A Main Theme of Contemporary Sociological Analysis: Its Achievements and Limitations," *The British Journal of Sociology* 16 (1965): 293-94.

[Note](#): 78. See the skeptical retrospective by Michael Keren, "Ideological Implications of the Use of Open Systems Theory in Political Science," *Behavioral Science* 24 (1979): 311-24. This restriction to *organizational* change has become an occasion to reproach systems theory with de-thematization and thus conformism(!) with regard to *society*. But this dispute can be resolved if one separates different system references.

[Note](#): 79. Quite typical of this is Fernando Cortes, Adam Przeworski, and John Sprague, *Systems Analysis for Social Scientists* (New York, 1974).

[Note](#): 80. See Marshall C. Yovits and Scott Cameron, eds., *Self-Organizing Systems* (Oxford, 1960); Marshall C. Yovits, George T. Jacobi, and Gordon D. Goldstein, eds., *Self-Organizing Systems* (Washington, 1962); Heinz von Foerster and George W. Zopf, eds., *Principles of Self-Organization* (Oxford, 1962).

[Note](#): 81. The basic reference for this is Heinz von Foerster, "On Self-Organizing Systems and Their Environment," in Yovits and Cameron, eds., pp. 31-48.

[Note](#): 82. A convincing presentation of this is Heinz von Foerster, "On Constructing a Reality," in Wolfgang F. E. Preiser, ed., *Environmental Design Research*, vol. 2 (Stroudsburg, Pa., 1973), pp. 35-46.

[Note](#): 83. An attentive reader will notice that we are discussing the *difference* between identity and

difference, and not their *identity*. This is where the following reflections diverge from the dialectical tradition--despite similarities that may be noticed from time to time. One of the few authors who pursues modern functionalism to this basic problem is Alfred Locker, "On the Ontological Foundations of the Theory of Systems," in William Gray and Nicholas D. Rizzo, eds., *Unity Through Diversity: A Festschrift for Ludwig von Bertalanffy* (New York, 1973) 1: 537-72. But Locker merges functionalism and dialectics in one final perspective: "In the ultimate respect functionality leads to a unification, i. e. an identity of identity and difference" (p. 546). I prefer to leave it to the dialecticians to clarify how this ultimate identity is to be understood. For functionalist systems theory, it is sufficient to begin from (contingently selected) differences. We will return to this when we deal with the problems of self-reference in Chap. 11.

[Note:](#) 84. We have in mind investigations into the capacity to discriminate possessed by the immune systems of organisms. See, e. g., N. M. Vaz and F. J. Varela, "Self and Non-Sense: An Organism-Centered Approach to Immunology," *Medical Hypotheses* 4 (1978): pp. 231-67.

[Note:](#) 85. Both possibilities can be pursued very well within the semantics of politics: e. g., commitments of personal loyalty versus the "commonweal," or an irreducible aspect of arbitrariness (sovereignty) at the apex of the state hierarchy.

[Note:](#) 86. This antihierarchical, or better, metahierarchical, way of seeing the matter appears quite clearly in the concept of autopoiesis. This has often been noted; see, e. g., Roth.

[Note:](#) 87. The exception that must be conceded to Talcott Parsons's theory of general action systems proves the basic thesis: that in an interdisciplinary context one's own theory is a condition of the ability to learn, just as on the level of general systems theory, self-referential closure correlates with openness to environmental complexity.

Chapter 1: System and Function

I

The following considerations assume that there are systems. Thus they do not begin with epistemological doubt. They also do not advocate a "purely analytical relevance" for systems theory. The most narrow interpretation of systems theory as a mere method of analyzing reality is deliberately avoided. Of course, one must never confuse statements with their objects; one must realize that statements are only statements and that scientific statements are only scientific statements. But, at least in systems theory, they refer to the real world. Thus the concept of system refers to something that is in reality a system and thereby incurs the responsibility of testing its statements against reality.

For the time being, we should retain this reference to reality merely as a position-marker. When compared with the level on which problems are discussed in epistemology or in scientific methodology, this reference gives only rough tips. They merely indicate the way by which we must return to the formulation of epistemological problems, namely, by analyzing the real systems of the real world. Thus we must first work out a systems theory that has a real reference to the world. Because it claims universal validity for everything that is a system, the theory also encompasses systems of analytic and epistemic behavior. It therefore itself appears within the real world as one of its own objects, among many others. It is forced to treat itself as one of its objects in order to compare itself with others among those objects. Such a comparison

functions as a control: systems theory must be suited to carrying out such a comparison and, if necessary, to learning from it. This results in systems theory's taking charge of epistemology, as it were, and, in return, in a kind of test of systems theory's suitability: among other things, it must solve this task of taking charge of epistemology.

These requirements necessitate establishing systems theory as a theory of self-referential systems. The presentation sketched above already implies self-reference in the sense that systems theory must always keep in mind the admonition to take itself as one of its objects, not only in the sense of treating this special object of systems theory as a work-program of the scientific system, but in that it must take its own applicability or inapplicability into consideration throughout its entire research program. By contrast, classical epistemology is characterized by the intention to avoid self-references as mere tautologies and as openings for anything whatsoever.

- If a unified scientific program has ever been given from the viewpoint of "epistemology," then this is its hallmark. The reasons for this are to be taken very seriously. But they are reasons that likewise emerge from within general systems theory. They are connected to the difference between system and environment, and they mean that neither an exclusively self-referentially created system nor a system with an arbitrary environment can exist. These conditions would be unstable in the sense that any possible event would acquire an ordering value (namely, a possible event that releases order out of noise, then becomes a value for everything that follows) within them. ¹ It follows that self-reference can occur only as a mode of dealing with a nonarbitrarily structured environment. This is not something that concerns knowledge in particular, but rather a more general fact, and the systems specializing in knowledge could perhaps learn by analyzing other kinds of systems how to adjust to these facts. This concerns, not least, the controversial possibilities of a logic of self-referential systems.

Our thesis, namely, that there are systems, can now be narrowed down to: there are self-referential systems. This means first of all, in an entirely general sense: there are systems that have the ability to establish relations with themselves and to differentiate these relations from relations with their environment. ² This thesis

encompasses the fact of systems and the conditions of their description and analysis by other (similarly self-referential) systems. But it says nothing about the level of abstraction of the theoretical analysis possible within the scientific system. One must distinguish system references here, too. The scientific system can analyze other systems from perspectives that are not accessible to them. In this sense, it can discover and thematize latent structures and functions. Conversely, one often finds--especially in sociology--the situation that in dealing with themselves systems develop forms of access to complexity that are not accessible to scientific analysis and simulation. Then one speaks of "black boxes." The degree of the relative inferiority or superiority of the possibilities of other- or self-analysis varies historically. It depends on the state of scientific theories' formation, and in view of the rapid development of theories, especially in general systems theory, at present it is difficult to pin this down.

Relatively reliable indications can be obtained if one begins with the fact that systems theory can be applied to very different kinds of systems. Accordingly, there are distinct levels of generality for "the" systems theory. In addition to a general systems theory, theories pertaining to specific system types can be developed. In what follows, we will restrict our investigation to a theory of social systems. We therefore will exclude the (highly controversial) direct analogy between social systems and organisms or machines, but not, however, an orientation toward a general systems theory that seeks to address more encompassing demands. Thus, viewed methodologically, we do not choose the shortcut of analogy, but rather the longer path of generalization and respecification. Analogy would mislead us into believing similarities to be essential. The longer path of generalization and respecification is more neutral; in any event, it increases the sensitivity of analysis to differences among system types. Above all, we will have to emphasize the nonpsychic character of social systems.

But one should not believe that reverting to the most general level of statements that hold valid for systems provides the best possible abstraction of premises for further analysis. That would mean trusting unreflectingly in a sort of logic of generic concepts that holds the conceptual requirements of the construction of genus to be the characteristics of things themselves. There is, however, no

guarantee immanent to things of a coincidence of generalities and essentialities. Generalities can be trivial. If one wants to check the fruitfulness of generalizations, one must position the concepts used at the most general level of analysis, not as concepts describing possibilities but as concepts formulating problems. Thus general systems theory does not fix the essential features to be found in all systems. Instead, it is formulated in the language of problems and their solutions and at the same time makes clear that there can be different, functionally equivalent solutions for specific problems. Thus a functional abstraction is built into the abstraction of generic forms that guides comparison of different system types. ³

In this sense, we orient the general theory of social systems to a general systems theory and thereby justify the use of the concept "system." We advance a claim to universality for the theory of social systems as well, which is why we speak of a "general" theory of social systems. That is to say, every social contact is understood as a system, up to and including society as the inclusion of all possible contacts. In other words, the general theory of social systems claims to encompass all sociology's potential topics and, in this sense, to be a universal sociological theory. Such a universal claim is a principle of selection. It means that one accepts bodies of thought, ideas, and critique only if and insofar as these make this principle their own. That cuts peculiarly across the grain of classical sociological controversies: such as static versus dynamic, structure versus process, system versus conflict, monologue versus dialogue, or, projected onto the object itself, *Gesellschaft* versus *Gemeinschaft*, work versus interaction. Such contrasts force each side to abandon claims to universality and to self-assess its own option --at best, to makeshift constructions that build its opposite into that option. Such theoretical accounts are not only conceived undialectically, they also, rashly, do without the full scope of systems-theoretical analyses. This has been apparent ever since Hegel and Parsons.

Yet a claim to universality is not a claim to exclusive correctness, to the exclusive validity, and thus necessity (noncontingency), of one's own account. If a universalistic theory were to succumb to the error of self-hypostatization--and this is a danger because such a theory must presuppose the principles with which it works--it would quickly learn better through self-reference. As

soon as it rediscovered itself among its own objects, as soon as it analyzed itself as a research program of a subsystem (sociology) of a subsystem (science) of the societal system, it would necessarily experience itself as contingent. The necessity and contingency of its "self" then would become visible to it as a difference that articulates self-reference. To take this into consideration right from the start is part of the point of the research program just sketched out. One can do this by distinguishing between claims to universality and claims to exclusivity, or by recognizing that structural contingencies must be employed as an operative necessity, with the consequence that there is a constant contingency absorption through successes, practices, and commitments in the scientific system.

II

Today one cannot present general systems theory as a consolidated totality of basic concepts, axioms, and statements deduced from these. On the one hand, it serves as a collective designation for quite different kinds of research efforts, which are general to the extent that they do not specify their domain of application and its boundaries. On the other, such research, like research specific to a certain type of system (e. g., in the domain of data-processing machines), has led both to encounters with new problems and to attempts to consolidate such experiences conceptually. These encounters, together with corresponding efforts to formulate the resulting problems, are beginning to change the map of science, resulting in the new foundations that we set out in the Introduction. To them we append what follows. ⁴

The state of research does not allow us to begin with a report of assured results and to incorporate these results as "applied systems research" into sociology. It does enable us, however, to intensify the basic concepts beyond what is common in the literature and at the same time to introduce them into a context that takes into consideration the problems that interest sociological research and the experiences it has encountered.

1. There is agreement within the discipline today that the point of departure for all systems-theoretical analysis must be the *difference between system and environment*. ⁵ Systems are oriented by their environment not just occasionally and adaptively, but structurally,

and they cannot exist without an environment. They constitute and maintain themselves by creating and maintaining a difference from their environment, and they use their boundaries to regulate this difference. Without difference from an environment, there would not even be self-reference, because difference is the functional premise of self-referential operations. ⁶ In this sense *boundary* maintenance is system maintenance.

But boundaries do not mark a break in connections. In general, one cannot maintain that internal interdependencies are greater than system/environment interdependencies. ⁷ The concept of boundaries means, however, that processes which cross boundaries (e. g., the exchange of energy or information) have different conditions for their continuance (e. g., different conditions of utilization or of consensus) after they cross the boundaries. ⁸ This also means that contingencies in the course of a process, openness to other possibilities, vary depending on whether, for the system, the process occurs in the system or in its environment. Boundaries and systems exist only insofar as this is so. We will come back to this in more detail under point 7, below.

The environment receives its unity through the system and only in relation to the system. It is delimited by open horizons, not by boundaries that can be crossed; thus it is not itself a system. ⁹ It is different for every system, because every system excludes only itself from its environment. Accordingly, the environment has no self-reflection or capacity to act. Attribution to the environment (external attribution) is a strategy of systems. But this does not mean that the environment depends on the system or that the system can command its environment as it pleases. Instead, the complexity of the system and of the environment--to which we will later return--excludes any totalizing form of dependence in either direction.

One of the most important consequences of the system/environment paradigm is that one must distinguish between the *environment* of a system and *systems in the environment* of this system. The importance of this distinction cannot be overemphasized. Thus one must distinguish the relations of dependence between environment and system from those among systems. This distinction blows apart the old thematic of domination/oppression. Whether and to what extent one system comes to dominate another finally

depends not least on the extent to which both the systems and the system of their relations depend on the respective environment. In this sense, even the "absolute" domination assumed in older models of kingship was never extreme, never determining, but more a mode of system-description that articulated a certain power of disposal by the system over itself.

The systems in a system's environment are oriented to their own environments. No system can completely determine the system/environment relations of another system, save by destroying them. ¹⁰ Therefore the environment of any system is given to it as a confusedly complex structure of reciprocal system/environment relations, though at the same time it also appears as a unity constituted by the system and requiring a specifically selective observation.

2. As a paradigm, the difference between system and environment forces systems theory to replace the difference between the whole and its parts with a theory of system differentiation. ¹¹ System differentiation is nothing more than the repetition of system formation within systems. Further system/environment differences can be differentiated within systems. The entire system then acquires the function of an "internal environment" for these subsystems, indeed, for each subsystem in its own specific way. The system/environment difference is therefore duplicated; the entire system multiplies itself as a multiplicity of system/environment differences. Every difference between subsystem and internal environment is the entire system--but only from different perspectives. Therefore system differentiation is a process of increasing complexity that greatly affects what can be observed as the unity of the entire system.

In part, the meaning of differentiation can be viewed as a unity, as a *unitas multiplex*. In a certain way, difference holds what is differentiated together; it is different and not indifferent. To the extent that differentiation is unified in a single principle (e. g., as hierarchy), one can determine the unity of the system from the way in which its differentiation is constituted. Differentiation provides the system with systematicity; besides its mere identity (difference from something else), it also acquires a second version of unity (difference from itself). It can attain its identity as the primacy of a specific form of differentiation (e. g., as the equality of its subsystems),

as a mere series, as an order of rank, as the difference between center and periphery, or as the differentiation of function systems. Moreover, more demanding (improbable) forms of system differentiation are evolutionary achievements that, when achieved, stabilize systems on a higher level of complexity.

Since the 1960's, system differentiation has tended to be described as "hierarchy." This does not mean official channels or a chain of command from the top down. Instead, in this context hierarchy means only that subsystems can differentiate into further subsystems and that a transitive relation of containment within containment emerges. ¹² The advantages of hierarchization for rationality are obvious.

They depend, however, on further subsystems being formed only within subsystems. This is an unrealistic assumption. ¹³ It may hold to a large extent for organizations because in them it can be guaranteed by formal rules. For systems relating to the whole of society, one can indeed start with a basic schema of differentiation--whether as segmentary, stratificatory, or functionally differentiated--but this surely does not mean that further system formations are possible only within the rough division thus established. ¹⁴

Therefore one must distinguish conceptually between differentiation and hierarchization on the level of the general theory of social systems. Hierarchization is then a specific case of differentiation, ¹⁵ a kind of self-simplification of the system's possibilities for differentiation. ¹⁶ In addition, it facilitates observation of the system ¹⁷ (including scientific analysis). If an observer can assume a hierarchy, then he can regulate the scope of his observation and description according to how many hierarchical levels he can distinguish. But one cannot assume that evolution more or less inevitably brings complexity into the form of a hierarchy. Obviously, other forms with quite chaotic differentiation have found it possible to emerge and survive.

3. The switch to the difference between system and environment has profound consequences for understanding causality. The line that separates system and environment cannot be understood as isolating and combining the "most important" causes in the system. Instead, it cuts through causal connections. The question is: From what perspective? System and environment constantly collaborate, producing every effect--if only because in the domain

of social systems no communication can be achieved without the consciousness of psychic systems. Therefore we must clarify why and how causality is distributed over system and environment.

Without prematurely offering criteria for such a distribution, we can at least formulate the problem more precisely and connect it to other aspects of systems theory. "We can do this via the concept of *production* (and its derivatives: reproduction, self-reproduction, and autopoiesis). We will speak of production if *some* but *not all* causes that are necessary for specific effects can be employed under the control of a system. What is essential to the concept is not the technical possibility of being calculated or even executed by machines (although this can be a point from which selections can be made for system formation), but rather this "some, but not all." This difference makes selection possible, and selection makes retention possible. Therefore a complex of "productive causes" can come together as a result of evolution (or subsequently, with the help of planning) and, once together, be in a position to assemble appropriate environmental causes. Think of the possibilities suggested by population concentration in settlements and later in cities, and the accompanying mythology of feasibility. ¹⁸

To understand production, one should not begin with natural laws, but rather with the advantages of selection. Only when, and precisely because, one refuses to "lord it over" some totality of causes can abstractions that are self-organizing and auto-reproductive be realized; this is the only way a surplus of productive *possibilities* can emerge--for example, a surplus of possibilities for propagating organic systems, in respect to which selective factors may trigger further evolution.

4. The difference between system and environment must be distinguished from a second, equally constitutive difference: namely, the difference between element and relation. Here, as previously, we must conceive the unity of the difference as constitutive. Just as there are no systems without environments or environments without systems, there are no elements without relational connections or relations without elements. In both cases the difference is a unity (in fact, we say "the" difference), but it operates only as a difference. Only as a difference can it connect processes of information processing.

Despite this formal similarity it is important (and, among other

things, a condition for the concept of complexity) that one carefully discriminate between the two distinctions. ¹⁹ Therefore there are two different possibilities for viewing the decomposition of a system. One aims to form subsystems (or, more precisely, internal system/environment relations) within the system. The other decomposes systems into elements and relations. In the former, rooms compose a house; in the latter, cinderblocks, beams, nails, and so forth do. The first kind of decomposition is carried out as a theory of *system differentiation*. The other ends up in a theory of *system complexity*. Only this distinction makes it meaningful and nontautological to say that system complexity increases with an increase in differentiation or with a change in the form of differentiation. ²⁰

Elements can be counted and the number of possible mathematical relations among them can be determined on the basis of their number. The enumeration reduces the relations among the elements to a quantitative expression, however. The elements acquire quality only insofar as they are viewed relationally, and thus refer to one another. This can occur in real systems of a (relatively small) size only selectively, that is, only by omitting other equally conceivable relations. Thus quality is possible only through selection --but selection is necessary because of complexity. We will come back to this in the discussion of the concept of complexity.

Elements are often described as if they could be identified only analytically, as if their unity were a unity only for the purpose of observation, planning, or design. This way of speaking, however, has not been sufficiently reflected epistemologically (nor has the accompanying talk of "merely analytical" systems, structures, etc.). It seems to revert to the mathematical world picture of the early-modern period, within whose framework units of measurement, standards, and aggregates could be chosen arbitrarily and only for the purpose of application. As soon as one goes beyond quantitative theory toward qualification, one can no longer forgo considering that and how systems qualify as elements the elements that compose them.

The position that has been traditionally opposed is equally unacceptable, however: namely, the idea of the ultimately substantial, ontological character of elements. In contrast to what the ordinary language and the conceptual tradition suggest, the unity

of an element (e. g., an action in an action system) is not ontically pre-given. Instead, the element is constituted as a unity only by the system that enlists it as an element to use it in relations.²¹ In modern science, this de-ontologizing and functionalizing of the description of elements was initiated in the mathematization of the natural sciences. One can count and always further analyze so long as an operative need for this exists. Even action theory has accepted this perspective, although it has not enlisted mathematics as a theoretical technique. Actions, too, owe their unity to the relational structure of the system in which they are constituted as actions.²² We will return to this later.

By contrast to the scholastic concept of relation, which was considered to have little value because relations referred to things other than themselves, this change leads to a reassessment of the ordering value of relations. Above all, however, it relativizes the concept of element. If one were to ask what elements (e. g., atoms, cells, or actions) "are," one would always come upon highly complex facts that must be attributed to the system's environment. Then an element would be what functions for a system as a unity that cannot be further dissolved (even if, viewed microscopically, it is a highly complex compound). When one says "cannot be further dissolved," this also means that a system can constitute and change itself only by interrelating its elements, not by dissolving and reorganizing them. One need not accept this limitation, which is constitutive for the system itself, in observing and analyzing systems. But if one bypasses it and, for example, aims for a neurophysiological analysis of actions, then one must sublimate the system/environmental difference that holds for the system and move to a different level of system formation.

Whether the unity of an element should be explained as emergence "from below" or as constitution "from above" seems to be a matter of theoretical dispute. We opt decisively for the latter. Elements are elements only for the system that employs them as units and they are such only through this system. This is formulated in the concept of autopoiesis. One of the most important consequences is that systems of a higher (emergent) order can possess less complexity than systems of a lower order because they determine the unity and number of the elements that compose them; thus in their own complexity they are independent of their material

substratum. This also means that the complexity that is necessary or sufficient to a system is not predetermined "materially," but rather can be determined anew for every level of system formation with regard to the relevant environment. Thus emergence is not simply an accumulation of complexity, but rather an interruption and new beginning in the constitution of complexity. Accordingly, we take the unity of an action to be not a psychological, but a sociological fact; it does not emerge through the decomposition of consciousness into the smallest unities that cannot be dissolved further, but rather through the social process of attribution. ²³

5. Out of the relation among elements emerges the centrally important systems-theoretical concept of *conditioning*. Systems are not merely relations (in the plural!) among elements. The connections among relations must also somehow be regulated. ²⁴ This regulation employs the basic form of conditioning. That is to say, a determinate relation among elements is realized only under the condition that something else is or is not the case. Whenever we speak of "conditions" or "conditions of possibility" (in the epistemological sense), this is what we mean.

In this sense, relations among elements can condition themselves reciprocally; one occurs only when the other also occurs. Conditioning can also concern the availability of specific elements, the presence of catalytic agents, or the realization of higher-level relations among relations: for example, "forms" in the sense employed by Marxist theory. Thus the minimal system is a mere collection of relations among elements. This is conditioned by a rule of inclusion or exclusion, as well as by the conditions of denumerability--for example, of holding the series constant during the denumeration. We assume, without being able to provide a secure theoretical justification, that systems must at least be collections of relations among elements, and that they typically distinguish themselves through further conditionings and therefore through greater complexity.

Successful conditionings, which are achieved by the emergence of what they enable, work as *constraints*. Even if they are introduced contingently, one cannot reject them without destroying what they make possible.

6. Next, we would like to introduce the problem of *complexity* and then resume the analysis of system/environment relations together

with the enrichments that result from considering this concept.²⁵

Complexity is the perspective from which the problems experienced by contemporary systems research can perhaps be expressed most forcefully.²⁶ In its function of catalyzing these experiences, it often is used without proper definition.²⁷ This hinders one from working with the concept in a way that can be controlled. We choose, not without suggestions from the literature on the subject, a problem-oriented concept and define it using the concepts element and relation.²⁸ This enjoys the advantages of making the concept applicable to what is not a system (environment, world) and, because the term is defined without using the concept of system, of enriching systems-theoretical analyses with additional perspectives. But the connection with systems theory is retained through the premise sketched above, that whatever functions at any time as an element cannot be determined independently of systems. This includes the familiar thesis that "organized complexity" can come about only through system formation, because "organized complexity" means nothing more than complexity with selective relations among its elements.²⁹

If one starts out from this basic conceptual (but systems-related) difference between element and relation, then one immediately sees that, when the number of elements that must be held together *in a system* or *for a system as its environment* increases,³⁰ one very quickly encounters a threshold where it is no longer possible to relate every element to every other one.³¹ A definition of complexity follows from this: we will call an interconnected collection of elements "complex" when, because of immanent constraints in the elements' connective capacity, it is no longer possible at any moment to connect every element with every other element. The concept of "immanent constraint" refers to the internal complexity of the elements, which is not at the system's disposal, yet which makes possible their "capacity for unity." In this respect, complexity is a self-conditioning state of affairs: the fact that elements must already be constituted as complex in order to function as a unity for higher levels of system formation limits their connective capacity and thus reproduces complexity as an unavoidable condition on every higher level of system formation. Leaping ahead, we may hint at the fact that this self-reference of complexity is then "internalized" as the self-reference of systems.

Complexity, in this sense, means being forced to select; being forced to select means contingency; and contingency means risk. Every complex state of affairs is based on a selection of relations among its elements, which it uses to constitute and maintain itself. The selection positions and qualifies the elements, although other relations would have been possible. We borrow the tradition-laden term "contingency" to designate this "also being possible otherwise." It alludes, too, to the possibility of failing to achieve the best possible formation.

The obligation to make selections and the conditioning of selections permit one to explain how very different kinds of systems can be formed out of a substratum of very similar units (e. g., a few types of atoms, or very similar human organisms). Thus the complexity of the world--of its species and genuses, its system formations --emerges through the reduction of complexity and through the selective conditioning of this reduction. Furthermore, this is the only way to harmonize the duration of what functions as an element with the self- regeneration of the system.

With this, the abstract theory of complex interconnections arrives at the point where it must engage evolutionary and systems-theoretical explanations. One cannot deduce from complexity alone which relations among elements are realized; that results on each level of system formation from the difference between system and environment and from the conditions under which that difference proves itself evolutionarily. From the reverse perspective, however, the concept of complexity can help to clarify the system/environment difference.

Establishing and maintaining the difference between system and environment then becomes the problem, because for each system the environment is more complex than the system itself. Systems lack the "requisite variety" (Ashby's term) that would enable them to react to every state of the environment, that is to say, to establish an environment exactly suited to the system. There is, in other words, no point-for-point correspondence between system and environment (such a condition would abolish the difference between system and environment). This is why establishing and maintaining this difference despite a difference in degree of their relative complexities becomes the problem. The system's inferiority in complexity must be counter-balanced by strategies of selection. The system's own complexity already forces it to make selections; the order the system

chooses in relating its elements results from the difference in complexity between it and its environment. Both aspects can be analytically broken down in this way. But they form two sides of the same fact, because a system can become complex only by selecting an order. ³²

The premise that for each system the environment is more complex than the system itself does not require a constant difference in the degree of complexity. In general it is true, for example, that evolution is possible only when a sufficient complexity of system- environments exists, and in this sense evolution is the co-evolution of systems and environments. Greater complexity within systems is possible because the environment does not manifest random distribution but is structured selectively by systems in the environment. ³³ Thus one must interpret the relationship of complexity between system and environment as one of intensification and investigate the factors on which intensification and new balancing depend.

To combine the problem of complexity and systems theory, as we propose here, requires a renewed treatment of the concept of complexity. In what sense can one speak of difference in complexity, difference in degree of complexity, and reduction of complexity if complexity is defined as the necessity of making selections? ³⁴ The literature focuses on the difficulties of measurement produced by an obviously multidimensional concept. ³⁵ Our problem, however, concerns the more basic question of how to relate the in itself complexly constructed concept of complexity to systems.

Measurement and comparison can start with the number of elements or with the number of the relations in effect among them. One can always speak of greater or lesser complexity (difference in complexity, difference in degree of complexity) if lesser complexity exists in both respects. This is so for the relationship between a system and its environment. In a narrower sense, one should speak of a reduction in complexity if the framework of relations forming a complex nexus is reconstructed by a second nexus having fewer relations. ³⁶ Only complexity can reduce complexity. This can occur either in a system's external or in its internal relations. Such reduction explains how a myth, constrained by the possibilities of oral narration, can preserve the world and the situational orientation of a tribe. ³⁷ The loss of complexity must then be counterbalanced by a

better-organized selectivity (e. g., heightened demands for credibility). The reduction of complexity, like all instances of relating, starts with elements. But the concept of reduction only designates an instance of relating relations.

Viewed from the perspective of the history of theory, this complicated version of the problem of reduction became necessary because one had to give up the ontological concept of the element as the simplest unit of being (the atom), one that could not be further decomposed into smaller components. As long as such a unit (taking Being for granted) was accepted, one could interpret the reduction of complexity as a tracing back to such units and their relations. This is the sense in which today much of the dispute about "reductionism" is conducted. But its theoretical foundation disappeared when one was forced to admit that elements are always constituted by the system that is composed of them and owe their unity exclusively to the complexity of this system.³⁸ One then also had to give up the assumption of an ontological asymmetry between "simple" (nondecomposable, indestructible) and "complex" (decomposable, destructible). The questions accompanying this-- for example, How is a "whole" composed of "parts"? and Where in this is the "more than the sum of its parts" to be found?--are replaced by a completely different understanding of complexity, one that must be formulated entirely as a difference in complexity. One must distinguish the incomprehensible complexity in a system (or its environment) that would result if one connected everything with everything else, from determinately structured complexity, which can only be selected contingently. And one must distinguish environmental complexity (in both forms) from system complexity (again in both forms); the system complexity is always lesser and must compensate by exploiting its contingency, that is, by its pattern of selections. In both cases the *difference* between two complexities is the real principle compelling (and therefore giving form to) selection; and if one does not speak of states, but rather of operations, then both cases are the *reduction of complexity*, namely, the reduction of one complexity by another.³⁹

From the viewpoint of this necessity for reduction (which follows from complexity), a second concept of complexity has been developed. In this second sense, complexity is a measure for indeterminacy or lack of information. Viewed in this way, it is the

information that the system lacks fully to grasp and to describe its environment (environmental complexity) or itself (system complexity).⁴⁰ From the perspective of individual elements--for example, specific actions or information processing by systems--complexity is relevant only in this second sense, thus only as a horizon within which selections are made. And this second version can be used in meaning systems to re-introduce the system's complexity within the system: as a concept, as an unknown and therefore effective quantity, as a factor of anxiety, as the concept of uncertainty or risk, as problems of planning and decision, or as an excuse. The distinction between both concepts of complexity points to the fact that systems cannot grasp their own complexity (even less that of their environment) and yet can problematize it. The system produces and reacts to an unclear picture of itself.

It is worth remembering Kant at this point. Kant started with the assumption that plurality (in the form of sense data) is given and that unity must be constituted (synthesized). Only separating these aspects, thus posing complexity as a problem, makes the subject into a subject--indeed, into a subject of the connection between plurality and unity, not only into a producer of synthesis. Systems theory breaks with Kant's point of departure and therefore has no need for a concept of the subject. It replaces it with the concept of self-referential systems. Then it can say that every unity used in this system (whether as the unity of an element, the unity of a process, or the unity of a system) must be constituted by the system itself and cannot be obtained from its environment.

7. This amalgamation of the problematic of complexity and systems analysis is confirmed by a more precise interpretation of the function of system boundaries.⁴¹ Systems have boundaries. This is what distinguishes the concept of system from that of structure.⁴² Boundaries cannot be conceived without something "beyond"; thus they presuppose the reality of a beyond and the possibility of transcendence.⁴³ In common understanding, they have the double function of separating and connecting system and environment.⁴⁴ This double function can be clarified by means of the distinction between element and relation, a clarification that at the same time returns us to the thematic of complexity. As soon as boundaries are defined sharply, elements must be attributed either to the system or to the environment. Yet relations between

system and environment can exist. Thus a boundary separates elements, but not necessarily relations. It separates events, but lets causal effects pass through.

This long-established and indisputable concept of boundary is the prerequisite for newer developments in systems theory, which no longer interpret the distinction between open and closed systems as an opposition of types but rather regard it as a relationship of intensification.⁴⁵ Using boundaries, systems can open and close at the same time, separating internal interdependencies from system/environment interdependencies and relating both to each other.⁴⁶ Boundaries are thus an evolutionary achievement par excellence; the development of all higher-level systems, above all the development of systems with internally closed self-reference, presuppose them.

Boundaries can be differentiated as specific mechanisms with the specific purpose of separating yet connecting. They assume this function via particular performances of selection. The eigen-selectivity of boundary mechanisms, boundary zones, and boundary lines reduces not only the external but also the internal complexity of a system,⁴⁷ with the result that a contact mediated by boundaries cannot convey to any system the full complexity of another, even if its capacity for processing information would otherwise be sufficient.⁴⁸ A system's internal organization for making selective relations with the help of differentiated boundary mechanisms leads to systems' being indeterminable for one another and to the emergence of new systems (communication systems) to regulate this indeterminability. Given the abstract concept of boundary, the concept of the difference between system and environment, one cannot decide whether the boundary belongs to the system or to the environment. Viewed logically, the difference itself is something third.⁴⁹ If one includes the problem of the difference in degree of complexity as an aid to interpretation, however, then one can relate boundaries to the function of stabilizing this difference in degree, for which only the system, not the environment, can develop strategies. Viewed from the system's perspective, they are "self-generated boundaries"⁵⁰ --membranes, skins, walls and doors, boundary posts and points of contact.

Next to systems' constituting their own elements, boundary determination is the most important requirement of system differentiation.

Boundaries count as adequately determined if problems concerning their location or the assignment of events as being inside or outside of them can be solved using the system's own means--for example, if an immune system can use its own modes of operation to discriminate, in effect, between internal and external, or if the societal system, which is composed of communications, can decide by communication whether something is communication or not. For a (scientific) observer, where the boundaries lie may still remain analytically unclear, but this does not justify viewing the bounding of systems as a purely analytical determination. ⁵¹ (The situation is quite different, naturally, if it is a question of bounding research objects!) An observer interested in reality remains dependent here on the system's operative possibilities of determination.

From the perspective of the dynamics of development, boundaries are performances that can be intensified. We have indicated this aspect with the concept of *system differentiation*. The formation of boundaries interrupts the continuity of processes that connect the system with its environment. The intensification of boundary performance consists in multiplying the ways in which this occurs. The discontinuities thereby created can be thoroughly regulated, and they enable a system to calculate its contacts with the environment.

Given clearer differentiation, system observers can perceive more continuities between system and environment and more continuous processes (e. g., acts determined by socialization) than the system itself lays down as the basis of its own praxis.

The distinction established above, between the environment as a whole and the systems in a system's environment, explains how boundaries are put under pressure to improve their performance, that is, explains how a more exacting determination and preservation of boundaries becomes necessary. System boundaries always separate out an environment, but the requirements for this vary if the system must distinguish other systems (and their environments) within its own environment and adjust its boundaries to this distinction. In the simplest case, the system treats its environment as another system. Thus national boundaries are frequently conceived as boundaries with another nation. But this becomes increasingly illusory when relations with an economic, political, scientific, or educational "abroad" no longer correspond to these

same national boundaries. ⁵² Under such circumstances, the boundary definition moves inside; this is confirmed in self-referentially closed systems, which determine their boundaries by their mode of operation and mediate all contact with the environment through other levels of reality.

8. The conceptual distinction between (the concept of) system and (the concept of) complexity is central to the following analyses, because they concern complex systems. Anyone who cannot distinguish between system and complexity is denied access to the domain of ecology. Ecology has to do with a complexity that is not a system because it is not regulated by a system/environment difference of its own. ⁵³ This is why it is so difficult, in this case, to understand the *unity* of the plurality, a unity that is not produced as a self-referential system but rather is constituted by observation and intervention. We will return to this in Chapter 10.

Here we would like to introduce some examples, especially the concept of *adaptation*, to illustrate how the interplay of system analysis and complexity analysis restructures the classical conceptual arsenal of systems theory and leads up to a theory of self-referential systems. Originally this concept designated a simple system/environment relationship. According to it, a system had to adapt to its environment in order to survive. The impulse to reverse this was irresistible: the environment could also be adapted to the system; at the least, it had to be suited to the development of systems. ⁵⁴ On the theoretical level this reversal immediately led to a tautology: systems could adapt to the environment if the environment were adapted to the system, and vice versa.

Once the productive tautology reached this stage, one had to look around for a remedy. Understanding of the problems of structured complexity had increased at almost the same time so that was what one fell back upon. This theoretical development then gave impetus to the transition from the paradigm of system/environment to the paradigm of self-reference.

Complex systems must adapt not only to their environments but also to their own complexity. They must cope with internal improbabilities and inadequacies. They must develop mechanisms that build precisely on those failings, such as mechanisms that reduce deviant behavior, behavior that becomes possible only when there are dominant basic structures. Complex systems are forced to

adapt to themselves, in the double sense of adapting to their own complexity. ⁵⁵ This is the only way to explain why systems cannot seamlessly follow the changes in their environments, but rather must make allowances for different adaptive viewpoints and ultimately collapse because of self-adaptation.

The concept of *selection* also changes when one considers complex systems. Selection can no longer be conceived as carried out by a subject, as analogous with action. It is a subjectless event, an operation that is triggered by establishing a difference. Here Darwin is again the most important forerunner, because he conceived of evolutionary selection, not as occurring out of a will to order, but as occurring out of the environment. The philosophy of contingency and pragmatism built on this insight gave the greatest possible ontological scope to this understanding of selection, and even sociology has not escaped its influence. ⁵⁶ Ever since, selection has been a basic concept of every theory of order, and one has thereby avoided reverting to a system that explains the existence of order on the grounds of its own overriding power to order. ⁵⁷ We replace this reduction with the reduction to difference. All selections presuppose constraints. A guiding difference arranges these constraints, for example, from the viewpoint useful/unuseful, without specifying the selection itself. Difference does not determine what must be selected, only that a selection must be made. Above all, the system/environment difference seems to be what obliges the system to force itself, through its own complexity, to make selections. Thus the theory of self-referential systems has been prepared for in the semantic range of "adaptation" as well as in that of "selection."

9. The next central theme to be addressed is *self-reference*. It has attracted rapidly growing attention in the most recent systems research, where it has also gone under the names self-organization and autopoiesis. ⁵⁸ Corresponding concepts have even found their way into sociological theories that do not go by the name of systems theory. ⁵⁹ Here the concept of self-reference (reflection, reflexivity) is detached from its classical location in human consciousness or in the subject and transferred to the domain of objects, namely, to real systems as the object of science. ⁶⁰ One thereby gains a certain distance from the purely logical difficulties of self-reference. These difficulties merely signify that there are systems in

the real world whose description by other systems leads in those systems (!) to undecidable logical contradictions. ⁶¹

The concept of self-reference designates the unity that an element, a process, or a system is for itself. "For itself" means independent of the cut of observation by others. The concept not only defines, but also contains a significant statement, for it maintains that unity can come about only through a relational operation, that it must be produced and that it does not exist in advance as an individual, a substance, or an idea of its own operation.

The concept can and must be understood very broadly--in accordance with what one means by "self" and how one interprets the reference. One can, for example, speak of self-intending acts (in which intending is what constitutes the act) or of self-contained sets (in which containing is what constitutes the set). The reference then uses precisely the operation that constitutes the self and under this condition is either superfluous or paradoxical. It becomes paradoxical if the possibility of negation is added and one can relate the negating either to the referring or to the self that is referred to, yet cannot decide between these two possibilities on the basis of self-reference. Becoming paradoxical means losing determinacy, thus connectivity for further operations. Self-reference is in itself nothing bad, forbidden, or to be avoided ⁶² (or, more precisely, something that is permissible only in a subject and that must remain locked up inside it), but when self-reference leads to paradoxes, additional precautions must be taken to ensure connectivity.

This problem points directly to system formation. At the same time, it enlarges the analytical instrumentarium of systems theory beyond the problem of complexity. Self-reference possesses indeterminable complexity in the form of paradox. Self-referentially operating systems can become complex only if they succeed in solving this problem and thus in deparadoxicalizing themselves.

One can call a system self-referential if it itself constitutes the elements that compose it as functional unities ⁶³ and runs reference to this self-constitution through all the relations among these elements, continuously reproducing its self-constitution in this way. In this sense, self-referential systems necessarily operate by self-contact; they possess no other form of environmental contact than this self-contact. The theory of recurrence is contained herein as the thesis of the elements' indirect self-reference: the elements enable a

relation through other elements back to themselves, such as an intensification of neuronal activity or a determination of actions via expecting those actions. On the level of this self-referential organization, self-referential systems are *closed* systems, for they allow no other forms of processing in their self-determination. Thus social systems have no use for consciousness, and personal systems no use for frequency changes in the neuronal system (which, of course, does not deny that what is not used is a condition of possibility for the system, namely, the infrastructural condition of possibility for constituting its elements).

In order to clarify how much this concept of basal self-reference differs from an earlier discussion of "self-organization," Maturana and Varela have proposed the designation "autopoiesis" for it.⁶⁴ The scope of this conceptual reshuffling and its connection to problems that have been discussed in the philosophy of consciousness and in *Lebensphilosophie* (Fichte, Schelling) cannot at present be assessed with certainty. In any event, for systems theory it is a far-reaching conceptual cut, which transfers self-reference from the level of structural formation and structural change to that of the constitution of elements.

Autopoiesis does not necessarily presuppose that the environment of a system is completely devoid of the types of operations by which the system reproduces itself. In the environments of living organisms there are other living organisms, in the environments of consciousnesses, other consciousnesses. But in both cases the system's own process of reproduction can be used only internally. One cannot use it to knit together system and environment, to tap another life or another consciousness and transfer it into one's own system. (Organ transplants are a mechanical intervention and not a case that we exclude here, namely, one in which life procures life, as life, for itself.) With social systems, this situation differs in two ways. On the one hand, there is no communication outside the communication system of society. This system is the only one employing this type of operation, and to that extent it is, as a matter of fact, necessarily closed. On the other, this does not hold for all other social systems. They must define their specific mode of operation or determine their identity by reflection to be able to regulate which internal meaning-units enable the self-reproduction of the system and thus are repeatedly to be reproduced.

Taking this important distinction into consideration, one may ask whether it makes any sense to bridge it on the level of general systems theory with the help of a general concept of autopoietic systems. We believe that this general concept is possible, indeed necessary--in part because it enables one to combine a significant number of statements about such systems, in part because it points to an evolutionary connection within which the special position of the societal system, on the one hand, and its internal problems of delimitation, on the other, have developed.

One of its most important consequences lies in the domain of epistemology: even if the elements that compose a system are constituted as units by the system itself (however complex the "substructure" may be in terms of energy, material, or information), there is no fundamental common ground among systems. Whatever functions as a unit cannot be observed from outside, only inferred. Every observation must hold to difference schemata that enable it to draw conclusions about what, in distinction to other things, functions as a unit. No system can decompose another analytically to arrive at final elements (substances) in which knowledge could find an ultimate foothold and secure correspondence with its object. Instead, every observation must employ a difference schema whereby the unity of difference is constituted in the observing system and not in the observed one. This by no means excludes self-observation, but self-observation must be carefully distinguished from the unity of the reproduction of the system's units (autopoiesis).

Reproduction that is self-referential, "autopoietic" on the level of its elements, must adhere to the type of element that the system defines. To this extent, it is reproduction. Thus action systems must always reproduce actions, not cells, macromolecules, ideas, and so forth. This is what the self-reference of the elements guarantees.⁶⁵ Certain limits are thereby placed on variation. Ashby has spoken in this sense of a system's "essential variables."⁶⁶ But only complexes that have not yet been fully determined by those limits to variation, that is, complexes for which there is not just one design, come into consideration as elements of complex systems. Only by adequate openness within a given framework can structures be developed that further constrain which position and which function individual elements observe.

For the entire domain of environmentally open (e. g., psychic or social) systems, the basic problem to which theory refers changes with the transition from "self-organization" to "autopoiesis." As long as one begins with the problem of structural formation and structural change and sees a system's dynamics therein, one will accord fundamental theoretical rank to approaches within a theory of learning.⁶⁷ The problem then will lie in the particular conditions under which the *repetition* of a similar action or the *expectation of the repetition* of a similar experience is likely. For a theory of autopoietic systems, by contrast, the pre-eminent question is: How does one get from one elemental event to the next? Here, the basic problem lies not in *repetition* but in *connectivity*. The differentiation of a self-referentially closed network of reproduction proves to be indispensable exactly in view of this problem of connectivity; and it is possible to formulate problems of the formation and change of structure only in respect to a system formed by such a network. It is structures, in other words, that must make possible the connectivity of autopoietic reproduction if they do not want to give up the basis for their own existence, and this limits the domain of possible changes, of possible learning.

An important structural consequence that inevitably results from the construction of self-referential systems deserves particular mention. This is *abandoning the idea of unilateral control*. There may be hierarchies, asymmetries, or differences in influence, but no part of the system can control others without itself being subject to control. Under such circumstances it is possible--indeed, in meaning-oriented systems highly probable--that any control must be exercised in anticipation of counter-control. Securing an asymmetrical structure in spite of this (e. g., in power relationships internal to the system) therefore always requires special precautions.⁶⁸

In part, this problematization of control is counterbalanced by accentuating *self-observation*. In this context, namely, on the level of general systems theory, observation means nothing more than handling distinctions.⁶⁹ Only in psychic systems does the concept presuppose consciousness (one could even say that observations occasion the emergence of the systemic medium consciousness). Other systems must acquire their own possibilities of observation. Accordingly, self-observation is the introduction of

the system/environment distinction within the system, which constitutes itself with the help of that distinction; self-observation is thus the operative factor in autopoiesis, because for elements to be reproduced, it must be guaranteed that they are reproduced as elements of the system and not as anything else.

The concept of a self-referentially closed system does not contradict the system's *openness to the environment*. Instead, in the self-referential mode of operation, closure is a form of broadening possible environmental contacts; closure increases, by constituting elements more capable of being determined, the complexity of the environment that is possible for the system. This thesis contradicts both the classical opposition of closed and open systems ⁷⁰ and the concept of autopoiesis developed by Maturana, which requires an observer as another system in order to produce system/environment relations. ⁷¹ If one formulates the concepts of observation and self-observation on the level of general systems theory and, as suggested, combines them with the concept of autopoiesis, then self-observation becomes the necessary component of autopoietic reproduction. On this basis, one can then distinguish between, on the one hand, organic and neurophysiological systems (cells, nervous systems, immune systems, etc.) and, on the other, psychic and social systems, which are constituted by the production and processing of meaning. The fundamental law of self-reference holds for all these levels of system formation, but for the former group it holds in a more radical, more exclusive sense than for meaning systems. Meaning systems are completely closed to the extent that only meaning can refer to meaning and that only meaning can change meaning. We will return to this in Chapter 2. But unlike nervous systems, structures and processes that employ meaning can include system boundaries and environments, which take on meaning within the processes of a self-referential system (not in themselves!), so that such systems can operate internally with the difference between system and environment. For all internal operations, meaning enables an ongoing reference to the system itself and to a more or less elaborated environment; the choice of the main focus of orientation can thereby be held open and left to the connecting operations that reproduce meaning through internal and external references. Here one can see clearly the evolutionary advance provided when "meaning" was achieved as the basis of a

self-referentiality in system building for which there was then no stopping. It resides in a new way of combining closure and openness in constructing systems, in other words, in the combination of the system /environment difference and self-referential system building.

Within the special domain of meaning systems that will interest us in what follows--though only in one instance, social systems-- assigning meaning to the environment (e. g., external attribution of causality) can solve the problem of circularity inherent in all self- reference. Self-reference and the ensuing interdependence of all elements of meaning are preserved; however, reference to the environment is employed internally to interrupt interdependence. ⁷² The system asymmetricizes--itself!

10. Self-reference presupposes a principle that one could call *multiple constitution*. We will treat this idea in more detail from the perspective of "double contingency," and so here we will restrict ourselves to a few remarks outlining its foundations in general systems theory.

In the literature, one speaks of dialogue or of mutualistic (and as such, "meaning-tight") systems ⁷³ or of conversation. ⁷⁴ These mean that (at least) two complexes with divergent perspectives are required to constitute whatever functions in the systems as a unity (unit or element). In reverse, this means that, for analysis of the system, such a unity cannot be dissolved into the divergent complexes constituting it. To be sure, one can investigate the repercussions of this mutualistic-dialogical, conversational unity and its "language" on the complexes constituting it, can, for example, investigate to what extent and within what boundaries these repercussions allow their "individualization." One feels distantly reminded of "dialectics," but this is definitely not to say that the unity's constitution requires the negation of a contradiction between perspectively different complexes--it can just as easily be a matter of complementary expectations of different kinds of behavior, as Parsons set down in the general theory of action systems.

In systems theory the thesis of multiple constitution has the effect of making the concept of communication more basic and consequently of determining the concept of complexity differently from the sociological tradition. This change away from earlier ways of thinking is so important that we must go into it in more

detail. ⁷⁵ One can speak of communication, however technical the trapings of the process may appear, only if a change in the state of complex *A* corresponds to a change in the state of complex *B*, even if both complexes had other possibilities for determining their states.

To this extent, communication means limitation (placing oneself and the other within limits). ⁷⁶ This concept of communication can be built into a theory of complex systems only if one gives up the long-established idea that systems exist as elements *and* relations among these elements. It is replaced by the thesis that, because of complexity, carrying out the process of relating elements requires selections, and thus relationship cannot be simply added onto the elements. With those selections, the process of relating qualifies elements by cutting off some of their possibilities. In other words, the system contains, as complexity, a surplus of possibilities, which it self-selectively reduces. ⁷⁷ This reduction is carried out through communicative processes, and therefore the system needs a "mutualistic" basic organization--that is, attribution of its elements to complexes that are capable of communication.

Furthermore, this requirement that self-referentially processible unities be multiply constructed complicates anew the system/ environment thematic. What we cautiously and indeterminately named "complexes with divergent perspectives" must be presupposed in the constitution of elements and of relations among the elements of systems; thus it cannot be conceived as the combination of such elements and relations. Nor can it be a part of the system; instead, it belongs to the system's environment. This holds for brain cells in the nervous system and for persons in social systems. ⁷⁸ We will return to this special problematic from the perspective of "interpenetration" in Chapter 6.

11. One of the most important consequences of the transition to a theory of self-referential systems concerns the operative level, or system processes. On the level of elements, self-reference means that these connect up by referring back to one another and that interconnections or processes thereby become possible. But this can occur only if the types of element are sufficiently similar. Therefore, to cite an extreme case, no system unity can exist between mechanical and conscious operations, between chemical operations and those that communicate meaning. There are machines,

chemical systems, living systems, conscious systems, and (social) systems that communicate via meaning; but no system unities encompass all these at once. A human being may appear to himself or to an observer as a unity, but he is not a system. And it is even less possible to form a system out of a collection of human beings. Such assumptions overlook the fact that the human being cannot even observe what occurs within him as physical, chemical, and living processes.⁷⁹ The living system is inaccessible to the psychic system; it must itch, hurt, or in some other way attract attention in order to stir another level of system formation--the consciousness of the psychic system--into operation.

Thus autopoietic reproduction depends on an adequate homogeneity of system operations, and these define the unity of a determinate type of system. Of course, one can comprehend and observe things from other perspectives; but one cannot observe self-referential system constitution if one does not hold to the type of process and system thus given.

12. From self-referential system relationships, an immense extension of the boundaries of structural adaptability and of the corresponding scope of system-internal communication can be induced. The principle of this extension can best be conceived by starting with the concept of information. Information occurs whenever a selective event (of an external or internal kind) works selectively within the system, namely, can select the system's states. This presupposes a capacity for being oriented to (simultaneous or successive) differences that appear to be bound to a self-referential operational mode of the system. "A `bit' of information," as Bateson says, "is definable as a difference which makes a difference."⁸⁰ This means that the difference *as such* begins to work if and insofar as it can be treated as information in self-referential systems.

Therein lies an immense extension of possible causalities and a displacement of the structural problematics under their control. The extension goes in two directions. On the one hand, given the capacity to process information, things that are not present can also have an effect; mistakes, null values, and disappointments acquire causality insofar as they can be grasped via the schema of a difference. On the other, not just events but facts, structures, and continuities stimulate causalities insofar as they can be experienced as differences. Remaining unchanged can thus become a cause of

change.⁸¹ Structural causality makes self-determination possible. Systems can store up possibilities of affecting themselves and, with the help of schemata that employ differences, can retrieve these at need.⁸² It should be noted, however, that structure does not operate as such, on the basis of a force dwelling within it. It merely enters into the experience of difference, which makes information possible, without necessarily determining what will take place there. Thus a system creates its own past as its own causal basis, which enables it to gain distance from the causal pressure of the environment without already determining through internal causality what will occur in confrontations with external events. One realizes the scope of this evolutionary achievement when one considers that living systems depend on genetic determination for the autonomy of life.

As a result of all this, the operational mode of self-referential systems changes into forms of causality that to a large extent reliably prevent it from being steered from outside. All the effects that one wishes to achieve *ab extra* either in the system or with it assume that the system can perceive impulses from without as information--which is to say, as the experience of difference--and can in this way bring about an effect. Such systems, which procure causality for themselves, can no longer be "causally explained" (except in the reductive schema of an observer), not because their complexity is impenetrable, but on logical grounds. They presuppose themselves as the production of their self-production.⁸³

III

We have not yet considered a further theme, which multiplies all problems: time.

Every systems theory that claims to relate to reality must begin with the fact that nothing remains as it is. There is change. Systems are especially sensitive to changes, and therefore for some systems time exists as an aggregate designation for all change. We will leave open what time "is," because probably no concept of time that goes beyond the mere fact of changing can be determined without a system reference. A mere chronological concept of time, in the sense of a measure of motion with respect to a before and an after, is not adequate either, because it cannot satisfactorily reconstruct the

problems that systems have in time and with time. Therefore we will begin with these problems and rely on the perspectives of the system/environment difference, complexity, and self-reference to guide us.

1. The connection between complexity and selection with which we begin does not describe a state. It already implies time; it comes to be only through time and in time. In complex systems, time is the basis of the pressure to select, because if an infinite amount of time were at one's disposal, everything could be brought into tune with everything else. Viewed in this way, "time" symbolizes the fact that whenever anything determinate occurs, something else also happens, so that no single operation can ever gain complete control over its circumstances. Furthermore, selection itself is a temporal concept: it is imminent, is required, is performed, and finally is past. Selection enlists time in order to maintain itself in an already temporalized environment. One could say that selection is the dynamic of complexity. Every complex system must adapt itself to time--in whatever operatively graspable form this requirement takes for the system.

2. In this fundamental, operative approach to the temporality of systems, everything that can be designated "change" is already a special, derivative problem. It concerns structures alone. The concepts of reversibility and irreversibility have meaning only in reference to change. Changes can be either *reversible* or *irreversible*. The boundary between them cannot be drawn sharply, since reversal requires an expenditure of time, tradeoffs, and the acceptance of certain irreversibilities. But the problem that *both* reversibility and irreversibility occur is not affected by, but rather confirms, this indeterminacy. Whatever time may "be," it does not require irreversibility.

To the extent that time initially is given only as change, it is given as reversible and irreversible. The irreversibility of time, which today we so often assume, is an abstraction from a space/ time continuum encompassing what is reversible and irreversible; as an abstraction, it is not only a concept, but also a fact of the macroscopic order of nature. ⁸⁴ But time itself (and, as we will see later, "the present") is originally given in a fuzzy manner and leaves room for a transformation of irreversibilities into reversibilities of a higher order and vice versa.

Nevertheless, because of the way in which the macrophysical world is ordered, the presentation and experience of time via the metaphor of irreversibility is preferred. This has led to the idea of a second world with a time running opposite to ours, a world inaccessible to us because everything that wants to come into our world from that one is returned to it because of our time. ⁸⁵ Obviously, time must be asymmetricized through evolution to make order possible.

In any event, time does not present itself from every temporal point as indifferent to a forwards and backwards. The possibility of return or restoration does not contradict time, but rather superimposes itself on an "in itself" irreversible temporal course. Only to the extent that time appears to be irreversible can it be interpreted as an ongoing present with respect to a difference between the future and the past. This then leads to a differentiation (not valid for all systems) of a specific temporal dimension, to which further evolutionary achievements can connect. Seen from our point of departure, this preference for irreversibility appears to need explanation, and systems theory and evolutionary theory can explain the function of the one-sided irreversibility of time.

3. Given the difference in degree of complexity between it and its environment, a complex system, seen temporally, cannot rely on point-for-point correspondences with the environment. It must *give up the idea of full synchronization with the environment* and must be able to compensate for the risk of momentary noncorrespondence that this entails. "The processes which maintain this distinctiveness cannot simply presume to involve instantaneous adjustment, but *take time*." ⁸⁶ Thus it must be possible to set up time shifts within the relationship of system and environment: the mutual adjustments, corrections, or supplementations need not necessarily occur at the same time or follow one another continuously. Systems can prepare reactions and store them for when they are needed; they can react to momentary opportunities or disturbances with longer-term processes or even defer the reaction without breaking down in the meantime. Solving the problem of time is possible only under determinate structural conditions, which systems that want to exist in an environment rich in variation must satisfy; they must above all limit internal interdependencies. ⁸⁷ This directly affects complexity and self-reference.

The necessity of this differentiation results from the complexity of large systems' combinatory possibilities. No system can realize the logical possibility of connecting every element to every other one. This is the point of departure for any reduction of complexity. ⁸⁸ If a system wants to hold open all combinatory possibilities or even to realize them at the same time, either it must remain very small or it must order and reinforce its selective relations. This occurs through the *reflexivity of the process of selection*. The process addresses itself before finally making a concrete choice, that is, one on the level of the ultimate elements of the system. Two different forms are available for this: *structure* and *process*. Both mutually presuppose each other, because under increasingly demanding conditions (i. e., those not determined purely by chance), structuring is a process, and processes have structure. They differ through their relation to time.

The actual temporality of structures and processes requires a more precise determination. It would be wrong simply to understand structures as atemporal and processes as temporal. The oppositions of static versus dynamic or constant versus changing are equally unsuitable. ⁸⁹ The difference between structure and process reconstructs the original (=; environmentally conditioned) difference between reversibility and irreversibility within a time that is ordered irreversibly. ⁹⁰

Structures capture the reversibility of time because they hold open a limited repertoire of possibilities for choice. One can negate structures, or change them, or with their aid gain security for changes in other respects. ⁹¹ Processes, by contrast, mark the irreversibility of time. They are composed of irreversible events. ⁹² They cannot run backwards. Both arrangements serve, though in different ways, to amplify selectivity in a material respect; that is, to preselect possibilities for choice. Structures comprehend the open complexity of the possibility that every element could be connected with every other one, in a narrower model of relations that are "valid," customary, predictable, repeatable, or whatever is preferred. Through this selection, they can instruct further selections, by reducing the constellations that can possibly be surveyed at any moment. Processes (and this defines the concept of process) result from the fact that concrete selective events build upon one another temporally, connect with one another, and thus build previous

selections or predictable selections into individual selections as premises for selection. The preselection of what can be chosen is experienced as validity in the case of structure, but as the sequence of concrete events in the case of processes. Both arrangements of reflexive selection therefore direct the selection into domains that are relatively presupposed, thus relatively improbable, and *for this* they enlist time. Individual systems can attain more than minimal size and trivial complexity only if they possess both possibilities for amplifying selectivity, both structural and processual arrangements, and if enough time is at their disposal to do so. ⁹³

A system that controls its own structures and processes can assign *all* the elements that it produces and reproduces to these forms of amplifying selectivity. It can thereby regulate its own autopoiesis. Yet all possible elements cannot be included within the forms that amplify selectivity because of environmental conditions. Any attempt to include them functions merely as a difference schema. This means that, with regard to structures, one must reckon with conforming and deviant events, and, with regard to processes, with probable and improbable events. The gain in order here lies in that the system can orient itself to these differences and adjust its operations to them.

4. In particular, there are very different ways to solve the problem of gaining time. In relation to each other they are functionally equivalent; under complicated structural preconditions, they can reciprocally support as well as supplement one another. Each form has its own immanent developmental limits, but the combination of forms enables unforeseeable evolutionary advances.

First, there are mechanisms that make it possible to store up successful "experiences" for reuse. The structures (e. g., memory) that enable this abstract from points in time when danger or chance occurs. They react to the problem of time on the level of *whenever*. The simplest early forms of such mechanisms exist in systems that possess adequate complexity of their own for further development but can realize this prospect only in combination with a favorable environment. ⁹⁴ Their possibilities are, so to speak, shut down until further notice and kept in store for a point in time when a chance combination of system and environment will give them the prospect of realizing themselves.

Second, there is *speed*: mechanisms that enable the system to

increase the tempo of its own processes vis-à-vis relevant environmental processes. Superior speed can be used for very different purposes—for example, to stimulate possible environmental processes and to prepare for eventualities, to retreat and recoup, or to avoid specializing in a way that is too sharply defined and thus too dependent on the environment. One who is faster can do something else in the meantime.

A third way to solve the problem could be called the *aggregation and integration of temporal relations*. It presupposes the capacity for a selective grasp of extremely complex states of affairs, which we will return to in the next chapter under the title "Meaning." It can be anticipated only in psychic and social systems, which are able to bring their relationships of complexity into the form of meaning. In principle, it concerns the capacity for actualizing what is temporally not actual, with the risk of remembering or anticipating incorrectly. The construction of such possibilities produces as a frame condition an aggregate idea of time, an interpretation of irreversibility in the sense of the difference between past and future and an exploitation of the present to integrate discrepancies that are grasped temporally. The classical title for this, *prudentia* as the feature that distinguished man from the animals, ⁹⁵ also signified that there are strict limitations on the correct uses of this potential for actualizing what is not actual. Equally important is that on the one hand it conserves speed and on the other presupposes speed on other levels of systems and processes. The hedgehog and its mate, in their fake race with the hare, showing up in alternation at the turning points instead of actually running, possess, as a social system, *prudentia* in comparison with the hare: they can communicate quickly in a very selective way, while the hare can merely run quickly. Earlier societies seemed satisfied with such *prudentia*. Only in highly complex societies, only in the modern period, is interest in a time-transcending *prudentia* overtaken by interest in acceleration: the eighteenth century discovered that taste can judge more quickly than reason because it can individualize its criteria and can legitimate them by self-observation.

5. If the relative temporal autonomy of a system is secured by one or another combination of distancing mechanisms, then a system can use the temporal dimension to better solve the problems of its own complexity (as distinct from problems in connection

with its environment) and, above all, to increase its own complexity through the use of time. We will call this the *temporalization of complexity*.⁹⁶

The system adapts to the irreversibility of time by temporalizing its own complexity. By decreasing the temporal duration of its own elements or even reducing them to evanescent events, the system can join in the irreversibility of time. No longer at the mercy of such irreversibility, the system can copy it and internally allow only structures in a position to connect elements that are coming into being or passing away. In other words, a temporalized system forces itself, by the way in which it constitutes its elements, to observe the irreversibility of time.

Temporalization of complexity leads to a selective ordering of the connection between elements in temporal succession. In a more abstract formulation, the capacity to make selective relations can be greatly expanded if a system can establish an ordered difference between connections in temporal succession, a change of relational models according to internal and external demands. On the one hand, this requires abstraction of the structures that make it possible: they cannot be identical with the elementary relations themselves. On the other, it requires a temporalization of the ultimate elements of the system: they must be identified with reference to points in time, as events, information, or actions, and must thereby become subject to the irreversibility of time. The abstraction of structures makes possible, and the temporalization of elements requires, a constant change in relational models. An action does not remain an information; an event does not remain an event. Temporalized elements cannot be reinforced by repetition; they are determined from the outset to connect to *something different*. They can only actualize "current" connections, and therefore from moment to moment they create new situations, in which the system must choose between repetition and change. Systems of this kind are immanently restless, exposed to an endogenously generated dynamic and compelled precisely by this dynamic to themselves learn structures compatible with it.

As has already been mentioned, the temporalization of complexity comes about from the temporalization of a system's elements. The system is formed out of unstable elements, which endure only for a short time or even, like actions, have no duration

of their own but pass away in their very coming to be. Viewed chronologically, every element, of course, takes up a certain amount of clock time. But the system itself determines the length of time during which an element is treated as a unity that cannot be further dissolved; that period has a conferred, not an ontological character. Accordingly, an adequately stable system is composed of unstable elements. It owes its stability to itself, not to its elements; it constructs itself upon a foundation that is entirely not "there," and this is precisely the sense in which it is autopoietic. ⁹⁷

Nevertheless, such a system exists via its elements, thus via events. Outside of the elements, it has no basis for continuing (which is why we inevitably experience the present as so brief). Therefore one cannot separate the elements from the system, nor ever meaningfully distinguish them from the system; the event "is separate not from the whole, but in the whole." ⁹⁸ The theoretically proper distinction is not element (event)/ system, nor even element(event)/process, but element(event)/relation.

The theory of temporalization's most impressive consequence is that a new *interdependence of the disintegration and reproduction* of elements results. Systems with temporalized complexity *depend on constant disintegration*. Continuous disintegration creates, as it were, a place and a need for succeeding elements; it is a necessary, contributing cause of reproduction. Moreover, it supplies freely available material as a result of disintegration, for example, a labile chemical or physical combinatory capacity. As Zeleny so fortunately puts it, "Putting aside the notion of origin and examining an ongoing system, observe that disintegration `produces' the substrate necessary for production, production `produces' the catalyst necessary for itself and the links necessary for bonding, and bonding `produces' the stuff necessary for disintegration." ⁹⁹

It follows that temporalized systems must be fast ("hot"), that they must bring about closure and a capacity for discrimination (self- observation), and that what will be preserved is just this closure and capacity for discrimination--in forms that can achieve the tempo required. One could even say that true system performance resides in *conditioning the interdependence of disintegration and reproduction*. A structure is then what can unfold, that is, extend yet constrain, this interdependence.

Thus *reproduction* is a continuous problem for systems with temporalized complexity. This theory is not concerned, like the classical theories of equilibrium, with returning to a stable state of rest after the absorption of disturbances, but with securing the constant renewal of system elements--or, more briefly, not with static but with dynamic stability. All elements pass away. They cannot endure as elements in time, and thus they must constantly be produced on the basis of whatever constellation of elements is actual at any given moment. Reproduction thus does not mean simply repeatedly producing the same, but rather reflexive production, production out of products. ¹⁰⁰ To emphasize that we do not envision the unchanged preservation of a system, but rather an occurrence on the level of elements, which are indispensable for the preservation and change of the system, we will call the reproduction of eventlike elements *operation*. Below, whenever we speak of the "operations" of a system, this is what we mean.

6. The foregoing remarks on autopoietic reproduction under the condition of temporalized complexity lead to the concept of system- immanent *entropy*. For an observer, a system is entropic if information about one element does not permit inferences about others. The system is entropic for itself if in the process of reproduction, thus in the replacement of elements that have passed away, any possible successive element is equally probable. In other words, in entropy connectivity is not straitened and time is not won by the fact that not everything comes into consideration. Thus the concept indicates the limit case, in which the system reproduces itself out of itself purely by chance.

7. Systems with temporalized complexity have properties that one cannot find on their underlying levels of reality. They compel themselves to change their states constantly to minimize the duration of the elements that compose them. Thus, viewed temporally, they combine stability and instability and, viewed factually, determinacy and indeterminacy. Every element (event, action, etc.) is then *determinate and indeterminate at the same time*: determinate in its momentary actuality and indeterminate in its connectivity (which must, however, also be actualized in the moment). Insofar as this *combination is guaranteed* by the differentiation of a corresponding system, orderings *that are based on them* become possible.

Thus, for example, a system that forces itself to change its states

constantly must infer information from its environment, thus enabling itself to determine connecting states (*internally* connecting states!). If all elements are only events, self-reference alone does not provide adequate bearing for this. Certainly this is true of "purpose," of the drive to self-preservation, or of whatever else theories have advanced to derive an answer to this question from the description of systems themselves. The history of theory demonstrates that such answers end up tautologies. In the place of this history, we would like to set a system/environment theory. This means that the temporalization of complexity signifies dependence on a more exacting internal arrangement and, at the same time, increased dependency on information from the environment. The differentiation of the system is thereby intensified. It becomes, via an endogenously produced "irritability," more sensitive to selected aspects of its environment.

A second emergent characteristic concerns the system's internal orientation toward its own instability. Temporalization is possible only in self-referential systems. But this also means that the effects of temporalization must be built into self-reference. Not only is the system restless, but its own restlessness allows it no rest.¹⁰¹ And restlessness about restlessness may increase restlessness. This raises two questions: Are there bounds to self-destabilization, such that a system could, in transgressing them, turn out to have evolved itself to the point of its own destruction? and How, when need be, are these bounds controlled? One can clarify the problem (including the accompanying one of how such bounds are replaced) by looking at the prices according to which exchanges in the economic system are carried out. Prices must, to a certain extent, be destabilized. They must be capable of changing from one moment to the next in order to make fluctuations in supply and demand generated outside the system communicable within it. If it had a rigid price structure (and the internal reaction to precisely this rigidity as a self-created certainty), the system would be locked into its own operational foundations in a way increasingly estranged from its environment. Yet the admission of instability raises the problem of its limits, especially if one also adds into the calculation internal reactions to instability. At first, the formulation of such limits availed itself of direct reference to moral values, thereby orienting itself according to the system reference of society. Prices ought to

be "just." This way of thinking had to be abandoned when the societal differentiation of the economic system increased. Both a purely economic solution ("a market economy") and a political one have been favored as a replacement. The two share a tendency to enlist the instabilities of other system levels and/or other systems --such as the cost of money or collectively binding decisions-- thereby shifting the system's internal reactions to stability or instability accordingly.

If temporalization leads to the compression of determinacy and indeterminacy in momentary elements, to the internal processing of basal instability, to disturbance through restlessness and to structures that bridge time and thus presuppose change, then time is not the only thing that acquires a new kind of relevance for the system. The connections between temporal sequences and material differences raise new demands. We have already said that one basic aspect of temporality appears to be that somewhere else something different is always happening. And sequence is perceptible only if what comes after differs from what went before. This reciprocal ordering of temporal and material references seems to intensify as complexity is temporalized and as elements are taken to be momentary events.

Temporal difference and material variety at once separate themselves more distinctly and become more interdependent. Presumably, this is an evolutionary takeoff point, a situation in which, initially as a superb simplification, meaning takes shape and arrives at the point where references in both material and temporal directions must, constrained by form, be joined together in anything that can become an operation.

The Old-European tradition designated this "motion." Its physics was, until Newton, a physics of motion, and even Hegel's system cannot do without that concept. Thus a single phenomenon was, via a single concept, so valorized that it blocked more precise analyses of the interdependence of temporal and material conditions for system operations. Today, one cannot--to the extent that one has developed other possibilities for conceptualizing temporal complexity--discern the problematic that arose when the metaphor of motion was borrowed to solve the problem.

We cannot develop this any further here. The structural significance of temporalization cannot be overestimated, and the state of sociological research into it is greatly deficient. From the inside,

restless systems are the precondition of higher levels of system formation. The temporalization of complexity begins far below the human world. Anything that can be built on such a restless foundation must be able to change fluctuation into stability. But this is not the only problem. The systems that then become possible (naturally, we think above all of social systems) require a dynamic environment with its own necessary presuppositions as the condition for the establishment and maintenance of a system's own complexity. We will come back to this in our discussion of "interpenetration."

IV

In our remarks so far we have given precedence to formulating problems and carefully avoided a structural determination of the theory itself. We have not presented any "models" to avoid the appearance of a theory that is already on its way to determining structures. We have limited ourselves to enriching an understanding of the problems confronting systems theory. This is a consequence of the concept of self-referential systems. At the same time, it secures points of departure for *functional analysis*.

The method of functional analysis that we will assume throughout is based on the concept of information. This method serves to obtain information. (Whether this also pertains to "explanation" depends on the account of the concept that one gives.) It regulates and specifies the conditions under which differences make a difference. In other words, we are concerned with a particular horizon of the lifeworld that is established with specific purposes and that subjects everything that normally happens in the processing of information (namely, the scanning of differences) to specific conditions and thereby gives it determinate form. Functional analysis is a kind of theoretical technique, like mathematics; it would fall under Husserl's verdict concerning mathematics, ¹⁰² had we not already eliminated the grounds for this verdict, namely, the assumption of a subject that underlies and supports meaning.

As with any choice of methods, indeed with any epistemology, there are clear affinities for specific theoretical conceptual dispositions. Here the affinity concerns the epistemological interests indicated in concepts like complexity, contingency, and selection.

Functional analysis uses relations to comprehend what is present as contingent and what is different as comparable. It relates what is given, whether that be states or events, to perspectives on problems and seeks comprehensibly to enable a problem to be solved in one way or another. The relation between the problem and its solution will thus not be grasped for its own sake; rather, it serves as a connecting thread to questions about other possibilities, as a connecting thread in the search for functional equivalences.

Problems are problems only if they cannot be isolated, worked on, and solved one piece at a time. This is precisely what constitutes their problematicity. Problems exist only as problem-systems (or as system-problems). ¹⁰³ Therefore all functional orientation is directed toward a complex that cannot be dissolved, but can only be destroyed. We will have much to say about the "differentiation" of functional mechanisms. This never means, however, a detachment or separation from the original complex, but merely the establishment of functionally specific differences within the system, to whose problems the functional mechanisms relate. The differentiation of functional subsystems means, for example, the establishment of new system /environment differences within the original system. The functional orientation thereby retains the "holistic" aspect of older systems theories but combines it with the capacity to specify problems more precisely. This holds both on the level of concrete systems, which structure themselves by orientation to functions, and on the level of the scientific analysis of such systems.

The fruitfulness of the functional method and the explanatory value of its results depend on how the relation between problems and their possible solutions can be specified. Specifying means setting increasingly restrictive conditions of possibility. For empirical science, this means an appeal to causality. To be sure, the functional method does not consist merely in discovering law-governed causal relations, with the goal of being able to explain that, when specific causes occur, specific effects are inevitable (or sufficiently probable). The insight of functional method lies, so to speak, athwart causalities: it resides in comparing them. One can attain it even if causalities are assumed, for the moment, to be merely hypothetical and not yet adequately researched. ¹⁰⁴ One must, therefore, not only keep in mind the purely hypothetical

status of causal assumptions, but actually bring them into the comparison. Then one comes to statements like: if (it is really the case that) inflation solves problems of distribution in a relatively conflict-free way (with whatever side effects), inflation is a functional equivalent for a national planning that is politically riskier, because it is richer in conflict. ¹⁰⁵ Only on the underpinnings of a scaffolding composed of such statements does it seem worthwhile to investigate underlying causalities empirically. ¹⁰⁶ In this sense, then, the functional method is finally a comparative one, and introducing it into reality serves to open up what lies at hand for a sidelong glance at other possibilities. ¹⁰⁷ In the end, it ascertains relations among relations: it relates something to a viewpoint on a problem in order to be able to relate this to other problem solutions. Accordingly, "functional explanation" can be nothing other than the ascertainment (in general) and exclusion (in particular) of functional equivalents.

Here, it has often been objected that the relation among functional equivalents, on which everything depends, remains unclear or amounts to mere addition: "A is a possible problem solution, and likewise B, and likewise C..." ¹⁰⁸ This objection does not hold, however. What is decisive is that the addition is bounded by a given viewpoint on the problem, so that not anything at all, but only very specific instances, and often only a very few, come into consideration. If, for example, one needs light and darkness to make a film, one need not wait on the sun. One can use artificial light--but further possibilities are not readily apparent, or at least not available in great numbers.

What the functional orientation achieves resides in the broadening and limiting of what is possible.

Accordingly, the real theoretical achievement provided by the introduction of functional analysis resides in the construction of problems. This yields the conjunction of functional analysis and systems theory. ¹⁰⁹ The classical account of this conjunction interpreted the ultimate problem as that of the system's permanence, or stability. This is not incorrect, but it is inadequate. The abovementioned themes of the difference between system and environment, complexity, self-reference, and the temporal combination of irreversibility and reversibility (process and structure) can be interpreted from the methodological viewpoint as an articulation of the problem of permanence--as an articulation with the goal of opening

up better and, above all, more complex possibilities of analysis and comparison.¹¹⁰ But one must pre-eminently observe the change brought about by the concept of self-referential, autopoietic systems. No longer are we concerned with a unity possessing specific properties, about whose permanence or impermanence a global decision is made. Instead, we are concerned with the continuation or breaking off of the reproduction of elements through the relational arrangement of those very elements. Here, preservation is preservation of closure and of the incessant reproduction of elements that pass away in their very emergence.

But specified as a directive for comparison, the concept of function indicates something beyond the mere continuation of self-referential reproduction (maintaining permanence). For organisms, this concept implies more than just "life."¹¹¹ It indicates an intention to compare, an expansion of contingency, a perspective of observation. In this way it leaves open whether and to what extent self-referential systems are capable of observing and describing themselves and thereby discovering functional references.

A "systems *theory*" and a functional *methodology* locate functional analysis primarily within the system reference of the scientific system. This is empirically as well as historically correct. What one calls "functional analysis" actually occurs there. Functional analysis is by no means the only method used by the scientific system, but since the seventeenth century the scientific system has entertained the hypothesis that functional relation might be the truly fruitful principle of selection (!) for scientifically relevant data.¹¹² In this system reference, we call the rules that are valid for doing so "functional method." The system reference of the scientific system does not exclude functionalistically oriented self-analyses by personal, and, above all, by social systems (including the scientific system), nor does it exclude "conversation" between the scientific system and other systems about functional analyses and their results. Its transition to self-analysis can also partly succeed. It can, for example, grasp precisely the relation between a problem and its solution and avoid the uncertainty resulting from comparing what exists with functionally equivalent other possibilities or block this uncertainty by fixing values. It can bring functional equivalents into the form of "impossible alternatives" and then use them to legitimate the course of action always already

being followed. ¹¹³ The abstraction inherent in problem identification also poses a problem for adopting the analytical technique. To the extent that the problem references of functional analysis are abstracted and radicalized, it becomes more difficult for other systems to apply those references to themselves. And at present science itself is shielded from functional self-analysis by the dogmatics of "epistemology."

A system like science, one that observes other systems and analyses them functionally, uses an incongruent perspective in relation to them. It does not simply trace how these systems experience themselves and their environment. And it does not simply duplicate the view of the self it observes. Instead, the system being observed is covered over with a procedure of reproducing and increasing its complexity that is impossible for it. In its analysis science uses conceptual abstractions that do not do justice to the observed system's concrete knowledge of its milieu or to its ongoing self-experience. On the basis of such reductions--and this is what justifies them--more complexity becomes visible than is accessible to the observed system itself. As a technique of scientific observation and analysis, the functional method allows its object to appear more complex than it is for itself. In this sense it overburdens its object's self-referential order. It undermines its object's intuitive evidences. It irritates, unsettles, disturbs, and possibly destroys, if the natural lethargy of its object does not adequately protect it.

This overburdening is immanent in every observation. ¹¹⁴ Within interaction systems, for example, it is counteracted by techniques of self-presentation and by tact. Brakes of this sort are lacking for scientific analysis. Difficulties in communication step into their place. This general problem of overburdening takes on a specific character in the case of functional analysis, indeed, it does so in two respects. On the one hand, functional analysis can clarify "latent" structures and functions--that is, it can deal with relations that are not visible to the object system and perhaps cannot be made visible because the latency itself has a function. ¹¹⁵ On the other, functional analysis shifts what is known and trusted--namely, "manifest" functions (goals) and structures--into the context of other possibilities. That exposes them to comparison and treats them as contingent, without consideration for whether the object system itself

is capable of comprehending such a reorganization or not. Thus in both regards--latency and contingency--the analysis overburdens its object. The conceptual apparatus of systems theory makes this possible.

Self-reference, as well as the self-thematization of systems, then appears against the backdrop of functional analysis as a self-simplification of the object system, ¹¹⁶ which, for its part, fulfills the function of a necessary (but not unconditional, not necessarily in this way and no other) reduction of possible complexity. The need for reductions has its basis in the structure of the problem of complexity, namely, in that complexity forces a selection of preferred relational models. Insofar as it thematizes object systems, functional analysis apparently releases itself from this necessity. It reconstructs the system's contingencies, although these cannot be exploited as such. It supposes for its object a degree of freedom that it itself does not possess. But it compensates for this overestimation of reality by seeing therein its ultimate problem. It reflects the unreasonable demands its analysis contains in the very conceptuality of that analysis. The difference between self-reference in the object and self-reference in the analysis, between the observed and the observing system, comes to be reflected in the problem of complexity.

This justifies orienting functional analysis in systems theory to the problem of complexity instead of to the problem of maintaining continuances. Consequently, in dealing with problems functionalism rises toward the level required by the paradigm change discussed in the Introduction, namely, in the direction of a system/environment concept and a theory of self-referential systems. Functional analysis thereby also self-referentially grounds the choice of the ultimate problem that serves as its reference--namely, orientation to a problem that on the one hand can be thought of as immanent in the object, but on the other to a high degree becomes a problem through the analysis itself. By choosing a problem that formulates the unity of the difference between knowledge and object, the functional method goes beyond a mere methodological decision and claims to be an epistemology.

To be sure, there are no absolute guarantees that functional analysis will result in gaining knowledge--either in theory or in the method of correct procedure. ¹¹⁷ But at least there is an important

— clue. One might suppose that insights possess greater epistemic value the more different are the facts that confirm them. Therefore functioning in spite of heterogeneity is itself a kind of proof. Fascinated by the assumption of a parallelism between the structure of statements and the structure of objects, the dominant epistemology and methodology have neglected this method of securing knowledge. ¹¹⁸ That has led to a widespread skepticism about the methodological results of functional analysis. But if one revises epistemological premises that are obsolete in other regards in light of a transition to an epistemology guided by a theory of evolution, then one can also assess the methodological performance of analysis by functional comparison.

According to an old, insightful rule, truths emerge conjointly, but error in isolation. If functional analysis succeeds in demonstrating connections, despite greater heterogeneity and diversity in phenomena, then this can be a valid indicator of truth, even if the connections are evident only to the observer. In any event, for this technique of gaining insight it becomes more and more difficult to hold on to the conviction that results can be put down to erroneous method, to error, or to pure imagination. But this is in no way to say that the semantic form in which the results are presented "corresponds" to reality, merely that it "grasps" reality, that is, proves itself to be a form of ordering vis-à-vis a reality that is also ordered.

Notes

- [Note](#): 1. See, e. g., Henri Atlan, "Du bruit comme principe d'auto-organisation," *Communications* 18 (1972): 21-36; reprinted in Atlan, *Entre le cristal et la fumée: Essai sur l'organisation du vivant* (Paris, 1979).
- [Note](#): 2. We use the phrase "differentiate from" instead of "distinguish from" in order to avoid the implication of consciousness. This holds, above all, for biological and neurophysiological research on self-referential systems. But of course one can speak of "being able to distinguish" in the domain of social systems.
- [Note](#): 3. Even without explicitly choosing reference to a functional problem, one finds that comparisons of quite heterogeneous types of systems are frequently carried out in this way. In reference to the problem of the horizon of the future, which varies with system structures and processes, see, e. g., Edgar Taschdijan, "Time Horizon: The Moving Boundary," *Behavioral Science* 22 (1977): 41-48. But the consciously held functional perspective would suggest a stronger emphasis on distinctions among problem solutions and the existing reasons for them.
- [Note](#): 4. For an actual research report and for references to possibilities of social scientific application, see Stein Bråten, "Systems Research and Social Science," in George J. Klir, ed., *Applied Systems Research: Recent Developments and Trends* (New York, 1978), pp. 655-85. See also R. Felix Geyer and Johannes van der Zouwen, eds., *Sociocybernetics*, 2 vols. (Leiden, 1978).
- [Note](#): 5. The difference between system and environment can be justified more abstractly if one goes back to the general, primary disjunction of a theory of form that defines form *only* through a concept of difference: form and anything else. See for this P. G. Herbst, *Alternatives to Hierarchies* (Leiden, 1976), p. 84ff, and, fundamentally, George Spencer Brown, *Laws of Form*, 2d ed. (New York, 1972).
- [Note](#): 6. See for this, as cited in the Introduction, Heinz von Foerster, "On Constructing a Reality," in Wolfgang F. E. Preiser, ed., *Environmental Design Research*, vol. 2 (Stroudsburg, Pa., 1973), pp. 35-46.
- [Note](#): 7. As does, e. g., Karl W. Deutsch, *The Nerves of Government: Models of Political Communication and Control* (New York, 1963), p. 205.
- [Note](#): 8. "The definition of norms in systematic terms requires that we encounter normative differences as we cross boundaries, and leads us to suspect that we might also discover normative differences as we cross the boundaries of subsystems," says about social systems, Robert L. Kahn et al., *Organizational Stress: Studies in Role Conflict and Ambiguity* (New York, 1964), p. 161.
- [Note](#): 9. That is still a widespread interpretation. See, e. g., George J. Klir, *An Approach to General Systems Theory* (New York, 1969), p. 47ff; Karl W. Deutsch, "On the Interaction of Ecological and Political Systems: Some Potential Contributions of the Social Sciences to the Study of Man and His Environment," *Social Science Information* 13/6 (1974): pp. 5-15. For a critique, see esp. R. C. Buck, "On the Logic of General Behavioral Systems Theory," in Herbert Feigl and Michael Scriven, eds., *The Foundations of Science and The Concepts of Psychology and Psychoanalysis*, Minnesota Studies in the Philosophy of Science vol. 1 (Minneapolis, 1956), pp. 223-38 (p. 234f).
- [Note](#): 10. Where one could link to reflections on the relative advantage of *internal* system differentiation, which we will leave aside for the time being, to avoid complicating the analysis too much.
- [Note](#): 11. To simplify the presentation, we will disregard, for the time being, a second paradigm switch that is accomplished by the theory of self-referential systems, which replaces the paradigm of system and environment with a new guiding difference, namely, the difference between identity and difference. We can disregard this because it changes nothing in the theory of system differentiation.
- [Note](#): 12. See, e. g.: Herbert A. Simon, "The Architecture of Complexity," *Proceedings of the American Philosophical Society* 106 (1962): 467-82, also in Simon, *The Sciences of the Artificial* (Cambridge, Mass., 1969); Gordon Bronson, "The Hierarchical Organization of the Central Nervous System: Implications for Learning Processes and Critical Periods in Early Development," *Behavioral Science* 10 (1965): 7-25; Donna Wilson, "Forms of Hierarchy: A Selected Bibliography," *General Systems* 14 (1969): 3-15; Lancelot L. Whyte, Albert G. Wilson, and Donna Wilson, eds., *Hierarchical Structures* (New York, 1969); John H. Milsum, "The Hierarchical Basis for Living Systems," in George J. Klir, ed., *Trends in General Systems Theory* (New

York, 1972), pp. 145-87; E. Leeuwenberg, "Meaning of Perceptual Complexity," in D. E. Berlyne and K. B. Madson, eds., *Pleasure, Reward, Preference: Their Nature, Determinants and Role in Behavior* (New York, 1973), pp. 99-114; Howard H. Pattee, ed., *Hierarchy Theory: The Challenge of Complex Systems* (New York, 1973); M. A. Pollatschek, "Hierarchical Systems and Fuzzy-Set Theory," *Kybernetes* 6 (1977): 147-51; Jacques Eugène, *Aspects de la théorie générales des systèmes: Une recherche des universaux* (Paris, 1981), p. 75ff.

- [Note](#): 13. City and spatial planning have repeatedly referred to this--especially in connection with Christopher Alexander, "A City Is Not a Tree," *Architectural Forum* 122 (1965), April issue, pp. 58-62, May issue, pp. 58-61.
- [Note](#): 14. A good, carefully worked out example is provided by Gunther Teubner, *Organisationsdemokratie und Verbandsverfassung* (Tübingen, 1978).
- [Note](#): 15. Another special case is the one we call "stratification." It occurs when the primary subsystems can be brought into an order of rank.
- [Note](#): 16. Howard H. Pattee, "Unsolved Problems and Potential Applications of Hierarchy Theory," in Pattee, ed., *Hierarchy Theory*, pp. 129-56 (p. 135), formulates "hierarchical constraints as self-simplification of initially chaotic, very complex systems."
- [Note](#): 17. See, in particular, Leeuwenberg.
- [Note](#): 18. See Christian Meier, *Die Entstehung des Politischen bei den Griechen* (Frankfurt, 1980), p. 435ff, for the "consciousness of skills" in Greek antiquity.
- [Note](#): 19. A similar but less precise distinction, which still adheres to thinking in whole and part, is used by Andras Angyal, "The Structure of Wholes," *Philosophy of Science* 6 (1939): 25-37. Angyal, too, draws the consequence that it is impossible to define systems as collections of elements with relations. But that is the overwhelmingly predominant interpretation, and it makes analytically separating the conceptual connection between "system" and "complexity" impossible. Among others, see, e. g., Raymond Boudon, *A quoi sert la notion "structure?" Essai sur la signification de la notion de structure dans les sciences humaines* (Paris, 1968), pp. 30ff, 90ff.
- [Note](#): 20. For analyses that use this model, see Niklas Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), especially the summary on p. 34.
- [Note](#): 21. Here lie the foundations for the concept of self-referential systems, to which we will return below.
- [Note](#): 22. As Talcott Parsons clearly says: "Just as the units of a mechanical system in the classical sense, particles, can be defined only in terms of their properties, mass, velocity, location in space, direction of motion, etc., so the units of action systems also have certain basic properties [here we would have to say relations] without which it is not possible to conceive of the unit as 'existing'" (*The Structure of Social Action* [New York, 1937], p. 43).
- [Note](#): 23. One would come to the opposite conclusion following the formulation of Edgar Morin, *La Méthode*, vol. 2 (Paris, 1980), p. 311: "the emergent global qualities of an organization of the 'bottom' become the elementary basic qualities for constructing complex unities on a higher level." But this interpretation can be toned down by a circular (cybernetic) concept of hierarchy.
- [Note](#): 24. W. Ross Ashby introduces the concept of organization here (where I believe the concept of system would suffice): "The hard core of the concept [organization] is, in my opinion, that of 'conditionality.' As soon as the relation between two entities A and B becomes conditional on C's value or state then a necessary component of 'organization' is present. Thus the *theory of organization* is partly co-extensive with the theory of functions of more than one variable." ("Principles of the Self-Organizing System," quoted from Walter Buckley, ed., *Modern Systems Research for the Behavioral Scientist* [Chicago, 1968], pp. 108-18 [p. 108].)
- [Note](#): 25. For an overview of the many heterogeneous interpretations of this concept, see Devendra Sahal, "Elements of an Emerging Theory of Complexity per se," *Cybernetica* 19 (1976): 5-38.
- [Note](#): 26. I. V. Blauberg, V. N. Sadovsky, and E. G. Yudin, *Systems Theory: Philosophical and Methodological Problems* (Moscow, 1977), p. 84f, also view the problem of complexity as the only point of consensus among otherwise very different kinds of systems theories, as does Helmut Willke, *Systemtheorie: Eine Einführung in die Grundprobleme* (Stuttgart, 1982), p. 10ff. See also Gilbert J. B. Probst, *Kybernetische Gesetzeshypothesen als Basis für Gestaltungs- und Lenkungsregeln im Management* (Bern, 1981), for more recent literature in this area.
- [Note](#): 27. Of course, stronger reasons for avoiding definitions could be given, e. g., self-reference: complexity is too complex to be reproduced conceptually.

- [Note](#): 28. See for references Niklas Luhmann, "Komplexität," in Luhmann, *Soziologische Aufklärung*, vol. 2 (Opladen, 1975), pp. 204-20.
- [Note](#): 29. See: Warren Weaver, "Science and Complexity," *American Scientist* 36 (1948): 536-44; Todd R. La Porte, *Organized Social Complexity: Challenge to Politics and Policy* (Princeton, 1975). See also Anatol Rapoport, "Mathematical General System Theory," in William Gray and Nicholas D. Rizzo, eds., *Unity Through Diversity: A Festschrift for Ludwig von Bertalanffy* (New York, 1973), 1: 437-60 (p. 438): "The system-theoretic view focuses on emergent properties which these objects or classes of events have by virtue of being systems, *i. e.*, those properties which emerge from the very organization of complexity" (emphasis added).
- [Note](#): 30. "Must be held together" means that there are situations for the system in which a plurality of elements is to be treated as a unity.
- [Note](#): 31. For a (rare) consideration of this fact in the sociological literature, see, e. g., William M. Kephart, "A Quantitative Analysis of Intragroup Relationships," *American Journal of Sociology* 55 (1950): 544-49.
- [Note](#): 32. Kenneth Burke, at the outset of a chapter entitled "Scope and Reduction," writes: "Men seek for vocabularies that will be faithful *reflections* of reality. To this end, they must develop vocabularies that are *selections* of reality. And any selection of reality must, in certain circumstances, function as a *deflection* of reality. Insofar as the vocabulary meets the needs of reflection, we can say that it has the necessary scope. In its selectivity, it is a reduction. Its scope and reduction become a deflection when the given terminology, or calculus, is not suited to the subject matter which it is designed to calculate." (*A Grammar of Motives* [Englewood Cliffs, N. J., rpt. 1945; Cleveland, 1962, Berkeley, 1969] p. 59.)
- [Note](#): 33. See F. E. Emery and E. L. Trist, *Towards a Social Ecology: Contextual Appreciation of the Future in the Present* (London, 1973), p. 45ff.
- [Note](#): 34. Renate Mayntz first brought this problem to my attention.
- [Note](#): 35. See, e. g., the dissection into many, separately measurable dimensions in Todd R. La Porte, "Organized Social Complexity: Explication of a Concept," in La Porte, ed., *Organized Social Complexity: Challenge to Politics and Policy* (Princeton, 1975), pp. 3-39.
- [Note](#): 36. The history of this formula also speaks for this restriction, as in its use in Jerome S. Bruner et al., *A Study of Thinking* (New York, 1956).
- [Note](#): 37. Eric A. Havelock speaks, with reference to the Homeric epics, of a "tribal encyclopedia"--see his *A Preface to Plato* (Cambridge, Mass., 1963) and *The Greek Concept of Justice* (Cambridge, Mass., 1978).
- [Note](#): 38. Blauberg et al. present this turn well, but do not draw the conclusion of a theory of self-referential systems. Yves Barel, *Le paradoxe et le système: Essai sur le fantastique social* (Grenoble, 1979), esp. p. 149ff, does the same, although he includes problems of self-reference.
- [Note](#): 39. Only in passing will we remark here that further differences among relationships of complexity emerge as soon as a system makes up self-descriptions (or descriptions of its environment). Here, cybernetics speaks of "models." See, e. g., Roger C. Conant and W. Ross Ashby, "Every Good Regulator of a System Must Be a Model of That System," *International Journal of Systems Science* 1 (1970): 89-97. Then the complexity that forms the basis for system planning must be understood vis-à-vis the structured complexity of the system as its reduction and again as a reduction of the system's total complexity, which cannot be determined.
- [Note](#): 40. See, e. g., Lars Löfgren, "Complexity Descriptions of Systems: A Foundational Study," *International Journal of General Systems* 3 (1977): 97-214; Henri Atlan, *Entre le cristal et la fumée*, esp. p. 74ff; Atlan, "Hierarchical Self-Organization in Living Systems: Noise and Meaning," in Milan Zeleny, ed., *Autopoiesis: A Theory of Living Organization* (New York, 1981), pp. 185-208. See also Robert Rosen, "Complexity as a System Property," *International Journal of General Systems* 3 (1977): 227-32, for whom complexity means the necessity of a plurality of system descriptions, each with reference to interaction.
- [Note](#): 41. Theoretical treatments of the concept of boundaries are rare and mostly without much effect. For the more important contributions see, e. g.: Roy R. Grinker, ed., *Toward a Unified Theory of Human Behavior: An Introduction to General Systems Theory* (New York, 1956), esp. pp. 278ff, 307ff; P. G. Herbst, "A Theory of Simple Behavior Systems," *Human Relations* 14 (1961): 71-93, 193-239 (esp. p. 78ff); Wilhelm Aubert, *Elements of Sociology* (New York, 1967), p. 74ff; Raimondo Strassoldo, *Temì di sociologia della relazioni internazionali: La so-*

cietà globale, *Ecologia della potenza, La teoria dei confini* (Gorizia, 1979), esp. p. 135ff. More material can be found in: Aubert, "Confini e regioni: Il potenziale di sviluppo e di pace delle periferie," *Atti del convegno: "Problemi e prospettive delle regioni di frontiera"* (Gorizia, 1972; Trieste, 1973); Peter G. Brown and Henry Shue, eds., *Boundaries: National Autonomy and Its Limits* (Totowa, N. J., 1981).

- [Note](#): 42. As in Jiri Kolaja, *Social Systems in Time and Space: An Introduction to the Theory of Recurrent Behavior* (Pittsburgh, 1969). [Note](#): 43. See René Descartes, "Les Principes de la philosophie" II, 21, *Oeuvres et lettres*, ed. de la Pléiade (Paris, 1952), p. 623.
- [Note](#): 44. For territorial boundaries see, e. g., Guillaume de Greef, *La Structure générale des sociétés*, vol. 2 (Brussels, 1908), pp. 246, 250; Jean-François Lemarignier, *Recherches sur l'hommage en marche et les frontières féodales* (Lille, 1945); Roger Dion, *Les frontières de la France* (Paris, 1947).
- [Note](#): 45. See esp. Edgar Morin, *La Méthode*, vol. 1 (Paris, 1977), p. 197ff.
- [Note](#): 46. Formulated more precisely, this means that there must be internally as well as externally balanced relationships between dependencies and independencies, and that both these relationships stand in a nonarbitrary relationship to each other, which must, among other things, reduce complexity. This somewhat more strongly broken down formulation shows the theoretical efforts to dissolve objects into relations and relations among relations; at the same time, it shows how complexly stratified are the facts to which the concept of selection refers.
- [Note](#): 47. See, esp. for organized social systems, Niklas Luhmann, *Funktionen und Folgen formaler Organisation* (Berlin, 1964), p. 220ff.
- [Note](#): 48. See Donald T. Campbell, "Systematic Error on the Part of Human Links in Communication Systems," *Information and Control* 1 (1958): 334-69; J. Y. Lettvin et al., "What the Frog's Eye Tells the Frog's Brain," *Proceedings of the Institute of Radio Engineers* 47 (1959): 1940-51.
- [Note](#): 49. See Herbst, p. 88ff, with the consequence of turning the underlying conceptual formulation into a triad. The reflections outlined above, viewed technically for constructing a theory, avoid this triad.
- [Note](#): 50. In the sense of Roger G. Barker, *Ecological Psychology: Concepts and Methods for Studying the Environment of Human Behavior* (Stanford, Calif., 1968), p. 11f. See also Barker, "On the Nature of the Environment," *Journal of Social Issues* 19/4 (1963): 17-38.
- [Note](#): 51. One often finds the opposite interpretation argued. See, e. g., Alfred Kuhn, *The Study of Society: A Unified Approach* (Homewood, Ill., 1963), p. 48ff; David Easton, *A Framework for Political Analysis* (Englewood Cliffs, N. J., 1965), p. 65. Their formulations emphasize that observing systems, especially the sciences, are self-referential systems that bring everything that they determine into agreement with themselves. But this is true in general and does not lead to an adequate characterization of the objects that concern the observer or science.
- [Note](#): 52. See also Niklas Luhmann, "Territorial Borders as System Boundaries," in Raimondo Strassoldo and Giovanni Delli Zotti, eds., *Cooperation and Conflict in Border Areas* (Milan, 1982), pp. 235-44.
- [Note](#): 53. The conceptual formation "ecosystem" misconstrues this important fact. One ought instead to speak of an eco-complex.
- [Note](#): 54. See Lawrence J. Henderson, *The Fitness of the Environment: An Inquiry into the Biological Significance of the Properties of Matter* (New York, 1913).
- [Note](#): 55. See also "Adaption de soi à soi," in Edgar Morin, *La Méthode*, vol. 2 (Paris, 1980), p. 48.
- [Note](#): 56. In an earlier work Robert Merton quotes F. S. C. Schiller. See *Science, Technology and Society in Seventeenth Century England*, 2d ed. (New York, 1970), p. 229. For Merton's understanding of selection, see also Manfred Kopp and Michael Schmid, "Individuelles Handeln und strukturelle Selektion: Eine Rekonstruktion des Erklärungsprogramms von Robert K. Merton," *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 33 (1981): 257-72; Michael Schmid, "Struktur und Selektion: E. Durkheim und M. Weber als Theoretiker struktureller Evolution," *Zeitschrift für Soziologie* 10 (1981): 17-37.
- [Note](#): 57. See Robert B. Glassman, "Selection Processes in Living Systems: Role in Cognitive Construction and Recovery from Brain Damages," *Behavioral Science* 19 (1974): 149-65.
- [Note](#): 58. For references for self-organization, see n. 16 to the Introduction, above; for autopoiesis, see, above all, Humberto Maturana, *Erkennen: Die Organisation und Verkörperung von Wirklichkeit: Ausgewählte Arbeiten zur biologischen Epistemologie* (Braunschweig, 1982), and Milan Zeleny, ed., *Autopoiesis: A Theory of Living Organization* (New York, 1981). See also

Manfred Eigen, "Selforganization of Matter and the Evolution of Biological Macromolecules," *Die Naturwissenschaften* 58 (1971): 465-523; Heinz von Foerster, "Notes pour une épistémologie des objets vivants," in Edgar Morin and Massimo Piatelli-Palmarini, eds., *L'Unité de l'homme: Invariants biologiques et universaux culturels* (Paris, 1974), pp. 401-17; Klaus Merten, *Kommunikation: Eine Begriffs- und Prozeßanalyse* (Opladen, 1977); Peter M. Hejl et al., eds., *Wahrnehmung und Kommunikation* (Frankfurt, 1978); Niklas Luhmann, "Identitätsgebrauch in selbstsubstitutiven Ordnungen, besonders Gesellschaften," in Odo Marquard and Karl-Heinz Stierle, eds., *Identität, Poetik und Hermeneutik*, vol. 8 (Munich, 1979), pp. 315-45; Niklas Luhmann and Karl Eberhard Schorr, *Reflexionsprobleme in Erziehungssystem* (Stuttgart, 1979); Francisco J. Varela, *Principles of Biological Autonomy* (New York, 1979); Barel.

[Note](#): 59. See the central position of the concept "reflexive monitoring of action" in Anthony Giddens, *Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis* (London, 1979), here, of course, still bound to the idea of a subjective carrier (an agent).

[Note](#): 60. This location in consciousness or the subject would require considerable qualification. Most importantly, reference to consciousness in the Middle Ages always carried with it a reference to feeling (*sentire*) and in the modern period, to the "enjoyment of enjoyment," and this included a reference to existence (however undervalued, and not merely to knowledge). See, e. g., Joseph de Finance, "Cogito Cartésien et réflexion Thomiste," *Archives de Philosophie* 16 (1946): 137-321; Wolfgang Binder, "'GenuB' in Dichtung und Philosophie des 17. und 18. Jahrhunderts," in Binder, *Aufschlüsse: Studien zur deutschen Literatur* (Zürich, 1976), pp. 7-33.

[Note](#): 61. For more detail, see Chap. 8.

[Note](#): 62. See also C. P. Wormell, "On the Paradoxes of Self-Reference," *Mind* 67 (1958): 267-71; Lars Löfgren, "Unfoldment of Self-Reference in Logic and Computer Science," in Finn V. Jensen, Brian H. Mayoh, and Karen K. Möller, eds., *Proceedings from the 5th Scandinavian Logic Symposium* (Aalborg, 1979), pp. 250-59.

[Note](#): 63. We have anticipated these statements by introducing the concepts of element and relation.

[Note](#): 64. See the references above in n. 58.

[Note](#): 65. We will work this out more clearly in connection with Whitehead when we analyze the temporality of the elements of social systems (events). See Chap. 8, section III.

[Note](#): 66. See also Arvid Aulin, *The Cybernetic Laws of Social Progress: Towards a Critical Social Philosophy and a Criticism of Marxism* (Oxford, 1982), p. 8f.

[Note](#): 67. Even to the extent of viewing individual learning as the basic process of a structural change in the social system. See Michael Schmid, *Theorie sozialen Wandels* (Opladen, 1982), p. 37ff.

[Note](#): 68. This shows very clearly the restructuring of systems theory from design and control to autonomy that was mentioned in the Introduction.

[Note](#): 69. To this extent, our terminology is linked to the logic of Spencer Brown. See, e. g., Humberto Maturana, "Autopoiesis," in Zeleny, ed., *Autopoiesis*, pp. 21-33 (p. 23): "The basic cognitive operation that we perform as observers is the operation of distinction. By means of this operation we define a unity as an entity distinct from a background, characterize both unity and background by the properties with which this operation endows them, and define their separability."

[Note](#): 70. For the programmatic approach, see Ludwig von Bertalanffy, "General Systems Theory," *General Systems* 1 (1956): 1-10.

[Note](#): 71. See, e. g., Humberto Maturana, "Stratégies cognitives," in Morin and Piatelli-Palmarini, eds., pp. 418-32 (p. 426ff) and the critical objections by Henri Atlan in the same volume, p. 443.

[Note](#): 72. See Norman Muller, "Problems of Planning Connected with the Aspect of Reflexivity of Social Processes," *Quality and Quantity* 10 (1976): 17-38 (p. 22ff).

[Note](#): 73. As in Bråten, p. 658f. See also Bråten, "Competing Modes of Cognition and Communication in Simulated and Self-Reflective Systems," unpublished manuscript, Oslo, 1978.

[Note](#): 74. As in numerous publications by Gordon Pask. See in particular: *Conversation, Cognition and Learning* (Amsterdam, 1975); *Conversation Theory: Applications in Education and Epistemology* (Amsterdam, 1976); "Revision of the Foundations of Cybernetics and General Systems Theory," *Proceedings of the VIIIth International Congress on Cybernetics 1976* (Namur, 1977), pp. 83-109; "Organizational Closure of Potentially Conscious Systems," in Zeleny, ed., *Autopoiesis*, pp. 265-308.

- [Note](#): 75. A very clear presentation of this is W. Ross Ashby, "Principles of Self-Organizing Systems," in Heinz von Foerster and George W. Zopf, eds., *Principles of Self-Organization* (New York, 1962), pp. 255-78; rpt. in Walter Buckley, ed., *Modern Systems Research for the Behavioral Scientist* (Chicago, 1968), pp. 108-18 (esp. p. 109). Gregory Bateson has a better feeling for the enigma of this point of departure--namely, that there must be at least two "somethings" and together they create a difference, thereby acquiring information (Mind and Nature: A Necessary Unity [New York, 1979], p. 72f).
- [Note](#): 76. Normally, this is formulated as follows. Communication *presupposes* such restrictions; it presupposes, e. g., a language and norms that regulate the acceptance or rejection of utterances. This is correct. But in light of our thesis of self-reference, one must also consider that these restrictions are constructed in the course of communication, so that this should really be phrased: communication makes itself possible by self-restriction.
- [Note](#): 77. According to Ashby, moreover, this is so only for an observer, who projects possibilities on the basis of his own self-referential organization. I think that this is a relic of the classical forcing of epistemology into line with a theory of modalities, and thus a complication of the factual findings and epistemological apparatus of systems theory that can be avoided.
- [Note](#): 78. This at first startling, in any event "counterintuitive" theoretical decision can be avoided only if one does not hold system and environment to be a complete dichotomy, but admits some third member that belongs neither to the system nor to the environment. We believe that the disadvantage of such a disposition is more serious than a mere transgression of custom and intuition.
- [Note](#): 79. Rarely is something so self-evident specifically established and its theoretical relevance recognized. See, however, Michel Serres, "Le Point de vue de la biophysique," *Critique* 32 (1976): 265-77.
- [Note](#): 80. Gregory Bateson, *Steps to an Ecology of Mind* (San Francisco, 1972), p. 315. See also pp. 189f, 271f.
- [Note](#): 81. This is vigorously contested by Kenneth D. MacKenzie, "Where Is Mr. Structure?," in Klaus Krippendorff, ed., *Communication and Control in Society* (New York, 1979), pp. 73-78. But the thesis that follows: that structures, viewed causally, are superfluous, is hardly acceptable. Causality is a universal schematism, and this means that everything an observer defines as causal must be conceived within the observer's frame of reference, that is, must be substantiated as a cause.
- [Note](#): 82. This provides access to a theory of *memory* that would interpret memory as *differentiated structural causality*, or to a theory of *pain* with similar functions for organic systems. For the consequences for social communication, see Paul Ridder, *Die Sprache des Schmerzes* (Konstanz, 1979).
- [Note](#): 83. This thesis is located where one formerly felt the need to distinguish between "mechanistic" and "*geisteswissenschaftlichen*" theories and methods. The epistemological consequences are at present still not fully explored, but they are being discussed. See, e. g., Magoroh Maruyama, "Heterogenetics and Morphogenetics: Toward a New Concept of the Scientific," *Theory and Society* 5 (1978): 75-96.
- [Note](#): 84. See Ilya Prigogine, "Irreversibility as a Symmetry Breaking Factor," *Nature* 246 (1973): 67-71: an original (self-referential?) symmetry is temporally asymmetricized through the emergence of irreversibility.
- [Note](#): 85. See Ludwig Boltzmann, *Vorlesungen über Gastheorie*, vol. 2 (Leipzig, 1898), p. 253ff.
- [Note](#): 86. So, in a fundamental place, writes Talcott Parsons, "Some Problems of General Theory in Sociology," in John C. McKinney and Edward A. Tiryakian, eds., *Theoretical Sociology: Perspectives and Developments* (New York, 1970), pp. 27-60 (p. 30).
- [Note](#): 87. See: W. Ross Ashby, *Design for a Brain*, 2d ed. (London, 1954); Herbert A. Simon, "The Architecture of Complexity," *Proceedings of the American Philosophical Society* 106 (1962): 467-82, rpt. in Simon, *The Sciences of the Artificial* (Cambridge, Mass., 1969), pp. 84-118.
- [Note](#): 88. See also Friedrich Valjavec, "Identité sociale et évolution: Elements pour une théorie de processus adaptifs," thesis, Paris, 1980, p. 657ff.
- [Note](#): 89. Talcott Parsons also emphasizes the necessity of distinguishing these dichotomies, given that structures can change and processes can show a great degree of constancy (either over long periods of time or through repeatability). See "Some Considerations on the Theory of Social Change," *Rural Sociology* 26 (1961): pp. 219-39.

- [Note:](#) 90. Consider the experience of historians: that structures possess a different time (and not simply longer duration) than processes. Reinhart Koselleck, "Darstellung, Ereignis und Struktur," in Koselleck, *Vergangene Zukunft: Zur Semantik geschichtlicher Zeiten* (Frankfurt, 1979), p. 144ff.
- [Note:](#) 91. Here the (likewise time-oriented) discussions of cognitive or normative structures of expectation (which will be discussed in more detail below) enter in. This distinction concerns that between disappointment and change of expectations.
- [Note:](#) 92. But not as if they were assembled out of ready-made pieces, put together only by the process—rather, they are composed of events in the sense of self-referential elements, which link up with other events by reference to themselves. Basic to this is Alfred North Whitehead, *Process and Reality: An Essay in Cosmology* (New York, 1929; rpt. 1960). For more on the topic, see Chap. 8, section III.
- [Note:](#) 93. In this emphasis on the constitutional nexus of the difference between structure and process, we distance ourselves from theories that enlist either a logical or an ontological, either an analytic or an empirical primacy for either structures or processes. A considerable part of the sociological literature dedicated to this controversy has arisen out of such disputes about priority.
- [Note:](#) 94. See the remarks on "conditionality" as a basic property of "organization" in W. Ross Ashby, "Principles of the Self-Organizing System."
- [Note:](#) 95. See Cicero, *De officiis*, bk. I, chap. IV, II, quoted from the Loeb Classical Library edition, vol. 21 (London, 1968).
- [Note:](#) 96. See Niklas Luhmann, "Temporalization of Complexity," in R. Felix Geyer and Johannes van der Zouwen, eds., *Sociocybernetics*, vol. 2 (Leiden, 1978), pp. 95-111.
- [Note:](#) 97. In the literature on "autopoiesis" to date, this connection between minimal temporality and self-reproduction has not been treated adequately. This is precisely where I see the chance to have a specifically sociological influence on general systems theory. Action systems, more than any other kind of autopoietic systems, are clearly composed only of elements of *very short duration*, and their stability cannot be gained from a conglomeration of relatively short-term and relatively long-term bits.
- [Note:](#) 98. Robert M. MacIver, *Social Causation* (Boston, 1942), p. 64.
- [Note:](#) 99. Milan Zeleny, "What Is Autopoiesis," in Zeleny, ed., *Autopoiesis*, pp. 4-17 (p. 9).
- [Note:](#) 100. This understanding of reproduction has a tradition and was introduced long before Marx. See, e. g., Johann Jakob Wagner, *Philosophie der Erziehungskunst* (Leipzig, 1803), p. 48: "To reproduce means to produce from products."
- [Note:](#) 101. We owe the first theoretical formulations of this self-reference, which increases and reinforces the problem, to seventeenth-century anthropology, which in many respects is superior to the subsequent Neohumanism. See Niklas Luhmann, "Frühneuzeitliche Anthropologie: Theoriertechnische Lösungen für ein Evolutionsproblem der Gesellschaft," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), pp. 162-234.
- [Note:](#) 102. Edmund Husserl, *Die Krisis der europäischen Wissenschaften und die transzendente Phänomenologie*, Husserliana, vol. 6 (The Hague, 1954).
- [Note:](#) 103. Russel L. Ackoff, *Redesigning the Future: A Systems Approach to Societal Problems* (New York, 1974), p. 21, suggests for this the technical term "mess." In practice, this would mean beginning all planning with a curse.
- [Note:](#) 104. This must occur, of course, insofar as one analyzes causal relationships functionally. What is at issue is the knowledge acquired in this way. See, e. g., Rainer Döbert, *Systemtheorie und die Entwicklung religiöser Deutungssysteme: Zur Logik des sozialwissenschaftlichen Funktionalismus* (Frankfurt, 1973), p. 50ff; Klaus Grimm, *Niklas Luhmanns "soziologische Aufklärung" oder Das Elend der aprioristischen Soziologie* (Hamburg, 1974), p. 29ff; Hans Joachim Giegel, *System und Krise: Kritik der Luhmannschen Gesellschaftstheorie* (Frankfurt, 1975), p. 24ff; Alberto Febbrajo, *Funzionalità strutturale e sociologia del diritto nell'opera di Niklas Luhmann* (Milan, 1975), p. 50ff. In this controversy, the points of agreement seem to me greater than the differences. The differences in interpretation might essentially be reduced to the question of whether one conceives science as the search for the best possible explanations or as the particular form of increasing and reducing complexity.
- [Note:](#) 105. This example is drawn from Tom Baugartner and Tom R. Burns, "Inflation as the Institutionalized Struggle over Income Distribution," *Acta Sociologica* 23 (1980): 177-86.
- [Note:](#) 106. The dominant trend of sociological research forgoes such a methodologico-theoretical

construction and limits itself merely to delivering uncomfortable causalities, latent functions, etc. This is called "critical" or "progressive." But it leads only to the question of how the underlying problems could be solved differently.

[Note:](#) 107. For more on this, see Niklas Luhmann, "Funktion und Kausalität," in Luhmann, *Soziologische Aufklärung*, vol. 1 (Opladen, 1970), pp. 9-30.

[Note:](#) 108. See, e. g., Charles Larmore, "Function and System in the Social Sciences," in E. Rudolph and E. Stove, eds., *Geschichtsbewußtsein und Rationalität* (Stuttgart, 1982), pp. 225-52 (p. 232).

[Note:](#) 109. See Niklas Luhmann, "Funktionale Methode und Systemtheorie," in Luhmann, *Soziologische Aufklärung*, vol. 1, pp. 31-53.

[Note:](#) 110. Here, too, one can fall back on research traditions that are older than systems theory. See the contributions in Hans Ebeling, ed., *Subjektivität und Selbsterhaltung* (Frankfurt, 1976).

[Note:](#) 111. See Francisco G. Varela, *Principles of Biological Autonomy* (New York, 1979), p. 64f.

[Note:](#) 112. For Guillaume Lamy, *Discours anatomiques*, 1st ed. (Brussels, 1679), p. 10, e. g., this means: "I ... say only what will be necessary to make comprehensible my reasoning concerning usages and functions."

[Note:](#) 113. See Nils Brunsson, "The Irrationality of Action and Action Rationality: Decisions, Ideologies and Organizational Actions," *Journal of Management Studies* 19 (1982): 29-44 (p. 34).

[Note:](#) 114. See the research into divergences in attribution between actor and observer, e. g., Edward E. Jones and Richard E. Nisbett, "The Actor and the Observer: Divergent Perceptions of the Causes of Behavior," in Edward E. Jones et al., *Attribution: Perceiving the Causes of Behavior* (Morristown, N. J., 1971), pp. 79-94; Harold H. Kelly, "An Application of Attribution Theory to Research Methodology for Close Relationships," in George Levinger and Harold L. Rausch, eds., *Close Relationships: Perspectives on the Meaning of Intimacy* (Amherst, 1977), pp. 87-113 (p. 96ff).

[Note:](#) 115. In distinction to the next point in the text, this is a much-discussed theme. See, e. g., Robert K. Merton, *Social Theory and Social Structure*, 2d ed. (New York, 1957), p. 60ff; Clyde Kluckhohn, *Navajo Witchcraft* (Cambridge, Mass., 1944), p. 46ff; Harry M. Johnson, *Sociology* (New York, 1960), p. 66ff. We will return to this in the chapter on structure (Chap. 8, section XV).

[Note:](#) 116. See Richard Levins, "The Limits of Complexity," in Howard H. Pattee, ed., *Hierarchy Theory: The Challenge of Complex Systems* (New York, 1973), pp. 109-27 (p. 113): "Our argument in general terms is ... that the dynamics of an arbitrary complex system will result in a simplified structuring of that complexity."

[Note:](#) 117. By the eighteenth century the thesis was common that ingenuity, wit, imagination, or something similar--in any event, a *purely individually given* capacity--was needed to pose an unusual comparison that could comprehend many different sorts of things. See Alfred Baeumler, *Das Irrationalitätsproblem in der Ästhetik und Logik des 18. Jahrhunderts bis zur Kritik der Urteilskraft* (Halle, 1923; rpt. Darmstadt, 1967), p. 141ff.

[Note:](#) 118. But see the significance of this idea of "convergent confirmation" or "triangulation" in the psychologically inspired epistemology of Campbell: e. g., Donald T. Campbell and Donald W. Fiske, "Convergent and Discriminant Validation by the Multitrait-multimethod Matrix," *Psychological Bulletin* 56 (1959): 81-105; Donald T. Campbell, "Natural Selection as an Epistemological Model," in Raoul Naroll and Ronald Cohen, eds., *A Handbook of Method in Cultural Anthropology* (Garden City, N. Y., 1970), pp. 51-85 (p. 67ff). The suggestion goes back to the functional psychology of Egon Brunswik, but it employs scanty methodological sources.

Chapter 2: Meaning

I

This second chapter reaches beyond the more narrow domain of the theory of social systems and deals with a theme that concerns both psychic and social systems--psychic systems constituted on the basis of a unified (self-referential) nexus of conscious states, and social systems constituted on the basis of a unified (self-referential) nexus of communications. Other types of systems will not be considered.

Psychic and social systems have evolved together. At any time the one kind of system is the necessary environment of the other. This necessity is grounded in the evolution that makes these kinds of systems possible. Persons cannot emerge and continue to exist without social systems, nor can social systems without persons. ¹ This co-evolution has led to a common achievement, employed by psychic as well as social systems. Both kinds of systems are ordered according to it, and for both it is binding as the indispensable, undeniable form of their complexity and self-reference. We call this evolutionary achievement "meaning."

"Behaviorism" had already outgrown the one-sided, consciousness-related account of the concept of meaning--of course, only with the help of the opposing concept "behavior," which for its part is inadequate because (1) it is too constraining and (2) it unduly emphasizes consensus and behavioral attunement as the foundation of meaning. ² Instead of following on in this vein, it is better to avoid references to anything specific, since they always exclude

something, and to introduce the concept of meaning as a concept "devoid of difference" and intending itself along with. ³ What meaning is (the question of what meaning does we will leave aside for the moment) can best be presented in the form of a phenomenological description. ⁴ To attempt a definition would not do it justice because the question already presupposes that the questioner knows what it is about. ⁵

The phenomenon of meaning appears as a surplus of references to other possibilities of experience and action. Something stands in the focal point, at the center of intention, and all else is indicated marginally as the horizon of an "and so forth" of experience and action. In this form, everything that is intended holds open to itself the world as a whole, thus guaranteeing the actuality of the world in the form of accessibility. ⁶ Reference actualizes itself as the standpoint of reality. It refers, however, not only to what is real (or presumably real), but also to what is possible (conditionally real) and what is negative (unreal, impossible). The totality of the references presented by a meaningfully intended object offers more to hand than can in fact be actualized at any moment. Thus the form of meaning, through its referential structure, *forces* the next step, to *selection*. This inevitability of selection enters into the consciousness of meaning and, for social systems, into communication about what is meaningful. Thus the pure facticity of life as it is carried on can provide neither consciousness nor communication with any final certainty of being able to form connections.

In a somewhat different formulation, one could say that meaning equips an actual experience or action with redundant possibilities. ⁷ Thereby the uncertainty of the selection is offset once again. Redundancy serves the function of a guarantee. One can afford mistakes, because all possibilities are not yet exhausted. One can return to the starting point and choose another path.

A backward glance at what was said about complexity above easily reveals that *this formal requirement refers meaning to the problem of complexity*. This takes us from a phenomenological description back to a problem-related functional analysis. With *each* and *every* meaning, incomprehensibly great complexity (world complexity) is appresented and kept available for the operations of psychic and social systems. On the one hand, meaning thereby sees to it that these operations cannot destroy complexity, but rather are constantly

regenerated through the use of meaning. Carrying out operations does not make the world shrink; only *in the world* can one learn to establish oneself as a system by selecting among possible structures. On the other hand, every meaning reformulates the compulsion to select implied in all complexity, and every specific meaning qualifies itself by suggesting specific possibilities of connection and making others improbable, difficult, remote, or (temporarily) excluded. ⁸ Meaning is consequently--in form, not in content--the rendering of complexity, indeed a form of rendering that, wherever it attaches, permits access at a given point but that simultaneously identifies every such access as a selection and, if one may say so, holds it responsible.

Like the problem of complexity, the problem of *self-reference* reappears in the form of meaning. Every intention of meaning is self-referential insofar as it also provides for its own reactualization by including itself in its own referential structure as one among many possibilities of further experience and action. At any time, meaning can gain actual reality only by reference to some other meaning; to this extent there is no point-for-point self-sufficiency and also no *per se notum* (i. e., no matter-of-factness). Ultimately, the general problem of self-reference is duplicated, to the extent that in the domain of the meaningful it becomes unproductive for meanings to circulate as mere self-referentiality or in short-circuited tautologies. This possibility is not excluded, but rather indicated along with. One can think, "This rose is a rose is a rose is a rose." But this use of a recursive path is productive only if it makes itself dependent on specific conditions and does not always ensue. To acquire structural value for complex systems, interdependencies must satisfy the general condition of being conditioned.

The constraint of meaning, which is imposed on all the processes of psychic and social systems, also has consequences for the *relation between system and environment*. Not all systems process complexity and self-reference in the form of meaning; but for those that do, it is the *only* possibility. Meaning becomes for them the form of the world and consequently overlaps the difference between system and environment. Even the environment is given to them in the form of meaning, and their boundaries with the environment are boundaries constituted in meaning, thus referring within as well as without. Meaning in general and boundaries constituted

in meaning in particular guarantee the irrevocable nexus of system and environment in a form distinctive to meaning: redundant reference. No meaning system can conclusively lose itself in its environment or in itself because there are always implications of meaning given along with that refer back over the boundary. The system's differentiation with the help of particular boundaries constituted in meaning articulates a world-encompassing referential nexus, with the result that it becomes possible to ascertain when the system intends itself and when its environment. But the boundary itself is conditioned by the system, so that the difference between the system and its environment can be reflected as a performance by the system that is, thematized in self-referential processes.

As an evolutionary universal, meaning finally corresponds to the hypothesis of the *closure of self-referential system formations*. The closure of the self-referential order is synonymous here with the *infinite openness of the world*. This openness is constituted through the self-referentiality of meaning and is continuously reactualized by it. Meaning always refers to meaning and never reaches out of itself for something else. Systems bound to meaning can therefore never experience or act in a manner that is free from meaning. They can never break open the reference from meaning to meaning in which they themselves are inescapably implicated. Within a meaningfully self-referential world organization, one has at one's disposal the possibility of negation, but this possibility can only be used meaningfully.

Negations, too, have meaning, and only thus can they connect up with anything. Any attempt to negate meaning on the whole would presuppose meaning, would have to occur in the world. Thus meaning is an unnegatable category, a category devoid of difference. In the strictest sense, its sublation would be "annihilation"--and that could only be the matter of an unimaginable instance.

"Meaninglessness" can therefore never be achieved by the negation of meaningfulness. ⁹ Meaninglessness is a special phenomenon, which is, after all, possible only in the domain of signs and resides in a confusion of signs. A muddle of objects is never meaningless. A pile of rubble, for example, is immediately recognizable as such, and one can immediately tell whether it is attributable to time, to an earthquake, or to "enemy action."

Of course, the hypothesis of the universal, self-referential form-boundedness of all meaningful processing ¹⁰ does not mean that there is nothing but meaning. This would contradict the systems-theoretical frame conditions for analyzing the function of meaning, and it would also contradict the directly accessible contents of experience that in literary and philosophical traditions have gone under the names of pleasure, facticity, and existence. Not least, one should remember the religious experience of transcendence. We can replace these names--whose meaning cannot hide what they are up to--with the insight that the genesis and reproduction of meaning presupposes an infrastructure in reality that constantly changes its states. Meaning then extracts differences (which only as differences have meaning) from this substructure to enable a difference-oriented processing of information. On all meaning, therefore, are imposed a temporalized complexity and the compulsion to a constant shifting of actuality, ¹¹ without meaning itself vibrating in tune with that substructure. Such vibrations are ruled out by emergent self-referential systems. ¹²

However one interprets this state of affairs or changes interpretations on the basis of research, one must formulate them meaningfully in self-referentially closed meaning systems. In principle, everything is accessible to meaning systems, but only in the form of meaning. In this regard, universality does not mean exclusivity. But everything that can be perceived and processed in the world of meaning systems must assume the form of meaning; otherwise, it remains a momentary impulse, an obscure mood, or even a crude shock without connectivity, communicability, or effect within the system.

II

A very inadequate picture would result were one to stop with this static description of meaning. Even when the temporal dimension is included in the phenomenology of meaning, perhaps via the concept of motion, there remains the impression that meaning can be grasped as something given, something whose presence or absence can be determined. But into every experience of meaning, and thus into every kind of description and conceptual effort that tries to fix this phenomenon, is built, as a fundamental fact, an

element of unrest. Meaning forces itself to change. Whether the result can be grasped as flux, process, or motion is already a question of semantic processing, which belies the actual situation; here already one must be careful about intercultural comparisons because cultures can diverge in the semantics of the very first processing of this compulsion to self-change.

Well into the modern period, the world was described with the aid of a "thing schema."¹³ What established the unity of a meaning element was assumed. One could say that meaning was used, but not understood. As a description of the world, the thing schema was universally valid. Accordingly, the distinction between *res corporales* and *res incorporates* functioned as the guiding difference. This made it possible to totalize the schema. Thus the soul and the intellect, the transitory and the intransitory, could be included. Using the concept of ideas one could then copy the thing schema for application to mental operations. The world itself was viewed as a *universitas rerum* and, in its coming to be and passing away, as Nature. The tenacity of this way of thinking can be seen in the dissolution and reconsolidations it has undergone since the late Middle Ages: the dissolution works its way starting from the problem of knowledge and not from the thing itself; it takes a detour of great consequence for the entire history of modern thought.

Thus the overburdening and unrest inherent in meaning first appeared not in things but in man, who thereby disengaged himself from the world of things. It is an early-modern tradition to interpret this element of unrest in the context of an anthropology and to describe it with concepts like consciousness or *plaisir*, which can be attributed to humans. The "take off" of the modern worldview needed something to negate that could still be grasped and fixed as Nature (from which one could derive as well goals for improvement and a critique of civilization).¹⁴ The narrowing in on consciousness that followed did not do justice to the situation. On the one hand, in neurophysiological systems (and probably one would also have to say in atoms and stars) there is already an analogous basal unrest. On the other, the entire world of social communication is set up so that monotony is excluded and one can communicate only by changing themes and contributions. If there is nothing to say, then one must find something. In no way is one allowed to repeat what has already been said until something arises and forces one to say something new. This situation cannot readily be reduced

to consciousness; if it could, it might as well be reduced to neurophysiology, and so forth. Furthermore, consciousness has experienced how difficult it can be to keep communication going, anyway. For these reasons, we begin, without attempting a reductive "explanation," from the fundamental situation of basal instability (with a resulting "temporalized" complexity) and assert that all meaning systems, be they psychic or social, are characterized by such instability.

Thus meaning is basally unstable, and only thus can reality be treated as meaning for purposes of emergent system formation. This has compelling consequences for the constitution of social systems, to which we will return in more detail when we discuss topics like communication, action, event, and structure. But first we should clarify, insofar as possible, the sole thing that is thereby pre-given-- namely, that meaning must be fashioned as basally unstable, restless, and with a built-in compulsion to self-alteration.

The meaning-specific strategy of absorbing and processing its own stability seems to reside in the use of differences for connective information processing.¹⁵ What varies at any moment is not simply the "object" of an intention. Instead, meaning processing constantly shapes anew the meaning-constitutive difference between actuality and potentiality. Meaning is the continual actualization of potentialities. But because meaning can be meaning only as the difference between what is actual at any moment and a horizon of possibilities, every actualization always also leads to a visualization of the potentialities that could be connected up with it. The instability of meaning resides in the untenability of its core of actuality; the ability to restabilize is provided by the fact that everything actual has meaning only within a horizon of possibilities indicated along with. And to have meaning means that one of the possibilities that could be connected up can and must be selected as the next actuality, as soon as what is actual at the moment has faded away, transpired, and given up its actuality out of its own instability. Thus one can treat the difference between actuality and possibility in terms of temporal displacement and thereby process indications of possibility with every (new) actuality. Meaning is the unity of actualization and virtualization, of re-actualization and revirtualization, as a self-propelling process (which can be conditioned by systems).

How this proceeds becomes fully comprehensible if one considers

a second difference. In describing operations we would like to follow Spencer Brown and speak of "distinction" and "indication."¹⁶ The corresponding semantic results are called "difference" and "identity." The difference between difference and identity is instituted, as it were, across the difference between actuality and potentiality, to control the latter within the former's operations. What is possible is interpreted as the difference between different potentialities (including the one that is presently actualized and to which one can return), and the possibility of being actualized is then indicated in its identity as "this-and-not-something-else." This indication does not eliminate what is not actualized, but displaces it into a state of momentary inactuality. It can be preserved as a potentiality in the process of re- virtualization and carried over into new horizons.

On the whole, meaning is thus a processing according to differences, indeed, according to differences that are never pre-given as such but rather acquire their operative applicability (and, of course, their ability to be formulated conceptually) only out of meaningfulness itself. The auto-agility of meaning occurrences is autopoiesis par excellence. On this basis every event (however brief) can acquire meaning and become a system element. By this we do not mean something like "pure mental existence," but rather the closure of the referential network of self-reproduction. To this extent meaning processes are constituted autonomously in their function of enabling the acquiring and processing of information. They have their own scope, their own complexity, and their own tempo. But of course they do not exist in a vacuum or in a domain of mind for itself. They could not outlast the destruction of life or of its chemical and physical basis. But, by contrast to the difference schema presented above, this dependency is not an operative premise of the meaning events themselves. Thus meaning ensures the complex of properties necessary for the formation of system elements --namely, the possibility of an element's allowing itself to be determined by its relations to other system elements. Self-reference, redundancy, and a surplus of potentialities guarantee the requisite indeterminacy. And an orientation to semantically fixed differences steers the autopoietic process of meaning determination by at the same time taking into consideration and giving form to the fact that in each selection of successive actualities something else is always excluded.¹⁷

III

We have described meaning as processing according to differences. We could also call it processing of itself by itself. The interpretation thus given to the problem of meaning can be an occasion for determining more precisely just what is processed. Granted, everything meaningfully processed must have meaning, but how can this statement escape mere tautology? Here the concept of *information* steps in.

By information we mean an *event that selects system states*. This is possible only for structures that delimit and presort possibilities. Information presupposes structure, yet is not itself a structure, but rather an event that actualizes the use of structures.¹⁸ Events are elements fixed as points in time. (We will return to this in Chapter 8, section III.) They occur only once and only in the briefest period necessary for their appearance (the "specious present"). They are identified by this temporal appearance and cannot be repeated.

Precisely this suits them to be the elementary units of processes.¹⁹ And precisely that is supported with respect to information. Accordingly, a piece of information that is repeated is no longer information. It retains its meaning in the repetition but loses its value as information. One reads in the paper that the deutsche mark has risen in value. If one reads this a second time in another paper, this activity no longer has value as information (it no longer changes the state of one's own system), although structurally it presents the same selection. The information is not lost, although it disappears as an event. It has changed the state of the system and has thereby left behind a structural effect; the system then reacts to and with these changed structures.²⁰

Time itself, in other words, demands that meaning and information be distinguished, although all meaning reproduction occurs via information (and to this extent can be called information processing), and all information has meaning.²¹ This distinction is made possible by the concept of the *change of system states*. Information is always information for a system (which, of course, can include several systems at once). In characterizing systems that can acquire and process information, one must include an additional feature, which indirectly serves to determine the concept of information. We have in mind *systems that operate selfreferentially*, thus systems that must always play a part of their own in the alteration

of their own states. Otherwise we would have to do with nothing but simple alteration of the system through external influences. External influences appear to self-referential systems only as determination for self-determination and thus as information, which changes the internal context of self-determination without eliminating the structural principle that the system must come to terms on its own with everything that ensues from that self-determination. Therefore information is an event that constrains entropy, without thereby pinning down the system. ²²

Information reduces complexity insofar as it announces a selection and thereby excludes possibilities. It can, however, also increase complexity. This happens, for example, when the excluded possibility is a negative expectation. One had thought that pastors must always be men, yet this pastor is a woman. Should one then call her a pastoree? And kiss her hand? Furthermore, information can, of course, present a new object for which a schema of possibilities can only be constituted using the information itself, and perhaps only a very abstract schema, for the time being. In any event, information can increase as well as diminish uncertainty; ²³ and only thus is the evolution of meaning forms possessing a larger capacity for acquiring and processing information possible.

With the help of meaningful information processing, the system/environment relation acquires a formulation that is compatible with greater complexity and interdependence. Information is only possible within the system, only thanks to self-reference and schemas of interpretation. It can nevertheless be attributed by the system to the environment. Information appears as a selection from a domain of potentialities that the system itself devises and holds to be relevant; but it appears as a selection that not the system but the environment carries out. It is experienced, not enacted. In this way the system can acquire distance from the environment and expose itself to the environment. A system can condition its relation to the environment and thereby leave the environment to decide when which conditions will be given. One can, for example, decide in advance that a certain quantity, a certain weight is proper, ²⁴ and that the glass of marmalade one is holding contains only 430 grams. One is then free to complain, to give it back to the grocer, not to buy marmalade in the future, or even not to react at all.

As soon as meaning and information are available as evolutionary achievements, an evolution of meaning as such can be set going that tests which schemata of acquisition and information processing will prove themselves (above all, for predication and action) in their quality of making connections. Only through such an evolution of meaning can meaning itself acquire form and structure. Whatever remains to be said in this chapter presupposes that such a history of meaning has already consolidated structures that we treat as self-evident today.

IV

Thus no meaning-constituting system can escape the meaningfulness of all its own processes. But meaning refers to further meaning. The circular closure of these references appears in its unity as the ultimate horizon of all meaning: as *the world*. Consequently, the world has the same inevitability and unnegatability as meaning. Any attempt to go beyond it conceptually only extends it; any such attempt would have to enlist meaning and the world and thus would be what it was trying not to be. Husserl outlined this situation in the metaphor of the "horizon," although he did not completely analyze the self-reference of all meaning.

All proofs of this statement must already presuppose it; they have no other way of operating than by reflecting on the world within the world. We begin by phenomenologically describing the experience of meaning and the nexus of meaning and world constituted simultaneously, not basing this description on the underlying existence of an extramundane subject (which everyone would know existing in oneself as consciousness), but understanding it as the self-description of the world within the world. The historical semantics of different concepts of "world" has reflected in many ways this double status of the world as simultaneously containing and transcending itself as description: for example, as *soma tou kósmou*, as *machina mundi*, or as the relationship to a God who can be experienced everywhere as the center of the world, but nowhere as its boundary.

All self-observation and self-description is ultimately a distinction, an operation of distinguishing. The self-description of the world must therefore be characterized by a guiding difference. The

only distinction offering itself as a final form for this is the distinction between meaning and world. The *unity* of the meaningful constitution of the world (or of the worldful constitution of meaning) is articulated for phenomenological description as *difference*, and in this form can serve for acquiring information.

The relationship between meaning and world can also be described with the concept of decentering.²⁵ As meaning, the world is accessible everywhere: in every situation, in any detail, at each point on the scale from concrete to abstract. From any starting point one can proceed to all other possibilities in the world; this is what it means to say that the world is indicated in all meaning. To that state of affairs corresponds an a-centric world concept.²⁶

At the same time, the world is more than the mere sum comprehending all possibilities, all meaningful references. It is not just the sum, but the unity of these possibilities. Above all, this means that the world horizon for every difference guarantees its own unity as difference. It sublates the differences in all perspectives from individual systems, in that for every system the world is the unity of its own difference between system and environment. Thus in each specific performance the world functions as the "life-world." It is simultaneously the momentary absence of doubt, the existence of preconception, the unproblematic background of assumption,²⁷ and the supporting meta-certainty that the world somehow permits every dissolution and every introduction of distinctions to converge. It is the momentarily and generally presupposed closure of meaningful self-reference's circularity.

This unifying performance presupposes only the closure of self-referential connections. It is nothing more than this closure. Thus it is possible without thematic focusing, without hierarchization, and certainly without a practico-teleological convergence of world processes. The description of the world within the world could easily be accompanied by such interpretations. The history of world-semantics is the history of such attempts, and it obviously correlates with the complexity of the societal system. This holds for interpretations that are hierarchical as well as for those of a universal historical process, for the thing schema, for the idea of a *series rerum* as an order of perfection, and for the "temporalization" of this order through theories of the history of salvation or progress. The differences that orient such semantics (above/below, earlier/

later), however, presuppose the world as the unity of difference, and they are stable only as long as they are capable of corresponding to the structures and experiences that are factually decisive in the societal system's historical situation.

The reference to the world immanent in all meaning prevents one from defining meaning as a *sign*.²⁸ One must carefully distinguish between the structure of reference and the structure of signs.²⁹ The function of a sign always requires reference to something specific, while excluding self-reference. It requires the asymmetrization of a basal, recursive self-reference. In other words, there is neither a sign for the world nor a sign that indicates itself. But both of these--universality and self-reference--are indispensable properties of meaning. That is why meaning is the foundational matter: a sign must have meaning to be able to fulfill its function, but meaning is not a sign.

Meaning forms the context in which all signs are determined; it is the *conditio sine qua non* of their asymmetrization. But taken as a sign, meaning would be able to stand only as a sign for itself, thus as a sign for the non-fulfillment of a sign's function.

V

Accordingly, meaning is a general form of self-referential adaptation to complexity, which cannot be characterized by specific contents (to the exclusion of others). The structure thus indicated was interpreted differently in earlier societal systems--with consequences that can be traced in discussions of the concept of meaning up to the present day. The Old-European tradition cultivated a concept of reality that referred to goodness and perfection and ascribed "essential" meaning references to this concept.³⁰ This interpretation signaled limitations of compatibility, phenomena that dropped out of the order, and, in the transition to modernity, sometimes even a decaying world whose order was foundering. The modern period included corresponding pre-decisions in the theory of the subject. Insofar as meaning is defined with reference to a subject, which it usually is, we are still dealing with a tradition that excludes what is unwelcome or "meaningless" from its guiding concept.³¹ Enter an immanent normativity of a subject's facticity in order to respectify what is most general. The move from a

basic concept of meaning void of differences (if such a concept is accepted at all) to the operative concepts of meaning theory is carried out as a leap from whole to part and thereby implies a (premature!) renunciation of claims to universality. Their place is taken by "critique," in which the standpoint of the subject rounds itself out to a universality.

Cosmologies or subjects: in either case, the respecification of meaning proceeded by distinguishing parts of the world, which could lay claim to their own contours and did not exclude what was chaotic and meaningless, but merely pushed it "outside." One could say that the meaning preferred had to do with privileged beings, times, places, and ideas (evidences), which guaranteed order. At the same time, this meaning was representatively employed for the whole. The vocabulary of cosmology or subjectivity was provided with an orienting value, allowing for a residue of imperfections, for which the world or society must be to blame. ³² Correspondingly, what we would like to present as world dimensions--namely, factuality (*realitas*), temporality, and sociality--appeared as fitting within the cosmos or the subject's structure of consciousness. By means of the thing schema, the fact dimension dominated what could be described as "reality," to which the predicaments of the subject testified when it tried to extricate itself, and then nevertheless reproaches itself time after time for "reification." This way of thinking harmonized with the stratified structure of the old world and with the bourgeois society dissolving that old world. Today it cannot be adequately continued. Every attempt to do so would fall victim to a critique and would be burdened in advance with the knowledge that it would be so.

After the critique of a subjectivism taken to its extreme, a "hermeneutic" concept of meaning eventually established itself. It used understanding to fit whatever into an encompassing nexus, just as texts must be understood within a surrounding context. The "experience of meaninglessness" could thereby be formulated as a failure of this fit, as an isolation of the particular, a dependence on the accidental. Sociology, more than anybody, is, however, unable to adopt this hermeneutic concept of meaning. Ever since its beginning, or at least since Durkheim, sociology has attempted to attribute the experience of meaninglessness and chance, under such terms as *anomie*, back to society as the encompassing system. If

precisely that societal context of experience and action, which one claimed was what gave meaning, produced the experience of meaninglessness (or in any case helped to produce it), then obviously another concept of meaning was called for. Otherwise one would have to explain meaning-in-context as meaningless, and this would force reflection on the meaning of meaninglessness.

On a methodological level, our concept of meaning cancels the hypothesis that there should be a special methodology for situations where meaning comes into play. ³³ *For* meaning-constituting systems, everything has meaning; *for them*, there are no meaning-free objects. Newton's laws and the Lisbon earthquake, planetary motions and the errors of astrologers, fruit trees' sensitivity to frost and farmers' need to receive compensation for this--all have meaning. Only in the domain of meaning, that is, only in the world, can meaning-constituting systems differentiate whether they are dealing with systems for which the same holds true or with systems that react to themselves and their environment in a "meaning-free" way. Thus in the first instance there is no reason to require a special methodology for objects of meaning. Only within the meaningfully constituted world does one become aware, through the social dimension of *all* meaning, that *some* other systems also experience meaningfully, whereas yet other ones do not.

Only by social reflexivity, only in experiencing the experiences and actions of other systems, does the specific form of meaning processing called "understanding" come into consideration. The grasp of meaning is not in itself understanding in this rigorous sense. ³⁴ Instead, understanding happens only if one projects the experience of meaning or of meaningful action onto other systems with a system/environment difference of their own. Only with the help of the system/environment difference can one transform experience into understanding, and only if one also takes into consideration that the other systems and their environments themselves make meaningful distinctions. The same situation can be formulated using the concept of observation. Observation is any operation that makes a distinction; thus it is the basic operation of understanding. Understanding, however, occurs only when one uses a specific distinction-- namely, that between system and environment (not merely form/background or text/context)--and projects a closed, self-referentially reproduced meaning within this

distinction. Only the concept of meaning, the system/environment concept, and self-reference taken together clarify the scope of application for a special methodology for understanding.

When one returns to a more general, well-nigh universal concept of meaning—one that oversteps the bounds imposed by understanding -

-the question arises of the "functional capacity" of such a concept, one that no longer refers to subjects or contexts (already at hand). For one thing, we must describe this mode of functioning more precisely. This is possible with the help of the concept of (self-referential) *difference*. For another, we must clarify the decomposition of the *abstractum* "meaning." This can be done with the help of the concept "meaning dimensions."

We can thereby abandon the concept of the subject. This does not imply the domination of the fact dimension, though it will not be canceled by a subject opposed to it; instead we view factual references as merely one of several meaning dimensions. These references are not set against a subject, but, if meaning is complex enough, they must adapt themselves to complicated interdependencies with temporal and social meaning references.

VI

One does not adequately understand meaning's mode of functioning if one refers it to an identity that legitimates something meaningful, whether that be a cosmos perfect in itself, the subject, or a meaning-conferring context. A distinction between meaningful and meaningless would then be wrung from the identity that it cannot render as identity. The origin of the distinction remains obscure. It remains a problem of theodicy.

Instead, we would like to begin from the fact that a *difference* is contained in every experience of meaning, namely, the difference between what is *actually given* and what can *possibly* result from it. This basic difference, which is automatically reproduced in every experience of meaning, gives experience informational value. As meaning use progresses, it becomes evident that this and not that is the case; that one continues to experience, to communicate, and to act in one way and not another; that the pursuit of specific further possibilities proves its worth or not. The basic difference between actuality and the horizon of potentialities is that it is possible

to redifferentiate differences among open potentialities: to grasp them, to standardize them, to schematize them, and to acquire informational value from the ensuing actualization. Identities like words, types, and concepts are therefore introduced to organize

35 differences. They serve as a probe to sound out what proves its worth in distinction from something else, and, of course, to retain and reproduce what proves its worth.

Thus one begins not with identity but with difference. Only thus can one give accidents informational value and thereby construct order, because information is nothing more than an event that brings about a connection between differences--"a difference that makes a difference."³⁶ Therefore, we *encounter the decomposition of meaning per se*, not just as a difference, but as a *decomposition into differences*. We will indicate this discovery with the concept of *meaning dimensions* and will distinguish the *fact dimension*, the *temporal dimension*, and the *social dimension*. Each of these dimensions acquires its actuality from the difference between two horizons; thus each is a difference differentiated against other differences. Each dimension is given as universally meaningful, which implies, formally speaking, no constraints on what is possible in the world. To this extent one can speak of world dimensions.

In addition, this differentiation of differences, this decomposition into three meaning dimensions, takes the first step toward the de- tautologization of meaning's self-reference. Meaning has meaning; this remains (and accordingly, statements like "all meaning has meaning" and "only meaning has meaning" are not in question). At the same time, however, the self-reference of meaning is respecified dimensionally, in accordance with differences specific to the dimensions. The future is future only as the future of a present-with-a-past; but it is not the past and does not in the end change into it (as cyclical models suggest). My consent is consent only in relation to your consent. But my consent is not your consent, and there is no objective argument or rational ground (again, from the object domain) that could finally guarantee this coincidence.³⁷ Once the evolution of meaning has established this separation, self-references must be articulated within a respective dimension. The orientation provided by the opposing horizon--which respecifies the self-reference in every meaning dimension--cannot be broken open through the horizons of the other dimensions. One cannot,

for example, replace the future by consensus or consensus by the horizon of the system's internal fact dimension (which, for example, psychoanalysis claims to do). But to the extent that the difference between meaning dimensions (= the difference between differences specific to dimensions) is established, interdependencies between the dimensions can serve to condition and de-tautologize self-references. The circle is then broken. The factual world forces one to think time asymmetrically. Time forces one to think the relationship between the external world and the internal world asymmetrically as a difference in complexity. And this is the only way of gaining meaningfully structured complexity from the world in which the operations of meaning systems can find their place.

Instead of respecifying meaning in terms of something privileged (meaningful) according to ontologico-metaphysical traditions, in *its first step* of respecification the concept of meaning dimensions emphasizes *the universality of the claim to validity, including all negative possibilities*. In every meaning, be it formulated positively or negatively, the three meaning dimensions are available as forms of further reference. In general, the primary decomposition of meaning lies then in these three dimensions, and everything else is a question of their recombination. ³⁸

One can speak of the *fact dimension* in relation to *all objects of meaningful intentions* (in psychic systems) or *themes of meaningful communication* (in social systems). Facts or themes in this sense can also be persons or groups of persons. The fact dimension is thereby constituted in that meaning divides the reference structure of what is meant into "this" and "something else." Thus the point of departure for a factual articulation of meaning is a *primary-disjunction*, which contrasts something as yet indeterminate to something else as yet indeterminate. ³⁹ Further exploration is thereby decomposed into internal or external progress, into orientation toward the internal horizon or toward the external horizon. ⁴⁰ "Form" thereby emerges in the sense of a possibility for crossing boundaries and drawing out the consequences of this. ⁴¹ Everything can be handled in this way. To this extent the fact dimension is universal. At the same time, it forces the next operation into a choice of direction that--for the moment anyway--sets itself against opposing directions without annulling their accessibility. To this extent the fact dimension enables connective operations, which must decide

whether they want to stay where they are or move on to something else.

"Internal" and "external" present themselves as bundled references, combined in the form of horizons. We should pause a moment over this form of aggregating possibilities. It symbolizes, on the one hand, that the "and so forth" of possible actualization is endless and, on the other, that trying to run through this infinity would, at any moment, be unproductive. A horizon is not a boundary; one cannot step across it. At some time one must turn back, and the opposite horizon indicates the direction "back." ⁴²

Moreover, "turning back" means that any pursuit of intentions or themes is always experienced as approaching, never as receding from, a horizon. When one is absorbed in a single object, its external world does not recede into an ever-greater distance, and one does not need to unwind all the sequences of experience and action that have occurred for the opposite horizon to come into view. It is always represented together with the object and is always directly available as an immediacy of turning back secured by the simple duality itself.

One of the worst aspects of language (and the entire presentation of systems theory in this book is inadequate, indeed misleading, because of it) is that predication is forced on the subjects of sentences; this suggests the idea, and reinforces the old habit of thinking, that we deal with "things," to which any qualities, relations, activities, or surprises must be ascribed. But the thing schema (and correspondingly the interpretation of the world as "reality") offers only a simplified version of the fact dimension. Things are constraints on possibilities of combination in the fact dimension. ⁴³ Corresponding experiences, therefore, can be gained from things and tentatively reproduce themselves. In this form, things provide handy clues for managing references to the world. But they also conceal the fact that always, inevitably, two horizons cooperate in the factual constitution of meaning, and that, accordingly, twofold descriptions giving internal and outer profile are necessary to fix the meaning of an object. ⁴⁴ Therefore we will often have occasion to reiterate that the primary object of systems theory is not the object (or kind of object) "system," but the difference between system and environment.

The *temporal dimension* is constituted by the fact that the difference

between before and after, which can be immediately experienced in all events, is referred to specific horizons, namely, is extended into the past and the future. Time's bond to what can immediately be experienced is thereby dissolved, and time gradually also sheds its relation to a difference between presence and absence.⁴⁵ It becomes an independent dimension, ordered only according to the when and not to the who/what/where/how of experience and action. Time becomes neutral with reference to presence and absence, and what is absent can then be interpreted as simultaneous, without considering the time that one needs to reach it. This makes a unified and unifying measurement of time possible, and in the semantics of time it then becomes possible to separate temporal-point sequences from past/present/future relationships and to relate the sequences to these relationships.

Then time, too, is stretched between the horizons assigned to it, horizons that mark what cannot be reached and that make references possible: between past and future. For meaning systems,⁴⁶ time is the interpretation of reality in light of the difference between past and future. Therefore the horizon of the past (and likewise of the future) is not the beginning (or the end) of time. This idea of a beginning or an end is excluded by the concept of the horizon. Instead, the entire past and the entire future function as the temporal horizon--whether it is presented as chronological, and therefore linear, or not. In any event, it is impossible to experience or to act anywhere in the past or the future, and this cannot become possible because the temporal horizons shift as time progresses. Futures and pasts can only be intended or thematized, not experienced or acted in; in this regard they are entirely alike.

The time span between past and future in which a change becomes irreversible is experienced as the present. The present lasts as long as it takes for something to become irreversible. On closer inspection one sees that two presents are always simultaneously given and that only the difference between them creates the impression of the flow of time.⁴⁷ One present appears as punctual: it uses something (a clock hand, a sound, movements, the beating of the waves) to mark that things are always irreversibly changing. The world changes frequently enough for this present to be symbolized as the inexorability of time. The other present endures and thereby symbolizes the reversibility that can be realized within all meaning

systems. Self-reference enables one to return to earlier experiences or actions, and it continuously indicates this possibility: a thing is still where one left it; a mistake can be undone. The finality of an action can be forestalled by a present intention, which has not yet become irreversible. Both these presents reciprocally polarize themselves as the difference between events and permanence, between change and duration, and that makes it possible for a past still visible in an irreversible event and a future already visible in a lasting present to become present. Only thus can one continuously know that something past disappears into unrepeatability and something future is just over the horizon. The contrast between this constant switching back and forth and the simultaneous duration of self-referential basic organization can be experienced as contrast and is usually symbolized as the continuity of movement or as the flow of time. However, this is only a metaphor, one that helps life find its way through time but that is inadequate for analytical purposes.

By being presented as time and in its vocabulary, incipient irreversibilities and a self-relatedness that keeps things from becoming irreversible are brought into the meaningfully self-referential organization of psychic and social systems. The metaphors and analytics of time thereby become open and plastic enough to adapt to greater complexity in the course of societal development. The historical semantics of time varies in accordance with the twofold difference between past and future and the reversible or irreversible occurrence of the present.⁴⁸ But none of these variations can destroy time's meaning reference and the meaningfulness of time, because self-referential systems are closed systems and meaning can be related only to meaning.

Finally we must note that *history* is constituted in the specific meaning dimension of time. By history we do not simply mean the factual sequence of events, according to which what is present is understood as the effect of past causes or as the cause of future effects. What is specific to the history of meaning is that it enables optional access to the meaning of past or future events, and thus leaps within the sequence. History originates in the release from sequence. A meaning system has a history to the extent that it limits itself by optional accesses--whether by specific past events (the destruction of the Temple, the crowning of the kaiser by the

pope, the battle of Sedan, or, more modestly, a marriage, breaking off studies, a first jail sentence, or a homosexual's "coming out") or by finalizing the future. Accordingly, history is always the present past or the present future, always an abstention from pure sequence, and always a reduction of the freedom to have disjunctive access to everything past and everything future that is gained through this abstention.

The *social dimension* concerns what one at any time accepts as like oneself, as an "alter ego," and it articulates the relevance of this assumption for every experience of the world and fixing of meaning. The social dimension possesses world-universal relevance, because if there is an alter ego, then he is, just like the ego, relevant to all objects and to all themes.

To begin with, it is important to avoid combining the social and fact dimensions. This was and is the cardinal mistake of humanism. Humankind was variously understood as distinct from animals, was equipped with sociality (*animal sociale*) and temporality (*memoria, phantasia, prudentia*), and was finally declared to be the subject. Even today the theory of the subject still accepts a single internal/ external relationship where object and social dimensions should be distinguished as different twofold horizons.⁴⁹ But humankind always remains one privileged object among others--as can be seen in the tendencies to re-anthropologize transcendental philosophy and its concept of the subject. Accordingly, humanism reproduces a concept of nature and then must deal with the dilemma of its own restrictedness.

The distinction between factual and social dimensions should not be misunderstood as the distinction between nature and humankind. Theoretical progress resides precisely in avoiding this humanistic dovetailing. The social dimension is endowed with an independence vis- à-vis any factual articulation of meaning that reaches through to everything. It emerges from the fact that alongside the ego-perspective one or many alter-perspectives come into consideration. A social reference can then be required of every meaning. This means that one can ask of every meaning whether another experiences it in exactly the same way I do. Moreover, meaning is not social by being bound to a specific object (mankind), but as the support of a peculiar reduplication of interpretative possibilities. Accordingly, the concepts of ego and alter (alter

ego) do not stand for roles, persons, or systems, but for special horizons that collect and bind together meaningful references. Thus the social dimension is also constituted by a twofold horizon; it is relevant to the extent that in experience and action—it becomes apparent that the interpretive perspectives a system relates to itself are not shared by others. Here as well, the horizontality of ego and alter means that further exploration will have no end. ⁵⁰ Because a twofold horizon is constitutive of the independence of a meaning dimension, what is social cannot be traced back to the conscious performances of a monadic subject. This has been the downfall of all attempts to establish a theory of the subjective constitution of "intersubjectivity." ⁵¹

Social-psychological research starting from the consensus/dissent problem already succeeds better in addressing this problem. ⁵² If what is social in meaning themes is experienced as reference to (possibly distinct) interpretive perspectives, then this experience can no longer be attributed to a subject. Here, too, the difference is constitutive as a twofold horizon for what, as meaning, is left open. An ego alone could certainly not live in this way.

Just as in the fact dimension there is the stimulus of the primary distinction between inner and outer and in the temporal dimension there is the "orthogonal" problem of reversibility/irreversibility, which makes it possible to order experiences temporally, there is a similar problem in the social dimension: the opposition between consensus and dissent. Only when dissent can emerge as a reality or a possibility has one occasion to interject the twofold horizon of the social as the dimension of orientation that is especially important at the moment; and only to the extent that this occurs especially often or especially clearly in specific meaning complexes does a particular semantics of the social emerge within societal evolution, which, being the theory of this difference, is capable of both consensus and dissent. ⁵³ Here, too, a dimensionally specific arrangement enables a pre-existing difference to be treated meaningfully, thus adapting it to the operative possibilities of self-referential systems. The social dimension, once available, enables a constantly accompanying comparison with what others can or would experience and how others could position their actions.

As the thing schema simplifies references to the world in the fact dimension, so the social dimension tends to boil down to

morality. The moralism of world interpretations is paralleled by a realism. In both cases the "and so forth" of references into the horizon of other experiences and actions is replaced by constraints on combination. Morality indicates the conditions under which persons can praise or blame one another and themselves. ⁵⁴ It cancels possibilities that would go beyond this in the attempt to bring social convenience, if not under a "moral law," then at least under foreseeable conditions of reciprocal constraint.

For societies that are becoming more complex, a global programming of the social dimension in the form of morality becomes increasingly inadequate: in part because morality's zones of tolerance must be overextended, in part because everything excluded must be morally discredited--and practically because both occur together and morality is thereby pluralized. This does not mean that morality gradually disappears. In everyday living, orientation to (the conditions for) respect and disrespect is just as indispensable as orientation to things.

But the problematic of the social dimension reaches far beyond this, and all morality finally finds itself relativized within horizons where one can ask further why someone experiences, judges, and acts in the way he does, how this occurs, and what that means for others.

VII

Husserl described phenomenologically how the world, although an endless horizon, guarantees its own determinability. This leads directly to the idea of the typology or the typological restriction of all experience and action with which phenomenological sociology has continued to work. ⁵⁵ A self-interference of infinity in the direction of specification, however, cannot be adequately understood as the mere content of experience and the condition under which experience can take place. The decomposition of the world into dimensions on the basis of meaning, including the ascription of a constitutive double horizon to every dimension, as presented here, makes possible a further step in the analysis; above all, it enables a clearer depiction of the conditions of possibility for determining meaning.

In agreement with a basic premise of evolutionary theory, we do not assume that the world respecifies itself to determination.

Instead, we begin from the fact that there must be mechanisms that, regardless of what triggers them, produce adequate determinacy. The difference between meaning and world is formed for this process of the continual self-determination of meaning as the difference between order and perturbation, between information and noise. Both are, and both remain, necessary. The unity of the difference is and remains the basis for operation. This cannot be emphasized strongly enough. A preference for meaning over world, for order over perturbation, for information over noise is only a preference. It does not enable one to dispense with the contrary. To this extent the meaning process lives off disturbances, is nourished by disorder, lets itself be carried by noise, and needs an "excluded third" for all technically precise, schematized operations.⁵⁶ The typology of the essential forms that actually guide daily conduct results from previous determinations of meaning, which cannot be attributed to the world (in the sense of an ontology of essential forms) or to the subject (in the sense of a theory of its constitution). Instead, these forms follow from the fact that the meaning-related operations of self-referential systems are triggered by problems (primary disjunction, irreversibility, dissent) and that the double horizons of the meaning dimensions put one under pressure to create options.

This frame of reference urges every operation to locate its intended meaning within the structure of the dimensions and their horizons. Operations must carry out determinations corresponding to the dimensions--not for the sake of the operations' own determinacy, but because otherwise they could not connect to any other operations. Options for determination are a requirement of systemic combinations, and a corresponding provision for connectivity is imposed by the self-reference of every operation: choosing the direction of determination serves to connect *further* experience or action, but it nonetheless appears as a requirement of *every* operation because every operation infers itself from connective possibilities and can only determine itself in this way.

When feeding the provision for connectivity back into an individual meaning-related operation, a stronger *schematization* of the options in the respective dimensions proves useful. Empirical research has discovered a series of schematizations that facilitate relating and, too, change in relations.⁵⁷ In the *fact dimension* the

difference between *external and internal attribution* functions as the main schematization. ⁵⁸ It clarifies whether the point of contact for further operations is an external or an internal cause. According to the direction of attribution, a meaning system distinguishes *experience* and *action* in relation to itself and in relation to other systems: if the meaning selection is attributed to the environment, then what occurs is characterized as experience, and the system turns to its environment to seek points of contact for further measures (even if the system was involved as experiencing!). By contrast, if the meaning selection is attributed to the system itself, then what occurs is characterized as action (even if such action is entirely impossible without reference to the environment). ⁵⁹

When one distinguishes experience from action, one can differentiate the reproduction of meaning and the reproduction of systems. Attribution as experience--including the experience of action--helps to reproduce meaning, the ongoing actualization and virtualization about which we spoke in section II, above. Attribution as action--including action that presupposes and seeks experience--serves to reproduce the social system by establishing the starting points for further action. One can even say that experience actualizes the self-reference of meaning, that action actualizes the self-reference of social systems, and that both are held apart and recombined in performances of attribution. Because here we are considering meaningful action--namely, action that can be experienced --the reproduction of meaning is always a precondition of the reproduction of systems. One cannot escape experience by action (even if, of course, one can escape being observed by others). We must also take into consideration the fact that one can react to experience (and not only to action) by action: it begins to rain, so one opens an umbrella. Despite these intersections, differential attribution is an important and unavoidable regulation. Within the wide, vague range of meaningful experiences, such attribution enables the differentiation of highly selective action systems, which attribute their selections to themselves.

Here, one clearly sees how the schematism reduces complexity, eliminates references, and makes it easy to join operations onto one another. Both "internal" and "external" horizons continue to function together, and it remains possible to redirect from one horizon to the other. One can always disagree about attributions: what one

experiences primarily as a reaction to experience, another sees as an action. Nonetheless, the schematism provides assistance for understanding and simplification in processing complexes with open meaning that are indispensable for preserving complex systems. Such systems appear reciprocally in their own frame of self-referential interpretation as action systems and in their interaction attest to that as a useful foreshortening of reality. We will return to this in the following chapter.

The same is true of the *temporal dimension*. Here, too, the schematism is mediated by processes of attribution, and the decisive distinction seems to lie in the question whether the attribution refers to constant or to variable factors. ⁶⁰ This predecision always determines the further handling of an object or an event, and difficulties in that further handling can in turn problematize the predecision.

Finally, in the *social dimension* ego and alter are personalized for the purpose of attribution or are identified with specific social systems. Even though they always function as ego and as alter (for another ego), they retain their identities, names, and addresses. Nonetheless, the social schematism does not intend these systems as objective givens of the world; instead, it only concerns their functioning as ego or alter and the consequences that result. This distance from the fact dimension is expressed linguistically in personal pronouns, which change when different people use them yet refer to something that does not change in speech. Reference to an object makes it possible to hold on to the consequences of the attributive schematism, whereas the social schematism makes it possible to use *both* partners, *both* perspectives--that of ego and that of alter--together or in succession, and then to decide in whose perspective what means what.

Thus within fixed and agreed-upon system identities disagreement can arise concerning whether an "I" accepts the attribution of selections thought about it as a "you." Here "schematism" means that social attribution concerning a fixed object world can be held in suspense and processed self-referentially, and that disagreement on this level does not necessarily and immediately dissolve the things, persons, or events of the object domain.

Here, too, it is evident that schematization drastically foreshortens and simplifies in order to make connections possible. Just

as there is no experience without action or constancy without variation, there is no ego without reference to an alter and without the discovery that alter is an alter ego. But further processing requires foreshortening these reciprocal relations to a single point, condensing information in accordance, and absorbing uncertainties so that in the sequel something determinate for new relating is at hand. Precisely the permanent fluctuation of linkages in communication as in mind requires adequate momentary unambiguity, which can be risked because it can be dissolved again if necessary. The schematisms impose unrealistic options and thereby structure, without determining, the continual self-simplification of the system.

The fact that in every dimension the schematism is mediated by attribution means, finally, that it must be presupposed in all communication processes. One does not communicate about the schematism and the options it opens up. What is presupposed in communication is no longer at one's disposal, it is simply practiced. This accelerates the communication process and relieves it of the temptation to make deep-seated negations. When someone says "I," it is really no longer a subject of discussion whether he presents himself as the (dependent) "you" of another "I." Acquiring speed and fluidity in processing by holding open the thematization of a return--this is the function of schematizations. As a whole, they have a functional relation to the problems of time that are raised by the differentiation of system and environment.

VIII

The fact dimension, the temporal dimension, and the social dimension cannot appear in isolation. They must be combined. They can be analyzed separately, but in every real intended meaning they appear together. As a consequence of this presupposition, analysis can proceed in two directions. Both the consequent directions for reflection quickly become involved in analyses of the theory of society, however, and therefore they can be indicated here only briefly.

The viewpoint that first guides us is a recognition that the degree to which the three dimensions can be distinguished and the extent of their differentiation from one another result from socio-cultural

cultural evolution and so vary with social structure. ⁶¹ Perhaps the most important evolutionary achievement that has separated meanings from one another is the invention of writing. ⁶² Writing makes it possible to store communication, independent of the living memory of the interactive partners, indeed, even independent of the interaction. Communication can then reach those who are not present, and the time it arrives can be chosen almost at will, without requiring one to form chains of interaction (messengers, reports, or stories) to bring this about. Although communication still requires action, in its social effects it is detached from the temporal point of its first appearance, of its formulation. Thus capacity for variation in the uses of what is written can increase because writing is relieved of the immediate urgency of interaction: one formulates communication for unforeseeable social situations, which do not require one's presence. This also means that an object orientation can be differentiated more sharply from a social one, thus enabling "philosophy" (= communication for the sheer joy of concern) to become possible. ⁶³ Greater degrees of freedom, greater contingency, greater invariance, and greater changeability go hand in hand. What is fixed in writing remains fixed for the time being; one can change it only if one wants to change it; but one may, in fact, want to do so.

With the separation of these dimensions, socio-cultural evolution creates the initial framework for articulating the complexity that it itself produces. The increasing differentiation can be formally described as the increased independence of the double horizon that a dimension constitutes at any given time. Thus the concision and distinctiveness of the horizons past and future, which in old modes of thinking ultimately merged together in the darkness at the ends of the world, increased to the extent that objective differences could be charged to another account, namely, to the difference between inner and outer. The initial object-related terminology of *varietas*, *praesens*, and *novus* was then converted to temporal references. ⁶⁴ Once this differentiation was in place, new combinations became possible--for example, in the form of sciences, that, beginning in the eighteenth century, began to draw conclusions from what was simultaneous (thus, empirically!) for what was not simultaneous.

The social dimension gradually achieves independence from the

fact dimension as well, above all by reshaping the position conceptualized for humans. Only very gradually, and only to the degree required by changes in social structure, was the meaning-constitutive relevance of the social dimension revealed to be the semantic interpretation of the human individual as a guiding thread, via a detour in characterizing humans that then had to be retained yet leveled out. Humans were first interpreted as a special kind of animal with temporally and socially related properties, then as the pride and culmination of creation, and finally as an individual living in relation to a world. In the accompanying philosophical theory, the fact and social dimensions were differentiated by modern reflection on the endlessness of the internal horizon in the special case of each individual consciousness. This reflection posits I and world as both congruent and endless (although in an inverse formulation, mediated by negation): but in order to retrieve the I, so to speak, from internal lostness inside that endlessness, something the object world cannot accomplish because it only produces alienation, this reflection requires another I: a you. ⁶⁵ Thus "I"--in one possible formulation of a semantic correlate for this development triggered by social structure--acquires the endlessness specific to it as I, its transfinite selfhood, only by contrast to another I (you) of the same type, which forbids it, by *watching*, any ontological self-fixation. ⁶⁶

In section V, above, we have characterized as understanding the specific form of observation suited to the social dimension. Understanding requires observation with the help of the system/environment difference; it requires that one interpret the system to be understood as a system that is meaningfully oriented to its own environment. Because meaningful orientation always implies a world, an understanding system cannot avoid re-encountering itself in the environment of the system to be understood. In this way, ego and alter ego come to mirror each other. The understanding system sees itself as alter ego's alter ego. One can suppose that every social relation, at least rudimentarily, provokes attempts to understand. Understanding makes the behavior of others more accessible, easier to observe, and easier to anticipate. Therefore the mechanism that differentiates the social dimension from the fact and temporal dimensions and formulates a semantics specifically tailored to this is to be found in the provocation to understanding,

in the performative superiority of understanding, in understanding itself. The consensus/dissent difference thereby becomes at once more and less important--more important, because it alone articulates the social dimension in an informationally significant way, and less important, because it merely articulates the social dimension.

Only this last interpretive step registers the autonomy of the social dimension in all meaning--by contrast to the earlier emphasis on the human and on interpreting the social as privileged communication among living beings existing in a privileged ("good") way, an interpretation suitable for stratified societies. Of course, these modifications in significance did not in themselves "cause" the differentiation of the social dimension; however, they indicate empirically that corresponding changes have occurred and that those changes must, if possible, be incorporated into the semantic repertoire of society.

The general self-reference of all meaning, which implies that all experience of meaning projects itself beyond itself and then finds itself again there, is specified by the differentiation of the meaning dimensions. One finds dimensionally specific self-references to the degree that the differentiation between the dimensions becomes more familiar; and once these self-references are formed, they reinforce differentiation of the meaning dimensions. Throughout the history of meaning formation, specific semantics have emerged to regulate performances of differentiation--above all, a semantics of time distinguishable from the order of objects and a semantics of the social that, by the eighteenth century at the latest, relinquished the idea that it only regulated the particular factual thing "man," and that this concerned what distinguishes humans from animals.

It is not possible here to trace this history of differentiation, to clarify its connection with the structural changes of the societal system, and to show what role self-references formulated as dimensionally specific have played in this connection. ⁶⁷ We must be satisfied with emphasizing the point from which a detailed formation of hypotheses could begin.

Time is mirrored within time with the help of the dimensional horizons past and future. This means merely that every temporal point has its own past and future, and precisely because of this possesses uniqueness in the temporal dimension. When one experiences

that, one also sees that every past and every future of every temporal point can be dissolved into temporal points for which the same is true. This opens up a temporal endlessness that can be extended as far as one likes--not only in the double direction of the beginning and end of time, but, for every temporal point, into its own particular horizons. Thus "time" is at best a chronological convention, an aggregate expression for the totality of the temporal possibilities broken open by time. If so much time is situated within time, then one must ask how such a high complexity can be further reduced and how these reductions are conditioned. Or, to formulate the same question in another terminology: through the self-referential temporalization of time, an endless iteration of time arises within time, accompanied by the need for a historical semantics of time that sets valid accents for specific epochs, societies, and social systems, knowing all the while that it has the option of dissolving time in time. Time itself is historicized, and all temporal semantics must come to terms with this, adjust themselves to it.

Exactly the same circumstances can be observed in the social dimension. There, too, perspectives are mirrored by perspectives: I know that you know that I know ...; I reckon your action to be yours, knowing full well that you reckon I'll do so. Here the dimensionally specific complex of references goes on without end. And points of consensus, like temporal points, exist only against the horizon of such possibilities, which is to say, exist only conventionally.

One encounters the same situation in the fact dimension with the internal /external horizon of things. Because every horizon occasions this doubling, the world trails off into the endlessly large and the endlessly small. In the modern worldview, this appears as the sublation of all external boundaries and as the dissolution of all elements, of all the points where this dissolution might stop. Only the gods could control the elements, one would have believed in earlier times and found therein a frame of certainty (however unattainable). But the gods have disappeared along with the elements, and the material facts must in consequence be conceived as groundless constructions, as an improbability that has become probable.

This internal endlessness separates the individual meaning dimensions more sharply than any meaning determination, which, indeed, would finally enlist all dimensions. Therefore the development

of self-reference in the individual dimensions leads to a sharper separation and to a weakening of reciprocal implications. Time, for example, cannot then appear to be a cause, and a thing's essence is no guarantee of duration. Above all, the realization of dimensionally specific self-references leads to the dissolution of all natural points of support and then to recombinatory acquisitions of meaning that have to lend themselves stability. We will have to consider what this means and which semantics would be adequate when an increase of societal complexity triggers such a development.

Both the self-referential constitution of society as the social system par excellence and the self-referential constitution of meaning verify that meaning dimensions separate and become relatively independent via an empirical historical process. In particular, increased differentiation means that negations in one dimension do not necessarily imply negations in the others. This increasingly blocks consensual obligations vis-à-vis matters of fact, on the one hand,⁶⁸ and "consensus theories of truth," on the other.⁶⁹ Reference to the future now seems to permit negating present states of affairs in almost any way. The temporal and fact dimensions thus give each other more room for play, and correspondingly "temporal binding" is discussed as a necessary function of social mechanisms, such as language.⁷⁰

Within the semantic apparatus, this correlates with the greater clarity and depth of focus achieved in the double horizons of internal/external, past/future, and ego/alter. On the one hand, the appropriate dichotomy carries the differentiation of the respective meaning dimensions, and, on the other, higher complexity is achieved through it. A capacity for dissolving and recombining relative to matters of fact grows with the scope of historical consciousness, and so does what one could call reflective social sensibility. Then meaning dimensions mediate one another with greater difficulty, and it becomes necessary to think complexity only in the context of being either factual, temporal, or social complexity, with the consequence that strategies for reduction are correspondingly diversified.⁷¹

Today, differentiations that have been driven so far apart are possible in more than just an analytical sense. They belong to the reality of meaning references in contemporary society as a kind

of background to consciousness. One consequence is the much-decried erosion of traditional societies' cultural heritage. Another is omnipresent difficulties in legitimation and foundation. Integrative formulas in the form of oppositions like "perfection/imperfection" or "ideal/reality," which cover all dimensions at once, seem to have dissolved. This in no way loosens the dimensions' reference to meaning. Interdependencies remain, taking on new forms that still have to prove their worth. In the place of compact assumptions that bind in all dimensions at once, a combinatory consciousness, which perhaps can best be characterized as an option-load, seems to be required: if someone establishes something in a factual respect (e. g., invests), then this has not just any consequences in temporal and social respects. If future horizons vary--for example, if in the wake of too rapid a fluctuation of circumstances they draw nearer to the present, then this affects the chances of reaching a consensus (one can no longer "accept" short-term disadvantages; everyone wants everything all at once), as well as what is still objectively possible within so short a time. The variety of these and other combinatory problems does not exclude the possibility of investigating constellations and thereby coming to conclusions on a high level of generality. But in view of the option-loads thereby coming to awareness, there no longer exists a general formula for what is good and right, because their starting points vary from dimension to dimension and consequences from the societal system's structural decisions spill over into the meaningfulness of experience and action in different ways. The system lacks reason. In view of the contingency surplus that constitutes meaning and is continuously reproduced as meaning, however, the restoration of reason would be possible only by imposition. This is also an aspect of the freedom of function systems, which is a fact for the time being, to test their possibilities, and an aspect of their openness to evolutionary development. Under these self-referential conditions meaning tends more than ever not toward planning, but toward evolution.

IX

The next thesis, which concludes our discussion of meaning, maintains that the self-referential processing of meaning requires *symbolic*

generalizations. The concept symbol/symbolic in that indicates the medium in which units are formed; the concept of generalization the units' function--to handle multiplicity operatively. In very rough outlines, it is a matter of a plurality being related to a unity and symbolized by it. Thereby a difference between operative (or processual) and symbolic levels emerges that makes self-referential operations actually possible. ⁷²

Such a definition and the accompanying term "generalization" were suggested by psychological research. The theory of psychic systems, with its insight that environmental states or events must be grasped globally and represented in a generalized manner because sensory- motor capacity cannot achieve detailed handling point-for-point, dissolved the stimulus /response schema. ⁷³ Parsons developed a parallel concept of action, which already required a meaningful-symbolic generalization on the level of "unit acts" that could be assembled in systems. Accordingly, an action is possible only when the unity of the connections among its components is identified via a symbolic generalization. As an element of system formation, action is already an emergent phenomenon, which can only be brought forth by the use of symbols. Meaning and generalization converge in this argument. The theory of self-referential systems, to which a more precise analysis of the interdependencies between sensory and motor processes, as well as a stronger emphasis on the "subject" reference in the concept of action, gave impetus, combines both these theoretical developments into a new synthesis.

When one asks more precisely how meaning can be used on the level of self-referential system processes, one comes up against a requirement one could describe as the necessity of self-symbolization or self-abstraction. Every meaningfully grasped given must not only be fully present at a moment and thereby "fulfill" experience or action; it must also organize self-reference, thus ensuring that, if necessary, it can be made available again in (more or less) different kinds of situations, at other points in time, with other possible partners of social communication. This re-availability is built into concrete experience and action by symbolic generalization. As availability for others, it is also, although not only, the precondition for possible communication. Meaning is grasped, on the one hand, as full, concrete, and to this extent unrepeatably and

nontransferable; yet, on the other hand, it refers to condensations as unities that make what is complex objectively or thematically attainable. In other words, symbolic generalizations stamp identities onto the flux of experience--identities in the sense of respective reductive references to themselves at any given time.

All of this is already guaranteed on the level of concrete, familiar things and events. One recognizes from the noise outside that the garbage can has just been emptied. One goes outside and knows, among many garbage cans, which is mine without this requiring a word, a name, or even a concept. Words and names, for example, could not guarantee recognition of one's own garbage can, and, at most, concepts could only contribute to relating doubtful cases or usages to actual meanings. Thus symbolic generalizations already arise when one deals with concrete objects and events. Symbolic generalizations serve to keep re-accessibility open, and overall indications, type ideas, and notions that encompass heterogeneities do not enter before there is a demand for aggregations on a higher level. These can then be included in the meaningful world only with the help of language.

The consequences of this interpretation for the concept and theory of language are outside our present scope. The concept of the symbolic generalization of meaning's self-reference replaces the concept of the sign that until now has dominated the theoretical tradition. No one would deny that words (as well as things) can be used as signs, thus as a reference to something that exists independently of language. But language itself cannot be understood as mere concatenation of signs, because its function is not only or even primarily to refer to something that is given. Language is also not just a means of communication, because it functions in psychic systems without communication. Its true function lies in generalizing meaning with the help of symbols that--rather than designate *something else--are themselves* what they perform. Only in its function as a medium of communication--which, from the viewpoint of evolution, seems to have been its original function--is language bound to coding, and thus to acoustic or optical signs for meaning.

Earlier (especially psychological) research functionally related the concept of generalization to the system/environment relationship. In this sense generalization is an instrument for managing the difference in degree of complexity between environment and system.

We would like to add two further considerations, which relate more to the problem of meaning as such. Generalization also has the meaning-specific function of bridging the multiplicity of meaning dimensions and keeping them accessible at each specific moment of meaning. Meaning is, if one may say so, generalized in all dimensions. Therefore one begins with a certain duration (even if only fractions of a second) and a certain independence of minor fluctuations in object references (a pot with a broken handle is still a pot), and one assumes a capacity for consensus. In other words, all meaning dimensions keep ready a capability for any resolution you like--for example, with the help of a more precise measurement of time or a more precise statement of the question who experiences the same meaning--yet generalization stops the resolution, which could always go further, at some point depending on what is needed for meaning use.

⁷⁴ Self-reference is possible only by generalization, which is rudimentary to all meaning, and only by means of generalization can one display local "bits of meaning" to which one turns for the moment with primary attention and which appresent all meaning dimensions without thematizing them primarily.

Second, the generalization of meaning makes it possible, in practice, to solve all logical problems. Even a contradiction or a paradox has meaning. This is the only way in which logic is possible. Otherwise, the minute one first encountered a contradiction, one would fall into a meaning gap and disappear. Only by including all contradictions can the world of meaning attain the character of self-referential closure, and, only thus is it the correlate of the self-referentially closed communication system of society. We will return to a more precise analysis of the special function of contradictions in Chapter 9. For the moment we would only emphasize that the generalization of meaning keeps horizons present, and that this makes it always and irrevocably possible, in view of difference (more specifically, in view of contradictions), to return to the unity of the meaning of the difference (or, respectively, of the contradiction). ⁷⁵

This means, not least, that any logic that wants to reformulate such matters for its own purposes must work with a multiplicity of levels or with a hierarchy of types (whatever this may mean). When calculation or communication follows generalization--when, for example, one speaks of money--one cannot at the same time refer

to the operational difference schemata for processing meaning, to actualization /visualization and distinguishing/relating in the sense of section II, above. Generalizations are abbreviations that are quite independent of the forms and ways in which they come about--just as the ideas of consciousness cannot refer to the neurophysiological processes to which they owe their occurrence. This independence is due to connections that become possible through it. It is supported by the replenishment of horizons, which it makes possible, and it presents itself in the form thereby achieved as a structure at the disposal of operational meaning processing.

To enable better formulations to be built on the foregoing, we introduce the concept of *expectation*.⁷⁶ Symbolic generalizations condense the referential structure of every meaning into expectations, which indicate what a given meaning situation foresees. And the converse is equally true: the requisite expectations and proofs of worth in concrete situations guide and correct generalizations. By means of expectations that one directly tests or that one cannot give up without considerable disorientation, one decides how far to push generalization. Anyone who went into a department store and told the first salesperson he met that he wanted to buy "something" would learn very quickly that he had made too great a generalization and that he should be more specific.

In the theory of social systems, we will deal mainly with behavioral expectations. The structures of these systems can be defined as generalized behavioral expectations. (We will return to this in more detail in Chapter 8.) In the context of a general theory of meaningfully self-referential systems, however, this is a special case, and even social systems operate with a variety of expectations that refer to nonhuman matters: for example, they presuppose the functioning of clocks, cars, technologies, and so forth.

The concept of expectation points to the fact that the referential structure of meaningful objects or themes can only be used in a condensed form. Without this condensation the burden of selection would be too great for connecting operations. Expectations are formed by the intervening selection of a narrower repertoire of possibilities, by whose light one can orient oneself better and, above all, more quickly. Accordingly, symbolic generalizations, through which the identity of things, events, types, or concepts is defined, are contained and refabricated within a network of expectations.

They organize--or better, continually reorganize--expectations, and, depending on the course of experience and action, they take up material from the underlying referential strata of meaning complexes or allow what is too seldom used to sink back down.

Thus the generalization of expectations in terms of what is typical and normative possesses a double function. On the one hand, it executes a selection out of the totality of possibilities indicated and thereby reproduces the complexity built into meaning without destroying it. And on the other, it bridges discontinuities in fact, temporal, and social regards, so that an expectation can still be used when the situation changes. A burnt child shuns all fire. It is evident that selection takes place by retention, and that the references that lend themselves to generalization and to bridging discontinuities are the ones that become condensed in expectations. Like selection, generalization at once *constrains* what is possible and makes visible *other* possibilities. As the unity of both these aspects, generalization leads to the emergence of structured complexity (organized complexity).

The hypothesis of a correlation between selection, on the one hand, and the bridging of fact/temporal/social discontinuities, on the other, explains how redundant complexity is used in evolutionary structural processes. Seen from the viewpoint of the history of theory, it replaces the assumption that expectations are always already related to objects evaluatively or "cathectically."⁷⁷ It may be that without evaluation a selection of successful references cannot come about or take root in consciousness and communication. But this only expresses, or steers, retention. Theoretically and, above all, functionally, the interesting fact is that surpluses of meaning *must be used selectively*, and that this "must" is a "*can*" in the sense of *selecting expectations that extend across discontinuities and can thereby prove themselves as generalizations*.

X

We have formally introduced the concept of meaning within the theory of social systems, but we have emphasized that the meaning reference of all operations is an imperative necessity for psychic as well as for social systems. Both kinds of systems emerge by the

path of co-evolution. One is impossible without the other, and vice versa. They must, so to speak, differentiate themselves in respect to meaning. Meaning is the true "substance" of this emergent evolutionary level. It is therefore false (or, more gently, it is a falsely chosen anthropocentrism) to assign the psychic, that is, the conscious, anchorage a sort of ontological priority over the social. It is impossible to find a "supporting substance" for meaning. Meaning supports itself in that it enables its own self-referential reproduction. *And only the forms of this reproduction differentiate psychic and social structures.*

What this specifically means for social systems will become clear only in discussing the concept of communication (Chapter 4) and the event/structure correlation (Chapter 8). But in anticipation of these individual discussions at least the basic idea must be presented here. In the final analysis, psychic and social systems are distinguished according to whether consciousness or communication is chosen as the form of operation. The choice is not possible in an individual event, for in an individual event consciousness and communication do not exclude each other, but very often more or less fall together. The choice lies in the actuation of meaningful self-reference, that is, in which further meaning, actual meaning uses to refer to itself. Meaning can insert itself into a sequence that is bound to bodily feelings; then it appears as consciousness.⁷⁸ But meaning can also insert itself into a sequence that involves others' understanding; then it appears as communication. Whether meaning is actualized as consciousness or as communication does not reveal itself "only afterwards," but determines any respective actualization of meaning, because meaning is always constructed self-referentially and therefore always includes reference to others as the way to self-reference.

To be sure, there are highly complex evolutionary preconditions for the formation of meaning, but there is no privileged carrier, no ontic substrate for meaning. Neither consciousness nor communication is a candidate for such a role. Only the form of interconnection, which is simultaneously the condition of possibility for actuality and the condition of possibility for autopoietic reproduction, picks out consciousness or communication. Consciousness can realize itself only by referring to something else, and the same holds true, with different kinds of reference, for communication.

The "carrier," if one wishes to retain that term, is thus a *difference* in meaning references, and this difference is based on the fact that any actualization of references must be *selective*.

The difficulty in seeing this lies in that every consciousness that tries to do so is itself a self-referentially closed system and therefore cannot get outside of consciousness. For consciousness, even communication can only be conducted consciously and is invested in further possible consciousness. *But for communication itself this is not so.* Communication is only possible as an event that transcends the closure of consciousness: as the synthesis of more than the content of just one consciousness. One (or at least I) can become aware of this, and one can also communicate about it (without being sure in one's own consciousness whether that succeeds).

XI

A theory whose formulation of a concept of meaning reaches beneath psychic and social systems, consciousness and communication, to relate back to a basal self-reference has consequences for what one speaks about in connection with the tradition of "metaphysics." These consequences lie on two levels and relate them to one another: namely, on the level of the content presented in metaphysical theories, and on the level of "*Geistesgeschichte*," taken as the presentation of their development and its correlation with the development of societal structures.

If one wishes to retain the term, one could characterize "metaphysics" as teachings about the self-reference of being. Being produces relations to itself within itself; the physical uses what is physical, namely physicists, "in order to see itself." ⁷⁹ On the level on which one observes this, one practices meta-physics because it comes after physics: to avoid tautologies and/or detailed analyses, one usually calls the being that produces self-reference "thought." Then one can also say that metaphysics concerns being and thinking, concerns the thinking of being.

In the classical system of ontological metaphysics, the binary schematism of logic was used to separate and connect being and thinking. On the one hand, for itself thought enables distance, deviation, and contradiction on the level of linguistic formulation; on the other, logic, by proscribing contradiction, obliterates whatever

in thinking deviates from being. Thinking becomes aware of itself as consciousness and characterizes itself negatively as mistake or deception when it deviates from being.⁸⁰ To seek the latter then is sin.

The structural dovetailing that grounds the closure of this concept and the absence of alternatives to it resides in the fact that logic is coordinated to thought as a binary schematism *and that it is simultaneously used to order the relationship between thinking and being*. A positive valuing of being then requires a negative valuing of any deviant thinking and a readjustment of thinking in the sense of adaptation to being.⁸¹ Thus this structural dovetailing serves a primarily adaptive concept of thought. From the perspective of the sociology of knowledge, it is plausible for a society confronting a "nature" it cannot control or itself create; it expresses an already-perceived but still relatively small degree of differentiation in the societal system.

In the transition to modern society--that is, in the transition from hierarchical to functional differentiation in the societal system --the grounds on which this concept of metaphysics seemed plausible changed, in a way especially important for the theory of self-referential systems. More and more, society engages in continual discussion with a self-created reality: with persons who are what they are through socialization and education, and with a physico-chemico-organic nature that is directed by technical processes. Thus one has always participated in creating the problems one must address, and in a certain way one has always sought what one should avoid. If metaphysics is to remain possible, it must adjust its concept of the self-reference of being to this situation.

No truly satisfactory image for this could be developed on the basis of modern subject-metaphysics, which began with the subjectness of consciousness--perhaps above all because the opposition between being and thinking could not allow itself to develop into an opposition between being and subjective consciousness, even though an attempt to do so was made. In particular, an attempt was made to think the consciousness's underlying being (the "*subiectum*") as without being. But the self-seeking subject thus expelled from being specialized in epistemology or became revolutionary -- neither an acceptable solution. Finally, the inability to locate or to fix an extramundane subject symbolizes the conceptual

deficiency of the theory--not something that a conscious I could discover within itself.

We do not have to decide whether metaphysics remains possible for modern society. The theory of meaning outlined above does not present itself as metaphysics. It deliberately avoids equating (and also opposing) meaning and being. It formulates neither a first nor a last philosophy of the self-reference of being. It also avoids any affiliation with academic "philosophy." Yet a connection should not be denied. A theory of meaningfully self-referential systems lies outside the domain of metaphysics in the classical sense and likewise outside the domain of modern subject-metaphysics. But in its domain it formulates a concept of self-referential closure that includes formulating this concept within what is formulated.⁸² Its relevance for metaphysics resides in this isomorphy of the problem's formulation. If this is social science that works, then one can no longer develop metaphysical theories without reference to such conceptualizations. But for the time being, it is more important to press forward theoretical development in the domain of meaningfully self-referential systems and to avoid critical interventions dependent on metaphysical positions that no longer measure up to the newly formulated problems.

All this has consequences for the possibility and the situation of scientific analysis. The old interpretation was that science depends on a corresponding rationality in its object. The version of this interpretation as an available ontology was abandoned by transcendental philosophy. It was replaced, in correlation with the inclusion of self-reference in the "subject," by the hypothesis that reality is unknowable "in itself." The re-objectivation of self-referential systems carried out here does not falsify this thesis, but rather generalizes it: every self-referential system has only the environmental contact it itself makes possible, and no environment "in itself." But this "itself makes possible" is not possible in a structureless, arbitrary, and chaotic environment, because within such an environment it is impossible to carry out "internally" satisfactory proofs of worth and, from the perspective of evolution, to acquire permanence.⁸³ With this, one does not return to the postulate of a corresponding rationality or a lawfulness in nature; but knowledge in particular and system behavior in general presuppose structured and in sufficient measure graspable complexity.

If in consequence one asks the narrower question of how meaningfully self-referential systems can observe and analyze other meaningfully self-referential systems, then the analysis of meaning might offer a key. The use of meaning always forces one to generalize, to distinguish verifiable expectations, with a corresponding absorption of risk. This self-abstraction or self-simplification structures the material that meaning systems can presuppose when they encounter meaning systems in their environment. We should note, however, that the environment can be experienced and processed by meaning systems only in the form of meaning, and this, too, is internally conditioned. That is also true of physical, chemical, and organic systems of the environment, which do not operate in the form of meaning. Meaning systems *in the environment* are a special case, and for this special case it is true that not only structured complexity in general, but also meaning-specific generalizations produce the preconditions under which the environment can be observed, understood, and analyzed by systems operating with self-referential closure. Formulated still more narrowly, it is also true of scientific analysis that, if differentiated, it forms a self-referentially closed system of its own, which concerns itself (among other things) with the meaning systems in its environment. This does not conflict with the postulate of "ethical neutrality" that science claims. That postulate symbolizes only (however this may be phrased in concrete disputes) the binding of all operations to the self-reference of the scientific system; it does not deny generalized structures or the normative mechanisms that support them in objects. ⁸⁴

Notes

- [Note](#): 1. One need not infer from this necessity the conclusion drawn by a tradition whose influence can still be felt today: that the human being, as an *animal sociale*, is a part of society, and that society is thus "composed of human beings." The systems theory outlined in the first chapter could not have been developed if one started with this premise. Anyone who holds it and with it seeks to represent a concern with humanity must oppose systems theory's claim to universality.
- [Note](#): 2. The consequences of this deviation from the right way of a "natural" theory of meaning can be studied in the philosophy of John Dewey. See, e. g., *Experience and Nature*, 2d ed. (rpt. New York, 1958), p. 179: "Meaning ... is not a psychic existence; it is primarily a property of behavior." The term "property" is incorrect, to begin with, and even more so the attribution of meaning to behavior, which gives itself meaning only in reference to something else.
- [Note](#): 3. This proposal has been discussed, but it has been rejected, predominantly in the interest of an emphatic concept of meaning that could be demarcated from mere nature. See, e. g., Gerhard Sauter, *Was heißt: nach Sinn fragen? Eine theologisch-philosophische Orientierung* (Munich, 1982); Jochen Köhler, *Die Grenze von Sinn: Zur strukturalen Neubestimmung des Verhältnisses Mensch-Natur* (Freiburg, 1983).
- [Note](#): 4. The language of this description suggests a psychic system reference. One can and must abstract from that. Husserl did so in the direction of a theory of the transcendental subject. We abstract in the direction of a comprehensive validity for personal and social systems. This means that in what follows concepts like intention, reference, expectation, experience, and action indicate elements or structures that can be assigned either to psychic or to social systems. On this theoretical level, the terminology does not yet bind us to one of these system references as opposed to the other.
- [Note](#): 5. Thus Jan Smedslund, "Meanings, Implications and Universals: Towards a Psychology of Man," *Scandinavian Journal of Psychology* 10 (1969): 1-15. With this argument Smedslund too quickly forgoes the attempt to create a phenomenological description.
- [Note](#): 6. See Edmund Husserl, *Ideen zu einer reinen Phänomenologie und phänomenologischen Philosophie*, vol. 1, in *Husserliana*, vol. 3 (The Hague, 1950), pp. 57ff, 100ff; Husserl, *Erfahrung und Urteil: Untersuchungen zur Genealogie der Logik* (Hamburg, 1948), p. 23 ff.
- [Note](#): 7. In a certain way this is a "copy" of neurophysiological redundancies for other system levels. See Donald M. MacKay, "The Place of Meaning' in the Theory of Information," in Colin Cherry, ed., *Information Theory: Third London Symposium* (London, 1956), pp. 215- 24; rpt. in MacKay, *Information, Mechanism and Meaning* (Cambridge, Mass., 1969), pp. 79-93.
- [Note](#): 8. Anyone who emphasizes this aspect defines the concept along the same functional lines as it is here, but somewhat more narrowly with respect to content. Thus Jürgen Frese, "Sprechen als Metapher für Handeln," in Hans-Georg Gadamer, ed., *Das Problem der Sprache*, Achter Deutscher Kongreß für Philosophie, Heidelberg, 1966 (Munich, 1967), pp. 45-55 (p. 51): "The meaning of an act is the ensemble of possibilities of connecting further acts onto this one that is given as a specific situation; that is, the meaning of an act is the multiplicity of connective possibilities that the act opens up. This is synonymous with saying that the meaning of an act is its reference to one or more places in the system where it performs its function."
- [Note](#): 9. This has often been emphasized--as, e. g., decisively by Heinrich Gomperz, *Über Sinn und Sinngebilde, Verstehen und Erklären* (Tübingen, 1929), p. 32ff.
- [Note](#): 10. One could be reminded here of the highest principle of synthetic judgments: "Every object stands under the necessary conditions of synthetic unity of the manifold of intuition in a possible experience," and "The conditions of the *possibility of experience* in general are likewise conditions of the *possibility of the objects of experience*" Immanuel Kant, *Critique of Pure Reason*, trans. Norman Kemp Smith (London, 1929; rpt. New York, 1965), p. 194 (B 197). In contrast to Kant, we thematize complexity (the "unity of the manifold") with regard to *selections*, not (or at least not primarily) with regard to the possibility of synthesis in judgments.
- [Note](#): 11. Even transcendental theory was obliged to work with concepts of motion about whose origins it failed to give an account.
- [Note](#): 12. Gregory Bateson indicates the same facts with the not innocuous word "mind," which has been translated into German with the even more dangerous *Geist*. See *Mind and Nature: A*

Necessary Unity (New York, 1979), trans. into German as *Geist und Natur: Eine notwendige Einheit* (Frankfurt, 1982).

- [Note](#): 13. In correlation with the socio-structural evolution of the societal system, the following remarks could be drawn up as a sociology of knowledge for the evolution of meaning. They serve here, however, only to eliminate possible and historically understandable preconceptions.
- [Note](#): 14. See Niklas Luhmann, "Frühneuzeitliche Anthropologie: Theoretische Lösungen für ein Evolutionsproblem der Gesellschaft," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), pp. 162-234.
- [Note](#): 15. This includes the use of itself as a difference from the world. We will return to this directly.
[Note](#): 16. See George Spencer Brown, *Laws of Form*, 2d ed. (New York, 1972).
- [Note](#): 17. Yves Barel, *Le Paradoxe et le système: Essai sur le fantastique social* (Grenoble, 1979), p. 185f, calls this drift into the (provisionally) excluded *potentialisation*. The emergence of new forms can then be explained as drawing on meanings that were hitherto potential.
- [Note](#): 18. Opposing opinions are easy to find, but most do not explicitly decide the question of whether information is structure or event. See, e. g., Gernot Böhme, "Information und Verständigung," in Ernst von Weizsäcker, ed., *Offene Systeme I: Beiträge zur Zeitstruktur von Information, Entropie und Evolution* (Stuttgart, 1974), pp. 17-34 (p. 18).
- [Note](#): 19. One need only imagine the bewilderment in a process if the same thing could happen again and the process then both carry on and at the same time (but not precisely at the same time) begin to repeat itself!
- [Note](#): 20. This *nexus* of information-event and changed mode of operation appears as "memory" only to an *observer*. The system reproduces itself only in the present and does not need memory to do so. Under certain circumstances it can observe itself and ascribe a "memory," or even a "bad memory," to itself. From self-observation, one can then acquire actually surprising information about one's own state. But this does not alter the fact that something called memory exists *only for an observer*. Anyone who does not accept this cannot use the concept of information presented here. See Humberto R. Maturana, *Erkennen: Die Organisation und Verkörperung von Wirklichkeit* (Braunschweig, 1982), p. 60ff.
- [Note](#): 21. For a similar position, see, esp. MacKay, *Information, Mechanism and Meaning*.
- [Note](#): 22. Klaus Krippendorff also uses the formulation "constraint on entropy" in Krippendorff, ed., *Communication and Control in Society* (New York, 1979), p. 439. [Note](#): 23. See Harold M. Schroder, Michael J. Driver, and Siegfried Streufert, *Human Information Processing* (New York, 1967).
- [Note](#): 24. This deciding in advance is frequently characterized in the literature (though somewhat too pointedly) as a *question* to which the concept of information supplies an *answer*. But a difference schema either can already be established or can form at the moment information arises (e. g., when one sees a drunk staggering). Accordingly, one could define "experience" as the capacity to sense surprising information as *familiar* and to assign it to a difference schema that bestows upon it informational value with which one can work. (The waiter is wearing jeans; therefore one is in the wrong restaurant.)
- [Note](#): 25. Here we do not have in mind Piaget's concept of the decentering of an egocentrically determined world picture, because we do not start out with the subject. However, connections with it are obvious. Psychic and social systems can acquire distance from themselves by learning or evolution because every meaning opens a decentered access to the world. Piaget presupposes the concept used here as a condition of possibility for egocentric decentering.
- [Note](#): 26. For its development, see Arthur O. Lovejoy, *The Great Chain of Being: A Study of the History of an Idea* (Cambridge, Mass., 1936; rpt. 1950), p. 108ff.
- [Note](#): 27. Generally, this is indicated with "lifeworld." See, e. g., Jürgen Habermas, *Theorie des kommunikativen Handelns*, vol. 1 (Frankfurt, 1981), p. 106. A critique is presented by Ulf Matthesen, *Das Dickicht der Lebenswelt and die Theorie kommunikativen Handelns* (Munich, 1983).
- [Note](#): 28. That is a widespread interpretation offered as an alternative to defining meaning through subjective intention. See, e. g., Charles K. Warriner, *The Emergence of Society* (Homewood, Ill., 1970), p. 66ff.
- [Note](#): 29. Husserlian analyses of the relationship of expression and sign prepare for this distinction. See Edmund Husserl, *Logische Untersuchungen II*, I, 3d ed. (Halle, 1922), p. 23ff.
- [Note](#): 30. This interpretation is critically discussed by Wolfgang Hübner, "Perfektion und Negation," in

Harald Weinrich, ed., *Positionen der Negativität*, Poetik und Hermeneutik, vol. 6 (Munich, 1975), pp. 470-75. See also Hübner, "Die Logik der Negation als ontologisches Erkenntnismitel," *ibid.*, pp. 105-40. To be sure, the domains of concepts of negation and of philosophical theories in general contain much more than a mere metaphysics of perfection. But ideas like cosmos, perfection, and creation for the good had taken the lead in plausibility, so that, e. g., skepticism was possible as a formulation but not as a theory. This shows itself not least in the religious reservation contained in the concept of *annihilatio*.

[Note](#): 31. See, e. g., Paul Hofmann, *Das Verstehen von Sinn und seine Allgemeingültigkeit: Untersuchungen über die Grundlagen des apriorischen Erkennens* (Berlin, 1925); Hofmann, *Sinn und Geschichte: Historisch-systematische Einleitung in die Sinn-erforschende Philosophie* (Munich, 1937). In recent philosophy the rejection of reference to the subject is most often connected with a return to ontological questioning; see, e. g., Max Müller, "Über Sinn und Sinngefährdung des menschlichen Daseins," *Philosophisches Jahrbuch* 74 (1966): 1-29. Social scientific research leads to the actual problem of the need to meaningfully interpret a situation. See, e. g., Peter McHugh, *Defining the Situation: The Organization of Meaning in Social Interaction* (Indianapolis, 1968). It is regrettable that the concept of "subject" is no longer conceived with sufficient rigor within the nexus of self-reference and meaning. If it were, the theory of the subject would have to orient itself to the closure of self-referential systems, with the consequence that it couldn't think anymore of anything that does not appear as meaning. Talk of the "loss of meaning," "danger to meaning," and the "meaninglessness of being" (in the modern period!) would then have to be given up in this theoretical account as well.

[Note](#): 32. For "scope and reduction," see the quote from Kenneth Burke in Chap. 1, n. 32, above.

[Note](#): 33. An interpretation that is as disputed as it is persistent. See, among others, Jürgen Habermas, *Theorie des kommunikativen Handelns*, vol. 1 (Frankfurt, 1981), p. 152ff. See also the references in n. 3, above.

[Note](#): 34. We distance ourselves here from ordinary language in the interest of a more precise determination of the "operation called *Verstehen*." Ordinarily one says that one understands how wood can be found on the south coast of Iceland although no trees grow on the island.

[Note](#): 35. One source of this idea is Saussure: concepts "are purely differential, defined not positively by their content but negatively by their relations with other terms of the system. Their most exact characteristic is to be what others are not" (Ferdinand de Saussure, *Cours de linguistique générale* [Paris, 1973], p. 162). And conceptualization is already a highly effective specialization in comparison with what identity pure and simple accomplishes. Conceptualization enables work with more daring differences.

[Note](#): 36. According to Gregory Bateson, *Steps to an Ecology of Mind* (San Francisco, 1972), p. 489. See also pp. 271f, 315. We will return to this in the chapter on communication.

[Note](#): 37. This also excludes defining simple facts (e. g., simple sensations in Locke's sense) through a consensus among observers. See C. West Churchman, *The Design of Inquiring Systems: Basic Concepts of Systems and Organization* (New York, 1971), p. 97ff.

[Note](#): 38. An attempt to carry this out for law (generalized behavioral expectations) is Niklas Luhmann, *Rechtssoziologie*, 2d ed. (Opladen, 1983).

[Note](#): 39. See P. G. Herbst, *Alternatives to Hierarchies* (Leiden, 1976), p. 86ff. [Note](#): 40. See Husserl, *Erfahrung und Urteil*, p. 26ff.

[Note](#): 41. This is the point of departure chosen by Spencer Brown, *Laws of Form*. [Note](#): 42. For a fuller analysis see, e. g., Helmut Kuhn, "The Phenomenological Concept of 'Horizon,'" in Marvin Farber, ed., *Philosophical Essays in Memory of Edmund Husserl* (Cambridge, Mass., 1940), pp. 106-23; C. A. van Peursen, "L'Horizon," *Situation* 1 (1954): 204-34; Carl F. Graumann, *Grundlagen einer Phänomenologie und Psychologie der Perspektivität* (Berlin, 1960), esp. p. 66ff; Karl Schuhmann, *Die Fundamentalbetrachtung der Phänomenologie: Zum Weltproblem in der Philosophie Edmund Husserls* (The Hague, 1971), esp. p. 47ff.

[Note](#): 43. "The notion of external things is a restriction on combination," said with an awareness of contingency in "Monsieur Teste," Paul Valéry, *Oeuvres*, vol. 2, ed. de la Pléiade (Paris, 1960), p. 65.

[Note](#): 44. Gregory Bateson, for whom double description is a theoretically central concept, also refers to this problem. See *Mind and Nature*, p. 71ff.

[Note](#): 45. One must emphasize that this was a very slow process of development and that even innovative thinkers like Augustine saw the distant past and the distant future converge in the darkness

of what is far off and absent. After all, the merger of the distant future and the distant past in the mystical margins of the accessible world seems to symbolize the longstanding dominance of the schema of present/absent, near/far.

- [Note](#): 46. The insertion "for meaning systems" once again refers to the fact that the temporal dimension, as the referential structure of meaning, interprets something that even without meaning would be time and enables it to be processed in the self-referential organization of meaning systems.
- [Note](#): 47. For greater detail, see Niklas Luhmann, "Temporalstrukturen des Handlungssystems: Zum Zusammenhang von Handlungs- und Systemtheorie," in Wolfgang Schluchter, ed., *Verhalten, Handeln und System: Talcott Parsons' Beitrag zur Entwicklung der Sozialwissenschaften* (Frankfurt, 1980), pp. 32-67.
- [Note](#): 48. See Niklas Luhmann, "Temporalisierung der Komplexität: Zur Semantik neuzeitlicher Zeitbegriffe," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), pp. 235-300.
- [Note](#): 49. See the in itself attractive distinction between transcendence and introspection in Paul Hofmann, *Sinn und Geschichte: Historisch-systematische Einleitung in die Sinn-erforschende Philosophie* (Munich, 1937), p. 5f and passim.
- [Note](#): 50. We would do well to return once more to the idea of discourse (Habermas) and to the lack of temporal constraints.
- [Note](#): 51. This appears most impressively in Husserl's grand struggle. See Edmund Husserl, *Cartesianische Meditationen, Husserliana*, vol. 1 (The Hague, 1950), p. 121ff, and the posthumous writings, *Zur Phänomenologie der Intersubjektivität, Husserliana*, vols. 13-15 (The Hague, 1973). See further Alfred Schütz, "Das Problem der transzendentalen Intersubjektivität bei Husserl," *Philosophische Rundschau* 5 (1957): 81-107.
- [Note](#): 52. Newcomb's ABX model, which raises questions of consensus with regard to factual orientations, comes to mind. See Theodore M. Newcomb, "An Approach to the Study of Communicative Acts," *Psychological Review* 60 (1953): 393-404; Newcomb, "The Study of Consensus," in Robert K. Merton, Leonard Broom, and Leonard S. Cottrell, Jr., eds., *Sociology Today* (New York, 1959), pp. 277-92; and also Johannes Siegrist, *Das Consensus-Modell: Studien zur Interaktionstheorie und zur kognitiven Sozialisation* (Stuttgart, 1970). See also Leon Festinger, "A Theory of Social Comparison Processes," *Human Relations* 7 (1954): 117-40; Joseph N. Capella, "A Dynamic Mathematical Model of Mutual Influence According to Information Processing Theory," in Klaus Krippendorff, ed., *Communication and Control in Society* (New York, 1979), pp. 347-65.
- [Note](#): 53. This is especially reminiscent of the double conception of *friendship* (conceived for interaction systems) and *community* (conceived for societal systems) stemming from the ancient tradition; these were meta-semantically reintegrated via ideas about living together in cities or behavioral codes for the upper strata of society. For more detail, see Niklas Luhmann, "Wie ist soziale Ordnung möglich?," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 2 (Frankfurt, 1981), p. 195-285.
- [Note](#): 54. Chap. 6, section VII goes into more detail in connection with the concept of interpenetration.
- [Note](#): 55. See Edmund Husserl, *Erfahrung und Urteil*, esp. p. 398ff; Alfred Schütz, *Collected Papers*, 3 vols. (The Hague, 1962ff), esp. vol. 3, pp. 92-115; Alfred Schütz and Thomas Luckmann, *Strukturen der Lebenswelt* (Neuwied, 1975).
- [Note](#): 56. It belongs to the "style" of Edgar Morin's method to refer to this repeatedly. See also: Henri Atlan, *Entre le cristal et la fumée: Essai sur l'organisation du vivant* (Paris, 1979); Michel Serres, *The Parasite*, trans. Lawrence R. Schehr (Baltimore, 1982); Jean-Pierre Dupuy, *Ordres et Désordres: Enquête sur un nouveau paradigme* (Paris, 1982).
- [Note](#): 57. See also Niklas Luhmann, "Schematismen der Interaktion," in Luhmann, *Soziologische Aufklärung*, vol. 3 (Opladen, 1981), pp. 81-100.
- [Note](#): 58. See Julian B. Rotter, "Generalized Expectancies for Internal versus External Control of Reinforcement," *Psychological Monographs* 80 (1966): 1-28. For more recent research, see E. Jerry Phares, *Locus of Control in Personality* (Morristown, N. J., 1976); John H. Harvey, William John Ickes, and Robert F. Kidd, eds., *New Directions in Attribution Research* (Hillsdale, N. J., 1976); Wulf-Uwe Meyer, "Internale-externale Bekräftigungskontrolle, Ursachenzuschreibung und Erwartungsänderungen: Einige Anmerkungen," in Rosemarie Mielke, ed., *Interne/externe Kontrollüberzeugung* (Bern, 1982), pp. 63-75.
- [Note](#): 59. See further Niklas Luhmann, "Erleben und Handeln," in Luhmann, *Soziologische Aufklärung*,

vol. 3 (Opladen, 1981), pp. 67-80.

- [Note:](#) 60. This distinction goes back to Fritz Heider. Hitherto, it has mainly been used in connection with investigations of achievement motivation. See, e. g., Bernard Werner, *Achievement Motivation and Attribution Theory* (Morristown, N. J., 1974). This distinction also plays a role in more recent research on differences in attribution by actors and observers. For the direction this research has taken, see Edward E. Johnes and Richard E. Nisbett, "The Actor and the Observer: Divergent Perceptions of the Causes of Behavior," in Edward E. Johnes et al., *Attribution: Perceiving the Causes of Behavior* (Morristown, N. J., 1971), pp. 79-91.
- [Note:](#) 61. See also Niklas Luhmann, "Gesellschaftliche Struktur und semantische Tradition," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), p. 35ff.
- [Note:](#) 62. This again is a process that develops very slowly, in which the alphabetization of writing marks a specific threshold because it (1) enables rapid learning and with it universal dissemination and (2) differentiates regional languages from one another, and thus forces translation. See, esp.: Eric A. Havelock, *Origins of Western Literacy* (Toronto, 1976); Havelock, *The Literate Revolution in Greece and Its Cultural Consequences* (Princeton, 1982).
- [Note:](#) 63. This is emphasized by Eric A. Havelock, *Preface to Plato* (Cambridge, Mass., 1963). See also Jack Goody and Ian Watt, "The Consequences of Literacy," *Comparative Studies in Society and History* 5 (1963): 305-45.
- [Note:](#) 64. See Walter Freund, *Modernus und andere Zeitbegriffe des Mittelalters* (Cologne, Graz, 1957).
- [Note:](#) 65. This interpretation largely follows Gotthard Günther. But Günther develops levels of reflection that lead back to a new kind of actual endlessness of consciousness as an autonomous occurrence of the reflection of reflection. Therefore he cannot "deduce a you"; "you" must be introduced from the outside. We assume, by contrast, that the modern philosophy of consciousness prepares for a more rigorous differentiation of the social dimension, but that it cannot formulate the independence of the social dimension and the endlessness assigned to the "I's" internal horizon so long as it allows itself to be determined by its point of departure in the fact dimension, namely in a difference between thinking and being (which is, according to Günther, the ur-phenomenal situation of "I am thinking something"). Günther's formulations can be found esp. in "Metaphysik, Logik und die Theorie der Reflexion," *Archiv für Philosophie* 7 (1957): 1-44; rpt. in Günther, *Beiträge zur Grundlegung einer operationsfähigen Dialektik*, vol. 1 (Hamburg, 1976), pp. 31-74.
- [Note:](#) 66. It has frequently been noted that self-observation, self-description, and self-biography can have the same capacity to dissolve, especially when they are celebrated before and for others (e. g., for publication). See, e. g., Georges Gusdorf, *La découverte de soi* (Paris, 1948), esp. p. 69ff. Here too the result is penetration into the depths of the self-horizon, in which self-observation ultimately finds nothing determinate, but can only observe itself.
- [Note:](#) 67. See, for the temporal dimension: Niklas Luhmann, "Weltzeit und Systemgeschichte," in Luhmann, *Soziologische Aufklärung*, vol. 2 (Opladen, 1975), pp. 105-33; Luhmann, "The Future Cannot Begin," in Luhmann, *The Differentiation of Society*, trans. Stephen Holmes and Charles Larmore (New York, 1982), pp. 229-54; Luhmann, "Zeit und Handlung: eine vergessene Theorie," in Luhmann, *Soziologische Aufklärung*, vol. 3 (Opladen, 1981), pp. 101-25; Luhmann, "Temporalisierung von Komplexität: Zur Semantik neuzeitlicher Zeitbegriffe," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), pp. 235-301. For the social dimension, see esp. Luhmann, "Wie ist soziale Ordnung möglich?," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 2 (Frankfurt, 1981), pp. 195-285.
- [Note:](#) 68. Symptomatic for this is the interpretation of "commitment" as a medium and as a variable in the Parsonian theory of social action systems. See Talcott Parsons, "On the Concept of Value-Commitments," *Sociological Inquiry* 38 (1968): 135-60.
- [Note:](#) 69. The concept of truth must be replaced in this process, making things more complicated than this very simplified formulation would give one to believe.
- [Note:](#) 70. See, e. g., Alfred Korzybski, *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics* (1933; 3d ed., rpt. Lakeville, Ct., 1949).
- [Note:](#) 71. Some solutions of the problem are related precisely to this. One could mention the increased capacity for *consensus* about statistical data, which mediate *fact* and *temporal* dimensions.
- [Note:](#) 72. Parsons would say that generalization makes communication possible. See, e. g.: Parsons, *The Social System* (Glencoe, Ill., 1951), p. 10f; Talcott Parsons, Robert F. Bales, and Edward A. Shils, *Working Papers in the Theory of Action* (Glencoe, Ill., 1953), p. 31ff.

- [Note:](#) 73. See I. P. Pavlov, *Conditioned Reflexes: An Investigation of the Physiological Activity of the Cerebral Cortex* (Oxford, 1927), p. 110ff; also Clark L. Hull, *Principles of Behavior* (New York, 1943), p. 183ff; Roger Brown, *Words and Things* (Glencoe, Ill., 1958), p. 286ff; Eleanor J. Gibson, "A Reexamination of Generalization," *Psychological Review* 66 (1959): 340-42; Franz Josef Stendenbach, *Soziale Interaktion und Lernprozeß* (Cologne-Berlin, 1963), p. 90ff.
- [Note:](#) 74. Luhmann thinks of "resolution" in contrast to "recombination," a resolution being an inquiring further into some matter of fact that seemed compact and opaque before--Trans.
- [Note:](#) 75. I do not presume that this alone is reason enough to characterize this conception as "dialectical." But surely a conscientious discussion of its relation to the great theoretical achievements of the nineteenth century (Hegel, Marx, Darwin), all of which begin with difference and seek unity, would have to begin here.
- [Note:](#) 76. Recourse to "expectations" appears in the psychological literature in connection with generalization and in the sociological literature in connection with role theory. See, e. g.: K. MacCorquodale and P. E. Meehl, "Preliminary Suggestions as to a Formalization of Expectancy Theory," *Psychological Review* 60 (1953): 55-63; George A. Kelly, *The Psychology of Personal Constructs* (New York, 1955), esp. 1: 46ff; Ralph Stogdill, *Individual Behavior and Group Achievement* (New York, 1959), p. 59ff; Johan Galtung, "Expectations and Interaction Processes," *Inquiry* 2 (1959): 213-34; Frank Rosenblatt, "Perceptual Generalization over Transformation Groups," in Marshall C. Yovits and Scott Cameron, eds., *Self-Organizing Systems* (Oxford, 1960), pp. 63-96; Martha Foschi, "On the Concept of 'Expectations,'" *Acta Sociologica* 15 (1972): 124-31. See also the meaning of the concept in the context of the "General Statement" in Talcott Parsons and Edward A. Shils, eds., *Toward a General Theory of Action* (Cambridge, Mass., 1951), pp. 11f, 14ff; or Max Weber, "Über einige Kategorien der verstehenden Soziologie," in Weber, *Gesammelte Aufsätze zur Wissenschaftslehre*, 3d ed. (Tübingen, 1968), pp. 427-74, esp. p. 440ff.
- [Note:](#) 77. See Parsons and Shils, eds., pp. 11f, 14ff; Neal Gross, Ward S. Mason, and Alexander W. McEachern, *Explorations in Role Analysis: Studies of the School Superintendency Role* (New York, 1958), p. 58ff; Stogdill, p. 63; Foschi, esp. p. 126. For the connection between "cathexis" and "complexity," see the noteworthy passages in Parsons, "The Theory of Symbolism in Relation to Action," in Parsons and Shils, eds., pp. 31-62 (p. 41f). Parsons takes as his point of departure that normative and cathectic relations to objects require complex objects because only these are capable of being substituted under changing conditions. From our position, one would have to say, conversely, that the successful organization of complex objects is supported by the creation of norms and "rewarded" by feelings.
- [Note:](#) 78. Husserl's analyses of the constitution of temporal consciousness are instructive: Edmund Husserl, "Vorlesungen zur Phänomenologie des inneren Zeitbewußtseins," *Jahrbuch für Philosophie und phänomenologische Forschung* 9 (1928): 367-496. What we have referred to as "bound to bodily feelings" only appears clearly in Husserl's later philosophy. For this question the difference between biological systems (one's own organism) and psychic systems is decisive. The unity and autonomy of consciousness are thereby conditioned by the fact that consciousness is not in the position to perform bodily processes consciously.
- [Note:](#) 79. Spencer Brown, *Laws of Form* (London, 1969; rpt. 1971), p. 105. See also Gerhard Roth and Helmut Schwegler, eds., *Self-Organizing Systems: An Interdisciplinary Approach* (Frankfurt, 1981).
- [Note:](#) 80. See, esp. for a tracing back to an unreflective two-value logic, Gotthard Günther, "Metaphysik, Logik und die Theorie der Reflexion."
- [Note:](#) 81. This is, of course, not as easy as it sounds. Perhaps our most important modification is that we grant the possibility of being negative --but only as a failure of a pre-established perfection (*steresis, privatio*).
- [Note:](#) 82. One should mention the logical problems that arise here. They concern not only this "re-entry" of theories into the domain of their objects (see Spencer Brown, *Laws of Form*, p. 69ff; Francisco J. Varela, "A Calculus for Self-Reference," *International Journal of General Systems* 2 [1975]: 5-24), but quite generally the use of the (necessarily binary?) logical schematism to structure the (classically speaking) relationship of being and thinking, thus how to interpret the principle of identity, the ban on contradiction, and the law of the excluded third. Günther, "Metaphysik, Logik, und die Theorie der Reflexion," has taken a special interest in this.
- [Note:](#) 83. That is to say what has been said already: that there is no constitution that is exclusively

endogenously conditioned. The environment must at least provide "noise."

Note: 84. As a program for processing self-referential references in the scientific system, the postulate of ethical neutrality has methodological significance. (We define methods as such programs!) But the plausibility with which this postulate can carry over to methods also depends on factual references and especially on the complexity of theories within the scientific system. To this extent, it is a step in the direction of ethical neutrality when one develops theories that give up the simple thesis of a normative constitution of the social and proceed according to more precise statements about the function of norms and values.

Chapter 3: Double Contingency

I

The concept that is the theme of this chapter leads directly into the theory of social systems. It is prominently positioned in the "General Statement" of the anthology *Toward a General Theory of Action*,¹ a work that sought programmatically to introduce the development of a general theory into the social sciences. Hitherto, the concept and its underlying constellation of problems have not received the attention that they deserve,² as is no less true of Parsons's own use of this concept in his later works.³ Therefore we must study this account of the concept carefully to ascertain its relation to the theoretical constellations we have discussed so far. And we will see them all reappear: system, complexity, self-reference, and meaning.

Parsons begins with the fact that action cannot take place if alter makes his action dependent on how ego acts, and ego wants to connect his action to alter's. A pure circle of self-referential determination, lacking any further elaboration, leaves action indeterminate, makes it indeterminable. This is not a matter of mere behavioral agreement, nor of coordinating the interests and intentions of different actors.

Instead, it concerns a basic condition of possibility for social action as such. No action can occur without first solving this problem of double contingency, because any possibility of determination would then be lacking. Therefore Parsons includes solving the problem of double contingency within the *concept* of action, indeed, in such a way that he makes a normative

orientation--with the assumption of consensus--an indispensable feature of action. This forms the basis for his four-function schema.

The theoretical advances here should not be lightly dismissed. It is important to emphasize that Parsons clearly goes beyond theories of mere conformity and coordination. We would emphasize that the problem of double contingency belongs to the conditions of possibility for action and that therefore the elements of action systems, namely, actions, can be constituted only in these systems and only by solving the problem of double contingency.⁴ This is why it is even more important to make the move from the *problem* of double contingency to ideas about its *solution* with care; and this is where we diverge from Parsons.

As we have intimated, Parsons saw the solution in an assumed (but backed up by sufficient reality) value consensus, in a harmonious normative orientation, in a "shared symbolic system," which possesses normative character, like a code. Seen within the history of theory, this proposal was formulated in a period of transition. Like the sociology of the first half of this century, it presupposes that all societies hand down culture and that every social situation always uncovers culture. The long-term structures that regenerate social order lie in this cultural inheritance, and thus in the past. Accordingly, the problem of social order is not so much a problem of political domination as a problem of socialization. The concept of interpenetration, as Parsons uses it, formulates this. But that only displaces into the past the posing of the problem. Then one can always understand sociocultural evolution as deviant socialization, but in principle the constitution of social systems is bound to a cultural code that is always already to hand, although the emergence and function of this code must be explained.

Yet by its immanent circularity, the formulation of double contingency points beyond this traditional theoretical approach and promises something new. Nothing forces one to seek the solution for the problem of double contingency exclusively in an already-existing consensus, thus in the social dimension. There are functional equivalents--for example, those in the temporal dimension. At first, alter tentatively determines his behavior in a situation that is still unclear. He begins with a friendly glance, a gesture, a gift-- and waits to see whether and how ego receives the proposed definition of the situation. In light of this beginning, every subsequent

step is an action with a contingency-reducing, determining, effect --be it positive or negative. We will return to this later.

When one thus broadens the framework of possible solutions to the problem Parsons's theory poses, one at once opens the theory more powerfully to chance. We can connect this with the "order from noise principle" of general systems theory.⁵ No preordained value consensus is needed; the problem of double contingency (i. e., empty, closed, indeterminable self-reference) draws in chance straightaway, creates sensitivity to chance, and when no value consensus exists, one can thereby invent it. The system emerges *etsi no daretur Deus* [even if God doesn't exist].

This reorientation requires further corrections to Parsons's initial theoretical formulations. Parsons had in mind (in a fairly rough sense) subjects of action, who confront one another with self-determined (not just naturally given) needs, and who depend on one another for the satisfaction of their needs. But this account of the problem leaves its flank open to attack. One would have to ask what these subjects of action (actors, agents) designated as ego and alter really are if what constitutes their "organism" (later "behavioral system") and "personality" is differentiated only within the action system, and is not given in advance to the system. And one would have to ask how contingency is to be understood if all determinate order emerges only within the problematic of double contingency.

To facilitate an answer, we first shift the level on which the problem of double contingency is posed to the more general theoretical one on which meaning is constituted and continually processed. As intimated in the preceding chapter, one can speak of ego and alter in regard to an open potential for meaning determination that is given in the form of horizons to those who experience this potential in themselves or in others. The problem of double contingency is virtually always present whenever a meaning-experiencing psychic system is given. It accompanies all experiencing in an unfocused way up to the point when experience encounters another person or social system to which free choice is attributed. Then it becomes relevant as the problem of behavioral agreement. This problem becomes topical for concrete, that is, real, psychic and social systems or for traces (e. g., writings) that such systems have left behind. For double contingency to become acute, the

mere fact of the encounter is not enough; double contingency emerges as a motivating problem (and therefore as motivating the constitution of social systems) only when these systems are experienced and treated in a specific way, namely, as an endlessly open possibility of meaning determination that eludes access from the outside. Hence the special terminology of ego and alter or alter ego. The concepts of ego and alter should leave open whether they concern psychic or social systems, and they should leave open whether or not these systems adopt a determinate processing of meaning.

Accordingly, we must broaden the concept of contingency, that is, trace it back to its original interpretation in modal theory. This concept results from excluding necessity and impossibility. Something is contingent insofar as it is neither necessary nor impossible; it is just what it is (or was or will be), though it could also be otherwise. ⁶ The concept thus describes something given (something experienced, expected, remembered, fantasized) in the light of its possibly being otherwise; it describes objects within the horizon of possible variations. It presupposes the world as it is given, yet it does not describe the possible in general, but what is otherwise possible from the viewpoint of reality. In this sense, recently it has become customary to speak of the "possible worlds" of one real lifeworld. ⁷ The reality of this world is presupposed by the concept of contingency as its first and irreplaceable condition of possibility.

This modified, non-Parsonian understanding of double contingency has a twofold consequence. It enables the differentiation of a particular *world dimension* for socially distinct meaning perspectives (the social dimension) and it enables the differentiation of particular *action systems*, namely, social systems. The social is then accessible in all meaning as the problem of the similarity or discrepancy of interpretive perspectives. It is simultaneously a specific occasion for selectively coordinating actions within systems that can distinguish themselves from their environment. By modifying Parsons's theoretical approach, phenomenology and systems theory, the analysis of meaning and system/environment analysis, can be united. Of course, this still needs to be developed in a way that transcends the level of abstraction in Parsons's presentation.

II

The way in which double contingency has been formulated as a problem encourages one to imagine ego and alter, on both sides, as fully concrete human beings, subjects, individuals, or persons. This is neither entirely false nor entirely true. The theorem of double contingency serves to dissolve such an excessively compact premise. Of course, this can occur only if a substitute can be found. We shift an essential part of this problematic to the chapter on "interpenetration." For the moment, only a few clarifying remarks are needed, relating to the theoretical advantages to be gained by this process of dissolution.

Above all, we must detach ourselves from the traditional manner of treatment that tried to solve the problem of double contingency (even when it did not call it that) with concepts like "reciprocity," "reflection," "reciprocity of perspectives," or even reciprocity of performances. The unity being sought was seen as a kind of "stapling together" what was different. Similarly, sociality was conceived as relationships between individuals, and one was led to believe that individuals could not drop out of the picture without relationships also disappearing. This idea has slowly and almost unnoticeably become inadequate because of increasing emphasis on the eigenselectivity of perspectives and the impossibility of ascertaining the other. In the end every model of this kind, assuming symmetry, founders upon the problem of complexity and the necessarily selective reduction of complexity that is steered self-referentially within the system.

If one wants to talk about reflection, then to some degree he can include the fact that mirrors mirroring each other enlarge, shrink, or otherwise distort, and bring a "subjective" component into play. But the metaphor becomes inadequate to the extent that self-referential selection increases; and it is above all inadequate when one considers that a distorting mirror does not grasp the distortion of the other mirrors. That is to say, when one takes the mirror metaphor to the level of the relationship between self-referentially operating systems, it dissolves. The mirrors break. But without this metaphor one cannot think a reciprocity of perspectives, and thus the idea of a reciprocally anticipating ("purposive") reciprocity

collapses. In short, how one can still conceive the unity of a relationship that joins together a multiplicity of self-referential systems becomes doubtful. The relationship itself becomes the reduction of complexity. This is, however, to say that it must be conceptualized as an emergent system.

"Symbolic interactionism" is equally unsatisfactory, although for other reasons. This direction in theory builds a contingently acting alter ego into the ego and sees, quite correctly, the process of mediation as the use of symbols. But it treats the problem only on one side of the interaction, assuming that all is the same on the other. It treats, so to speak, only half of double contingency and thereby remains a theory of action. Social systems emerge, however, through (and only through) the fact that *both* partners experience *double* contingency and that the indeterminability of such a situation for *both* partners in *any* activity that then takes place possesses significance for the formation of structures. This cannot be grasped via the basic concept of action.

A theory of social systems built upon the conceptual problem of double contingency can account for the differentiation of social and psychic systems more clearly. To be sure, situations with double contingency require a minimum of reciprocal observation and a minimum of expectation grounded in knowledge to initiate communication. At the same time, the complexity of such situations rules out the participants' reciprocally fully understanding each other, indeed, understanding every variant of system performance that each one individually contemplates. In the customary sociological terminology one can express this by saying that the degree of reciprocal knowledge required to reproduce the social system is a variable that is actualized to a different degree from system to system, one that varies with the type of social system and inasmuch depends on the variety of types that emerge in the course of socio-cultural evolution. Thus we must consider different forms and degrees of the "personalization" of social systems (or an analogous variable, if ego and alter enact a social, and not a psychic, system). This means abandoning every substantialized interpretation of individuals and actors who, as the bearers of specific properties, make possible the formation of social systems. Instead, on the level of social systems, the question is posed: How much do the participants have to understand each other in order to communicate?

We would like to call psychic systems that are observed by other psychic systems or by social systems *persons*. The concept of a personal system is thus one that involves an observer perspective, in which self-observation (so to speak, self-personalization) can be included.

Because one can assume that any theory of psychic systems actualizes an observer perspective, one can speak of psychic and personal systems almost in the same sense. However, the conceptual distinction remains important because the concept of a person emphasizes relevance for an observer. We will not speak of the "psychicalization" but of the "personalization" of social systems in trying to express the dependence of communicational social systems' reproduction on the personal attributions of the participants.

A further, similarly terminological problem is likewise difficult to solve with expressions comprehensible in everyday language. Here, too, greater clarity and greater conceptual differentiation than sociologists usually expect are imperative to fruitful analysis. Highly complex meaning-using systems that are opaque and incalculable to one another are part of the infrastructure presupposed by the theorem of double contingency. These can be psychic or social systems. For the time being we refrain from distinguishing between them and talk of them both as "black boxes."⁸ The basic situation of double contingency is then simple: two black boxes, by whatever accident, come to have dealings with one another. Each determines its own behavior by complex self-referential operations within its own boundaries. What can be seen of each is therefore necessarily a reduction. Each assumes the same about the other. Therefore, however many efforts they exert and however much time they spend (they themselves are always faster!), the black boxes remain opaque to one another. Even if they operate in a strictly mechanical way, they must still suppose indeterminacy and determinability *in relation to one another*. Even if they themselves operate "blindly," they proceed *in relation to one another* more effectively if they mutually assume determinability in their system/ environment relationship and observe themselves through this. Any attempt to calculate the other will inevitably fail. One could be more successful and could gain experience by trying to influence the other from his environment. Incalculability is absorbed⁹ --one could almost say "sublimated"--by concessions of freedom.¹⁰ The

black boxes, so to speak, create whiteness when they come upon each other, or at least sufficient transparency for dealing with each other. *Through their mere assuming* they create certainty about reality, because this assuming leads to assuming the alter-ego's assuming. ¹¹ The assimilation of meaning material on this level of order presupposes two self-referential systems reciprocally observing each other--we spoke above about "mutualistic" constitution. ¹² For the few aspects through which they deal with one another, their capacity for processing information can suffice. They remain separate; they do not merge; they do not understand each other any better than before. They concentrate on what they can observe as input and output in the other as a system in an environment and learn self-referentially in their own observer perspective. They can try to influence what they observe by their own action and can learn further from the feedback. In this way an emergent order can arise that *is conditioned* by the complexity of the systems that make it possible *but that does not depend on this complexity's being calculated or controlled*. We call this emergent order a social system.

For later discussions of structure, it is important to emphasize precisely which kind of constraint comes into play here and which kinds of uncertainty are eliminated or reduced. A social system is not built upon and does not rely on the ability of systems situated in double contingency to see through and prognosticate one another. The social system is a system because there is no basal certainty about states and no prediction of behavior to be built thereon. Only the uncertainties *that result from this* are controlled, and they are controlled only with reference to the participants' *own* behavior. ¹³ System formation constrains (= structures) the possibilities of *safeguarding one's own behavior* in any such situation. Only thus can autopoietic reproduction, action out of action, emerge. The absorption of uncertainty runs its course by stabilizing expectations, not by stabilizing behavior, and this naturally presupposes that behavioral selections are not selected without orientation and expectations.

In the context of double contingency, expectations thus acquire structural value for building emergent systems and a certain kind of reality (= connective value). The same is true--and here it is entirely clear that we no longer formulate on a Parsonsonian basis-- for all semantic reductions with which participating systems create

a transparency sufficient for reciprocal observation and communication. I have in mind concepts like person, intelligence, memory, and learning. "Person" indicates that one cannot observe how it comes about that expectations acquire probability by connection within a psychic system (or, formulated differently, for acquiring security via acquaintance). "Intelligence" indicates that one cannot observe how it comes about that a self-referential system in contact with itself chooses one and not another solution to a problem. "Memory" indicates that one cannot observe how one complex, actual state of a system passes over into the next, so that one must fall back instead upon selected past inputs as indicators. "Learning" indicates that one cannot observe how information triggers far-reaching consequences by bringing about partial structural changes in a system without interrupting its self-identification. Examples could be multiplied. ¹⁴ They show that it would be futile to seek a psychic or even organic substrate for such things as person, intelligence, memory, or learning. All this concerns observer stratagems for interpreting what cannot be observed and transferring it to the emergent level of contact between systems. When that happens and the one who is observed experiences it, then he may be prompted to orient his self-observation (which already confronts the same problem) accordingly, and after a while, if his experience is good, he will believe that he is a person who has intelligence and memory, is capable of learning, and so forth. And no one can contradict him, because no one can observe him more precisely than these concepts allow.

"Psychological considerations" of this type belong to the emergent reality of social systems, thanks to autocatalysis by double contingency. This in no way implies that these concern an illusory world, fictions, or mere words, by contrast to the hard facts of the underlying system itself. In the relationship of emergence there is not more or less reality, not diminishing reality, but rather variably selective connectivity. This is a matter of re-establishing transparency despite opaque complexity, and that can only be attained as new levels of system formation emerge.

The relative transparency achieved in this way must, of course, be paid for. It is paid for with the *experience of contingency*. A wholesale concession that it could always have been otherwise compensates for the baselessness on which structure is acquired.

Knowing and calculating the behavior of one's partner is replaced (because it is unattainable) by a concession of freedom, and one can then limit oneself to knowledge that contributes to handling contingency. *This reduction is--and this is a theoretically central hypothesis of higher integrative power--bound to the experience of action* and thereby steered by the concession of freedom. The meaning unit "action" is constituted as a synthesis of reduction and an opening for possibilities of selection. Its function is to secure this and reproduce it connectively. This is why what happens when black boxes deal with each other appears to them as *action*. Action is selection attributed to the system. However it may be rationalized as choice among alternatives, represented as decision, or related to motives, initially it is nothing more than actualized contingency and, seen from an observer's viewpoint, expectation that has been planted within what is incalculable. We will return to this in more detail in Chapter 4.

An important consequence concerns the question Under which *difference* does a system built on double contingency *first start up*? In the context of modern individualism and action theory, one is tempted to begin with the actor's own advantage or his (however subjectively, irrationally, thoughtlessly, and mistakenly set) goals. But the theorem of double contingency leads to a different result. The system is first set in motion and orients itself by the question *Will the partner accept or reject a communication?* or, in terms of action, *Will an action help or harm him?* The position of self-interest arises only secondarily from the way in which the partner reacts to a proposal of meaning. The pursuit of one's own advantage is much too demanding an attitude to be a general presupposition (and the corresponding theories also developed very late).¹⁵ By contrast, no social system could get going if whoever initiates communication cannot know or would not be interested in knowing whether his partner reacted positively or negatively to his communication. A situation that would be entirely indeterminate in this regard, if all contact was not broken off immediately, would trigger efforts to clarify the presuppositions for the difference related to the partner.

Finally, we must consider that the experience of contingency generated in this way is all pervasive. It cannot be pinned down to inter- system relations or restricted to the emerging social action system, because the black boxes reciprocally experience and deal

with themselves as systems with environments. Each side can distinguish between its environment (or the world as such) and systems with environments in its environment. Thereby experience related to the environment, in addition to action, becomes relevant--because one can act with regard to another only if one knows how one is oneself experienced in the other's environment by the other. The generalized result of constant operation under the condition of double contingency is finally the social dimension of all meaning, namely, that one can ask for any meaning how it is experienced and processed by others.

This complicated structure of opaque systems oriented to an environment containing systems oriented to an environment forces one to distinguish the system/environment difference constitutive of any system from relations among specific systems. ¹⁶ This is the background of retention against which one can see the evolution of meaning and the evolution of the distinction between experience and (attributable) action. Every moment of meaning offers a point of mediation for various system/environment references, a possibility for *ad hoc* integration, so to speak. This consideration simultaneously clarifies the connection between the social dimension immanent in meaning and the formation of social systems. The social dimension of all meaning concerns the entire world, the entire extensiveness of one's own experience, and the estimated experience of others, beginning in the concrete here and now. This world-wideness correspondingly must be reduced to something cared about at the margins. By contrast, social systems are formed only where the actions of different psychic or social systems must be attuned to each other because the selection of one action is the precondition for the other or vice versa. The constitution of the social dimension is a necessary, but not sufficient condition for the constitution of social systems (just as experience is a necessary, but not sufficient condition for action). The social dimension makes visible the possibilities for the divergence of system perspectives contained in all meaning. What is jointly interpreted can mean something quite different for each participant. This divergence can then be used to form social systems; it can offer the occasion for that; it can more or less compel it.

Demands for action reside in the variety of experience. Double contingency creates pressure to act. But at the same time one can read from the difference between

experience and action that differences in ways of seeing and in processing experience do not determine how to act. The formation of social systems still has a problem to solve: the problem, established in all meaning construction, of the double contingency of social action.

III

Before we pursue the problem of system-constitutive double contingency any further, we should interject an epistemological reflection concerning the form this theory takes. The theory we are beginning to work out is not oriented to perfection or the lack thereof, but to a specifically scientific interest in the dissolution and recombination of experiential contents. It does not begin with the fact that the world is "in order," but merely exhibits faults that one can correct with the help of science. It does not pursue a "social problems" approach with regard to threats to stability or to deviation, exponential developments, or criminality. That themes like this deserve examination is, of course, beyond dispute, but here they do not determine the theoretical approach or the formulation of the problem. What is at issue here is not an interest in recognizing and curing, nor an interest in preserving what has been in existence, but first and foremost an analytic interest: to break through the illusion of normality, to disregard experience and habit, and, in this sense (here, not intended as that of transcendental theory), to effect a phenomenological reduction.

The methodological recipe for this is to seek theories that can succeed in explaining the normal as improbable.¹⁷ From the functionalistic perspective, this can occur with the help of problem formulations that make it possible to represent the normal experiential contents of the lifeworld as an already-successful solution to the problem, but one that could also, perhaps, be otherwise. Ever since the seventeenth century, when humans began to distance themselves from the religious positing of the world, there has been a multitude of examples for this technique of addressing alternative solutions to problems. Against all plausibility, Descartes maintained that there is no connection between the present moment and its preceding and following moments; God must create the world anew at every moment. This solution to the problem was later

replaced by the thesis of a world-historical consciousness, which establishes itself in its own temporal horizons. Or Hobbes maintained that every human being fears all others and is thereby induced to preventive hostility, which all the more compels the other, who has been calculated into this equation, to try to get a jump on him. If one poses the problem in this, equally counterintuitive, way, then it is possible to hold the state responsible for the *creatio continua*. Another author maintains that if someone gives something to someone else, there is no possibility, when this later becomes a matter of gratitude or repayment, of communicating about the value of the gift. Here the solution refers to the market/price mechanism. A final example relates to education: How is it possible to educate someone to be free if this requires the influence of the educator on his pupil? ¹⁸ In all these cases it would be banal (but this is what occurs normally) to refer the problem back to the lifeworld, to historical facticity, to functioning institutions, for what is at stake is precisely a reconstruction of this lifeworld against the background of other possibilities.

Two things stand out in these examples of early theoretical attempts to explain what is normal as improbable. They are all processed with reference to the problem of time, and they all refer to special problems of specific function systems. ¹⁹ In both regards they remain initially dependent on problems that must be handled right up front in the conversion of the societal system from an order of estates to a functionally differentiated system and brought into new semantic forms. ²⁰ Even the question of how social order is possible acquires analytical rigor ²¹ in the modern, specifically scientific style of reflection, and in the past hundred years sociology in particular has begun to seek its theoretical integration in such formulations of the question. ²²

In specifically sociological formulations of the problem, one can distinguish both models of questioning, and correspondingly both neat, helpful theories and theories fascinated by the probability of the improbable. For a long time the former had the tradition to themselves, and the latter appeared only when one explicitly asked how social order is possible. The predominant interpretation in the tradition sees the problem of social order as the avoidance or subjugation of offensive behavior; of inimical, disturbing, and destructive activities that prevent others from enjoying their

rights, satisfying their needs, and feeling safe in social relations. *Pax et iustitia* or "security and order" were the guiding formulas, and a good police the means of achieving them. According to this interpretation, the constitution of a legal political order (Hobbes) or of an adequate value consensus counted as the inevitable precondition for forming social systems. Since this precondition was always already fulfilled, it "legitimated" the existing order. Taking this as the starting point, one can exclude the basic problem. If questions about the origin of these preconditions arise, they are handed over to theories of evolution and socialization.

One cannot help asking whether the basic problem in the constitution of social systems really lies in eliminating what is harmful or cannot adapt. Or, in a more pointed formulation: Is it enough to conceive social order as a boycotting of boycotting, or must one not know from the beginning how it is generally possible and sufficiently probable? The second interpretation begins by asking about "conditions of possibility" and thereby seeks at once a more abstract and a broader theoretical foundation (e. g., one that includes conflicts as systems).

The radicalization of the problem of double contingency clears the way to this interpretation. It articulates the question "How is social order possible?" in a way that presents this possibility as above all improbable.²³ If everyone acts contingently, and thus everyone could also act differently and knows this about oneself and others and takes it into account, it is, for the moment, improbable that one's own action will generally find points of connection (and with them a conferral of meaning) in the actions of others; self-commitment would presuppose that others commit themselves and vice versa. Along with the *improbability* of social order, this concept explains its *normality*; under the condition of double contingency, every self-commitment, however accidentally arisen or however calculated, will acquire informational and connective value for the action of others. Precisely because such a system is formed in a closed and self-referential way--namely, A is determined by B and B by A--every accident, every impulse, every error is productive. The genesis of the system presupposes structured complexity in the sense of nonarbitrary distributions. Without "noise," no system. But under this condition the emergence (however brief, however conflictual) of order is normal,

because for those who commit themselves to an action, double contingency is brought into experience, and thus a double-sided contingent ego/alter constellation can be produced.

At first glance it may seem surprising that the doubling of improbability (related to every specific behavioral choice) leads to probability. This does not concern a simply linear problem of increase or decrease. If, in addition to one's own behavioral uncertainty, another's behavioral selection also is uncertain and depends on one's own behavior, the possibility arises of orienting oneself to that and determining one's own behavior in regard to it. Thus it is the emergence of a social system, which is made possible by a doubling of improbability and which then facilitates the determination of its own behavior.

IV

We must now raise the question of how the problem of double contingency "solves itself," or, formulated a little less pointedly, how the appearance of the problem comes to initiate a process of solving it.

For this, the self-referential circle is decisive: I will do what you want if you do what I want. In a rudimentary form, this circle is a new unity that cannot be reduced to either of the participating systems. It may be present in each of the participating systems as a content of consciousness or a theme of communication, but that always presupposes that it is also present in other systems. This presupposition does not emerge arbitrarily, no matter what its basis in reality may be. In marginal cases it may rest on error (the other did not see me at all or did not regard me as a possible interaction partner), but once it is activated it creates the corresponding reality--even if this reality is only to give the other the possibility of refusing to enter into it and breaking off contact immediately.

We do not have to analyze the causes of this circle any further: what comes into being is always new and always the same, namely, a circularly closed unity. In this unity the determination of every element depends on that of another, and the unity consists precisely in this. One can also characterize this basic fact as a self-conditioning indeterminacy: I do not allow myself to be determined by you, if you do not allow yourself to be determined by me.

As one can see, this is an extremely unstable core structure, which immediately collapses if it does not continue. But this initial position is adequate to define a situation that contains in itself the possibility of forming a social system. This situation owes its unity to the problem of double contingency; it is also irreducible to one of the participating systems.²⁴ For each system it is a factor in that system's relation to its environment,²⁵ but at the same time it is the core around which an emergent system/environment relation can crystallize. Thus this social system is based on instability. It necessarily realizes itself as an autopoietic system. It works with a circularly closed basic structure that would collapse at any moment if this were not prevented. Formally this occurs by de-tautologization and, as far as energy and information are concerned, by utilizing the environment.

Within the history of theory, this move integrates conceptual formations that have emerged separately. The theorem of double contingency and the theory of autopoietic systems converge, and this convergence makes it possible to introduce a "subject free" concept of action as a concept for observing the basal elements of social systems.

We will come back to this with specific analyses in the chapter on communication and action. But here we can already say that the problem of double contingency provides the behavior of the participating systems--however it may be conditioned organically and psychically--with an additional quality: such behavior reduces the indeterminacy that follows from double contingency. In this way, a behavior qualifies as action. It finds itself released into the realm of double-contingent uncertainty, such that every performance means selection and every selection limitation.²⁶ On the level of the emergence of social systems, the elements out of which these systems produce themselves are constituted first, and this autopoiesis requires the constitution of the unity of the system as a self-referential circle.

"Pure" double contingency, that is, a completely indeterminate situation, never occurs in our societal reality. Nevertheless, this point of departure is sufficient for further pursuit of specific questions. One can, for example, mull over the question: If *everything* can, through self-limitation, break the circle of hetero-determination, then what *in particular* can do so? Where lie the *selective advantages*

that apparently lead to the emergence of specific social systems instead of others?

If one formulates the question thus, then everything that constitutes a part of the preunderstanding of the situation can be interpreted as an opportunity to guide selection. In addition, one can ask (even if only for the still-open domain of remaining contingency) whether it is not possible to acquire more general insights about the relative likelihood that particular offerings of meaning will prevail. In other words, what seems best when the situation is an open one and the problem is to preconstruct succeeding events and increase their probability through self- and other-limitation?

In the temporal dimension the *advantage of speed* surely plays a role. The themes that are preferred are those to which one can quickly contribute something. Chains of selections that can operate faster suppress those that require one to deliberate how one is going to

27 react. This includes the fact that whoever can operationalize something first enjoys an advantage. In the fact and social dimensions, this depends primarily on *connectivity*. This means that the next event that will be chosen is the one that already makes clear what *its* succeeding event will be.
28 As with the much-disputed evolution of life, differences in speed and the formation of sequences seem to be what makes it possible for structures to emerge in situations where that is improbable.

However questions of this type are answered, it is important for an evolutionary (or morphogenetic) interpretation of this kind that the rules according to which some selective advantages establish themselves and others are blocked have no "similarity" to the resulting structures, that is, do not function like "models" or "plans." Thus one can construct a highly complex system using the simplest rules, and at the same time the system takes care that a consolidation already achieved continues to work as a selective advantage in further play. Along with speed and connectivity, and precisely because it secures the advantages of speed and connectivity, the status quo always has its day.

V

If a system experiences a situation in which it is participating as doubly contingent, its behavior is affected. Thus double contingency

is a problem that as a problem produces effects. Behavior becomes action if it is found free to be determined differently. Furthermore, temporal boundaries emerge under the pressure of double contingency. A purely autistically motivated behavior by an individual person will continue, even if other persons enter or leave the field of reciprocal perception. The experience of double contingency, by contrast, enables and even compels a meta-perspective that gives behavioral sequences temporal boundaries, namely, that disciplines behavior by giving it a periodic structure, in which each act knows and reflects itself as having an end and giving way to others' behavior. ²⁹ Thus the problem of double contingency has the properties of an autocatalytic factor: without itself being "consumed," it enables the construction of structures on a new level of ordering, which is regulated by that perspective on perspectives. Thereby--and this is why one can speak of "auto"-catalysis --the problem of double contingency is itself a component of the system that it forms. The experience of contingency gives rise to the formation of systems and is itself only possible because of the formation of systems and because the system provides the experience of contingency with themes, with information, and with meaning. ³⁰

As soon as a social system detaches itself from physico-chemico-organico-psychical reality by reacting to its own problem of double contingency and forms its own elements and boundaries, *the possibility of chance emerges for it*. Chance is produced along with the emergence of systems, so that they have at their disposal enough disorder for their own reproduction. Here, as always, chance does not mean the complete lack of conditions and causes, but the lack of coordination between events and a system's structures --an "absent" coordination that as something negative can, however, produce effects within the system and trigger causal processes.

What the experience of contingency achieves is the constitution and opening up of chance for conditioning functions within the system, ³¹ thus, the transformation of chance into structural probabilities. Everything else is a question of selecting what proves its worth and what has further usefulness. Wherever one encounters another under the condition of reciprocally experienced double contingency, a continuation of contact can be achieved only by agreement between

selective behavioral determinations, and this is achieved only by forming systems. The connection between double contingency and system formation carries with it no guarantee of permanence. It says nothing about whether the system that has been formed will continue or be broken off. It merely provides the basis for the *chance of selecting* what (provisionally) succeeds, satisfies, and seems worth continuing. It enables the evolution of specifically social orders--so that evolution means only the construction and destruction of structured orderings on an emergent level of reality.

The autocatalysis of social systems creates its own catalytic agent: namely, the problem of double contingency itself. This becomes clear when one analyzes more closely how and why reciprocal indeterminacies occur in behavior. Behavior is not in itself indeterminable, not "naturally free" in the sense of open to arbitrary determination. The behavior of others is indeterminable *only in the situation of double contingency* and specifically for the person *who tries to predict it* in order to use this prediction to determine his own behavior. Thus an *indeterminacy created by prediction* emerges within the metaperspective of double contingency. However routine and expected a behavior may become, if the ability to predict this behavior is used to motivate complementary behavior, then that may become a motive to change the predictable behavior in order to remove the basis for the prediction and uncouple the connective behavior based on it. If ego knows that alter knows that ego is concerned with predicting alter's behavior, then ego has to consider the effect of this anticipation. This cannot occur as improved foresight because that would only reintroduce the problem. The problem is repeated on all levels on which it is reflected: in other words, alter acquires the possibility of escaping this foresight to the extent that the foresight is specified (and this means to the extent that connective interests become apparent). Only if, but also always if, alter's action is predicted can he act "otherwise" or make the fulfillment of the expectation conditional. The prediction enables, even stimulates, its own refutation. Whatever lies to hand as possibilities of determination is emptied out and thrown back to be reformulated. The self-reference built into the circle of reciprocal consideration becomes negative--and, with that, productive.

Openness to new conditioning rests on the same condition as negativity, namely, on the doubling of contingency: ego experiences

alter as alter ego. But along with the *nonidentity of perspectives*, ego also experiences the *identity of this experience* on *both* sides. The situation is indeterminable, unstable, and unacceptable for both the participants. In *this* experience the perspectives *converge*, and that makes it possible to suppose an interest in negating this negativity, an interest in determination. Formulated in the terms of general systems theory, this provides a "state of conditional readiness," ³² a suspended possibility of system formation that can use almost any chance situation to develop structures. This premise of a basic problem that operates autocatalytically is in many ways at odds with widely held theoretical assumptions. It does not agree with the assumption of a nature (in the sense of something that is *sui generis*) or with the assumption of an "a priori" (in the sense of something valid in itself). Instead, it assumes emergent levels of order as autonomous in the sense of the theory of self-referential systems, autonomous with regard both to an enabling "from below" and to a conditioning "from above," even more so with regard to the hypostatizations of relations of dependence in concepts like mind or matter. Into the place of such concepts of last resort steps the idea of a problem that becomes productive under the condition of the adequate complexity of existing reality. The concept of double contingency serves to grasp this problem more precisely for the emergent level of social systems, and it simultaneously channels the counter-question of what adequate complexity of existing reality means here. Thus the notion of double contingency combines--quite differently from what one had earlier expected from the concept of roles ³³-- a theory of the self-regulation of social systems with a hint of biochemico-organico-psychical substrates. ³⁴

Of course, when we speak of problems here we do not mean only the artifacts of the art of scientific problematization. Although the *concept* of problems, the *concept* of double contingency, and the *concept* of autocatalysis are formed in the system-specific context of scientific efforts and must find their home, function, and confirmation there, they *mean* real facts in the domain of the objects to be analyzed. Thus we maintain that there *are* problems--and not only for science. Reality reacts to the problems that occur within it by selection. Problems are the factually effective catalytic agents of social life. This is the fundamental idea that "dialectics" (perhaps

somewhat hastily) interpreted as a process. In systems theory it is enriched and articulated by concepts like complexity, selfreference, and meaning.

VI

To accept this idea of double contingency as a problem that operates autocatalytically has far-reaching consequences for the theoretical structure erected upon it. The theory deals with a free-floating reality, a self-grounding enterprise, and this gives it, as theory, an odd tonal complexion, a particular coloring. It can base the maintenance of social order neither on nature nor on norms or values that are valid a priori. What is there to take their place?

Since the seventeenth century, it has been believed the basis of order must lie in what is concealed and unknowable. Latency is a necessary requirement of order. The hand that guides everything remains invisible. The chains from which everything depends are secured in unknowable heights. The motives for action are, unintentionally, ordered by a ruse of reason. Metaphors of this kind attempted to offer a compromise to the religions, which in their own ways could praise, determine, and formulate the unknowable. But society itself could not opt for any of the various religions; therefore it had to remain satisfied with the general formula of unintelligibility. This, at least, was clearly and correctly observed. In fact, one needed no grounds for consensus in order to secure continuation of the existing social order, any more than one needs optics in order to see. But the extent of the structural changes that one could observe after the French Revolution or in the wake of the industrial revolution led to a loss of plausibility. To what extent could one try to correct an invisible hand? How much could one swing on the chains suspended in the unknowable without their breaking?

Sociology addressed these questions at the very beginning of its history, but sociology could no longer answer them by reference into the dark. It demanded another theory. Usually this was done, following Weber and Durkheim, by recourse to a foundational value consensus, a civil religion, or a belief in legitimacy. The formulations vary in accordance with how strongly one emphasizes political domination as a guarantee of order. Parsons explicitly

related this concept to double contingency and provided the definitive version of it: "The double contingency implies the normative orientation of action, since alter's reaction to punishment and reward is superadded to alter's 'intrinsic' or direct behavioral reaction to ego's original selection. If punishment or reward by alter is repeatedly manifested under certain conditions, this reaction acquires for ego the meaning of an appropriate consequence of ego's conformity with or deviation from the norms of a *shared symbolic system* Such a

system, with its mutuality of normative orientation, is logically the most elementary form of culture. In this elementary social relationship, as well as in large-scale social systems, culture provides the standards (value-orientation) which are applied in evaluative processes.

Without culture neither human personalities nor human social systems would be possible." ³⁵ The answer is clear, but it does not solve our problem. It assumes that, if a social system is to prove itself capable of survival, adequate value consensus and adequate understanding about the shared symbolic system must be achieved. The possibility of doing this is assumed. Parsons should have underlined "repeatedly" instead of "shared symbolic system."

One ought to consider whether more recent developments in theory do not already imply that time and history increasingly step into the theoretical slots where nature, norms, or values formerly functioned as providers of certainty. This occurs in part covertly (as with Parsons's "repeatedly"), in part in analyses of fact that, theoretically speaking, have not been fully worked out: for example, analyses of strategies for initiating intimate relations or testing trust. ³⁶ At first, the nineteenth century tried to replace the *a priori*s, which were no longer persuasive, with a belief in the *direction* of the historical process, interpreting evolution as progress. This form of substituting time and history for foundational certainty failed. But it does not exhaust the possibilities. If one views time as the structure of a selection process that continually balances irreversibilities and reversibilities, ³⁷ one can immediately see that the foundations of every selection must be created by selection and be solidified by use in the continuing selection process so that re-dissolution becomes harder, though not, surely, impossible.

An example can clarify this. Until now, the binding effect of contracts has been discussed mainly from the viewpoint of justifying a norm that requires contracts to be kept ("pacta sunt servanda").

The difficulties in justifying such a norm with unconditional certainty have led to proposed replacements. Durkheim put the moral fact "society" in this position, Hans Kelsen the epistemological hypothesis of a basic norm. The expectations directed toward the grounding power of grounds were not changed, however. Only the theory of self-referential systems can force such a change. What "counts" as the legal form of contracts is only a marginal condition for coordinating selections that bind themselves as they reciprocally adjust to one another, use one another, build on one another, and reject alternatives. For this, they need and have time. In symbolic interactionism one speaks of "negotiated order" or "negotiated identities."³⁸ The indispensable condition here is that every selection be experienced as contingent and that a temporal succession be created, so that the selections can reciprocally determine one another, leaping ahead and reverting to what, from their respective temporal positions, is the future and what is the past. Both of these together--namely, contingency and time--constitute the basis of the binding, and contract is the form that makes this "together" (in differentiation from other forms of coincidence) possible.³⁹

Formulated more abstractly, time is not simply the measure of a motion that is knowable, calculable, feasible, and repeatable insofar as one knows which states lead to which other ones. Time is not simply a chronology that depends on natural laws. Nor is time organized with regard to a good end, one that processes will normally attain. Time is not simply teleology. Time is the asymmetrization of self-reference in light of the order of selections, and in the social domain it temporalizes the double contingency of social action, including the self-references in play therein, with the result that the emergence of improbable order is almost inevitable wherever double contingency is experienced.

With an additional remark, we can refer this sense of time's relevance back to the problem of double contingency. Double contingency is given primarily in a symmetrical form: as an uncertainty that is in principle equal for both sides. As symmetry, it is a self-reflective problem. The other is an *alter ego*. Or, as formulated by Gotthard Günther: "The you 'is' always an I in thematic reversal."⁴⁰ But it is not this alone; it is also an *alter ego*. One can anticipate another's action and connect onto it if one exploits its temporal localization. The problem is raised symmetrically;

the solution is guided by asymmetrization as it progresses; and consensus or dissent are the results--namely re-symmetrizations. Once again, they are consensus and dissent for both sides in the same way.

VII

The thesis that double contingency necessarily leads to the formation of social systems and in this sense operates autocatalytically as an enduring problem (and not just as an impulse) can be clarified further by a theoretical comparison using the example of system boundaries. We will choose as our point of departure Simmel's excursus on the formation of social boundaries. ⁴¹ Right at the beginning of this excursus one finds the thesis: "Wherever the interests of two elements hold for the same object, the possibility of their co-existence depends on the fact that a boundary line within the object divides their spheres." According to Simmel, a process of boundary determination is always set in motion when one enters into social relations. But the boundaries that Simmel has in mind do not separate the social system from its environment; they cut through the object according to this difference: my sphere of influence/ your sphere of influence, my rights/your rights, the side that I can see/the side that you can see. Thus interaction is formed over a boundary, as in a game of tennis. Common zones may be more or less broadly laid out, and everyone may more or less enter into the other's sphere. But finally an intimate domain for the other must be preserved; he must be granted a right to things of his own and to secrets. Thus black boxes are a moral principle, the "private property in the soul's being." ⁴²

From the perspective of systems theory, this interpretation considers only the system reference of psychic systems. The social system's own world is not seen, because the theorem of double contingency is lacking. With catalytic intervention by the problem of double contingency and the selection that it sets in motion, entirely different boundaries emerge. They do not separate and combine individuals; instead, they constitute the social system's own domain in relation to what is environment for this system. Whatever contributes to solving the problem of double contingency belongs in the system. Whatever emerges in confirmations or connective selections is attributed to the system itself. Everything

else--above all, of course, the enormous amounts of meaning that were a subject about which no one ever spoke--is as a whole attributed to the environment. Thus a political party is not interested in knowing whether its members brush their teeth in the morning, afternoon, or evening, or why leaves are green, or why suns are capable of remaining in a state of equilibrium. A social system can define its boundaries as more or less open and permeable, but it must then internally determine the rules of selection by whose help themes can be accepted or rejected.

Through the connection between selections and further selections in the course of communication, a domain of what is to be accepted and expected condenses, and its boundaries cut across the world of meaning. Psychic systems thereby become persons, namely, collages of expectations, functioning as points of reference for further selections within the system. This may imply more and also less than the psychic systems are aware of. Other supplies of meanings, too, are only partially incorporated, according to organizing ideas that have proved their worth within the system. Books can be mere house decorations or the products of publishers, library possessions or the communicative themes of a specific scientific group. Environmental protection has a very different meaning depending on whether it falls within the province of the Department of Agriculture, the Department of the Interior, or the Department of Education and depending on whether a forester, a policeman, or a landscape gardener is concerned with it. The double contingency absorbed by the system's formation operates, then, as both a facilitator of and a barrier to communication. The strength of such boundaries is explained by the fact that the readmission of fully indeterminate contingencies falls within what is unreasonable. One can always move the boundaries, expand or contract the scope of reasonableness; but once the system has a history, this can be done only point-for-point, only for specific themes, and only as an exception.

VIII

One of the most important consequences of double contingency is the emergence of *trust* or *distrust*.⁴³ When entering into situations with double contingency is experienced as particularly risky, they appear. The other can act otherwise than I expected precisely if and

because he knows what I expect. He can leave his intentions unclear or be deceptive about them. If this possibility always forced one to renounce social relations, then social systems could hardly ever form, or could do so only in a narrow, short-lived sense (perhaps like the contact of primitive societies with strangers at tribal borders --where an institution of trust, the "guest," formed). For the formation of social systems to overcome an ever-present threshold of anxiety, corresponding "nevertheless" strategies are required. These strategies may be trust or distrust; and the first relief this gives is that there is a choice and that one need not depend on just one basis for behavior. The problem is solved by a difference that simultaneously introduces specific selective sensibilities and the possibility of a switch from trust to distrust.

As a strategy, trust possesses greater scope. Anyone who gives his trust considerably widens his potential for action. He can rely on unsure premises and by doing so increase their certainty value. It is difficult to deceive trust that has been given (which, of course, no longer holds if such trust amounts, according to social standards, to an incredible thoughtlessness). Thus greater room for combinatory play, and also more rationality, becomes available to one's own behavioral choices. Distrust is a more constraining (yet still a widening) strategy. One lets oneself run a risk only if one has taken precautions against eventualities--for example, has sanctions in hand or is adequately secured against losses.

This difference in the scope for achieving order is also supported by the fact that trust itself suggests the transition to distrust and therefore surrounds itself with controlling sensibilities. "Blind" trust is looked upon as foolish, undesirable, and harmful. Minor indications of the misuse of trust or of previously overlooked qualities often are enough to trigger a radical change in the relation. And knowing this re-stabilizes the social system based on trust. The opposite process, the transition from distrust to trust, has entirely different problems to solve. It is not abrupt, but is achieved only gradually, if at all. It remains dependent on additional supports (e. g., law). Here, things are not going downhill, but arduously uphill in the direction of a more complex social order. ⁴⁴

One can study the typical characteristics of the autogenesis of social systems out of double contingency using the case of trust and distrust. What is most important is that trust and distrust can

appear only in the domain of double contingency; they should not be confused with a general optimism or pessimism about life, fear of sickness or other misfortunes, preference for what is familiar, and so forth. Trust must be given contingently, that is, freely. It cannot be demanded or normatively prescribed. Trust has its social functional value as trust only if it sees the possibility of distrust-- and rejects it. Thus, it rests on negating its opposite. Moreover, precisely here the temporal structure and sequentiality of social relations' construction are important. One begins with small risks and builds on confirmations; and the conferral of trust is facilitated if this is required from both sides, so that the trust of one can find a support in the trust of the other.

Above all, trust has the *circular*, self-presupposing and confirming character that belongs to all structures emerging from double contingency. It makes the formation of systems possible and in return acquires strength from them for increased, riskier reproduction. ⁴⁵ This is why it depends on *symbolic* cover: it reacts to critical informations not because of the facts that they report, but because they function as indicators of trustworthiness.

With all these characteristics, the trust/distrust syndrome is a special case, which becomes relevant only in certain special situations where one must enter into risks one cannot control in advance --or be forced to refuse participation. Basically all situations with double contingency have this character because they always imply a sequence of entering into implicit self-determinations that bind one person before the other has correspondingly bound himself. To this extent trust is a universal circumstance of action. This is concealed only because there are functionally equivalent strategies for security and situations almost without freedom of choice, for example, in the domain of law and organization. ⁴⁶ But here too trust may be needed as a kind of redundant foundation for security if the usual behavioral regulations are shaken. However, one will then be more likely to resort to distrust than to trust because one lacks opportunities for learning and testing one's trust.

IX

We would like to return once more to the general theme of double contingency. In situations with double contingency, and consequently

in all orderings that emerge from it, there is an explicitly self-referential state of affairs. The theory of the subject based in consciousness overlooked this and therefore was unable to clarify the decisive ambivalences in the conceptual framing of what is called the "self."

The connection between double contingency and self-reference is secured by the ego/alter ego constellation in a precise and rigorous sense. If an ego experiences an alter as alter ego and acts in this experiential context, every determination that ego gives to his action refers back to itself. The determination is reflected back by alter, not only in reality but in ego's anticipation as well, which means in the determination itself. The action understands itself not only as carrying out its intention but also (and often primarily!) as an action "for you," "against you," "in front of you," as an action meant for perception, or as a document of its own intention that does not want to be understood as an intention of documentation. To what extent the participating persons, their morality, and their standing play a part is another question. ⁴⁷ For themselves, persons are always already highly aggregated self-references. First and foremost, the process of determination by basal self-reference begins on the level of individual actions. The "self that is at stake here and that back references point out is nothing other than the action that has determined its meaning and is thereby, so to say, "caught in the act" and so must take this into account. In this way, basal self-reference is always already built into the process of determining meaning, which constitutes actions in the first place. The elements or elemental events out of which systems are formed never appear without such self-reference; they are self-referentially constituted and only on this basis develop their possibilities for building structures and potential for refinement.

Thus the primary self-reference is that of the elements created and made available for selective combination. Since this self-reference occurs through an alter-ego, and thus is mediated through somebody who does not perform this special action himself, another level of self-reference is always in play--namely, reference to the social system that enables the basal self-reference and thereby itself participates in the course of the action. Thus self-reference implies, on the one hand, that the action controls itself from the perspective of the alter ego, and on the other, that the action assigns

itself to a social system in which this is the case. Along with the constitution of self-referential connections among actions, a social system's self-reference emerges, namely, the incorporation of the domain of double contingency and its fact, temporal, and social boundaries. As a participant in social situations, one can still behave autistically, but only in a demonstratively autistic way and only by grasping both of the self-referential circles: first, that this distorts the action in the direction of demonstration (whether one wishes this or not!) and second, that in the social system it acquires a specific place value, triggers reactions, makes history, and in this way gets out of control for the act itself. Elemental self-reference is a constitutional condition for social self-reference and vice versa, which says no more than that elements are elements only within systems.

Any effect of the problem of double contingency, as soon as it is posed, goes through both these self-referential circles and ties them together. Thereby both forms of redirecting self-reference, through the alter ego and through the social system, reciprocally control and correct each other. In order to understand this more clearly, one must consider that the problem of double contingency looks different depending on whatever self-reference one views it from.

If one assumes still-indeterminate intentions to act facing each other, then the elemental self-reference cannot acquire a determining function because it gives way to indeterminateness as soon as it runs into alter ego and thus finds itself referred back to itself as being indeterminate. First and foremost, it then becomes important to interrupt and extend the short-circuited elemental self-reference of action. As long as ego cannot act without knowing how alter will act and vice versa, the system is underdetermined and thereby blocked. But for meaning systems, this means at the same time becoming highly sensitive to almost any determination. From the temporal perspective, double contingency works here as an accelerator of system construction. Beginning is easy. Strangers begin by reciprocally signalling each other indications of the most important behavioral foundations: the definition of the situation, social status, intentions. This initiates a system history that includes as well as reconstructs the problem of contingency. As a result, the system increasingly is occupied with arguments about a self-created reality: with handling facts and expectations that the system itself has

helped to create and that also determine greater or lesser behavioral scope than the indeterminate beginning. Double contingency is then no longer given in its original, circular indeterminacy. Its self-reference has been deautologized. It has incorporated chance, has thereby grown, and appears against what is now determinate or still determinable only as "being also otherwise possible." This in turn lets the second self-reference, that of action as an element of a social system, come into play. Action acquires its selective determinacy together with the limited possibilities of being otherwise from its function as an element in the social system.

Thus two different versions of the problem of double contingency displace, overlap, and supplement each other: a short-circuited version that only reports indeterminacy, and a structured version that takes into account conditionings and limiting alternatives and depends on premises of the system. Both versions can change their guiding role within the process of the system's development, but normally it is difficult for a system that has already been structured to regenerate indeterminacies or even to return entirely to a state where there are no expectations. This is because system formation must enlist system history and time must be experienced as irreversible. Therefore the restoration of indeterminacy requires the form of *contradiction*. It does not revert to something ahistorical but creates uncertainty about what follows from what has gone before. We will return to this in Chapter 9.

The problem is displaced from an open into a structured form along the track of the self-reference contained in all double contingency. The underlying problem remains identical, but the displacement gradually diminishes the openness for chance stimulations and replaces this openness with ways of shaping problems that depend on structure. The system loses its indiscriminate openness to anything whatsoever and acquires sensitivity to specific items. This differentiates the system and its environment. System and environment are no longer virtually congruent as indeterminacy and openness to all possibilities. Instead, insofar as its own selection history comes into play, the system acquires an environment in which much is possible but only a little is relevant. Outwardly emerge environmental horizons that present the world-that-remains and against which appear the objects and themes with which the system is concerned. ⁴⁸ Inwardly, double contingency

remains as an internal horizon that includes possibilities for actions that could always be otherwise possible, within which operate expectations checked in everyday behavior, which one has always already entered into through the harmonization of complementary behavior within the system. The problems with which one must actually involve oneself are thus determined by these expectations, their inconsistencies, their environmentally dependent variations, and their disappointments. The openness of the initial situation is transformed into a projection of structure and the risk of disappointment, both in relation to the environment and in relation to the system itself-- though in different ways, so that within the system itself, system and environment must be distinguished.

One can interpret the same state of affairs with the concept of *conditioning*, from systems theory. System formation is impossible without any conditioning of connections, because only conditioning can delimit one domain of possibilities from another.⁴⁹ But pure double contingency conditions only in a short-circuiting manner, namely, by reference to alter, who in turn determines himself by referring back to ego. For such a system, everything would be possible, despite conditioning. Conditioning's function of delimiting ranges of possibility would not be fulfilled. This would be an example of a completely closed system, which is simultaneously completely open to any further conditioning that would help it to constrain its possibilities.

Thus doubly contingent conditioning has only the function of increasing sensitivity to further conditioning. It creates sensitivity to chance and thereby sets evolution in motion. Without it there would be no sociocultural evolution. One might object (as against the *status naturalis* argument of natural law theories) that there are no pure states of double contingency, nor historically have there ever been.

Persons never meet without some assumption, without some expectations about each other, and they can experience contingency in the sense of "always being otherwise possible" only by means of behavioral types and expectations. But this objection only confirms that society is an autopoietic system, which must presuppose itself in its own reproduction. What are experienced and reproduced as double contingency are the degrees of freedom necessary for continual reproduction on the basis of temporal elemental events under constantly changing conditions.

Finally, with the help of the concept of conditioning, the problem of *reciprocity* can be reinterpreted. Even in recent sociology reciprocity is repeatedly used as a basic concept or viewed as the condition of sociality pure and simple.⁵⁰ But this is only a matter of a (certainly widespread) special case of conditioning: the performance of one individual is made to depend on the performance of another under the condition of reciprocity--thus double contingency is reduced to double conditioning. This has many advantages: for example, rapid comprehensibility. But in the development of more complex societies disadvantages have also emerged, and advantages can turn into disadvantages if the structure of society changes. Thus reciprocity is to a great extent open to strata-specific evaluations of contributions. Performances "coming from above" count more than performances "coming from below." This enables the adaptation of reciprocity to the requirements of stratified societies--but it becomes a factor of disturbance when function systems are differentiated.⁵¹ A general norm of reciprocity then becomes attenuated,⁵² and nevertheless will no longer apply to many determinations of action.

X

We will return in more detail to the themes suggested here, to the concepts of structure and expectation, in the chapter provided for them. For the time being, we are interested only in the fact that, and in how, double contingency is articulated and changed. The basis for this is finally that, within the horizon of such an experience of contingency, everything that takes place occurs as a selection and thereby operates to form structure when and insofar as *other selections admit this structure*.

Thus the analysis of double contingency leads back to the theme of selection, already introduced in both of the preceding chapters. A kind of compulsion to make selections became prominent when we clarified the concept of complexity and when we clarified the concept of meaning: whenever more than a very few elements are to be bound together, and whenever something complex is experienced in the form of meaning, the necessity of making selections emerges, as does the real selectivity of anything that is actualized. Whether or not it is a conscious selection, a choice is made among the totality of possibilities for relationship or references to other

things indicated in the meaning actually given. This is as far as one can go if one presupposes the standpoint of the individual, from which whatever is complex or meaningful is considered only from the viewpoint of variation. The analysis of double contingency goes further, taking up what was suggested in the remarks about a general systems theory as a "mutualistic" or "dialogical" constitution. The question is now what additionally, what more precisely, can one make out about selections and connections among selections if one assumes double contingency.

The consequences for selection can be summarized under two considerations. First, connections among selections are *built into individual selections* because every ego also functions as an alter for its alter ego, and they both take that into account. This in no way guarantees in advance consensus or even the possibility of harmonizing connections among selections. One can miscalculate projections, or deliberately enter into conflict, or drift toward dissolution. But the consequences of working connections among selections into selections lie in something else, and that leads to our second consideration: *connections among selections can themselves be selected*. Selection is *doubly selective*: it chooses one possibility among those presented for choice (and not others), and it chooses a domain of possibilities, a "whence" of selection, in which a specific number of alternatives with clear tendencies for specific options stands out.

This double selectivity has come up for discussion before its appearance in systems theory. When an earlier author speaks of *neccesità cercata* ("sought-after necessity") in relation to attendance at princely courts in general and to friendship in particular, ⁵³ this means that a sphere of contact is freely chosen, in which one exposes oneself to reciprocal adaptation and which one can leave only in its entirety-- merely to find oneself in the same situation next time. This is life experience put into a formula, and precisely for this is it convincing.

Carrying this over into a theoretical context opens wide-ranging possibilities for conceptual disposition. This is particularly true if theoretical questions are posed for decision on a sufficiently high level of abstraction.

In theoretically binding systems theory to the theorem of double contingency, how one interprets the selection of selection domains is decisive. Initially, one is tempted to say that the domain of selection is a (social) system; one first chooses to affiliate with a

system, and then chooses actions within the system. But this interpretation would contradict the system/environment concept presented above, as well as the results of the phenomenological analysis of meaning; it would too severely reify what is assumed to be a system. This point of departure is not incorrect, however; we need only modify it. Selection domains are not isolated systems chosen out of the rest of the world, but reductive perspectives for a relationship between system and environment. Systems are selected, not as a bunch of objects, but as ordering perspectives from which a relationship between system and environment is accessible. They are chosen as a reduction of complexity, which always has to be assumed (and despite this can be selected) if selections are to be oriented. Selection domains cannot be chosen *as* systems without thereby selecting and sorting out environments; such domains can and must be identified with respect to systems. To retain this theoretical standpoint, we would like in the future to speak of *system references*, emphasizing that systems are chosen as reductive perspectives for themselves and for their environments. We speak of a *plurality of system references* if the selective and combinative character of this orientation to system-centered reductions should be emphasized.

This takes account of the fact that systems can be formed only in relation to a much more complex environment and that meaningfully self-referential processes understand themselves as system-internal, in such a way that they refer their meaning to their environment and that everything that is environment for them can be referred back to them. To this extent a self-steered selective process brought about by double contingency produces a concept of itself as being internal to a system; but this always refers to an orientation toward the environment as well. The environment is whatever, at any time, cannot determine selection processes by actual double contingency, but perhaps can become a theme and motive for it. Wherever double contingency overdetermines selective accordations, the selection process rests on the difference between system and environment. This alone makes it possible to choose selection domains as specific reductions for a relationship between system and environment. One can select them only as a unity, as the unity of the difference between system and environment.

Notes

- [Note](#): 1. Talcott Parsons and Edward Shils, eds., *Toward a General Theory of Action* (Cambridge, Mass., 1951), pp. 3-29. The formulation runs: "There is a *double contingency* inherent in interaction. On the one hand, ego's gratifications are contingent on his selection among available alternatives. But in turn, alter's reaction will be contingent on ego's selection and will result from a complementary selection on alter's part. Because of this double contingency, communication, which is the preoccupation of cultural patterns, could not exist without both generalization from the particularity of the specific situations (which are never identical for ego and alter) and stability of meaning which can only be assured by 'conventions' observed by both parties" (p. 16). In this formulation, which starts out with a problem in the social dimension, generalization stands for the problem's solution in the fact dimension and stability for its solution in the temporal dimension. A later formulation takes up the theme of social reflexivity: "The crucial reference points for analyzing interaction are two: (1) that each actor is *both* acting agent and object of orientation *both* to himself and to the others; and (2) that, as acting agent, he orients to himself and to others and, as object, has meaning to himself and to others, in all of the primary modes or aspects. From these premises derives the fundamental proposition of the *double* contingency of interaction. Not only, as for isolated behaving units, animal or human, is goal outcome contingent on successful cognition and manipulation of environmental objects by the actors, but since the most important objects involved in interaction act too, it is also contingent on their interaction for intervention in the course of events." (Talcott Parsons, "Interaction: Social Interaction," *International Encyclopedia of the Social Sciences*, vol. 7 [New York, 1968], pp. 429-41 [p.436].) For a further development, see James Olds, *The Growth and Structure of Motives: Psychological Studies in the Theory of Action* (Glencoe, Ill., 1956).
- [Note](#): 2. See Solomon E. Asch, "A Perspective on Social Psychology," in Sigmund Koch, ed., *Psychology*, vol. 3 (New York, 1959), pp. 363- 83; also Alfred Kuhn, *The Logic of Social Systems* (San Francisco, 1974), p. 140 (on mutual contingency, but only as a special case of social interaction, which according to Kuhn also deserves the title of "social" when contingency is one-sided).
- [Note](#): 3. See for this Niklas Luhmann, "Generalized Media and the Problem of Contingency," in Jan J. Loubser et al., eds., *Explorations in General Theory in Social Science: Essays in Honor of Talcott Parsons* (New York, 1976), 2: 507-32.
- [Note](#): 4. Here is where the concept of autopoietic systems can be a great help in further analyses. We will return to this in greater detail; see section IV of this chapter.
- [Note](#): 5. Following Heinz von Foerster, "On Self-Organizing Systems and Their Environments," in Marshall C. Yovits and Scott Cameron, eds., *Self-Organizing Systems* (Oxford, 1960), pp. 31-48.
- [Note](#): 6. Historically this version of the concept goes back to Aristotle. Among the multitude of logico-historical investigations see, e. g.: Storrs McCall, *Aristotle's Modal Syllogisms* (Amsterdam, 1963), esp. p. 66ff; A. P. Brogan, "Aristotle's Logic of Statements about Contingency," *Mind* 76 (1967): 49-61; Albrecht Becker-Freyseng, *Die Vorgeschichte des philosophischen Terminus "contingens": Eine Untersuchung über die Bedeutung von "contingere" bei Boethius und ihr Verhältnis zu den Aristotelischen Möglichkeitsbegriffe* (Heidelberg, 1938); Hans Barth, *Philosophie der Erscheinung*, vol. 1 (Basel, 1947), p. 326ff; Guy Jalbert, *Nécessité et Contingence chez saint Thomas d'Acquin et chez ses prédécesseurs* (Ottawa, 1961); Celestino Solaguren, "Contingencia y creación en la filosofía de Duns Escoto," *Verdad y Vida* 24 (1966): 55-100; Heinrich Schepers, *Möglichkeit und Kontingenz: Zur Geschichte der philosophischen Terminologie vor Leibniz* (Turin, 1963); Schepers, "Zum Problem der Kontingenz bei Leibniz: Die beste der möglichen Welten," in *Collegium Philosophicum: Studien J. Ritter zum 60. Geburtstag* (Basel-Stuttgart, 1965), pp. 326-50.
- [Note](#): 7. As, e. g., in: Nicholas Rescher, *Topics in Philosophical Logic* (Dordrecht, 1968), esp. p. 229ff; Jon Elster, *Logic and Society: Contradictions and Possible Worlds* (Chichester, 1978).
- [Note](#): 8. This indicates that the following argumentation could be transposed to the level of general systems theory if one were to omit the premise of meaningful experience and action. See, e. g.: Ranulph Glanville, "Inside Every White Box There Are Two Black Boxes Trying to Get Out," Ms. 1979; Glanville, "The Form of Cybernetics: Whitening the Black Box," in *General Sys-*

tems Research: A Science, a Methodology, a Technology (Louisville, Ky., 1979), pp. 35-42.

- [Note](#): 9. See also Donald M. MacKay, *Freedom of Action in a Mechanistic Universe* (Cambridge, 1967).
- [Note](#): 10. Sublimation means that one completely forgets what one *must* forgo and, as a result, received it back again with a higher value.
- [Note](#): 11. This argument against introspectively justified solipsism (and as a substitute for Descartes' argument for God) is also formulated by von Foerster, p. 35: "If I assume that I am the sole reality, it turns out that I am the imagination of somebody else, who in turn assumes that *he* is the sole reality. Of course, this paradox is easily resolved, by postulating the reality of the world in which we happily thrive." Not quite so fast and not quite so easily, of course. What emerges in this way is not the recognition of a reality "out there," but merely the constitution of a reality relative to the emergent level of an order of reciprocal understanding (which each person alone can see clearly).
- [Note](#): 12. See Chap. I, section II, item no. 10.
- [Note](#): 13. A somewhat longer quote can perhaps clarify this viewpoint: "Now, of course, you are an awfully random thing because you burble out words. On the other hand, if I can establish a conversation with you, this is no longer the case. Why is it no longer the case? Because, of course, I am uncertain about what you will say next. But, my main uncertainty about you is of a different sort, it's an uncertainty about what sort of inquiries I should make"--and one can bring this uncertainty under control with the help of conversation. (Gordon Pask, "A Proposed Evolutionary Model," in Heinz von Foerster and George W. Zopf, eds., *Principles of Self-Organization* (Oxford, 1962), pp. 229-48 (p. 230).
- [Note](#): 14. Except for "person," we have chosen examples that George W. Zopf uses for the same thesis. See his "Attitude and Context," in von Foerster and Zopf, eds., pp. 325-46 (p. 327ff). The same would hold, *mutatis mutandis*, for "needs." Hegel already understood that needs are an abstraction; Parsons was forced to generalize to "need-dispositions." A sociology founded on the concept of needs would have to clarify first of all how it has the courage to ignore all of this. Naturalism by itself is not a meaningful program.
- [Note](#): 15. This objection affects an objectively posited utilitarianism as well as the program of an "interpretive" sociology. It comes about by ordering the question in advance according to system-references, and thus it does not prejudice efforts to provide psychological explanations.
- [Note](#): 16. Heinz Hartmann required this very early on. See his Introduction to Heinz Hartmann, ed., *Moderne amerikanische Soziologie: Neuere Beiträge zur soziologischen Theorie* (Stuttgart, 1967), p. 85ff.
- [Note](#): 17. See also Niklas Luhmann, "Die Unwahrscheinlichkeit der Kommunikation," in Luhmann, *Soziologische Aufklärung*, vol. 3 (Opladen, 1981), pp. 25-34.
- [Note](#): 18. See Ritter, "Kritik der Pädagogik zum Beweis der Notwendigkeit einer allgemeinen Erziehungs-Wissenschaft," *Philosophisches Journal* 8 (1798): 47-85; Karl Salomo Zachariae, *Über die Erziehung des Menschengeschlechts durch den Staat* (Leipzig, 1802), esp. p. 98ff.
- [Note](#): 19. For the earliest example, Descartes, one can perhaps doubt this, but he too specifically addresses a function system, namely, religion, and his question is how religious orientations can retain their status if consciousness has already assured itself of its subjectivity.
- [Note](#): 20. For more on this, see Niklas Luhmann, *Gesellschaftsstruktur und Semantik* (Frankfurt: vol. 1, 1980; vol. 2, 1981).
- [Note](#): 21. For more on this, see Niklas Luhmann, "Wie ist soziale Ordnung möglich?," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 2: 195-285.
- [Note](#): 22. For a survey, see Shmuel N. Eisenstadt and M. Culelaru, *The Form of Sociology: Paradigms and Crises* (New York, 1976). Of course, the prehistory and explicit tradition of sociological theory, contain less general problem references, above all in the trio of individuality, culture, and the (more or less authoritative, power-determined) social order and in the formulas for rationalizing this relationship. See, e. g.: John O'Neill, "The Hobbesian Problem in Marx and Parsons," in Loubser et al., eds., pp. 295-308; Roland Robertson, "Aspects of Identity and Authority in Sociological Theory," in Roland Robertson and Burkart Holzner, eds., *Identity and Authority: Explorations in the Theory of Society* (Oxford, 1980), pp. 218-65.
- [Note](#): 23. This parallels advances in ethnomethodology, namely, the attempt to question the self-evidence of daily life and to demonstrate its contingency via direct experimental approach or the sophisticated phraseology of scientific meta-formulation. These efforts have, however, re-

mained stuck in their own gestures, or at least so it appears at the moment. They are able to reflect this and celebrate their own gesticulation as daily behavior. But expressive behavior, no matter how it is reflected, presents no theory, only gesticulation.

- [Note](#): 24. A similar point is made in Dag Østerberg, *Meta-sociological Essays* (Pittsburgh, 1976), esp. p. 71. Østerberg speaks in a similar sense of "double dialectics" (p. 94) and in connection emphasizes the novelty, unity, and non-deducibility of social situations.
- [Note](#): 25. Jürgen Markowitz handles social situations in this way. See Mark-owitz, *Die soziale Situation: Entwurf eines Modells zur Analyse des Verhältnisses zwischen personalen Systemen und ihrer Umwelt* (Frankfurt, 1979).
- [Note](#): 26. Jean Genet describes a scene that presents this precisely: "Within himself, Mario felt a choice hanging in the balance. At last he stood in the center of freedom. He was ready to
except that he couldn't remain in this position for long. To shift his weight, to stretch this or that muscle would already be to make a choice, that is to say, to limit himself once again. Therefore he had to retain his present state as long as his muscles did not tire too quickly" (*Querelle*, trans. A. Hollo. [New York, 1974], p. 199).
- [Note](#): 27. See for this Herbert A. Simon, "Birth of an Organization: The Economic Cooperation Administration," *Public Administration Review* 13 (1953): 227-36.
- [Note](#): 28. One is reminded here of the old rule of conversation that one should choose themes to which all can contribute, instead of carrying on a soliloquy. [Note](#): 29. See for this Otto E. Rössler, "Mathematical Model of Proposed Treatment of Early Infantile Autism: Facilitation of the 'Dialogical Catastrophe' in Motivational Interaction," in J. I. Martin, ed., *Proceedings of the San Diego Biomedical Symposium*, February 1975, pp. 105-10.
- [Note](#): 30. This is by no means a new idea. In "Rêve de d'Alembert," Diderot writes, "The organs produce needs and, reciprocally, needs produce the organs" (*Oeuvres*, Pléiade ed., [Paris, 1951], p. 928). The formulation delights in contradiction, but it thereby wants to provoke a thinking in terms of process which it can't fully handle itself. In the context of an intuitively given understanding of motion, "impetus theory" concerned itself with a similar problem and invented its basic concepts to explain how an accident reacts back upon its own subject. See Anneliese Maier, *Zwischen Philosophie und Mechanik* (Rome, 1958), p. 341ff; also in more detail Michael Wolff, *Geschichte der Impetustheorie: Untersuchungen zum Ursprung der klassischen Mechanik* (Frankfurt, 1978).
- [Note](#): 31. See Chap. I, section II, item 5.
- [Note](#): 32. Thus Donald M. MacKay, "Formal Analysis of Communicative Processes," in Robert A. Hinde, ed., *Non-verbal Communication* (Cambridge, 1972), pp. 3-25 (p. 12f).
- [Note](#): 33. See, e. g., Ralf Dahrendorf, *Homo Sociologicus*, 7th ed. (Cologne-Opladen, 1968).
- [Note](#): 34. We will develop this and its consequences for the relation between psychic and social systems further under the concept of interpenetration.
- [Note](#): 35. Parsons and Shils, eds., p. 16.
- [Note](#): 36. For intimate relations, see, e. g., Murray S. Davis, *Intimate Relations* (New York, 1973). For trust, see Niklas Luhmann, *Vertrauen: Ein Mechanismus der Reduktion sozialer Komplexität*, 2d ed. (Stuttgart, 1973), esp. p. 40ff (English trans. *Trust and Power* [Chichester, 1979]).
- [Note](#): 37. See Chap. 2, section VI. For more detail, see Niklas Luhmann, "Temporalstrukturen des Handlungssystems: Zum Zusammenhang von Handlungs- und Systemtheorie," in Luhmann, *Soziologische Aufklärung*, vol. 3 (Opladen, 1981), pp. 126-50. Important for this is the concept of "time binding" proposed and developed in relation to language by Alfred Korzybski, *Science and Sanity: An Introduction to Non-aristotelic Systems and General Semantics*, rpt. of 3d ed. (Lakeville, Ct., 1949).
- [Note](#): 38. See, e. g., Arthur Brittan, *Meanings and Situations* (London, 1973), pp. 26, 147ff.
- [Note](#): 39. A more precise analysis must presuppose the concept of interpenetration. We will return to this in Chap. 6, section IV.
- [Note](#): 40. As in Gotthard Günther, "Metaphysik, Logik und die Theorie der Reflexion" (1957) reprinted in Günther, *Beiträge zur Grundlegung einer Operationsfähigen Dialektik*, vol. 1 (Hamburg, 1976), pp. 31-74 (p. 67). Günther infers from this the necessity of discontinuing the style of reflection to avoid endless iteration. Instead, we aim at something one could call the self-asymmetrization of real systems.
- [Note](#): 41. In Georg Simmel, *Soziologie: Untersuchungen über die Formen der Vergesellschaftung*, 2d ed. (Munich, 1922), pp. 467-70.

- [Note:](#) 42. The opposite case, an individual who would like to commit himself fully to a group but is only partially recognized and accepted, also occurs. This could be where Simmel, as a German Jew, appears in his own theory. "Occasionally this forming can result in tragedy if the group limits the extent to which it admits an individual into itself and if a corresponding restriction does not exist within the individual, who feels that he fully belongs to a group that only concedes him partial membership" (*ibid.*, p. 468).
- [Note:](#) 43. For greater detail, see Luhmann, *Vertrauen*.
- [Note:](#) 44. See the urgent plea for political trust at the end of the religious civil wars in Hippolytus à Lapide, *Dissertatio de ratione status in Imperio Nostro Romano-Germanico* (Freistadt, 1647), III, 4, p. 547ff. This historical example shows that the problem was not to be solved by appeals but by public law.
- [Note:](#) 45. See for this, using the example of exchange relations, Peter M. Blau, *Exchange and Power in Social Life* (New York, 1964), pp. 94, 97ff, 112f, 315.
- [Note:](#) 46. "There is no way to trust in anyone," remarks Michel Crozier, *Le Phénomène bureaucratique* (Paris, 1963), p. 298, "in a system where one is not able to refer to an independent consensus." See also Rudolph Schottländer, *Theorie des Vertrauens* (Berlin, 1957), p. 38f for orientation to work as a cause of the loss of trust.
- [Note:](#) 47. For the subtleties of this reflected self-reference, see Erving Goffman, *The Presentation of Self in Everyday Life*, 2d ed. (Garden City, N. Y., 1959).
- [Note:](#) 48. See the concept of "enacted" environment in Karl E. Weick, *The Social Psychology of Organizing* (Reading, Mass., 1969), p. 63ff.
- [Note:](#) 49. Ashby tries to formulate this in the concept of "organization." See W. Ross Ashby, "Principles of the Self-Organizing System," in Heinz von Foerster and George W. Zopf, eds., *Principles of Self-Organization* (New York, 1962), reprinted in Walter Buckley, ed., *Modern Systems Research for the Behavioral Scientist: A Sourcebook* (Chicago, 1968), pp. 108-18.
- [Note:](#) 50. See, e. g., Brittan, esp. p. 33ff.
- [Note:](#) 51. If the "sovereign" were bound to reciprocity, his subjects would be constantly refusing him obedience when, in the opinion of some, he did not make his contribution properly. This problem can no longer be solved by overvaluing his contribution due to his high position in the social hierarchy. See, e. g., Jean de Silhon, *De la certitude des connaissances humaines* (Paris, 1661), esp. p. 203 ff, even though Silhon holds reciprocity to be the highest moral rule of society (p. 111ff).
- [Note:](#) 52. See, e. g., Alvin W. Gouldner, "The Norm of Reciprocity: A Preliminary Statement," *American Sociological Review* 25 (1960): 161-78 (p. 171f).
- [Note:](#) 53. Thus Matteo Peregrini, *Difesa del savio in corte* (Macerata, 1634), p. 250. See also Albert O. Hirschman, *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States* (Cambridge, Mass., 1970).

Chapter 4: Communication and Action

I

Analysis of self-referential system formation on the basis of double contingency forces us to examine the widely held notion that social systems are composed, if not of persons, then at least of actions. Today, action theory seems to be the dominant approach. It appears to offer the possibility of linking subjective and systems-theoretical points of departure. But how is such a theoretical "approach" to be understood? And how is it to be carried out? Both Max Weber and Talcott Parsons operate with a constraint: for Weber, social action is a special case of action, one determined by socially directed intentions; for Parsons--and contra Parsons's interpretation of Weber, his is a completely different concept--the formation of social systems is an analytically differentiated contribution to the emergence of action per se. Accordingly, social systems are based on either a type of action or on an aspect of action, and through action, so to speak, the subject comes into the system. But one can ask whether this accurately grasps the relationship between action and sociality, above all, whether it grasps this relationship in a sufficiently productive way.

If one begins with the possibility of a theory of self-referential systems and with problems of complexity, there is much to suggest simply reversing the relationship of constraint. Sociality is not a special case of action; instead, action is constituted in social systems by means of communication and attribution as a reduction of complexity, as an indispensable self-simplification of the system.

On the level of general systems theory one already speaks of "mutualistic" or "dialogical" constitution. This means that self-reference on the level of basal processes is possible only if at least two processing units that operate with information are present and if they can relate to each other and thereby to themselves. Self-reference presupposes a correspondingly discontinuous infrastructure. The mechanisms necessary for this cannot be either the elements or the subsystems of the social system, because both elements and subsystems are produced by these mechanisms. Instead, systems consist in the selective coordinations produced as the processing units operate together, and the only function of the system's structure is to make the perpetual changing and regaining of such coordinations probable.

This consideration leads directly to the theme of this chapter. Under these circumstances, the basal process of social systems, which produces their elements, can only be communication. We thereby exclude, as we did in introducing the concept "element," ¹ a psychological determination of the unity of the elements in a social system. But how does this process of communication relate to actions, to the elements of the system that it produces? Is a social system ultimately composed of communications or of actions? Is the ultimate unity, with whose dissolution the social would disappear, a successful coupling of different selections, or is it the single selection that can be attributed as action? One must first see that there is a difference here, a question to be decided, and one must learn to resist the temptation to answer it simply and hastily by saying that one has in mind communicative (= social) action. We suspect that the question whether communication or action is the ultimate element contains a basic option that decisively characterizes the style of the theory based on it, for example, the degree of its detachment from the psychical. Therefore we must dedicate some space to it.

One finds both interpretations represented, in both action and communication theory, usually with little regard for the difference between them. ² This vagueness has its reasons and should not be dismissed in a sudden coup. I see the problem in the fact that communication and action cannot be separated (though perhaps they can be distinguished) and that they form a relationship that can be understood as the reduction of its own complexity. The elementary

process constituting the social domain as a special reality is a process of communication. In order to steer itself, however, this process must be reduced to action, decomposed into actions. Accordingly, social systems are not built up of actions, as if these actions were produced on the basis of the organico-psychic constitution of human beings and could exist by themselves; instead social systems are broken down into actions, and by this reduction acquire the basis for connections that serve to continue the course of communication.

II

Accordingly, everything presupposes a clarification of the concept of communication. Customarily one uses the metaphor of "transmission" here. One says that communication transmits messages or information from a sender to a receiver. We will attempt to avoid this metaphor, because it would burden us with problematic preliminary decisions.

The metaphor of transmission is unusable because it implies too much ontology. It suggests that the sender gives up something that the receiver then acquires. This is already incorrect because the sender does not give up anything in the sense of losing it. The entire metaphor of possessing, having, giving, and receiving, the entire "thing metaphoric" is unsuitable for understanding communication.

The metaphor of transmission locates what is essential about communication in the act of transmission, in the utterance. It directs attention and demands for skillfulness onto the one who makes the utterance. But the utterance is nothing more than a selection proposal, a suggestion. ³ Communication emerges only to the extent that this suggestion is picked up, that its stimulation is processed.

Furthermore, this metaphor exaggerates the identity of what is "transmitted." If one uses it, he is misled to believe that the information transmitted is the same for the sender and the receiver. There might be some truth in this. But this sameness is not guaranteed by the content of the information; instead, it is constituted only in the communication process. The identity of an information must be conceived in a way that is compatible with the fact that it

means something very different for the sender and the receiver. Finally, the metaphor of transmission suggests that communication is a two-part process in which the sender utters something to the receiver. Here too we have reservations. Therefore we must start by reorganizing the terminology.

If one begins with the concept of meaning, it is clear from the start that communication is always a selective occurrence. Meaning allows no other choice than to choose. Communication grasps *something* out of the actual referential horizon that it itself constitutes and leaves *other things* aside. Communication is the processing of selection. Of course, it does not select in the same way in which one grabs one thing or another off the rack. That would bring us back to the substance theory and the transmission metaphor. The selection that is actualized in communication constitutes its own horizon; communication constitutes what it chooses, by virtue of that choice, as a selection, namely, as information. What is uttered is not only selected, but also already a selection--that is why it is uttered. Therefore communication must be viewed not as a two-part, but as a three-part selection process. It is not just a matter of sending and receiving with selective attention on both sides; instead, the selectivity of the information is itself an aspect of the communication process, because selective attention is actualized only in reference to the very selectivity of information. Selectivity as such attracts further communication: it recruits communications that direct themselves to aspects that selectivity has excluded.

The standard concept of information elaborated since Claude E. Shannon and Warren Weaver makes it easy to formulate this. ⁴ According to today's standard interpretation, information is a selection from a (known or unknown) repertoire of possibilities. Without this selectivity of information, no communication process would emerge (however minimal the news value of the exchanges uttered, even if communication is carried out for its own sake or simply to pass the time). Furthermore, someone must choose a behavior that expresses this communication. That can occur intentionally or unintentionally. What is decisive is the fact that the third selection can base itself on a distinction, namely, the distinction between information and its utterance. Because this is decisive and communication can be understood only in terms of it, we will call

(somewhat uncustomarily) the addressee "ego" and the utterer "alter."

The difference between information and the act of utterance already establishes far-reaching possibilities for analysis. Because both require meaningful interpretation the communicator ("alter") gets caught in a dilemma. Two irreconcilable possibilities offer themselves to his self-understanding. As far as information is concerned, alter must view himself as part of the meaning world in which information is true or false, is relevant, repays utterance, and can be understood. But as someone who utters it, he must have the freedom to speak, to do this or not. In one respect he must interpret himself as part of what can be known about the world, for the information refers back to him (otherwise he could not apply it). In another regard, he controls himself as a self-referential system. Dieter Henrich calls this the "distance between his being a subject and his belonging to the world" and views this distance as justifying the need for unified interpretations of life. ⁵

Viewed sociologically, this distance, however, is nothing natural, and even philosophy knew nothing of it before Kant. We do not view it as the facticity of a transcendental position, but as the effect of the fact that ego interprets the behavior of alter as communication and therefore expects alter to accept this distance. Of course, this is not a question of who was the first to see the situation in this way, ego or alter. The sociality of the situational interpretation decisively creates this aporia. This also explains why a more drastic differentiation between society's communication system and its environment produces the consciousness of this aporia and corresponding efforts in cultural semantics. This reflection also reveals why communication is never an event with two points of selection--neither as a giving and receiving (as in the metaphor of transmission), nor as the difference between information and utterance. Communication emerges only if this last difference is observed, expected, understood, and used as the basis for connecting with further behaviors. Thus understanding normally includes more or less extensive misunderstandings; but these are always, as we shall see, misunderstandings that can be controlled and corrected.

From now on we will treat communication as a three-part unity. We will begin from the fact that three selections must be

synthesized in order for communication to appear as an emergent occurrence. It is important to make express note of this, for what underlies it is often seen, but then differently conceptualized. Karl Bühler speaks, for example, of the three "performances" or three "functions" of human language, namely (I change the sequence here) presentation, expression, and appeal. ⁶ The first term signifies the selectivity of the information itself, the second the selection of the utterance, and the third the expectation of success, the expectation that the selection will be accepted. Instead of directing attention to the conditions of the emergent unity, this directs it to the question which of the three functions will be relatively dominant, and how that dominance shifts. For John Austin, the same tripartite division appears in the form of a typology of distinguishable utterances or speech acts, namely, locutionary, illocutionary, and perlocutionary acts. ⁷ This directs interest to the degree to which the corresponding forms can be isolated. We would not exclude this interest, but we hold it to be marginal in comparison with the question of under what conditions their unity emerges. The ability to differentiate between functionally specific acts or functional dominances of one or the other selection horizon is possible only if the unity of the communicative synthesis is guaranteed in advance as something normal.

The combination of information, utterance, and expectation of success in one act of attention presupposes "coding." The utterance must duplicate the information, that is, on the one hand, leave it outside yet, on the other, use it for utterance and reformulate it appropriately: for example, by providing it with a linguistic (eventually an acoustic, written, etc.) form. We will not go into the technical problems of such coding any further. What is sociologically important is, above all, that this too brings about a differentiation within the communication process. Events must be distinguished as coded and uncoded. Coded events operate as information in the communication process, uncoded ones as disturbance (noise).

Because it is the operative unification of information and utterance, coding must be treated by ego and alter in the same way. This requires adequate standardization--again a difference vis-à-vis the surroundings that is conspicuous and attracts attention to itself. (Articulated speech disturbs a person who is not addressed more

than mere noise does.) The minimal condition for communication (however poorly coded) to come about is, of course, that the part of ego be played by a system that is not completely determined by its own past and so can react to information as such.⁸ In contrast to the mere perception of informative events, communication comes about only because ego distinguishes two selections and can manage the difference. The inclusion of this difference is what makes communication communication, a special case of information processing per se. The difference lies basically in the observation of alter by ego. Ego is in a position to distinguish the utterance from what is uttered. If alter knows that he is being observed, he can take over this difference between information and utterance and appropriate it, develop it, exploit it, and use it (more or less successfully) to steer the communication process. Communication is made possible, so to speak, from behind, contrary to the temporal course of the process. To develop the chances for complexity that this provides, one must attend to anticipation and the anticipation of anticipations. This gives the concept of expectation a central place in all sociological analyses.

The fact that understanding is an indispensable feature in how communication comes about has far-reaching significance for comprehending communication. One consequence is that communication *is possible only as a self-referential process*.

When one communicative action follows another, it tests whether the preceding communication was understood. However surprising the connecting communication may turn out to be, it is also used to indicate and to observe how it rests on an understanding of the preceding communication. The test can turn out negative, and then it often provides an occasion for reflexive communication about communication. But to make this possible (or to make it unnecessary) a test of understanding must always accompany, so that some part of attention is always detached to control understanding. In this sense, Charles Warriner speaks of "confirmation" as the essential feature of all communication.⁹ This implies time. Only in the process of connecting can one tell whether one has been understood; but one can use one's own experience to set up communication in such a way that one can expect to be understood. In every instance every individual communication is recursively secured in possibilities of understanding and the control of understanding

as the connective context for further communication; otherwise, it would never take place. It is an element only as an element of a process, however minimal or ephemeral that process may be.

This is a case of *basal self-reference*,¹⁰ that is, of the fact that the process must be composed of elements (events) that refer to themselves by including their connection with other elements of the same process. At the same time, basal self-reference is the precondition for further strategies, which enlist it in a particular way. If one knows and must take into account the fact that understanding is controlled, one can also dissimulate understanding; one can see through the dissimulation of understanding but nevertheless not allow that perception to enter the communication process; and one can communicate on a metalevel about the fact that communication about dissimulation and its detection is impossible, then control understanding again on this level. Above all, the ongoing confirmation of communication provides a more or less frequent occasion for communicating about communication. We will reserve the term *reflexive* communication for this juncture (in contrast to *basal*/self-reference). We will return later to this form of controlling communication, which belongs to a higher level, is more explicit (and therefore riskier), and must be reserved for special cases.¹¹

From the assumption that communication is a basally self-referential process that coordinates three different selections in each of its elements, it follows, according to systems theory, that there *can be no environmental correlate* for communication. The *unity* of communication corresponds to nothing in the environment. Therefore communication *necessarily* operates by *differentiating*,¹² and merely to grasp environmental complexity becomes an extraordinarily time-consuming communicative problem. Of course, all communication depends on its environment as a source of energy and information, and every communication indisputably refers via meaning references directly or indirectly to the system's environment. The differentiation relates strictly to the unity and thus the closure of the connection among selections, to the selection of selections contained therein, and to the reduction of complexity thereby achieved. Therefore a communication system is never autarchic, though it can acquire autonomy through its conditioning of communicative syntheses.

In another respect this theory of communicative syntheses also reveals system/environment relations of a certain kind. A system can communicate not only about itself but also, and perhaps better, about other systems. Unlike life, it has no spatially bounded existence. One can imagine this as a constant pulsation: with every thematic choice the system expands and contracts, takes up meanings and lets others fall away. To this extent communication systems operate with meaningfully open structures. Nevertheless, the system can develop its own boundaries and hold to them because the *reasonableness and unreasonableness* of communication in the system can be constrained.¹³ Further constraints on thematic choices or even on the forms of expression that must be assumed in some systems emerge only secondarily. It is unusual to find the statement "this is all crap" in a doctoral dissertation, but the impression of strangeness presupposes the comprehensibility of the statement and its attribution to the system of examinations.

III

The concept of communication just presented is still in need of some clarification. To elucidate its implications, however, I should interpolate a small digression here. This concerns the transcendental turn of Husserl's phenomenological analyses and their critique by Jacques Derrida.

The difference between information and utterance, to which understanding relates and which projects itself onto understanding, appears in Husserl's *Logical Investigations* as the difference between indication and expression.¹⁴ We are interested in comparing these conceptual positions with systems theory.¹⁵ The concept of the indication always means reference to something else--whether perceptually one takes something as a sign for something else, or whether one takes an utterance as a sign for the intention to utter and for accompanying ideas. All utterance must be carried out by means of indications, but there are also indications outside of communication --for example, the canals of Mars as signs for the existence of intelligent Martians. Indications have expressional value and thereby meaning only, if, and to the extent that they function in the "solitary life of the soul" (Husserl, 98) and enliven it with meaning.

Translated into our conceptual language "expression" means

nothing more than the autopoiesis of consciousness, and "sense" or "meaning" means the need to acquire structure for this in the form of an intentional relation. Accordingly, there are signs with expressional value and signs without it, and there are expressions that use signs and those that do not (the latter in mere performances of the "solitary life of the soul," in internal talk). *Only in communication do expressional value and utilization of signs inevitably coincide.* In communicative speech all expressions function as signs.

Husserl's philosophical interest does not derive from signs, however, but from expressions, that is, from what consciousness performs within itself for itself. This interest is predetermined by circumstances in the history of philosophy, but it also rests on an inadequate grasp of communicative reality. Communication is interpreted as action, speech, proclamation, utterance (i. e., not as it is proposed here: as a unity derived from information, utterance, and understanding). This reductive understanding of communication shores up the retreat of philosophical theory to an independent existence of consciousness, which occasionally (but not always and not only) motivates itself to communicative action. At the same time, and even therefore, more must be demanded of consciousness than being merely psychic systems' mode of operation. According to transcendental theory it is positioned as the subject, that is, as the *subiectum* of everything else. The problem of "intersubjectivity" thereby becomes insoluble. Reformulated from the position of systems theory, this means that this philosophy exclusively uses the system reference of the psychic system, and it tries to compensate for this one-sidedness (which enables it to conceive of unity) through a transcendental theoretical enhancing of the psychic system.

It is entirely otherwise with the critique by Jacques Derrida, which translates the play of expression and sign into its opposite: the sign as sign. ¹⁶ Transcendental philosophy and its centeredness on the subject is replaced by a semiology centered on difference. This motivates the subtle analyses of the interplay of presence and absence with which Derrida deals. This account helps us to begin our analysis of communication with difference, namely, with the difference between utterance and information. This difference is simultaneously made comprehensible through the use of signs and temporalized as "differance" (in the sense of a temporal displacement

of unity and difference). The problem of time becomes a problem of marking by differences, and in this form it replaces the old question of how the subject comes into the world.

We do not have to choose here between philosophical theories, between transcendental theory and semiology. The conceptual sensibilities generated by these philosophies merely need to be examined before they can be transferred to the empirical sciences-- which shows that philosophy still can teach these sciences something. What is important for the formation of sociological theory is above all the insight that an insufficient understanding of communication underlies *both* positions in the controversy sketched above. If one uses the concept of communication presented here, one must reject these positions. Therefore we do not return to the starting point of a theory of the subject (action theory) or a theory of signs (language theory, structuralism), but we must examine which of the insights gained through these theoretical perspectives to accept.

IV

If one conceptualizes communication as the synthesis of three selections, as the unity of information, utterance, and understanding, then communication is realized if and to the extent that understanding comes about. Everything else happens "outside" the unity of an elemental communication and presupposes it. This is especially true for a fourth type of selection: for the acceptance or rejection of the specific meaning that was communicated. One must distinguish the addressee's understanding of the selection of meaning that has taken place from acceptance or rejection of that selection as a premise of the addressee's own behavior. This distinction is of considerable theoretical importance. Therefore we will dedicate a separate section to it. If we say that communication intends and causes a change in the addressee's state, this means only that the addressee understands its meaning. Understanding is the third selection, which concludes the communicative act. One reads, for example, that tobacco, alcohol, butter, and frozen meat are bad for one's health, and one is changed (into someone who should know and observe this)-- whether one believes it or not! One cannot ignore it any longer;

one can only either believe it or not believe it. However one decides, the communication determines a state of the receiver that would not exist without the communication but that can only be determined by the receiver. Therefore the *concept* of communication has nothing to do with acceptance or rejection, or with further reaction. ¹⁷

As a change in the state of the receiver, communication operates like a constraint: it excludes indeterminate arbitrariness in what now is still possible (i. e., it excludes entropy). Yet in another regard, precisely through this constraint it broadens possibilities. It provokes (might one say: co-provokes?) the possibility of rejection. "Every assertion provokes its contrary," ¹⁸ a contrary that could not exist if the assertion had not been made. Thus determination always makes resistance possible, and one can know this and take it into consideration before one decides to communicate.

But the acceptance or rejection of an expected and understood selection are not part of the communicative event; they are connected acts. In communication itself the contrary is only latent, is only present by its absence. Viewed dynamically, the unity of an individual communication is merely its connectivity. It must be and remain a unity so that it can become difference once again in another form, namely, the difference between acceptance and rejection. And even the question whether or not someone accepts uttered information as a premise for his own behavior arises only in regard to further occurrences. It is by such further selections that communication influences its environment and/or reflects back upon itself. By its very nature, communication creates a social situation in which such connective decisions are expected. Communication intends to create a focused, but open situation, and communication can incorporate elements that pressure the receiver toward acceptance rather than rejection. Such pressure is exerted in part by the anticipation and avoidance of conflict, in part (and in connection with that) by symbolically generalized media of communication. We will return to this later.

The most abstract expressions of such pressures are meaning signs that function as assertions of existence (or corresponding logical operators, e. g., assertions of validity), above all, the word "is." They refer beyond the communication to a supposed necessity that the selection be accepted. Ontologies arise in this way as

by-products of communication, and they are eventually more or less dissolved by the codes developed in symbolically generalized media of communication. They present themselves so stubbornly, however--and this holds *mutatis mutandis* for their semantic successors -- because communication always ineluctably reproduces the freedom to accept or reject. ¹⁹

In a somewhat different formulation, one can say: communication transforms the difference between information *and* utterance into the difference between acceptance *or* rejection of the utterance, thus transforming "and" into "or." It follows from the theorem of double contingency that alter does not represent one difference and ego the other, but that both differences must be noticed and dealt with on both sides. This involves, not a difference in social position, but a temporal transformation. Accordingly, communication is a completely independent, autonomous, self-referentially closed mode of processing selections, which never lose their character as selections, a mode of constantly changing the forms of meaning material, of reshaping freedom into freedom under changing conditions, whereby (given the premise that the environment is complex enough and not ordered as pure randomness) experiences of reliability gradually accrue and are then re-included in the process. Thus a meaning world emerges through epigenetic evolution that makes possible communication that is less probable.

In sociology today, basically two accounts are at one's disposal for dealing further with this open (and constantly reopened) question of the acceptance or rejection of a communicated meaning proposal. The problem is predominantly placed under the heading *transaction*. This is understood as interactions that react to value differences between the participants, especially exchange and conflict. ²⁰ But as universal theories neither exchange theory nor conflict theory is as convincing as communication theory. One will be able to understand transaction in both these forms best if one interprets it as a way of using the level of interaction to handle value differences and to deal with compliance and rejection. By contrast, the theory of *symbolically generalized communication media* handles semantic anticipation of the choice between a communication's acceptance and rejection more macro-sociologically, yet still within the general theory of communication. But it does not adequately "explain" why, despite being steered by a medium, behavior contrary

to the code and inefficient communication, which misses its goal of steering behavior, arise. Therefore one must combine transaction theory and media theory to apprehend which consequences communication's openness to the acceptance or rejection of a meaning proposal will have within social systems. A continuation of this theme would presuppose a fully developed theory of society and a fully developed theory of interaction. Instead of entering into those byways here, we will return to the general theory of communication.

V

The concept of communication as oriented by difference and selection makes understandable some problems of and constraints on communicative behavior that have been observed and described for centuries. Once embroiled in communication, one can never return to the paradise of innocent souls (not even, as Kleist hoped, through the back door). Typically, this was presented in the (specifically modern) theme of sincerity. ²¹ Sincerity is incommunicable because it becomes insincere by being communicated. Communication presupposes the difference between information and utterance and the contingency of both. One can easily utter something about oneself, about one's own state, moods, attitudes, and intentions; but one can do this only to present oneself as a context of information that could also be otherwise. Therefore communication unleashes a subversive, universal, irremediable suspicion, and all protestations and assurances only regenerate suspicion. This explains why this theme is relevant to an increased differentiation in the societal system, one more and more reflected in the characteristics of communication. The insincerity of sincerity becomes a theme as soon as one experiences society as something that is held together not by a natural order but by communication. ²²

This problem was initially registered as an anthropological one, but it goes back to a general paradox in communication theory. One does not have to mean what one says (e. g., when one says "Good Morning"). Yet one cannot say that one means what one says. To be sure, one can linguistically express it, but the protestation awakens doubt, thus working against its own intention. One would have to assume, in addition, that one could also say that one

does not mean what one says. But if one says this, then one's partner cannot know what one means when one says that one does not mean what one says. This ends up in Epimenides' paradox. One's partner cannot know what one means even by taking the trouble to understand the speaker; thus communication loses its meaning.

The basis of this paradox of incommunicability lies in the fact that the understander must presuppose self-reference in the communicator in order to use this self-reference to separate information from utterance. Therefore every communication expresses the possibility that self-reference and utterance diverge. Without this background communication would be incomprehensible, and without the expectation of understanding it would not occur. One can be mistaken; one can deceive others; but one cannot proceed from the fact that this possibility does not exist.

To be sure, communication is possible without any intention of utterance, so long as ego succeeds in observing a difference between information and utterance nevertheless. Under the same condition communication is also possible without language, perhaps through laughing, through questioning looks, through dress, through absence, or, quite generally and typically, through deviation from expectations that one can assume are known.²³ But the utterance must always be interpretable as selection, namely as self-limitation within a situation of perceived double contingency. Therefore there is no communication when observed behavior is interpreted only as a sign of something else. In this sense, rushing about can be observed as a sign of urgency, just like dark clouds as a sign of rain. But it can also be interpreted as a demonstration of urgency, or of being busy, or of having no time to stop and talk, and so on--and it can be produced with the intention of triggering such an interpretation.

Thus we cannot use intentionality and linguisticity to define the concept of communication.²⁴ Instead, we focus on the consciousness of difference: the difference between information and utterance built into all communication. Communication processes this difference, so to speak. That makes clear how the evolution of language is possible and what is gained thereby. For a long time the possibility of evaluating something as a sign for something else must have existed. Language renders this possibility artificial, frees

it from the condition of naturally given regularities and then can amplify it as much as it wants. But in linguistic communication the intention to communicate cannot be denied (although one can deny having meant what one said, and therefore verbal communication can be used to utter something intentionally unintentional). This limits communicative possibilities considerably, to what one can represent as an intention to utter or, if need be, what one can bring into the form of indirect, intentionally unintentional communication. This accentuates the difference between information and utterance: the eigen-selectivity of the utterance in relation to the selectivity of the information. Thus linguistic communication requires stronger control to be socially convenient, and only the person who can also remain silent can control his linguistic behavior. ²⁵

In linguistic communication, then, the dependence of the communication process on ego's observational capacity and all its ambivalences diminishes. Ego does not just need to see the difference (between information and utterance), that difference imposes itself in no uncertain terms. Alter talks to ego about something. Even if alter wanted to speak about himself or about his speaking, he would still only reproduce this difference, namely, he would have to treat something in itself or in his speech as information that he wants to communicate. In linguistic behavior, ego can assume that the difference constituting communication has already been created.

Correspondingly, he can feel relieved. His attention is then released to understand what is being said.

One can summarize this in the hypothesis that language enables the differentiation of communication processes out of a (however demanding and complex) perceptual context. The differentiation of social systems can emerge only through the differentiation of communication processes. These are by no means composed of linguistic communications alone, but the fact that they are differentiated on the basis of linguistic communication shapes everything that occurs as social action, indeed as social perception. The specifically tangible precision, noteworthiness, and distinctiveness of linguistic behavior is not all that contributes to differentiation. Equally important is the fact that language guarantees the reflexivity of the communication process and thereby enables self-steering.

Processes that can be applied to themselves are reflexive. With communication, this means that one can communicate about communication. One can thematize the communicative process in communication, can inquire about and explain how something was meant, can request communication, can reject communication, can establish communicative connections, and so forth. All this continues to be based on the difference between information and utterance, but in reflexive communication, communication itself is treated as information and made the object of utterances. This is hardly possible without language, ²⁶ because what is merely perceived is not explicit enough as communication for further communicative treatment. As always, this process can become reflexive only by presupposing adequate differentiation and functional specification. Only language secures reflexivity in the sense of a possibility of referring the communication process back to itself, which is always at hand, available relatively free of problems, and unsurprising.

Reflexivity can thus compensate for the risk of greater complexity and sharper selectivity. If one can raise questions when doubtful or uncertain, one can venture unexpected, unfamiliar utterances, proffer pithy sayings, presuppose horizons of understanding without further examination, and communicate with complete strangers. If the metalevel where one can communicate about the success or failure of a communicative understanding is available, then one does not have to do everything via direct communication.

In linguistic communication the reflexive turn of communication upon itself is so easy to perform that one needs special blocks to keep it out. Consciously metaphorical uses of words and concepts, intended ambiguities, paradoxes, and humorous, joking turns of phrase are such obstacles. These linguistic forms signal that a reflexive question about why and how has no meaning. Such forms function only in the moment--or they do not function at all. ²⁷

The analysis in this section shows how relationships of intensification come about. Everything depends on the fact that an initial difference can be installed. This resides in an observer's distinction between two selective events: information and utterance. Once it is secured, further connections can attach to it; expectations can form in relation to it; and correspondingly specialized behavior, namely,

speaking, can be developed and coded. Concepts can be defined differently, and, in particular, for the concept of communication there can be a large number of quite different proposals. ²⁸ We base our version on what communication first enables, namely, on a difference that constitutes the process and gives it freedom.

VI

Communication is coordinated selectivity. It comes about only if ego fixes his own state on the basis of uttered information. Thus communication is present if ego holds the information to be inappropriate, does not want to comply with the wish it tells him of, or would like not to obey the norm to which it relates. That ego must distinguish between information and utterance enables him to criticize and, if necessary, to reject. This changes nothing about the fact that communication has occurred. On the contrary, as we have discussed above, rejection also fixes one's own state on the basis of communication. Thus the *possibility* of rejection is *necessarily* built into the communication process.

Starting from this, we can define an elemental event of communication as the smallest unit that can be negated. This is meant not in the logical sense, but in the sense of communicative practice. Every proposition, every demand opens up many possibilities for negation: not this but that, not this way, not now, and so forth. These possibilities remain open as meaning references as long as ego has not reacted to them. The utterance itself only offers a selection. Reaction is what terminates communication, and only then can one tell what has emerged as a unit. This is why communication cannot be understood as action, especially if one asks about the ultimate, unanalyzable unit. We will return to this in section VIII.

It is interesting that communication seldom appears as an individual unit--as a warning call, a call for help, a request that can be answered immediately, a greeting, an agreement about who goes through a door first, or the purchase of a movie ticket. Individual communications of this kind are often nonlinguistic, very often possible only nonlinguistically, and in any event strictly bound to context. A more rigorous differentiation of communicative events requires binding a greater number of communicative units into a process--process in the specific sense of temporal linkage among a

plurality of selective events through reciprocal conditioning, as established above.²⁹ Differentiation requires processing communication with access to new kinds of self-reference. The communication process can react to itself within itself; it can, if need be, repeat, amplify, or revise what has been said; it allows both assertion and counter-assertion; and it can become reflexive when it treats itself as a process of communication. Differentiation and relative contextual independence obviously presuppose internal order rather than arbitrariness, because only thus can situative presuppositions of understanding fall away and communication that is understandable in itself become possible. But how can communication in general become a process?

Here, too, a distinct, functionally specific difference, namely, the *difference between themes and contributions*, appears to act as a condition of possibility. Communicative nexes must be ordered by themes to which contributions can relate.³⁰ Themes outlive contributions; they integrate different contributions into a longer-lasting, short-term or even long-term nexus of meaning. One can talk about some themes forever, and about others almost endlessly. Themes also regulate who can contribute what. They discriminate contributions and thereby contributors: for example, one requirement of sociable communication is selecting themes to which everyone present can contribute something, themes that do not tempt anyone to exhibit his individuality and that give each one the chance to make a satisfying individual contribution in which he can be recognized.³¹

The difference between themes and contributions is inadequately characterized as a "difference between levels." Themes and contributions regulate the possibility of negating content. On the one hand, there are thresholds of thematization, for example, in reference to obscenities, religious feelings and confessions, or matters over which there is generally conflict.³² On the other, the acceptance of a theme is a presupposition for making negative comments on contributions; for rejecting, correcting, or modifying their content. The thresholds of thematization can be very high because by accepting a theme one may have to deal with too many negative contributions. Thus the difference between levels dissolves the negative tendencies toward excessive terseness or the exclusively personal, and it is no accident that early-modern literature

began to take note of this to the degree that individual persons came to the fore in communicative nexes. ³³

Themes have a factual content, which enables them to coordinate contributions: one may talk about an actress's love affairs, the market rate and why it is so, a new book, or the children of foreign workers. Specialization sets no boundaries here--except perhaps those that arise from an interest in continuing communication. Themes also have a temporal aspect, however. One can recall earlier contributions to a theme. Themes are old or new, already boring or still interesting, and all of this may be different for different participants. Finally themes reach a saturation point, after which new contributions are no longer anticipated. If it is to remain alive, an old theme must then recruit new participants. By contrast, a new theme may for many participants be too new to stimulate generally meaningful contributions. ³⁴

The social aspect of thematic choice is important, too, as the example of "amicability" indicated. This implies more than congeniality, more than that themes more or less adapt themselves to participants and their possible contributions. The social dimension is actualized above all when communication as visible behavior binds the participants to a greater or lesser degree. This means that with their communication they say something about themselves, their opinions, attitudes, experiences, wishes, discernment, and interests. Thus communication also serves self-presentation and self-knowledge. In effect, it can force one into a form and finally make one be what one appeared to be in communication: the seducer must eventually fall in love. ³⁵

This binding effect appears very clearly when communicative themes adopt moral overtones or are entirely moral themes. Morality regulates the conditions of reciprocal esteem or contempt. ³⁶ One can incite esteem with themes suitable for moralizing communication. One can present oneself as worthy of esteem and make it difficult for others to contradict him. One can test whether someone deserves esteem. Or one can try to trap others in the net of the conditions for esteem in order to carry them off in it. And one can trick others to moral self-commitments, then leave them in the lurch. One can also use moralization to show that one puts little importance on the esteem of a specific partner. Depending on how much freedom society makes possible in dealing with morality, ³⁷

morality can serve to increase solidarity in the way Durkheim proposed or to accentuate critique, distancing, and conflict.

Thus themes serve as factual/temporal/social structures within the communication process, and they function as generalizations insofar as they do not restrict which contributions can be made at what time, in which sequence, and by whom. Meaning references can be actualized on the thematic level that in a single communicative event could hardly be detected. Communication, therefore, is typically, although not necessarily, a process steered by themes. At the same time, themes reduce the complexity opened up by language. Mere linguistic correctness of formulation does not say enough. Only by themes can one control the correctness of one's own and others' communicative behavior as appropriate or not for the theme. To this extent themes are, as it were, the action programs of language.³⁸ When the immediate theme is the best way of catching mice in a mouse-trap, one can make a great many contributions, but can no longer say just anything. The theme gives sufficient orientation for one to choose one's contributions quickly and check the appropriateness of others' contributions. One can test the moral sensibility of the participants by mentioning the torments suffered by the mice and change the theme if one detects that the theme is exhausted for oneself and the other participants.

VII

Themes can be rejected, as can contributions. Furthermore, in all communication one must take into account a greater or lesser quota of loss, unintelligibility, and waste production. These difficulties can be borne; they are but leftovers from a problem that lies deeper. Having outlined how communication functions, we must ask, more radically, how this normal functioning is generally possible.

Seen in the context of evolutionary achievements, communicative success is exceedingly improbable.³⁹ Communication presupposes beings that exist independently, with their own environments and their own information-processing apparatuses. Every being sifts and processes what he perceives for himself. Under such circumstances, how is communication, that is, coordinated selectivity, possible at all? This question becomes more urgent when one widens the concept of communication from a two-part to a

three-part selection. This is not merely a question of beings being attuned to one another or of simply coupling their behavior, as in dancing. They must seek and find attunement with regard to things in the world that are contingent, that is, that could also be otherwise. If it is already uncertain that one can overcome double contingency, how can this uncertainty be used to increase certainty about uncertain things in the world? In other words, how is communication *as information processing* possible at all?

If one looks more closely, one comes upon a number of problems, a number of obstructions that communication must overcome in order to happen at all.

At the zero point of evolution, it is, first of all, improbable that ego *understands* what alter means--given that their bodies and minds are separate and individual. Only in context can meaning be understood, and context is, initially, supplied by one's own perceptual field and memory. Furthermore, understanding always includes misunderstanding, and if one does not add on presuppositions, the component of misunderstanding becomes so great that the continuation of communication becomes improbable. (The problem is repeated on every level of communicative claims, not least of all theoretical discussions in sociology.)

The second improbability refers to *reaching* the addressee. It is improbable for a communication to reach more persons than are present in a concrete situation, and this improbability grows if one makes the additional demand that the communication be reproduced unchanged. The problem lies in spatial and temporal extension. The interaction system of those who are present together at any given time guarantees a communicative attention sufficient for practical purposes. But beyond the boundaries of the interaction system, that system's rules cannot be enforced. Even if communication found meaning carriers that could be transported and would remain temporally stable, it is improbable that it would attract any attention at all beyond the boundaries of the initial interaction. People elsewhere have other things to do.

The third improbability is *success*. Even if a communication is understood by the person it reaches, this does not guarantee that it is also accepted and followed. Rather, "Every assertion provokes its contrary." Communication is successful only if ego accepts the content selected by the communication (the information) as a

premise of his own behavior. Acceptance can mean action corresponding to the directives communicated, but also experience, thinking, or processing further information under the assumption that certain information is correct. Communicative success is the successful coupling of selections.

These three improbabilities are not only obstructions to the reception of any given communication, not only difficulties in attaining a goal; they operate as thresholds of discouragement. Anyone who believes that communication is hopeless lets it pass. Thus one must expect that communication as such does not occur, or if it does occur, that it will be eliminated in the further course of evolution. But no social system can be formed without communication. One must expect entropy, even if the opposite is the case. This does not contradict the theorem of improbability; it indicates more precisely where the problems lie whose solutions enable communication in the course of evolution, get system formation going, and transform improbabilities into probabilities. The immanent improbabilities of the communicative process and the way in which they are overcome and transformed into probabilities regulate the construction of social systems. One has to understand the process of sociocultural evolution as the reshaping and widening of the chances for foreseeable communication, as the consolidation of expectations out of which society can form its social systems. Obviously this is not just a process of growth but a selective process that determines what kinds of social systems are possible, how society sets itself off from mere interaction, and what is excluded as too improbable.

One recognizes a kind of structure in this evolutionary selection if one sees that these improbabilities do not work themselves out simply and gradually and that they are not transformed bit by bit into adequate probability. They reciprocally reinforce and limit themselves.

Thus the history of sociocultural evolution based on communication does not offer the picture of a goal-directed progress toward ever-increasing understanding. Instead, one could view it as a kind of hydraulic process of repressing and distributing the pressure of problems. Once one problem is solved, the solution of others is even less probable. The suppressed improbability transfers itself, so to speak, into other problems. If ego understands a communication correctly, he has more reason to reject it. If the

communication transcends the circle of those who were present at its inception, then understanding becomes more difficult and rejection easier; the interpretative assistance and pressure to accept provided by interaction are lacking. This interdependence of problems works selectively on what comes through and confirms itself as communication. As soon as alphabetized writing made it possible to carry communication beyond the temporally and spatially limited circle of those who are present at any particular time, one could no longer rely on the force of oral presentation; one needed to argue more strictly about the thing itself. "Philosophy" seems to owe its beginnings to this.⁴⁰ It is *sophia* as the skill required in such a tense situation to enable communication that is serious, worthy of preservation, and universal (as far as the alphabet allows).

We would like to call *media* the evolutionary achievements that enter at those possible breaks in communication and that serve in a functionally adequate way to transform what is improbable into what is probable.⁴¹ Corresponding to the three types of communicative improbability, one can distinguish three different media that mutually enable one another, limit one another, and burden one another with consequent problems. The medium that increases the understandability of communication beyond the sphere of perception is *language*.

Language is a medium distinguished by the use of signs. It uses acoustic or optical signs for meaning.⁴² This leads to problems of complexity that are solved by rules for the use of signs, by reducing complexity, and by settling into a bounded combinatorial capability. But regulating the difference between utterance behavior and information remains the basic process. Formed as a sign, this difference can be used as a basis for communication between alter and ego, and both can, by the same use of signs, be reinforced in the apprehension that they mean the same thing. Therefore this concerns a very special technique with the function of *extending* the repertoire of understandable communication *almost indefinitely in practice* and thereby guaranteeing that almost any random event can appear and be processed *as information*. The significance of this semiotic technique can hardly be overestimated. It rests, however, on functional specification. Therefore one must also keep its boundaries in view. Neither is meaning a sign nor does the semiotic technique of language explain which selection of signs will be successful in the communicative process.

As a result of language, *media of dissemination*, namely, writing, printing, and electronic broadcasting, have developed. These rest on the incongruent decomposition and recombination of linguistic units that cannot be further dissolved. ⁴³ This results in an immense extension of the scope of the communicative process, which affects what is confirmed as the content of communication. ⁴⁴ The media used for dissemination have their own technique for making selections; they create their own possibilities of maintenance, comparison, and improvement, which can be used via standardization. In comparison with oral transmission, which is bound to interaction and individual memory, this greatly extends, and at the same time constrains, which communication can serve as the basis for further communication.

These developments in language and dissemination techniques make it even more doubtful which communication will succeed and be able to motivate acceptance. Well into the modern period one reacted to increased improbability with techniques of persuasion, with eloquence as the goal of education, with rhetoric as a specific art, and with disputation as the art of conflict and accomplishment. Even the invention of printing only increased these efforts rather than making them obsolete. ⁴⁵ Success, however, lay not in this rather conservative direction but in the development of *symbolically generalized communication media*, which are functionally adequate to this particular problem. ⁴⁶

We would like to call "symbolically generalized" the media that use generalizations to symbolize the nexus between selection and motivation, that is, represent it as a unity. Important examples are: truth, love, property/money, power/law; and also, in rudimentary form, religious belief, art, and, today, standardized "basic values." In all these cases this--in a very different way and for very different interactive constellations--is a matter of conditioning the selection of communication so that it also works as a means of motivation, that is, so that it can adequately secure acceptance of the proposed selection. The most successful and most relevant communication in contemporary society is played out through these media of communication, and accordingly, the chances of forming social systems are directed toward the corresponding functions. Further discussion of this must be left to a theory of society, but the general theory of social systems and their communicative processes can

serve to draw attention to the highly selective character of these functionally privileged modes of communication.

Language, media of dissemination, and symbolically generalized communication media are thus evolutionary achievements that interdependently ground the processing of information and increase what can be produced by social communication. This is how society produces and reproduces itself as a social system. Once communication is set into and kept in motion, the formation of a bounded social system cannot be avoided, nor can the development of further bounded social systems produced by the transformation of expectations about what is improbable into what is sufficiently probable. On the level of social systems, this is an exclusively autopoietic process, which produces what enables it itself.

The development of these media not only concerns an obvious "more" in communication; it changes the type and mode of communication. One can interpret the starting point for change if one considers that communication presupposes the difference between information and utterance. This experience of difference is not always given as an explicit fact; it can be given rather opaquely. Only thus is a gradual evolution toward specifically differentiated communicative (social) systems possible. Starting from this, the media affect sociocultural evolution. Oral speech among persons interacting together and the subsequent stylization of this speech in oratorical terms presuppose a fact being spoken about (and, as was taught in the schools of rhetoric, expert knowledge about this fact), but they can fuse utterance and speech into an effective unity, can compensate for lack of information with persuasion, and can synchronize speaking, hearing, and accepting in a rhythmic and rhapsodic way, leaving literally no time for doubt. Only writing enforces the clear distinction between information and utterance, and only printing increases the suspicion that emerges from the special preparation of the utterance: that it follows its own motives and is not merely the servant of information. Only writing and printing suggest communicative processes that react, not to the unity of, but to the difference between utterance and information: for example, processes for controlling truth, for articulating suspicion, with the accompanying psychoanalytic and/or ideological universalization of suspicion.

Writing and printing enforce an experience of the difference that

constitutes communication: they are, in this precise sense, more communicative forms of communication, and they therefore require a more specific reaction by communication to communication than is possible orally. ⁴⁷ Following this train of argument, we must again recall the difference between themes and contributions recounted in the previous section. This is the presupposition that elemental communicative events shape themselves into processes with ordered, differentiated selectivity. Societal reproduction of communication must therefore progress by reproducing themes that recruit their contributions autonomously, so to speak. The themes are not created anew every time in each case, nor are they given adequate precision by language, like a vocabulary. (Language treats all words alike and ignores the possibility of becoming a theme in communicative processes.) Therefore an intervening requirement mediates between language and interaction--a supply of possible themes that is available for quick and readily understandable reception in concrete communicative processes. We would like to call this supply of themes *culture*, ⁴⁸ and, if it is reserved specifically for the purposes of communication, *semantics*. Thus an earnest, conservable semantics is a part of culture, namely, of what is handed down to us by the history of concepts and ideas. Culture is not necessarily a normative content for meanings; perhaps it is more like a limitation of meaning (reduction) that makes it possible to distinguish appropriate from inappropriate contributions or even correct from incorrect uses of themes in theme-related communication. ⁴⁹

This terminological simplification of a complex theoretical deduction makes it possible to formulate questions dealing with the relationship between culture (or, more strictly, semantics) and system structures in societal development. ⁵⁰ To provide historically fruitful findings, the hypothetical apparatus would have to be elaborated to a greater degree than is possible on the level of a general theory of social systems. We must be content with demarcating the starting points.

VIII

At the beginning of this chapter, we posed the question: For social systems, which is truly the final element with which relations are

created and which cannot be further decomposed—action or communication? We would like to return to this question now. We will attempt to answer it by clarifying the relationship between communication and action, thereby also clarifying how the elements of social systems are constituted.

To start with, communication cannot be conceived as action, nor can the process of communication be conceived as a chain of actions. In its unity, communication includes more selective events than just the act of utterance. Therefore one cannot fully grasp the process of communication if one sees only utterances that trigger one another. The selectivity of what is uttered, information, and the selectivity of understanding always enter into communication, and precisely these differences, which enable its unity, constitute the essence of communication.

In social systems formed by communication, only communication is available as a means of decomposing elements. One can analyze statements, can follow out their meaning references in the temporal, social, and factual dimensions, can in detail form ever-smaller meaning units into the endless depths of the internal horizon --but all this only via communication, thus in a very time-consuming and socially demanding way. A social system has no other manner of dissection; it cannot resort to chemical, neurophysiological, or mental processes (although all these exist and play a part). In other words, one cannot bypass the constitutive level of communication. It is available at need for progressive decomposition, but it cannot relinquish the form by which it constructs its unity--the fusing of information, utterance, and understanding --without ceasing its operation. Social systems, which are formed by communication as communication systems, regulate in which direction and how far communication can go without becoming tiresome. ⁵¹ Thus there is a peculiar horizon of communication that makes it possible to march on, but is never reached and finally breaks off communication if things have gone too far.

The most important consequence of this analysis is *that communication cannot be observed directly, only inferred*. ⁵² To be observed or to observe itself, a communication system must be flagged as an action system. Even the concurrent self-control of which we spoke in section II of this chapter functions only if one can read from succeeding action whether one has been understood or not.

If one does not read action into it, communication is a symmetrical relationship among further selections. The metaphor of transmission conceals this. Communication is symmetrical insofar as every selection can lead to another and this relationship can be constantly reversed. At one moment the bottleneck and the sticking point may reside in what is capable of being understood; at another, new information is urgently needed; soon after, the requirement that communication be uttered supervenes. No single directive for concentrating selection can be established for everything. Relationships can be reversed and are highly adaptive. *Only by building the understanding of action into a communicative occurrence can communication become asymmetrical*; only thus can a person who utters information give directives to its receiver, and this can be reversed only if the receiver begins to utter something of his own, that is, begins to act.

Corresponding to the distinction between information and utterance, action is constituted socially in two different contexts: as information (or a theme of communication) or as the act of utterance. In other words, there is non-communicative action about which communication merely informs itself. But even its social relevance is mediated by communication. Communication systems have the option of communicating about actions or about something else. They must, however, interpret utterance as action, and only thus does action become a necessary component of the self-reproduction of the system from one moment to the next. Therefore it is not false, only one-sided, for a communication system to interpret itself as an action system. Only by action does communication become fixed at a point in time as a simple event.

Thus, a social system is constituted as an action system on the basis of communicative happenings, and using their operative means. The system generates a description of itself in itself to steer the continuation of the process, the reproduction of the system. Communication's symmetry is made asymmetrical to allow self-observation and self-description; its ability to be stimulated is reduced by its becoming answerable for consequences. And in this abbreviated, simplified, and thereby more easily comprehensible self-description, action--not communication--serves as the final element.

Actions are constituted by processes of attribution. They come

about only if, for whatever reasons, in whatever contexts, and with the help of whatever semantics ("intention," "motive," "interest"), ⁵³ selections can be attributed to systems. Obviously, this concept of action does not provide an adequate causal explanation of behavior because it ignores the psychic. ⁵⁴ What enters into the conceptual development chosen here is that selections are related to systems and not to their environments and that addressees for further communication are thereby established as points of connection for further action, whatever the underlying basis.

What an individual action is can be ascertained only on the basis of a social description. ⁵⁵ This does not mean that action is possible only in social situations, but in individual situations an individual action stands out from the flux of behavior only if it recalls a social description. Only thus can action find its unity, its beginning and end, although the autopoiesis of life, consciousness, and social communication goes on. In other words, unity can be found only in the system. It arises out of the possibilities for other action that branch off.

This already demonstrates that any determination of action requires a simplification, a reduction of complexity. That becomes clearer if one considers a prejudice common among sociologists, although they should know better. This is attributing action to concrete human individuals--as if an individual, a whole human being, were always required as the "agent" of the action. It goes without saying that there are physical, chemical, thermal, organic, and psychic conditions of possibility for action, but this does not imply that action can be attributed only to concrete human individuals. In fact, an action is never fully determined by an individual's past. Countless investigations have uncovered the bounds of possibility for psychological explanations of action. ⁵⁶ The situation in which action is chosen is--according to the self-understanding of the psychic system!--predominant. ⁵⁷ Observers can predict action better by knowing a situation than by knowing people, and, correspondingly, their observation of actions often, if not always, is not concerned with the mental state of the actor, but with carrying out the autopoietic reproduction of the social system. *Nevertheless, everyday action is attributed to individuals.*

Such extremely unrealistic behavior can only be explained by a need to reduce complexity.

The continual production of individual actions within social

systems can best be conceptualized as the performance of a concurrent self-observation by which elemental units are marked in a way that produces support points for further connective actions. ⁵⁸ If one accepts George Spencer Brown's logic of form-building operations, then one can elucidate these theoretical distinctions via the concepts of distinction, indication, and re-entry, and explicate them in a way that creates connective possibilities on a very abstract level. ⁵⁹ The distinction used in constituting actions is that between system and environment. Within this distinction the system (not the environment) is defined as the author of selections, and distinctions, like indications, are performed as operations of the system itself (not only of an external observer), or at least the system must be capable of performing them. In this way, theories and research of quite heterogeneous origins, such as the logic of form-building operations, action theory, systems theory, and attribution research, can be knit together. The consequence, at least for social systems, is that autopoietic reproduction and the operations of self-description and self-observation that use the system/environment difference within the system cannot be separated. ⁶⁰ The distinction retains its analytical value--but only to enable the hypothesis that social systems can carry out their self-reproduction only with the help of self-observations and self-descriptions.

In addition, one must consider temporalization. As is required of all elements in temporalized systems, actions combine determinacy and indeterminacy. ⁶¹ They are determined in their momentary actuality, whatever attributive basis one makes answerable, and they are indeterminate with reference to the connective value they incorporate. This can, for example, be interpreted as the difference between an anticipated and an attained goal. But other semantic forms that ensure a sense of action to be handed down must be able to combine in a given moment determinacy and indeterminacy, without letting them fall apart into present and future.

One can perceive the same state of affairs in the social dimension. If communication appears as an utterance, it is, at that moment, the same for all participants, indeed *the same at the same time*. ⁶² The social situation is thereby synchronized. ⁶³ Even the actor is included in this synchronization; he cannot, for example, deny any longer that he said what he said. In this moment *everyone* deals with

the *same* object, and this leads to a multiplication of connective possibilities for the next moment. Closure opens the situation; determinacy produces indeterminacy. This leads neither to contradiction nor to blockage, however, because the occurrence is ordered as an asymmetrical sequence and is experienced in that way.

The semantic expenditure required for the communication system to describe itself as an action system is in part a problem of cultural history, in part a problem of a specific situation. Whether a semantics of vital forces is all that is needed or interests must be taken into consideration, whether one must ascertain "internal consent" for one's own action in a context of confession or of juridical procedure to situate the action firmly but flexibly in the environment, whether the action must be psychologized or reduced to factors of which the actor is unconscious but that can be revealed by therapy--all this depends on circumstances at the social system's disposal. The right kind of self-attribution may then be taught more or less successfully to an actor, so that in time, perhaps even in advance, he can tell if he is acting and relieve the pressure on social controls by self-control.

There are two primary reasons for relating the self-description of the social system to actions. One we have already mentioned-- actions are easier to recognize and deal with than communications. The unity of action does not come about by another's understanding, and it does not depend on the fact that the observer can read a difference between information and behavior; he need only manage the rules of attribution that are customary in specific social systems. To be sure, action too must be capable of entering into communicative processes in order to be dealt with in social systems--whether as utterance or as information. Every self-description or self-observation by a social system is further communication and only possible as such (otherwise it would be a description or observation from outside, e. g., by an individual). The simplification lies in the fact that only actions and not fully communicative events serve as connective points, in that an abstraction suffices to communicate action or simply connective behavior, and in that one can to a great extent omit the complexities of the complete communicative occurrence. The fact that one need not examine (or need examine only under very specific conditions) which information an utterance referred to and who understood it takes some of the load off.

We mentioned a second advantage, as well. Reduction to action facilitates the temporal asymmetrization of social relations. Normally we tend to think of communication as action and represent chains of communications to ourselves as chains of actions. The reality of a communicative event is much more complex, however. It presupposes that both sides manage the double contingency of ego and alter; for a certain time it is held in suspense and may require further inquiry, significant silence, or hesitation before it can be concluded in understanding; or it may fail as communication even if the utterance exists as action. Nevertheless, to represent action sequences as chains of facts in which one action makes the others possible facilitates orientation, if the action can be fixed at a point in time. Whereas communications can be reversed over time--one can have trouble understanding what is uttered, one can reject it, or one can try to correct it (even if it is undeniably an *act* of utterance)--actions mark the irreversibility of time and arrange themselves chronologically in relation to one another.

Only with the help of such punctualization and asymmetrization can an autopoietic social system form. This is how the problem of connectivity assumes recognizable contours. Communication's reach into the future and the past when selecting utterances that can be understood must, because it infringes on time and because this remains its presupposition, refer to a point in time: to the point at which the utterer acts. A social system is thereby constituted as an action system, but it must presuppose the communicative context of action. Both action and communication are necessary, and both must constantly cooperate in order to enable reproduction out of the elements of reproduction. ⁶⁴

Autopoietic reproduction does not mean that a specific action is repeated in every appropriate case (e. g., every time a person wants to light a cigarette he reaches for his lighter). Repeatability must also be secured by the formation of structures. Reproduction means only production out of what has been produced; for autopoietic systems this means that the system does not end through its actual activity, but goes on. This going on depends, however, on the fact that actions (whether intentionally or not) have communicative value.

We can take a further step if we combine the insight that communication and action are reciprocally related with the problem of

self-observation or self-description. On the level of general systems theory one can already determine how any complexity is constrained by a structuring self-simplification. We need not decide here how useful it is to say, for example, that macromolecules or even objects pure and simple contain a description within themselves. ⁶⁵ In any event, social systems, our domain of investigation, seem to require and to develop a self-description by reducing to actions events that are to be related together, even if the reality of those events is considerably richer. Self-observation is first of all an aspect of processing one's own information processing. Beyond this, it makes self-description possible by fixing what a system communicates about when it communicates about itself. Self-observation makes possible-- indeed perhaps even makes necessary-- reflection in the sense of thematizing identity (difference from something else) that makes the domain observing itself available as a unit that can relate to others.

Drawing on concepts from the theory of self-referential systems ⁶⁶ - namely, the idea that systems, by their own operations, can devise a description of themselves and then observe themselves - one can detach the connection among communication, action, and reflection from a theory of the subjectness of consciousness (the theory that consciousness must pertain to a subject). Of course, we do not maintain that there can be social systems without consciousness. But subjectness, the availability of consciousness, its underlying everything else, is assumed to be the *environment* of social systems, not their *self-reference*. Only by this distancing can we work out a truly "original" theory of social systems.

The reduction of self-description to action leads to a problem we can only indicate here, though we will resume it in Chapter 5. From the theory of self-referential systems, it would seem to follow directly that the self-description of a system must interpret the system as *difference from its environment*. Self-description is not only some kind of depiction leaving out the details, not only the outline of a model or a map of the self; to prove its worth, it must also increase the complexity it can experience by presenting the system as difference from the environment and acquiring information and guidance for connective behavior by means of this difference. The reduction to action seems to go in the other direction, to be directed at aspects of self-reproduction as such--self-reproduction as action's

stimulus to further action. This narrowing does not seem to offer any guarantee that the demands placed on self-description be met, especially when one considers that communication (via meaning themes that refer to the environment) is reduced to action.

Traditionally, theory has reacted to this dilemma--without formulating the problem as such--with two concepts of action, poietic and practical, one referring to technics and the other to self-esteem. ⁶⁷ We have arrived at a semantics in which "rationality" has been discussed. But the theme of rationality finally disintegrates into a typology of distinct rationalities, whose relations to one another can no longer be subsumed under the requirements of rationality--in, for example, some sort of ranking. Theories, it seems, should not be constructed this way. Instead of returning to a basic (action-transcending) problem, one distinguishes two types; instead of problematizing, one merely dualizes. We must defer the problem of rationality for later treatment, but it begins with the question of how one can build the difference between system and environment into the self-description of a social system that acquires information potential via reduction to connections between actions. In brief, how can one, by reducing complexity, increase the complexity that can be apprehended?

IX

The answer is: by conditioning communication, that is, by forming social systems. Communication can be conceptualized as a kind of self-excitation that inundates the system with meaning. It is induced by the experience of double contingency, indeed, almost necessarily results from this condition, and leads to the development of structures that prove their worth with regard to it. One can imagine that this provides an empty, so to speak, evolutionary potential that, if nothing better is available, can use any chance to construct order. To this extent the concept fits an "order from noise" theory.

Unquestionably, highly complex environments belong to the conditions of possibility for forming communicative systems. Above all, two opposing presuppositions must be secured. On the one hand, the world must be densely enough structured so that constructing matching interpretations about the things in it is not

pure chance; communication must be able to grasp something (even if one can never know what it ultimately is) that does not permit itself to be decomposed randomly or shifted in itself. ⁶⁸ On the other, there must be different observations, different situations that constantly reproduce dissimilar perspectives and incongruent knowledges on precisely the same grounds. ⁶⁹ Correspondingly, one can conceive of communication neither as a system-integrating performance nor as the production of consensus. Either would imply that communication undermines its own presuppositions and that it can be kept alive only by sufficient failure. ⁷⁰ But what, if not consensus, is the result of communication?

One of communication's most important achievements is sensitizing the system to chance, disturbances, and "noise" of all kinds. In communication, one can make understandable what is unexpected, unwelcome, and disappointing. "Understandable" does not mean that one correctly knows the reasons for something and can change the situation. Communication does not achieve this unaided. But it can force disturbances into the form of meaning and thus handle them further. One can then distinguish whether the disturbances occur in the communication process itself--for example, as a typo (the concept gives meaning to what is "meaningless"; one can detect and remove printing errors)--or whether they are to be sought in the themes and contributions of communication, so that one cannot correct them technically but must ascertain the grounds for them. By communication, the system establishes and augments its sensitivity, and thus it exposes itself to evolution by lasting sensitivity and irritability.

Consensus is not what corrects this unrest, for the danger error, mistakes, and stagnation pose to consensus is too great. Instead, if communication continues, a double phenomenon of *redundancy* and *difference* emerges, and in this lies the content of communication's principle of unrest. The concept of redundancy designates countless possibilities that fulfill the same function. If A informs about something B by communicating and B receives this information, then C or anyone else can turn to B as well as to A if he wants to be informed. ⁷¹ A surplus of informational possibilities emerges, which is still functionally meaningful because it makes the system independent of specific relations and protects it against the danger that something will be lost. The same knowledge, the same attitude,

is now multiply present. This alone can produce the impression of objectivity, of normative or cognitive correctness, and a correspondingly secure foundation for behavior. Redundancy also helps filter out what proves its worth in many communications and thus forms structure; the system becomes less dependent on the circumstance that all communication must be mediated by individualized consciousnesses and to this extent can process only what has already been psychically predigested.

But at the same time communication produces difference. If all information processing amounted only to redundancy, the danger of unanimously accepted misconceptions would be too great. That this danger cannot be eliminated is well known; the rapid spread of truly narrow-minded intellectual fashions, which are suited to communication precisely because of that narrow-mindedness, supplies ever-new occasions to observe this. But communication systems always simultaneously produce self-corrections. Every communication invites protest. As soon as something specific is offered for acceptance, one can also negate it. The system is not structurally bound to acceptance, not even to a preference for acceptance. Linguistically, the negation of every communication is possible and can be understood. It can be anticipated and circumvented by avoiding corresponding communication, but this is merely another way of practicing difference: transferring it back from ego who understands to alter who utters.

In this way communication sets system formation in motion. As long as it continues, thematic structures and redundantly available meaning contents are formed. A self-critical mass emerges, which brings forth offerings that can be accepted or rejected. All of this differentiates itself as a process from an environment that themes keep handy, that can be intended in communication, and that produces events that the system can treat as information. Provided that participants perceive themselves reciprocally, the system finds itself in a kind of enduring excitation that both reproduces itself and can be stimulated from outside--like a nervous system. It thereby acquires a complexity of its own, and at the same time it reproduces order in the sense of reduced complexity. It makes oriented continuation of communication possible for itself via a self-description resulting from the reduction of communication to action. Such systems release evolutionary selection in a way

that does not result directly from biological evolution. They inevitably transform chance occasions into information, but whether what they create as redundancy and difference proves its worth in evolution and for how long cannot be deduced from the necessity of constructing order.

If communication is set in motion, then a system with a special kind of relationship to its environment emerges. It can access the environment only as information, can experience it only as a selection, can apprehend it only as changes (either in the system itself or in the environment). To be sure, there are countless other environmental presuppositions, above all the existence of conscious human beings. But these conditions of possibility for communication do not automatically enter into communication: they can become a theme of communication, but they do not have to. The situation is exactly parallel to the peculiar environmental situation of conscious systems. For them, too, not the physiological processes of perception but only their products are conscious.⁷² Such reductions produce new degrees of freedom in dealing with the environment. Without emphasizing the distinction between psychic and social systems, between consciousness and communication, Edgar Morin formulates this principle when he says, "We are in fact condemned to know only a universe of messages, nothing more. But at the same time we have the privilege of reading the universe in the form of messages."⁷³

X

Thus we give a double answer to the question of what comprises a social system: communications and their attribution as actions. Neither aspect is capable of evolving without the other.

In hindsight it is important to recall that this question has been refined in many ways. The formulation of the question is not directed at the totality of what is required for social systems to emerge and maintain themselves. Magnetism and acidity, air that carries sound waves and doors that one can close, ears and telephones: all seem more or less necessary. But the paradigm of the system/environment difference teaches us that not everything that is necessary can be combined into the unity of the system.

Therefore we are seeking the ultimate units that comprise a

social system and by whose interrelations the system can distinguish itself from its environment. The question has stimulated two opposing answers: one substantial or ontological and the other analytical. One answer is that the unity of the elements is pregiven (like the unity of an action through the actor's intention, according to Max Weber). The other is that it is an analytical construct (like Parsons's unit act). Both answers are superseded by the second paradigm shift, by transition to a theory of autopoietic systems. Whatever functions as a unit becomes a unit by the unity of the self-referential system. It is a unit neither by its own unity nor by an observer's mode of selection, neither objectively nor subjectively; it is the referential aspect of the system's mode of binding itself together, which is reproduced by this binding.

The difference between constitution and observation can and must be built back into the theory. In this chapter, the concepts of communication and action accomplished that. Communication is the elemental unit of self-constitution; action is the elemental unit of social systems' self-observation and self-description. Both are highly complex situations that are used as units and abbreviated to the format necessary for this. The difference of communication in the full sense--namely, a synthesis of selections and the possibility of attributing them as action--makes it possible to selectively organize accompanying self-reference, in the sense that one can handle *communication* (e. g., arguments, repeated questions, contradictions) reflexively only if one can determine who has *acted* communicatively. Therefore the question of which individuals, atoms, and elements compose social systems cannot be answered more simply. Any simplification at this point would mean a loss in the wealth of references, which a general theory of social systems can hardly afford.

Notes

[Note:](#) 1. See Chap. I, section II, item no. 4.

[Note:](#) 2. In action theory, communication is one kind of action among others. Typically, this interpretation is introduced without any justification, as if it were the only one conceivable. See, e. g., Abraham A. Moles and Elisabeth Rohmer, *Théorie des actes: Vers une écologie des actions* (Paris, 1977), p. 15ff. For communication theory, see in particular the theory of Gordon Pask, which is defined by conversation: *Conversation, Cognition and Learning* (Amsterdam, 1975); *Conversation Theory: Applications in Education and Epistemology* (Amsterdam, 1976); "Revision of the Foundations of Cybernetics and General Systems Theory," *Proceedings of the VIIIth International Congress on Cybernetics, 1976* (Namur, 1977), pp. 83-109; "A Conversation Theoretic Approach to Social Systems," in R. Felix Geyer and Johannes van der Zouwen, eds., *Sociocybernetics*, vol. 1 (Leiden, 1978), pp. 15-26; "Organizational Closure of Potentially Conscious Systems," in Milan Zeleny, ed., *Autopoiesis: A Theory of Living Organization* (New York, 1981), pp. 265-308.

[Note:](#) 3. This is proposed in Johann Jakob Wagner, *Philosophie der Erziehungskunst* (Leipzig, 1803), e. g., p. 55: "All communication is stimulation." It is surely no accident that such ideas appeared within a context broadened by transcendental theory and were worked out in a theory of relations, in which one polemically attacked the direct striving for human perfection using technical means and put forward the question of "conditions of possibility."

[Note:](#) 4. See Claude E. Shannon and Warren Weaver, *The Mathematical Theory of Communication* (Urbana, Ill., 1949). The concept of information presented here serves only for technical calculations and leaves meaning references completely out of consideration, but this does not imply that selectivity is not important in meaning contexts.

[Note:](#) 5. See Dieter Henrich, *Fluchtlinien: Philosophische Essays* (Frankfurt, 1982), esp. p. 92.

[Note:](#) 6. See the remarks on the "organon model" of language in Karl Bühler, *Sprachtheorie: Die Darstellungsfunktion der Sprache*, 2d ed. (Stuttgart, 1965), p. 24ff.

[Note:](#) 7. See John L. Austin, *How to Do Things with Words* (Oxford, 1962), esp. p. 94ff. Austin also speaks of functions (p. 99).

[Note:](#) 8. Norbert Wiener, "Time, Communication, and the Nervous System," *Annals of the New York Academy of Sciences* 50 (1947): 197- 219, formulates this requirement as a limit case from the perspective of communication theory: "If all I can do is to create, at the receiving end of a communication system, an enduring state completely characterized in terms of its own past, then I cease to convey information" (p. 202).

[Note:](#) 9. See Charles K. Warriner, *The Emergence of Society* (Homewood, Ill., 1970), p. 110ff. Especially important is the insight that the intersubjectivity of the process is realized and in turn becomes the basis of this process: "The acts of confirmation by both actors complete the communication process. Each actor then knows that the other knows that he knows what the other 'had in mind'" (p. 110).

[Note:](#) 10. For more on this concept, see Chap. 11, section III. [Note:](#) 11. See section V of this chapter.

[Note:](#) 12. Later we will infer from this that society, i. e., the most encompassing social system, must be conceived as an operatively and self-referentially closed system. See Chap. 10.

[Note:](#) 13. Viewed in this way, the introduction of printing could be successful only if at the same time the boundaries of what seemed reasonable were expanded, the interests that could be assumed in possible readers were broadened, and corresponding educational institutions were supplied. See Michael Giesecke, "'Volkssprache' und 'Verschriftlichung des Lebens' im Spätmittelalter--am Beispiel der Genese der gedruckten Fachprosa in Deutschland," in Hans Ulrich Gumbrecht, ed., *Literatur in der Gesellschaft des Spätmittelalters* (Heidelberg, 1980), pp. 39-70.

[Note:](#) 14. Edmund Husserl, *Logische Untersuchungen*, vol. 2, I, 3d ed. (Halle, 1922), §§1-8. In what follows we will avoid detailed proofs so as not to lengthen the text needlessly.

[Note:](#) 15. We will return to the theory of psychic systems in Chap. 7.

[Note:](#) 16. Jacques Derrida, *La voix et le phénomène* (Paris, 1967). (English trans. *Speech and Phenomena and Other Essays on Husserl's Theory of Signs*, trans. David B. Allison [Evanston, Ill., 1973].)

[Note:](#) 17. Though this requires no further clarification, we would add a cautionary note: otherwise, rejected communication would not be communication, and the rejection of communication

would not be possible at all. But this would be a highly unrealistic conceptual formation. Communication distinguishes itself precisely by *opening* a situation for acceptance or rejection.

- [Note](#): 18. From Otilie's Journal. Johann Wolfgang von Goethe, *Elective Affinities*, trans. R. J. Hollingdale (Harmondsworth, Middlesex, 1971), p. 181. [Note](#): 19. Viewed scientifically, the language of "is" is (!) highly misleading because it is incapable of expressing at the same time the difference against which something is designated, what should be selected, and what that should determine will be omitted. The language of bureaucracy, with its oft-criticized formalities ("communicating," "decision making," "submitting applications," "taking note of," etc.) is much better equipped for this. It operationalizes contingency, although here too a consciousness of difference and alternatives is carried along only abstractly. See also (in connection with E. A. Singer) C. West Churchman, *The Design of Inquiring Systems: Basic Concepts of Systems and Organization* (New York, 1971), p. 201ff.
- [Note](#): 20. For prominent examples, see: John Thibault and Harold H. Kelley, *The Social Psychology of Groups* (New York, 1959); George C. Homans, *Social Behavior: Its Elementary Forms*, 2d ed. (New York, 1974); Thomas C. Schelling, *The Strategy of Conflict* (Cambridge, Mass., 1960); Richard M. Emerson, "Power-Dependence Relations," *American Sociological Review* 27 (1962): 31-41. Alfred Kuhn has advocated a clear separation of communication and transaction in various analytical domains. See his *The Logic of Social Systems* (San Francisco, 1974), p. 137ff. For a retrospective appreciation, see also: Peter P. Ekeh, *Social Exchange: The Two Traditions* (London, 1974); John K. Chadwick-Jones, *Social Exchange Theory: Its Structure and Influence in Social Psychology* (London, 1976).
- [Note](#): 21. See, e. g., Lionel Trilling, *Sincerity and Authenticity* (Cambridge, Mass., 1972).
- [Note](#): 22. "I call society the communication of human beings among themselves," says the physiocrat Nicolas Baudeau in *Première Introduction à la philosophie économique ou analyse des états policés* (1771), quoted from Eugène Daire, ed., *Physiocrates* (Paris, 1846; rpt. 1971), pp. 657-821 (p. 663).
- [Note](#): 23. That *discontinuing* or *breaking off* offers *specific chances for communication* must have been especially important for the evolution of differentiated forms of communication. We can only point to this consideration here. It could confirm that evolution favors what promotes complexity.
- [Note](#): 24. This accords with the prevailing interpretation. Too many important phenomena—even in intentional and linguistic communication, which very often expresses more and different meanings than those intended and comprehended in language—remain screened off if one defines the concept of communication too narrowly.
- [Note](#): 25. This theme was much discussed in the seventeenth and eighteenth centuries. See, e. g.: Nicolas Faret, *L'Honeste Homme, ou l'art de plaire à la Cour* (Paris, 1630; rpt. 1925), p. 73 ff; Jacques du Bosq, *L'Honneste Femme*, new ed. (Rouen, 1639), p. 56ff; Madeleine de Scuderi, "De parler trop ou trop peu, et comment il faut parler," in Scuderi, *Conversations sur divers sujets*, vol. 1 (Lyon, 1680), pp. 159-204; Jean-Baptiste Morvan de Bellegarde, *Conduite pour se taire et pour parler, principalement en matière de religion* (Paris, 1696).
- [Note](#): 26. It is otherwise for Klaus Merten, *Kommunikation: Eine Begriffs- und Prozeßanalyse* (Opladen, 1977), who takes reflexivity to be the only generalizable characteristic of communication.
- [Note](#): 27. See John Gregory, *A Comparative View of the State and Faculties of Man with Those of the Animal World*, 2d ed. (London, 1766), p. 154f. Today wit and humor are usually characterized as a short circuit in the difference between levels of logical types. This overlooks, however, the structure of time—their necessary momentariness.
- [Note](#): 28. Merten assembles 160 definitions of the concept of communication in his appendix.
- [Note](#): 29. See Chap. 1, section III. We do not forget that the unity of communication rests on linking up selective events, but that is another question.
- [Note](#): 30. See, for personal systems and their situations, Jürgen Markowitz, *Die soziale Situation* (Frankfurt, 1979), esp. p. 69ff, and for the concept of the "theme field," p. 115f.
- [Note](#): 31. Friedrich D. E. Schleiermacher, "Versuch einer Theorie des geselligen Betragens," in *Werke: Auswahl in vier Bänden*, 2d ed. (Leipzig, 1927), 2: 1-31.
- [Note](#): 32. There is an extensive literature on this, esp. in the second half of the seventeenth and the first half of the eighteenth centuries. See, e. g.: Claude Buffier, *Traité de la société civile* (Paris,

1726), esp. 2: 91ff; François-Augustin Paradis de Moncrife, *Essai sur la nécessité et sur les moyens de plaire* (Amsterdam, 1738), esp. p. 190. For the thresholds at which legal questions become thematized, see Niklas Luhmann, "Kommunikation über Recht in Interaktionssystemen," in Luhmann, *Ausdifferenzierung des Rechts* (Frankfurt, 1981), pp. 53-72.

[Note](#): 33. In general, see Pietro Toldo, "Le Courtisan dans la littérature française et ses rapports avec l'oeuvre de Castiglione," *Archiv für das Studium der neueren Sprachen und Literaturen* 104 (1900): 75-121, 313-30; 105 (1900): 60-85; Helmut Anton, *Gesellschaftsideal und Gesellschaftsmoral im ausgehenden 17. Jahrhundert: Studien zur französischen Moralliteratur im Anschluß an J.-B. Morvan de Bellegarde* (Breslau, 1935); Christoph Stroszki, *Konversation: Ein Kapitel gesellschaftlicher und literarischer Pragmatik im Frankreich des 18. Jahrhunderts* (Frankfurt, 1978); Niklas Luhmann, "Interaktion in Oberschichten," in Luhmann, *Gesellschaftsstruktur und Semantik* vol. 1 (Frankfurt, 1980), pp. 72-161.

[Note](#): 34. The modern media of mass communication have given the temporal situation of themes a far-reaching, if not decisive, significance in how they are chosen. See: Niklas Luhmann, "Öffentliche Meinung," in Luhmann, *Politische Planung* (Opladen, 1971), pp. 9-34; Luhmann, "Veränderungen im System gesellschaftlicher Kommunikation und die Massenmedien," in Luhmann, *Soziologische Aufklärung*, 3: 309-20.

[Note](#): 35. A favorite theme of novels. See, e. g., *Adolphe*, by Benjamin Constant. Corresponding temporal displacements even made their way into empirical research: the man falls in love first and romantically, the woman later and truly. See Bernard I. Murstein, "Mate Selection in the 1970's," *Journal of Marriage and the Family* 42 (1980): 777-92 (p. 785). [Note](#): 36. In any event, a sociological concept of morality does. See Niklas Luhmann, "Soziologie der Moral," in Niklas Luhmann and Stephan H. Pfü eds., *Theorietechnik und Moral* (Frankfurt, 1978), pp. 8-116.

[Note](#): 37. This is partly (and for bourgeois thought primarily) a question of differentiating morality and law, but partly also a question of social mobility, of the ease and relative inconsequentiality of breaking off contact.

[Note](#): 38. In a sense we will discuss more fully later--Chap. 8, section XI-- in terms of the distinctions between value, program, role, and person.

[Note](#): 39. Here I am following an already-published train of thought. See Niklas Luhmann, "Die Unwahrscheinlichkeit der Kommunikation," in Luhmann, *Soziologische Aufklärung*, 3: 25-34.

[Note](#): 40. See: Eric A. Havelock, *Preface to Plato* (Cambridge, Mass., 1963); Havelock, *The Greek Concept of Justice: From Its Shadows in Homer to Its Substance in Plato* (Cambridge, Mass., 1978); Havelock, *The Literate Revolution in Greece and Its Cultural Consequences* (Princeton, N. J., 1982).

[Note](#): 41. As often happens when a more encompassing theory synthesizes previous research, terminological problems arise. The expression "medium" is especially common in research on mass communication and has been popularized in this usage. In addition, there is the spiritualistic usage related to communication with ghosts, and further the usage within Parsons's theory in relation to the mediation of exchange. We propose in the text our own, purely functionalist version.

[Note](#): 42. This is to be distinguished from the function of language (treated in Chap. 2, section IX) in generalizing the self-reference of meaning, although in evolution both emerge together.

[Note](#): 43. This holds especially for the perfection of writing through alphabetization. See Eric A. Havelock, *Origins of Western Literacy* (Toronto, 1976).

[Note](#): 44. This theme has been much discussed recently. In addition to the works of Havelock already mentioned, see Jack Goody and Ian Watt, "The Consequences of Literacy," *Comparative Studies in Society and History* 5 (1963): 304-45; Walter J. Ong, *The Presence of the Word* (New Haven, 1967); Elizabeth L. Eisenstein, *The Printing Press as an Agent of Social Change: Communications and Cultural Transformations in Early-Modern Europe*, 2 vols. (Cambridge, 1979); Michael Giesecke, "Schriftsprache als Entwicklungsfaktor in Sprach- und Begriffsgeschichte," in Reinhard Koselleck, ed., *Historische Semantik und Begriffsgeschichte* (Stuttgart, 1979), pp. 262-302; Giesecke, "'Volkssprache' und 'Verschriftlichung' des Lebens im Spätmittelalter."

[Note](#): 45. In the domain of Catholic theology, see, e. g., Walter J. Ong, "Communications Media and the State of Theology," *Cross Currents* 19 (1969): 462-80. For rhetoric, see Volker Kapp, "Rhetorische Theoriebildung im Frankreich des 17. und 18. Jahrhunderts," *Zeitschrift für*

französische Sprache und Literatur 89 (1979), with further references.

- [Note](#): 46. Talcott Parsons is the primary stimulus for this concept and its theoretical development. See the German trans., Talcott Parsons, *Zur Theorie der sozialen Interaktionsmedien* ed. and intro. Stefan Jensen (Opladen, 1980). Within the framework of Parsons's own theory, however, the problem of how media form concerns a relationship of exchange between (analytical) subsystems of the general action system. For the transition to the framework of a communication theory, see: Niklas Luhmann, "Einführende Bemerkungen zu einer Theorie symbolisch generalisierter Kommunikationsmedien," in Luhmann, *Soziologische Aufklärung*, vol. 2 (Opladen, 1975), pp. 170-92; Luhmann, *Macht* (Stuttgart, 1975); Luhmann, *Liebe als Passion: Zur Codierung von Intimität* (Frankfurt, 1982; English trans. *Love as Passion: The Codification of Intimacy*, trans. Jeremy Gaines and Doris L. Jones [Cambridge, Mass., 1986]).
- [Note](#): 47. The usual interpretation thinks just the opposite because it interprets communication teleologically as aimed toward agreement. Verbal interchange (dialogue, discourse) then must appear to be the ideal form and all technologizing of communication through writing and printing appears to be a corruption or an expedient.
- [Note](#): 48. We cannot enter here on a discussion of how this concept of culture compares to other concepts. The terminology we propose is not too far distant from common usage. Archaeologists would view mousetraps as culture; we, by contrast, see in the physical object a reproduction of the possibility of making it an object of communication.
- [Note](#): 49. For the same subject in different terminology, see Talcott Parsons, "Culture and Social System Revisited," in Louis Schneider and Charles Bonjean, eds., *The Idea of Culture in the Social Sciences* (Cambridge, 1973), pp. 33-46 (p. 36).
- [Note](#): 50. Several contributions to this are found in Niklas Luhmann, *Gesellschaftsstruktur und Semantik*, 2 vols. (Frankfurt, 1980-81). See also the well-known thesis of the mutual development of culture and social structure (although it is not systems-theoretically conceived) in Daniel Bell, *The Coming of Post-Industrial Society: A Venture in Social Forecasting* (New York, 1973), esp. p. 477. The calamity literature of conservatives and progressives alike constantly produces similar notions.
- [Note](#): 51. Literature, chiefly in the seventeenth and eighteenth centuries, is concerned with this. An example is Deslandes, *L'Art de ne point s'ennuyer* (Amsterdam, 1715), p. 91ff.
- [Note](#): 52. Here is where one might find grounds for beginning with the concept of action instead of communication. See Warriner, p. 106: "The basic problem in the theory of communication lies in the general reluctance of the social scientist to deal with what is not directly observable."
- [Note](#): 53. The terminology of "motives" has paved the way for the concept of action proposed here. See: C. Wright Mills, "Situated Actions and Vocabularies of Motives," *American Sociological Review* 5 (1940): 904-13, developed also in Hans Gerth and C. Wright Mills, *Character and Social Structure* (New York, 1953); also Kenneth Burke, *A Grammar of Motives* (Englewood Cliffs, N. J., 1945; rpt. Cleveland, 1962, Berkeley, 1969); Burke, *A Rhetoric of Motives* (Englewood Cliffs, N. J., 1950; rpt. Cleveland, 1962, Berkeley, 1969); Alan F. Blum and Peter McHugh, "The Social Ascription of Motives," *American Sociological Review* 36 (1971): 98-109. Historical research has shown that the terminology of "interests" developed, not out of an interest in the subjective, but out of an interest in objective calculability. See J. A. W. Gunn, "'Interest Will Not Lie': A Seventeenth-Century Political Maxim," *Journal of the History of Ideas* 29 (1968): 551-64; Gunn, *Politics and the Public Interest in the Seventeenth Century* (London, 1969), esp. p. 35ff.
- [Note](#): 54. This is how we react, from the perspective of the history of theory, to Max Weber's problematic of trying to explain action by understanding intentions.
- [Note](#): 55. This thesis is developed particularly within "symbolic interactionism." For the constitution of "unit acts" within the "stream of actions," see Warriner, p. 14ff; also Joel M. Charon, *Symbolic Interactionism: An Introduction, an Interpretation, an Integration* (Englewood Cliffs, N. J., 1979), p. 111ff.
- [Note](#): 56. To cite only one proof, which represents a far-reaching direction of research: Melvin L. Kohn and Robin M. Williams, Jr., "Situational Patterning in Intergroup Relations," *American Sociological Review* 21 (1956): 147-74.
- [Note](#): 57. Moreover, the difference between attribution to persons and attribution to a situation and the corresponding theoretical dispute are simplifications that have already been subjected to criticism. See Walter Mischel, "Toward a Cognitive Social Learning Reconceptualization of Per-

sonality," *Psychological Review* 80 (1973): 252-83.

[Note](#): 58. See also Abraham A. Moles and Elisabeth Rohmer, *Théorie des actes: Vers une écologie des actions* (Paris, 1977), p. 30ff.

[Note](#): 59. See George Spencer Brown, *Laws of Form*, 2d ed. (New York, 1972); George K. Zollschan and Michael A. Overington, "Reasons for Conduct and the Conduct of Reason: The Eightfold Route to Motivational Ascription," in George K. Zollschan and Walter Hirsch, eds., *Social Change: Explorations, Diagnoses, and Conjectures* (New York, 1976), pp. 270-317.

[Note](#): 60. Humberto Maturana, author of the general theory of autopoietic systems, chooses otherwise. See above, Chap. 1, section II, end of item no. 9.

[Note](#): 61. See Chap. 1, section II, item no. 10.

[Note](#): 62. When communication is fixed only in writing, this no longer holds (and an increase in clarity, e. g., in grammatical and syntactic correctness must compensate).

[Note](#): 63. Mead called a "gesture" that fulfilled this condition a "significant symbol." See George H. Mead, "A Behavioristic Account of the Significant Symbol," *Journal of Philosophy* 19 (1922): 157-63.

[Note](#): 64. As a cautionary note, we should point out that this argumentation is neither logically nor theoretically compelling. As is always the case with statements about function, functional equivalents cannot be ruled out, here other possibilities of self-observation, self-description, and self-simplification. Reduction to action has in fact proved its worth and gained acceptance to such an extent that even sociology performs it in an unreflective manner and interprets social systems simply as action systems. The theory presented here has made this comprehensible--and treated it as contingent. One can imagine historical research that might impartially examine the question whether and to what extent earlier cultures lived so decisively in accordance with an action model.

[Note](#): 65. Thus, e. g., Ranulph Glanville, "A Cybernetic Development of Epistemology and Observation, Applied to Objects in Space and Time (as Seen in Architecture)," Ph. D. diss. Brunei University, 1975.

[Note](#): 66. We will return to this in more detail in Chap. 10.

[Note](#): 67. Here too a glance at Parsons's theory of general systems is worth-while. Parsons achieves his four-function schema by decomposing the concept of action and then reprojects the schema onto the world (as in "A Paradigm of the Human Condition," in Parsons, *Action Theory and the Human Condition* [New York, 1978], pp. 352-433). In this way the *difference* between system and environment is moderated by *isomorphy*, and *as a result* it becomes possible to work with input/output models, models of double interchange, etc. The proposal can then forgo its flirtation with two different concepts of action, using one to criticize the other and giving this critique the appearance of a critique of society.

[Note](#): 68. On a general theoretical level, one can also say that "clustered environments" are a presupposition for more highly organized kinds of systems. See, e. g., F. E. Emery and E. L. Trist, *Towards a Social Ecology: Contextual Appreciation of the Future in the Present* (London, 1973), p. 45ff.

[Note](#): 69. The consequences can be followed out in the structural problems of social systems. See, as an example, Oliver E. Williamson, *Markets and Hierarchies: Analysis and Antitrust Implications* (New York, 1975), for the unequal distribution of knowledge, for "information impactness," and for the resulting relative advantageousness of markets and hierarchies in the economic system.

[Note](#): 70. Consensus theories would then have to address the question that Helmut Schelsky once (orally) posed to Jürgen Habermas: What would be the case *after* consensus?

[Note](#): 71. See the essays "Cybernetic Explanation" and "Redundancy and Coding" in Gregory Bateson, *Steps to an Ecology of Mind* (San Francisco, 1972), pp. 399-425. Here too one sees how the metaphor of transmission narrows the formulation of the problem and directs it toward the consensus/dissent of two partners. "In a wider universe, i. e. that defined by the point of view of the observer, this no longer appears as 'transmission' of information but rather as a spreading of redundancy. The activities of A and B have combined to make the universe of the observer more predictable, more ordered, more redundant" (p. 413).

[Note](#): 72. A fact whose epistemological scope has seldom been sufficiently appreciated. See, however, Michel Serres, "Le point de vue de la biophysique," *Critique* 32 (1976): 265-77.

[Note](#): 73. Edgar Morin, *La Methode*, vol. 1 (Paris, 1977), p. 356.

Chapter 5: System and Environment

I

The central paradigm of recent systems theory is "system and environment." The concepts of function and functional analysis no longer refer to "the system" (in the sense of a mass that is preserved, or of an effect to be brought about) but to the relationship between system and environment. ¹ The final reference of all functional analyses lies in the difference between system and environment. This is why systems that relate their operations to this difference are guided by functional equivalences, whether they are dealing with a plurality of environmental situations as functionally equivalent from the viewpoint of their own needs, or whether they have in store internal possibilities of substitution for reacting with adequate security to specific environmental problems. The equivalences used in functionalism are thus operative counterparts of the difference in gradients of complexity between system and environment. A corresponding perception of reality would be neither meaningful nor possible without these gradients in complexity.

Such considerations of the connection between the system/environment difference and functional orientation, not to mention the classical contrast between the concepts of substance and function (by Ernst Cassirer) do not fully illuminate the consequences of this theoretical formulation. The concept of the environment should not be misunderstood as a kind of residual category. Instead, relationship to the environment is *constitutive* in system formation. It does not have merely "accidental" significance, in comparison

with the "essence" of the system.² Nor is the environment significant only for "preserving" the system, for supplying energy and information.³ For the theory of self-referential systems, the environment is, rather, a presupposition for the system's identity, because identity is possible only by difference. For the theory of temporalized autopoietic systems, the environment is necessary because system events disappear from moment to moment and subsequent events can be produced only via the difference between system and environment. The point from which all further investigations in systems theory must begin is therefore not identity but difference.

This leads to a radical de-ontologizing of objects as such--a discovery that corresponds to the analyses of complexity, meaning, the pressure to select, and double contingency. This interpretation contains no unambiguous localization of any sort of "items" within the world nor any unambiguous classifying relation between them. Everything that happens belongs to a *system* (or to many systems) and *always at the same time* to the *environment of other systems*. Every determinacy presupposes carrying out a reduction, and every observation, description, and conceptualization of determinacy requires giving a system reference in which something is determined as an aspect of either the system or its environment. Every change in a system is a change in the environment of other systems; every increase in complexity in one place increases the complexity of the environment for all other systems.

It is easy to forget this when one enters into the ramifications of theoretical analyses. In particular, critiques of systems theory often suppress it when they reproach systems theory with "reification" or with having a truncated view of reality. Such accusations basically misunderstand the theory. One cannot treat a difference as a thing; any "reification" reveals a critic's own misunderstanding. By underlying everything else, difference withdraws what it distinguishes from normative evaluation. One must specify the system reference that one (as an observer) has in view at any given time, and one must specify whether one has in mind the system or the environment.⁴ But the system is neither ontologically nor analytically more important than the environment; both are what they are only in reference to each other.

Thus the statement that persons belong to the environment of

systems does not contain an evaluation of the significance of persons for themselves or for others. It only revises the overestimation implicit in the concept of the subject, namely, the thesis that consciousness is the subject of everything else. The environment, not "the subject," "underlies" social systems, and "underlies" means only that there are preconditions for the differentiation of social systems (e. g., persons as bearers of consciousness) that are not differentiated with the system.

A second preliminary remark relates to the placement of the system/environment difference in reality. This difference is not an ontological one, and therein lies the difficulty in understanding it. It does not cut all of reality into two parts: here system, there environment. Its either/or is not an absolute, it pertains only in relation to the system, though objectively. It is correlative to the operation of observation, which introduces this distinction (as well as others) into reality. We thereby start out from recent developments in the epistemology of "natural" operations and claim no privileged "metaphysical," subjective position for observation, description, or knowledge. ⁵ Observation is merely the management of a distinction--for example, that between system and environment. It is not a specialized operation for acquiring knowledge, not analysis. In this sense, all the systems with which we deal are capable of self-observation. When one observes such systems, one can grasp how they manage the distinction between system and environment within themselves. One can decide to ignore this and draw the system boundaries differently, but this remains a quite arbitrary operation, which must justify itself if it wants to claim to increase knowledge nevertheless. It would seem more reasonable to require that a scientific theory bring its own observation schema into congruence with the one at work in a system itself, and thus identify the system in agreement with its own way of doing so. We adhere to this precept and see in it knowledge's reference to reality.

The difference between system and environment practiced by a system presupposes and overlies a continuous reality. Thus the magnetic field of the earth is significant for organisms and their environment, even if, as a magnetic field, it "takes no heed" of the boundary between organism and environment. A communicative social system arranges everything in its own communication as either internal or external and practices its own system/environment

distinction as something universally valid, insofar as its own communication is concerned. But at the same time it presupposes, as a condition of possibility for this practice, that physical, chemical, organic, and psychic realities on their own levels ignore this difference: for example, that heat affects the system and its environment at the same time, heedless of the boundary between them, or that individuals act simultaneously in a social system and for themselves, without being internally divided by the social system's boundary.

This thesis of an underlying reality corresponds to an assumption already mentioned above: ⁶ that all elements are constituted on the basis of a presupposed complexity as emergent unities that cannot be further dissolved by the system itself. Now we can add that the presupposed complexity that enables the formation of elements can be handled in the *system* only as *environment*. This is precisely how the chemical system of cells is environment for the brain and how a person's consciousness is environment for the social system. No decomposition of neurophysiological processes could ever reach individual cells as its ultimate elements and no decomposition of social processes could ever arrive at consciousness.

Carefully formulated systems-theoretical analyses are possible only if one makes allowance for such matters. This is impossible if one feels required to choose between "merely analytically" intended system/environment differences and concretely present system/environment differences. When one takes leave of the "subjective" epistemology that believed it had found a more secure foundation outside reality, the distinction analytic/concrete collapses. ⁷ In any event, it must be relativized, namely, be related back to reality. At any given time, systems' immediate operations follow specific meaning references based on the actual situation; as communications, for example, they contribute to clarifying a theme and making further communication possible. The difference between system and environment is made the basis for observations to enable attributing these operations to the system or the environment. It pursues an interest in order that is directed higher, for example, an interest in control or in learning. This can be a matter of observation from outside or of self-observation. Scientific analysis is a special case of observation from without, with the special task of acquiring knowledge. It could hardly fulfill its task

if it restricted itself to purely analytical distinctions and neglected the fact that within the systems it investigates, processes of self- observation are at work, making the difference between system and environment available within these systems themselves.

One can hardly question that the difference between system and environment is available within social systems and can be used to regulate their operations. We have already encountered the form of self-description that makes self-observation possible: it uses the reduction of communication to action. Communication includes information and thus is enriched with environmental meaning whenever this information comes from the environment; actions, however, are more easily determined as belonging to the system or not. The meaning of the action may refer to the environment--for example, one produces for a market--but the selection of the action is placed within the system, is steered by the system's own rules, and is answerable in ways that it would not be if it were an action of the environment. Communicative action is especially suited for the operative execution within the system of the difference between system and environment.

Creating a description that reduces a social system to a connection between actions is a precondition of every observation that puts into play the difference between system and environment, that, for example, ascribes to the system characteristics that distinguish it from the environment. This holds for internal and for external observation equally.⁸ Only what is made a theme in the system's communicative processes is valid as an internal observation (self-observation), because the system is accessible to itself only through communication.

Observation by participating psychic systems that cooperate in the communication and contribute actions is already observation from

without.⁹ The distinction between external and internal observation already presupposes the system/environment difference. As a distinction it serves to observe observation, and a theory and methodology of so-called "participant observation" may find significant the fact that observing observation must presuppose that its object adopts the form of action.

Yet none of this explains how self-description as an action system can handle relations with the environment, or how the system/environment difference can be built into such a system

description. This cannot be a simple matter of "adaptation" or of the "reduction of complexity." A system that contains a self-description can see and handle the difference between system and environment in more than one direction. The other direction is always implied along with whichever one is chosen. Typically here two-part problem formulations have proved useful; they have attempted to operationalize the difference between system and environment as an opposition still to be conditioned: for example, as dissolution and recombination, uses and costs, variation and selective retention, reduction and increase in complexity. ¹⁰ Thus further differences are added onto the difference between system and environment, which they presuppose.

Social systems that interpret themselves as action systems must relate this interpretation to the basic process of attributable action. Only what can be produced has a reality that can be controlled within the system, and only such reality counts. One must represent the environment as an external extension of action sequences: as the context of the conditions for and results of actions within the system. This idea has been in existence as a theoretical concept since the seventeenth century, since Hobbes and Vico, together with a new way of conceiving action. This is what initiated the double formulations. We will return to it in the course of discussing the input/output schema in section VII, below.

II

The environment is a system-relative situation. Every system removes itself from its environment. Therefore the environment of each system is different. And thus the unity of the environment is constituted by the system. "The" environment is only a negative correlate of the system. It is not a unity capable of operations; it cannot perceive, have dealings with, or influence the system. Therefore, one can say that the system *totalizes itself* by referring to the environment and by leaving it undetermined. The environment is simply "everything else."

All this does not mean, however, that the environment is merely a built-in opposition, pure appearance. Instead, one must distinguish "the environment" from systems within the environment. The environment contains many more or less complex systems,

which can have contact with the system for which they are the environment because it is part of *their* environments and therefore an object of possible operations. On the level of general systems theory, we have already needed to distinguish system/environment relations from intersystem relations. The latter presuppose that systems reciprocally find each other in their respective environments.

Further analyses of the difference between system and environment will begin with the assumption *that the environment is always more complex than the system itself*. This holds true for all systems that we can imagine. It is also true for the total social system of society. To see this straightaway, one need only remember that society is composed merely of communications and that the highly complex arrangement of individual macromolecules, individual cells, individual nervous systems, and individual psychic systems belongs to its environment--together with all the interdependencies among these systems on whatever levels. No society can bring about the "requisite variety" or corresponding degree of complexity for such an environment. However complex its linguistic possibilities and however subtle the structure of its themes, society can never make possible communication about everything that occurs in its environment on all levels of system formation for all systems. Therefore, like every system, it must compensate for its own inferior complexity by superior order.

In other words, the difference between system and environment stabilizes the difference in relative degrees of complexity. The relation between system and environment is necessarily asymmetrical. The difference in degree of relative complexity goes in one direction and cannot be reversed. Every system must maintain itself against the overwhelming complexity of its environment, and any success, any permanence, any reproduction makes the environment of all other systems more complex. Given many systems, each evolutionary success increases the difference in complexity for other systems in relation to their environments and thus works selectively on what then remains possible.

Taken as difference and moored to the difference between system and environment, the difference in relative degree of complexity has an important function. It forces distinct forms of handling and reducing complexity, depending on whether one is dealing with the complexity of the system or that of the environment. The

environment can be treated more generously, so to speak, can be rejected more or less wholesale. A kind of reverse supposition of relevance holds true: whereas internal events/processes are supposedly relevant to the system and can trigger connective action, events/processes in the environment are supposedly irrelevant to the system and can remain unheeded. The system acquires freedom and the autonomy of self-regulation by indifference to its environment. Therefore one can also describe the differentiation of a system as an increase in sensitivity to what has been determined (what is capable of being connected internally) and an increase in insensitivity to everything else--that is, as an increase in dependence and independence at once.

These formulations already indicate that the system's relation to its environment is regulated by its structure and that the structure's level of selection serves to compensate for inferior complexity.¹¹ One can also illustrate this with the concept of chance. We will characterize the effects of the environment on the system or the system on the environment as chance when they are not bound up with structural precautions imposed by the system's past or future. In this sense, no system can avoid chance, because no system possesses enough complexity to react "systematically" to everything that occurs. Therefore, the choice of structure leaves much to chance. But even this "leaving to chance" is a means of reducing complexity, which proves its worth when what is left to chance can in fact be handled *ad hoc*.¹²

These are merely initial clues to the possible advantages in being able to see and handle complexity differently in the environment and in the system. Difference in relative degree of complexity is the foundation in reality that gives the difference between system and environment a chance to succeed. At the same time, this difference articulates the difference in relative degree of complexity that it creates, and that makes it worthwhile to introduce the difference between system and environment into the system as an orienting structure. Then the system can at once separate distinct forms of handling a complexity that is too great and handle them differently depending on whether they refer to the system or to the environment. It can, for example--I am thinking of tribal cultures or academic departments--morally condition its internal complexity and environmental complexity by a schema of friend and foe.

We transcend these general considerations about difference in relative degree of complexity, however, when we consider that the difference in relative degree of complexity can be actualized and worked out on several levels at the same time. ¹³ On the *operative* level of processually deployed causality, the difference in relative degrees of complexity leads to selecting an environment relevant to causes and effects within the horizon of the broader world of what is possible as such. ¹⁴ On the level of *structure formation*, the system frees itself from point-for-point correspondences with this relevant environment. Its relevance is generalized, respecified, and then used to steer internal processes. That requires accepting risks. On the level of *reflection* the system determines its own identity by contrast with everything else. Here the difference in relative degree of complexity acquires its purest, most abstract form: identity in contrast to everything else is nothing more than the determination and localization of difference in relative degree of complexity.

Furthermore, we know that complexity always creates pressure to make selections and the experience of contingency. The difference in relative degree of complexity is thereby grasped and thematized within the system primarily as the contingency of its environmental relations. ¹⁵ This thematization can assume two forms, depending on how the environment is viewed. If the environment is interpreted as a *resource*, then the system experiences contingency as *dependency*. If it is interpreted as *information*, then the system experiences contingency as *uncertainty*. ¹⁶ These thematizations are not mutually exclusive, because information can also be treated as a resource and because problems of information can arise in relation to resources, but the system's internal forms of managing contingency diverge, depending on which thematization is chosen. One keeps internal redundancies, emergency aggregates, and reserve pools on hand in order to guard against losing resources. ¹⁷ For uncertainty, purely internal, environmentally independent bases of certainty, such as self-created evidence, records, and protocols, might be more suitable. ¹⁸

Until now, questions of this kind have been handled mainly in reference to formally organized social systems, ¹⁹ and organizations can, in fact, presuppose an internally elaborated machinery for regulating problems. But one does not have to limit oneself to them.

Ritualizations, religious and otherwise, possess a similar function. They translate external uncertainties into an internal schematism that either happens or not, but that cannot be varied, and therefore neutralizes the capacity for deception, lies, and deviant behavior. ²⁰ Ritualizations make little claim on the system's complexity. Therefore they appear to be helpful as long as adequately complex systems capable of developing functional equivalences to absorb uncertainty do not emerge in the form of organizations. ²¹

III

A difference in relative degree of complexity between the system and the environment can only emerge and be consolidated if the system is also differentiated in the temporal dimension. Very abstractly, one could say that the system's own time emerges; a time, however, that must be compatible with world time. But time is a dimension of meaning with many variables (e. g., a double horizon, irreversibility, measurement, scarcity, and tempo), so that one must specify more precisely in which respects temporal differentiation is possible and what its consequences are. ²²

Basically, temporal differentiation must be conceptualized in relation to the differentiation of the system's elements. To the extent that these elements are defined by temporal reference, that they assume the character of events, a double effect occurs. On the one hand, here as elsewhere, there can be no point-for-point correspondence between the system and its environment. On the other, temporal points must be identical in their references to system and environment, for an even flow of time is required to compensate for this lack of point-for-point correspondences. Alfred Schütz spoke of mutual aging. ²³ No system can advance into the future faster than others and thus lose the simultaneity required for contact with the environment. Even if "time," following Einstein, permitted this, the system would remain glued to its environment. The difference between system and environment can only be established simultaneously. Thus the ongoing linkage between system and environment presupposes a common chronology. ²⁴ Yet one can see from the abstractness of chronological forms of meaning that time's commonality must become attenuated with greater differentiation.

The requirement of simultaneity determines that any present must be used as a point of difference between past and future. This guarantees that the system's and the environment's horizons of past and future can be integrated, that is, permit themselves to combine in world horizons. Only within a world horizon and in accord with the even flow of time can the temporal differentiation of meaning systems play itself out. Above all, such differentiation seems to consist in systems' constructing their own boundaries of relevance in the directions of the future and the past and their own rules (which must always be practiced in the present) for linking future and past (their own and the environment's) events.

What a system can differentiate as its own time emerges from a selective nexus of selected future and past events. This is the time that one can "have," the time that can become scarce, the time of haste and boredom.

²⁵ In its function of linking future and past, the present can come under pressure. Even the degree of reversibility allowed by an anticipated integration of future and past varies from system to system. Furthermore, more complex social systems experience both temporal pressure and unfilled time at once, temporal pressure on some operations and waiting in others. All this leads to system-specific temporal problems, which correspond to nothing in the system's environment. Thus temporal autonomy creates its own problems for the system, which require their own solutions.

²⁶ Yet temporal autonomy is an indispensable precondition for autonomy in questions of fact. If a system always had to react to the environmental events that befall it the minute they happen, it would have little chance to select its mode of reacting. Only foresight and delaying reaction open up room for its own strategies to come into play. Above all, only thus can it use reactions whose preparation within the system takes time. Given all this, system time becomes an important, often a decisive constraint in choosing contacts with the environment, and it often replaces orientation to factual preferences.

This may explain why in more complex societies interest in specific temporal problems increases and the semantics of time is correspondingly transformed. The traditional interest in the "right point in time" and in corresponding notations in the calendar is reshaped by an interest in acceleration and time-saving devices. ²⁷ One can already find proof of this in the sixteenth century, for

instance, in connection with the printing of books and attempts at systematization designed to accelerate the dissemination of knowledge. The critique of squandered time grew and gradually separated itself from the boundaries of individual lifetimes. The rail-road made this new tempo apparent. More important, perhaps, the monetarized economy's concept of work shifted to include members of the upper stratum of society: they began to work, and time became scarce for them, too. The right points in time then no longer followed from nature but from problems of synchronization, from the logistics of time itself.

IV

The clearest expression of the difference in the relative degree of complexity between system and environment is how differently further differentiation is experienced and handled depending on whether it occurs in the system or in the environment (once the difference between system and environment is established). The difference in temporal relevance discussed above is only one example. The difference between system and environment makes it possible to distinguish differentiation in the environment from differentiation within the system, and that difference becomes more pronounced to the degree that environmental differentiation and system differentiation are guided by different points of view.

Every system must reckon with other systems in its environment. Depending on the depth with which the environment can be perceived, more systems and more different kinds of systems appear in it. If the system from which we begin has the capacity to understand, it can distinguish the systems in its environment from *their* environment. It thereby dissolves the basic given *unities* of its environment into *relations*. Then the environment appears to the system as differentiated into various system/environment perspectives, which reciprocally overlap and altogether represent the unity of the environment.

To cope with such discoveries, the system can develop strategies of aggregation. It can combine and order the systems in its environment according to their own differentiation schemata. Perhaps the simplest instance is differentiation according to whether a system is dealing with a system in its environment that is of the

same type as itself, or with a system of another kind. To every human being, for example, other human beings clearly stand out in the environment. There are accompanying tendencies to overestimate the domain of what is similar in the environment, perhaps to reduce everything that is unknown to the model of "persons." Social systems also develop such tendencies and such preferences for an environment of similars. Thus organizations prefer to deal with organizations, and they often treat other sectors of their environment (perhaps their clients) as if they were an organization, as if they kept records, made decisions, had to react to complaints, and so forth. In brief, if the differentiation schemata similar/dissimilar is chosen for the environment, certain consequences can be anticipated.

Of course, there are other kinds of models for differentiating the environment: for example, near/far, friend/foe, competing/cooperating, or, more closely connected to system operations, supplier and receiver of performances. There are so many possibilities that one must formulate theories governing the choice among differentiation models. An important question here is: How strictly does a differentiation strategy refer to the characteristics of the system (e. g., similar/dissimilar) or how far can it abstract from them (e. g., in the sense of a "scientific" typology of environmental systems)? Behind this question obviously lurks the problem of how much objectivity can be attained, and under what conditions. Objectifying differentiation schemata certainly presuppose great system complexity in the systems that can develop and employ them. But system complexity does not mean that the system as a whole passes over from self-related to more strictly objectifying environmental differentiation. Greater complexity seems, as any societal analysis can show, only to mean that *both* possibilities simultaneously and/or alternatively are at one's disposal. Thus modern society cannot help but distinguish human beings as something special, above all other systems in its environment, although scientific analysis (itself a societal operation) has in many regards long since dissolved the system unity this presupposes.

These questions are very important for further developing a theory of social systems. They can, however, only be pursued with detailed investigations, which we must forgo at this point.²⁸ Here we are concerned only with the underlying difference that makes

all refinements and variations possible: the difference between internal and external differentiation. Therefore, semantically possible distinctions are no longer of interest here, only the basic differentiation of system and environment.

Internal differentiation (system differentiation) uses an entirely different procedure. While environmental differentiation relates to the requirements for the system to *observe* the environment and is both stimulated and limited by this,²⁹ internal differentiation results from the process of *autopoietic reproduction*. The connection between reproduction and differentiation becomes comprehensible if one views reproduction, not as the identical or almost-identical replication of the same (e. g., as replacing supplies), but as a constantly new constitution of events that can be connected.³⁰ Reproduction always implies reproducing the possibility of reproduction. For social systems, this means restoring double contingency. On the one hand, reproduction is subject to the conditions for connectivity; it must be able to suit a situation. On the other, it offers possibilities for forming within the system a new system having its own system/environment difference--perhaps a system that will last longer than the initial one. At a party one sees a woman reach for a cigarette, and (if she dawdles suggestively), one may offer her a light from one's own cigarette lighter.³¹ Settled system differentiations stabilize the possibilities for reproduction by constraining conditions on the comprehensibility of communication and the suitability of behavioral modes. But the meaning surpluses that must be produced alongside provide ever further chances for innovative system formation; in other words, they provide the chance to include new differences and new constraints and thus to increase the ability to constrain the initial situation via differentiation. Only thus can system complexity increase.

Internal differentiation connects onto the boundaries of the already-differentiated system and treats the bounded domain as a special environment in which further systems can be formed. This internal environment exhibits special complexity reductions, which are secured by the external boundaries; relative to the external world, it is an already-domesticated, already-pacified environment with lessened complexity. Moreover, it is an environment of similars, for internal differentiation can occur only by differentiating similar systems within similar systems. Living systems can

differentiate themselves only within living systems, social systems only within social systems. Further system formation within a system can therefore presuppose certain capacities for regulation. New, more improbable system formation can build on this regulation. System differentiation repeats system formation within systems, with a bent toward increasing and normalizing improbability. Therefore, one can characterize system differentiation as reflexive system formation or as the reflexive increase of a system's differentiation: by applying the process of system formation to itself, the system intensifies its functional tendencies. Like all formation of social systems, internal system formation occurs auto-catalytically, that is, by self-selection. Internal system formation presupposes neither "activity" by the overall system nor a capacity for dealing with that system, not to mention any overall plan. Nor does the overall system subdivide or break down into subsystems. The overall system merely enables the self-selection of subsystems through its own order. The formation of subsystems then initiates a process of adaptation because a new kind of environment emerges for everything that is not differentiated as a new kind of subsystem. Thus, to take an example from Durkheim,³² the situation of the family changes if other, corporate subsystems emerge in the surrounding society. The unity of the overall system must then find expression in how each kind of subsystem manages its relation to the environment (which contains the others),³³ because in differentiated systems every subsystem is itself also an environment for the others.³⁴

Although processes of internal differentiation can begin almost at random and are not directed by any "developing" form, still there seems to be a kind of selection that chooses what is capable of becoming permanent. This explains why so few forms of differentiation have been able to survive in long-term systems: above all, differentiation into similar units (segmentation), the differentiation of center

/periphery, the differentiation conforming/deviant (official/unofficial, formal/informal), hierarchical differentiation, and functional differentiation. Apparently, the only forms of differentiation able to survive are those that can mobilize processes of deviation-amplification (positive feedback) to their own advantage and keep themselves from being leveled out again.³⁵

A wealth of research questions can be worked out in connection

with this, and they are especially fruitful for the theory of society. A more precise clarification of evolution by means of the production of surplus, selection, and the stabilization of individual forms of differentiation would be a precondition for this. In addition, one would have to clarify whether, and how far, more forms can be combined together or even genetically presuppose one another (whether as an initial condition, in selection, or in stabilization through positive feedback). Conceivably, for example, the center/periphery differentiation is a developmental condition for the emergence of multilevel hierarchies, but eventually comes into conflict with them. ³⁶ To understand that conflict, one must add that forms of internal differentiation together determine the overall system's degree of external differentiation.

Where hierarchical differentiation is primary, it constrains differentiation because the hierarchy's top (or center of power) must be able to control the system's boundary relations, or it will lose its dominant position. When differentiation becomes greater and external relations more complex, this becomes impossible, and a transition to functional differentiation becomes necessary, just as, conversely, a drive toward functional differentiation intensifies external differentiation and dispossesses centers of domination.

System differentiation necessarily increases the complexity of the overall system. The converse is equally true: system differentiation is possible only if the overall system can constitute more elements of different kinds and link them in stricter selective relations. In system differentiation, not only are smaller units formed within the system, but the system differentiation repeats the formation of the overall system within itself. The overall system is reconstructed as the internal difference between a subsystem and the subsystem's environment, and this reconstruction is different for each subsystem. Following these internal cutting lines, the overall system is contained within itself many times over. It multiplies its own reality. Thus the social system of modern society is at once the political function system and its environment within society, the economic function system and its environment within society, the scientific function system and its environment within society, the religious function system and its environment within society, and so on.

Differentiation not only *increases* complexity; it also enables

new forms for *reducing* complexity. Every subsystem takes on, so to speak, a part of the overall complexity in that it simultaneously orients itself only to its own system/environment difference, yet with this reconstructs the overall system for itself. ³⁷ The subsystem relieves the strain on itself by assuming that many of the reproductive requirements needed in the overall system are fulfilled elsewhere by other subsystems. Doing so doubles the subsystem's dependence on the overall system: it is itself a part of the overall system, and it is at the same time dependent on the internal environment and thus once again, but in another way, on the overall system. Like the complexity of the overall system, the self-reference of subsystems is restructured by internal differentiation. Every subsystem articulates the self-reference of the overall system. It cannot identify itself as a "part" without referring to the whole, and this reference is *circular*: it presupposes itself within the whole. At the same time, every subsystem articulates the totality, though as the difference between subsystems and their environments within the system; this articulation is *asymmetrical*, thus rich in consequences. Circularity and asymmetry mutually presuppose each other. In the practice of ongoing communicative self-reproduction, a continual change of perspectives is required, and that is made possible because this practice consists in temporalized elements (events, actions).

This complicated arrangement generates demands on what can function as an element in an overall system, over and beyond the constraints of differentiation. Greatly differentiated systems must temporalize their elements--that is, constitute them as referring to a temporal point and being reproduced from moment to moment --and they must understand them more abstractly, so that they can link them despite subsystem boundaries. We anticipated this in describing the self-description of social systems. Self-description presupposes-

-at least, in the modern society in which and for which this theory was created--reduction to action. ³⁸

Experiencing the environment as differentiated (external differentiation) seems to be a necessity of system formation. No strategies for reduction could be developed in the face of an environment experienced as entirely undifferentiated. Without differences in its environment, the system cannot acquire and process

information. ³⁹ By contrast, internal differentiation is not a requirement of system formation. In fact, there are completely undifferentiated systems that do not admit further internal system formation: for example, interaction systems with face-to-face contact. We will term them simple social systems. Not all, but many interaction systems with face-to-face contact are simple systems in this sense. Typically, interaction systems can consolidate enduring subsystems internally only with great effort. Sometimes there is speaking in whispers or simply standing or sitting next to someone that one likes. Even internal conflicts can be differentiated sometimes. Thus they provide points from which further differentiation can begin, but they cannot be developed to any great extent, if for no other reason than noise.

Thus internal differentiation cannot be conceived as an essential characteristic of social systems, but it is an important aspect of the external differentiation of social systems. By internal differentiation, external boundaries are enlisted and thereby reinforced. Internal system/environment differences converge at the external boundaries and can be maintained only if the outer boundaries keep the external environment at a distance. Difference from the environment is further strengthened when the schematic of internal differentiation is chosen autonomously and is not connected to what is given in the environment (or what is supposed to be given there). A societal system that is vertically differentiated according to the principle of stratification presupposes that societal differentiation is directed by kinds of persons, by their "quality," by their determination to live in specific castes or ranked groups. By contrast, with the transition to functional differentiation, the schematic of differentiation is chosen autonomously; it is directed only by the functional problems of the societal system itself, without any correspondences in the environment. Orientation to human beings then becomes an ideology, significant only for the values that are supposed to guide societal processes. To provide another example, if organizational departments are set up around different outside groups, customers, or circles of persons to be cared for, this strengthens the influence of these groups on the organization; they find "their" representation in the system. By contrast, if the structuring is chosen according to purely internal viewpoints, it increases the external differentiation of the organizational system.

To the extent that a system makes itself independent of the environment via self-referentially grounded schemata of differentiation, it can autonomously design its differentiation of environmental phenomena--not in the sense of becoming independent of existing environmental differentiation,⁴⁰ but in that of being able to connect environmental phenomena according to perspectives it has chosen itself and to distinguish them from one another. In this way increase in a system's differentiation affects possibilities for acquiring information.

Whatever functions as an external system boundary no longer filters something out, but instead allows more to pass through; at the same time the system, if it is structured differently from the environment, will become more sensitive to the environment insofar as a schematic of differentiation for this function of increasing information has been chosen adequately.

Such nexes of internal and external differentiation presuppose that the two are different. This difference is not a simple fact established by a founding act. Instead, it is a gradual phenomenon; only thus can evolution take place. This gradualness, however, cannot occur randomly; it repeats and reinforces the basic process of system formation. To this extent, the differentiation of differences determines the degree of a system's "systematicity"--the extent to which and the intensity with which a system is a system.

V

The system/environment difference and its further differentiation concern issues that must be dealt with on the level of a general systems theory. In the previous sections, however, we tailored our considerations to the specific world of social systems. The next step must be to work out more clearly how the difference in relative degree of complexity between system and environment is handled on the level of social systems. The particularity of social systems is that they orient themselves to complexity in the form of meaning (Chapter 2). This means that the difference between system and environment is mediated exclusively by *meaning-constituted boundaries*. That holds equally for psychic systems. But a psychic system can see its boundaries as the body wherein it lives and dies. Social systems have no such indications. To a certain extent, the principle of territoriality provides a substitute. Some groups, like animals,⁴¹

identify themselves by the space in which they live; they know and defend it. ⁴² But for the social system of these groups, the boundaries of "their" territory seem to have only symbolic significance. ⁴³ Moreover, for social systems, today at least, territoriality is an entirely atypical, rather exotic bounding principle, one that tends to disturb normal societal mobility. Territorial boundaries are a special case of meaning-constituted boundaries. But what are meaning-constituted boundaries? And how do they come about? One can arrive at a plausible answer only by taking seriously systems theory's emphasis on environmental- and self-reference. Meaning-constituted boundaries are not an external skin that, like one organ among others, fulfills certain functions. Instead, they relate the elements of which a system is composed and which it reproduces to the system. Every element makes a relation and with it a boundary decision. Every communication in a social system, not just ones that cross the external boundaries, employs the system/ environment difference and thereby contributes to determining or changing the system's boundaries. Conversely, representations of boundaries serve to order the constitution of elements; they make it possible to assess which elements form in the system and which communications can be risked.

One can grasp the reciprocity between meaning-constituted boundaries and communication more clearly if one considers that every communication *stakes a claim*. At the very least, it demands time and attention. In addition, every utterance, however circumspect, expresses the expectation that it will be accepted, and this expectation of success can be greatly reinforced, especially with the help of symbolically generalized media of communication. Anyone who professes his love already almost claims to be loved. ⁴⁴ Anyone who initiates communication or expands the thematic repertoire of a system with new elements would do well to keep in mind communication's severe demands if he wants to make sure of the communication's chances: *he is extending the system's boundaries*.

Here, as so often, earlier literature is more sensitive and informative than present-day "communications research." The nexus of themes and boundaries was a central element of the novel of manners. To keep the system of sociable interaction within appropriate bounds, themes like religion and politics, society and family were excluded; all themes that depended on erudition or specialized

knowledge were also shut out (the proscription of pedantry!).⁴⁵ What remained was geared to a rapid exchange of themes in the give and take of conversation, that is, was chosen in determinate ways that conformed to structure.

One can also use the nexus of themes and boundaries to analyze how social systems age and atrophy. Systems from which high sensitivity is demanded suffer a rapid decline in themes because everyone already knows that others already know how a theme is to be handled. The system limits its communication, then, to what the environment prompts at any given time and manages in other respects by monotonously continuing well-known themes.⁴⁶ Communication is transformed into action by the question (which every participant must ask himself): What is acceptable as communication to whom? One must decide this and thereby orient himself socially before one actively participates in communication, and one must distinguish himself by communicative action if one wants to avoid unacceptable communication. Thus drawing boundaries is finally a process of (tacitly anticipatory, whether covert or open) negotiation. It occurs as the system simplifies itself by tolerating or not tolerating communicative action.

This process can be guided by thematic expectations. The system's boundaries can be seen in the themes that are acceptable. There are indirect theme/boundary determinations as well as direct ones. Besides the fact dimension, the temporal and the social dimensions offer possibilities for regulating boundaries. One can reduce the time of communication,⁴⁷ for example, by displaying haste or by skillfully arranging pressured deadlines. Then everything has to proceed so fast that one can no longer "talk things out." Everything serious and difficult is put off for later.⁴⁸ Above all, there is the obvious possibility of regulating themes and meaning-constituted boundaries through the admission of participants, for example, by membership in a social stratum or by proven competencies. Some systems have acquired a not negligible significance in modern society as "formal organizations," which regulate their boundaries primarily by membership roles and admission to membership and which handle themes as something that can be expected from the system members because of their membership.⁴⁹ With the social dimension one can regulate what is considered action in the system and which actions are to be attributed to the

environment. System boundaries thereby acquire an additional precision, which can be traced back to the self-description of the system as an action system.

As these clarifications have shown, meaning-constituted boundaries are more capable of abstraction than any other kind of system boundaries; more than any others, they are "self-generated boundaries."⁵⁰ Meaning boundaries are at the disposal of the system. This does not mean that a disposition can be arbitrarily followed out, but only that it must be regulated within the system itself. This occurs in the relationship of expectational structures and communication processes, to which we will return in Chapter 8. The demand for themes, which alters system boundaries, lets itself be guided by what has already occurred, by what is possible in a situation, and by general structures of expectation; and these structures of expectation can foresee in detail how and about what one should communicate in the supermarket, on the football field, at the bus stop, at lunch at home, in buying a plane ticket over the phone, and so forth. Spontaneity can then appear in highly standardized forms, such as bumper stickers or graffiti.

VI

The difference between system and environment is relevant in constituting every meaning element. Because of that, it can become a special theme of specific mechanisms, which increase the system's environmental sensitivity while releasing other mechanisms for internal functions. The system repeats the system/environment difference, to which it has continuously oriented itself, internally as structural differentiation. Spatial organization provides good functional examples of this: membranes, skin, and special mechanisms derived from them, like movable limbs or eyes and ears. Even on this level of reality, these faculties decisively have both environmental references in which not every element of the system participates and possibilities for influence within the system that are not available to the environment. They are connected to the system's self-referential net of contacts and can fulfill their boundary function only on the basis of circularly closed internal processes.⁵¹ They perform interpretations of their own, which are subsequently interpreted away within the system--so that one

normally does not observe what he can see only with his eyes. Is there anything comparable to this on the level of social systems and meaning-constituted boundaries, or is it, once again, an example of much more primitive forms of ordering?

The problem of *specifying* environmental contacts--as constraints and extensions of the system's general location in the environment --is a central problem of all complex systems, a kind of threshold in the evolution of greater complexity. On the level of social systems, this problem concentrates on the *capacity for collective action* and the subsequent arrangements necessary for it.

This theme has a long tradition, which we can only indicate briefly. Until the seventeenth century, it was answered with a two-body theory that assumed the capacity for action in both bodies.⁵² Both the individual and the social body appeared by their nature to be capable of action, and this nature required self-domination (*pot-estas in se ipsum*) in order to act, which in the social or political body meant the domination of the political order over individuals. After the seventeenth century, the premise of the social body's natural capacity for action was challenged and was replaced by a contractual construction, which attempted to explain how it happens that what is not self-evident is still possible. The collapse of this construct with the decline of natural law opened things up completely, and in this situation it became sociology's task to repeat (to take over, one should really say) the critique of contract theory and to seek its own answers.

Even sociology initially contented itself with designating and clarifying the collective capacity for action as a finding. Parsons had a specific concept for this, "collectivity," which is defined in part as the capacity for action, in part as an especially heightened awareness of values, and is supposed to connect the two viewpoints.⁵³ Other sociologists emphasized that a social system wishing to attain the collective capacity for action must restructure internal power relationships and introduce new levels of decision.⁵⁴ But system/environment theory moves a viewpoint that until now has been marginal into the center of analysis: the function of collective action as the system's relation to its environment. Thus not the requirements for coordination (as the political or societal tradition believed) but achieving position in relation to the environment leads to constructing mechanisms for collective action.

The capacity for collective action by no means results simply from the fact that a social system is composed of actions or is constituted as an action system. This only guarantees that the elements of the system are treated within the system as actions-- for example, that they can trigger connecting actions. By itself this does not lead to the selection of specific actions as binding for the system. Of course, all action has external effects, but this does not necessarily imply that these external effects can be steered by selection processes within the system or by constraints on the system's possibilities. Thus we are not saying that a social system formed for a brief period when people stand in line for tickets at a theater rouses itself to collective action if someone tries to cut ahead in line or if the ticket office fails to open. Collective grumbling may occur, perhaps even individual actions that draw on the implicit support of others. But how far can this action go before it loses collective backing and is *ultra vires* the action of an individual person? There is much to suggest that from the very beginning this uncertainty suppresses every impulse to collectivizing the willingness to act. Everyone waits, and the longer nothing happens, the greater the probability that nothing will.

In other words, not every social system is capable of collective action, although every social system is composed of actions. Actions aggregate into a collectively binding unity that makes decisions and has effects only under specific conditions. If the environment provokes the system to unified action, then the question is whether adequate preconditions for that action exist or whether they can be developed quickly enough. Even where there are already ideas of collective responsibility that imply the members of a group are responsible to one another and must compensate for possible misdeeds of other individual members, this does not guarantee a collective capacity for action: the reaction to such situations may restrict itself to avoiding internally actions that would trigger reprisals. ⁵⁵ The organization of the collective capacity for action must be viewed as one of the most important early evolutionary achievements of social systems, because it can decisively improve the external relationship of these systems by internal restrictions.

Of course, collective action is also individual action, one of many elemental events within the system at any given time. It needs to be specifically designated by symbols that make clear that

the entire system is bound by it. This can occur in different ways, such as by the ad hoc consensus of everyone present or by ritualizing action as having no alternatives, for example, by a calling on religious powers that can carry conviction only as collective action. A further stage in development is attained when the symbols that mark collective action as such are available relatively free of context and when, if required, they leave the content of a decision more or less open. The degree of freedom thereby attained again presupposes greater internal restrictions. The form established for this is hierarchy, whose apex symbolizes the constantly available official potential for collective action.

We characterized meaning-constituted boundaries with reference to the fact that communication makes demands, and we would only add that the availability of the capacity for collective action changes the system's meaning-constituted boundaries. The requirements and decisions of collective action may now require support. Such a request is understandably a permanent part of system operations.

Agreement can be given, but it can also be denied. And it can be conditioned inside the system, for example, through decisional competencies, the majority principle, or regulated procedures for which collectively binding actions can expect or assume agreement.

Nothing says that hierarchy is the only possible way of solving this problem with the degree of flexibility required today. If one wishes to avoid or reduce hierarchization, however, one must solve differently the problem of corresponding internal conditioning. Collective action always implies collective binding, and this means that collective action is included as a premise in the meaning of the system's other actions and in this way limits possibilities. Only thus can collective action distinguish itself from the pure facticity of the ongoing normal individual actions that reproduce the system.

Our starting point was the system/environment relation. We did not maintain that the capacity for collective action is a necessity for order, because this simply is not correct on the level of social systems. Instead, it concerns an important possibility, that of separating disposition over system/environment relations from the general reproduction of the system and concentrating it in a functionally specific mechanism. Systems to which this possibility is available can control and, if necessary, vary their influence on their

environments. They then require corresponding resources and corresponding information, and they must be able correspondingly to condition the scope of behavior within them. And they then need greater influence on the environment, to be able to withstand the resulting internal costs. The environmental relationship must be reproduced on a level of higher system complexity, with more possibilities and more constraints. One knows that societal systems that cannot develop the collective capacity for action cannot get beyond a low level of development. One knows that differentiation of the relatively autonomous disposition of collective action in so-called "political" centers was a source of problems long into the modern period. One knows that this achievement was accompanied and supported by changes in the semantics of religion. One knows how difficult it has been in the modern period to imagine a collective corporation as such and to confer legal capacity on it as a "moral person." All this shows the improbability of an achievement that, today, functions routinely in the domain of the political system of society and in formally organized social systems. That problems of "legitimation" have been discussed in connection with it only proves that the achievement is no longer questioned. Anyone who wants to question it must resolve to be an "anarchist."

VII

The theory of "environmentally open" systems, developed following Ludwig von Bertalanffy, described the system's relationship with what is outside it as input and output. ⁵⁶ At first, this conceptual schema had many advantages: the system's function can be identified by its transformative performance, and the internal conditions of this transformation can then be seen as structure. This model enabled the new formulation of a theory of equilibrium in that equilibrium exists if there is neither overload nor deficit of input and output. One can thereby represent the "insides" of the system, which cope with "throughput," as very complex and opaque (at best capable of being simulated), yet still explain "systems theoretically" observable regularities in the system's input and output behavior. ⁵⁷ The input/output schema can be connected with a "black box" concept and with attempts at influencing unknown and ever-changing system behavior by varying the external conditions

for input and output. Finally, one can imagine internal system structures and strategies that relate input and output to each other and work with changing problem orientations, depending on whether bottlenecks appear in the input or the output and whether possibilities for substitution emerge in the domains of input or output.

One can understand the attractiveness of this schema for a systems theory interested in rationalism and techniques of steering. But it leads to a structurally functional and therefore very narrow approach. In the fifties and sixties, systems theory experienced a boom with structuralism and the input/output model. This coincidence was no accident, because both accounts support each other. With the help of the input/output schema, one could conceptualize structures as transformation rules and could concede their variability in principle. But then one had to orient concrete system analyses to structures that were assumed to be invariant. One spoke of system dynamics, but meant by that merely the throughput process and not self-regulation on the structural level. ⁵⁸

One must further ask which preconditions must exist before input and output can be determined at all--whether by the system itself or by an observer. Equating "environmental openness" with "input and output" concealed this problem, and in the domain of organized social systems the theory's application could rest on adequate preconditions without questioning them. But if one follows the new theory of autopoietic, self-referential systems and begins with the fact that difference from the environment is not just a problem of steering boundary-crossing transactions, but is constitutive for elemental reproduction and for the system's self-identification, one must doubt the scope of the input/output schema. ⁵⁹ Then there arise many statements about the relationship between system and environment that cannot be forced into the input/ output schema, for example, the thesis that complex systems presuppose an adequately complex environment. And in social systems there is a kind of tacit orientation to the environment--for example, consideration of social convenience, of participants' other roles--that cannot be reduced to connections between input and output because this orientation presupposes that the environment is unified rather than differentiated in terms of input-source and output-receiver. The question of the (limited) systems-theoretical

relevance of the input/output schema is linked with the question of what significance the reduction of communication to action has for the relationship of system to environment. Above (Chap. 4, section VIII), we left this question open; now we can answer it via a correspondence between reduction to action and the input/output schema.

By constituting and attributing the meaning element "action" and by linking actions into processes in which every selective element increases the selectivity of the others, the system gives its own occurrence an asymmetrical form, synchronous with the irreversible course of time. The difference between system and environment then assumes a twofold form: depending on the asymmetry of the process, it appears as a boundary of input and one of output, and any confusion or merging of the two boundaries must be excluded. In the system, the difference between these boundaries becomes the precondition for an ordered grasp of the overarching system/environment difference. The environment appears divided into a supplier and a receiver according to the system's temporal structure, and if this projection somehow catches hold and finds a reference in reality, it can be used to strengthen reduction to action within the system and to steer the action process following environmental requirements.

On the one hand, certain *conditions* must be present for action to be set in motion and reproduced--for example, sufficient space, means of communication, objects to be "handled," and willingness to be motivated. All this must be secured *in advance*. On the other hand, an expectational structure that aims at *results*--for example, works to be produced, states to be changed--must be capable of underlying the action process, if only to relieve a participant of boredom. It must be possible to expect something of that sort *after* the action. By being oriented to such a before and after, such conditions and results, the reduction to action can acquire greater accuracy in its selections.⁶⁰ If the system's environmental situation supports such an asymmetrization, if it honors the expectation of results and supplies conditions, the system can carry out the transformation of input into output by action; at least it can summarize the execution of its own selections in this way. This occurs in the form of *programming* action, fixing conditions for the action's correctness by providing either conditions that trigger action or goals

that action should aim for or both. ⁶¹ Correspondingly, one can distinguish programs that provide conditions and programs that specify goals. ⁶²

With such reductions--not to action pure and simple but to actions that are determinate or quickly determinable as correct-- the difference between system and environment acquires a "manageable" form for the system. Everything that is constituted as an environmental condition when a system is differentiated does not enter into this form. An overly complex environmental relationship acquires, however, a second formulation for orienting internal operations, whose worth can be tested and which can, if necessary, be corrected. A system that develops in this direction becomes independent of other forms for internally representing the environment -- such as good taste or moral standards.

Not all social systems exploit the possibility of reconstructing themselves in their environment via the input/output schema. Reduction to action does not in itself impose this; it only makes it possible. But insofar as this reconstruction is achieved, it leads to clearer external differentiation of the social systems that choose it. The system/environment difference is raised to a combinatorial level on which more dependencies and independencies can be actualized at the same time. The system becomes more dependent on certain properties or processes in the environment--namely, those relevant for input or for registering output--and, conversely, less dependent on other aspects of the environment. It can achieve more sensitivity, more clarity in perceiving the environment, and more indifference, all at once. One thing conditions the other, and both are conditioned by a high degree of internal autonomy. The system can (to a limited degree) vary its output depending on what is available as input. Conversely, it can vary its input, block out excess or seek to fill a deficit or resort to substitution to keep its output constant or increase it. Autonomy means choosing how one concedes dependence on the environment, and the possibility of choice is increased if the system can organize a change of guidance between input now and output then so that it can be determined at one time by the input boundary's problems and bottlenecks and at another by those of the output boundary. This open situation can be depicted internally by the means/end schema, whereby ends circumscribe the choice of means and means the choice of ends. A

diffuse, aesthetico-moral harmony with the environment is then replaced by articulated value perspectives that account for limitation in the choice of means and ends. ⁶³

Setting up a second formulation of the system/environment relationship using an input/output schema makes it possible to regulate, differentiate, and control boundary-crossing performances. Action at the output boundary then tends to become collectivized.

Performances passed on to the environment concern the entire system, and they "happen" more or less frequently, it would seem reasonable to develop internal control mechanisms further, for example, to create the possibility of representative decisions for the entire system. Positions of domination are above all "boundary positions" in the system, and from there they legitimize the demand to be furnished with corresponding power and authority. Once again we undermine the idea that "hierarchy" is a "natural" precondition of order pure and simple.

Corresponding differentiations can also be detected at the input boundary. They reside in the differentiation of positions for receiving and obtaining specific environmental features, for example, information. Communication research talks of "gates" and "gatekeepers" in describing the selective performances of such positions. This provides addressees for internal and external connective processes and allows one to normalize increased expectations about behavior in these positions.

Special forms of this sort suggest organizations of the politico-administrative or economic type. In closing off this theme, however, we would like to choose a less obvious example. One can use the distinction between socialization and education to illustrate the complicated connection between an increase in external differentiation and autonomy based on internal reductions and simplifying self-descriptions that nevertheless enables a more efficient connection with the environment. Socialization comes about simply by living in a social context and does not require special attention. It presupposes participation in communication, especially the possibility of reading the behavior of others not as mere fact but as information--as information about dangers, disappointments, coincidences of all kinds, about realizing a relation to social norms concerning what is appropriate in a situation. More than attributed selection is involved. Education, by contrast, uses the reduction of

communication to action to attain something that presupposes coordinating a plurality of efforts, something that cannot be left to chance socializing events. Socialization can be brought into the input/output schema only as education. One defines the states or modes of behavior that one would like to achieve, evaluates as conditions the situation from which one begins (educational level, ability, and what has already been learned), and chooses the pedagogical means to achieve what could not occur by itself. The enormous expenditure on interaction and the organization of learning situations, school classes, and school systems merely formulates this principle. From the result one can clearly see how education's sensitivity and insensitivity to environmental demands simultaneously increase, how autonomy emerges in the educational system (whether intentionally or not), and how the void of necessary internal determination must be filled--by ideals and organization, by ideologies and professional politics, but above all by autonomous reflective theories. ⁶⁴

Societies with relatively high degrees of complexity cannot seem to avoid going beyond mere socialization and mere ad hoc education. Only thus can they reproduce knowledge and capabilities acquired in long sequences of coordinated individual steps. Only this enables processes of specialization and the distribution of roles on the basis of specialization. It is quite familiar, and equally familiar is a critique of the artificiality of schools and the uselessness of what is learned there. The critique is directed primarily at curricular choices, political intervention, the cultural bureaucracy, and, more recently, the capitalism at work. It should begin with something more fundamental, for it takes aim at problems resulting from the fact that education now intentionally undertakes to educate. Above all, one must recognize more clearly that a pedagogically stylized act has itself come to communicate this intention. Therefore a kind of secondary socialization becomes unavoidable within the pedagogical context. Action enters the system with its intentions, ideals, and pressure to assume roles, and it is experienced and evaluated within the system. It is, so to speak, caught in the coils of self-reference and frees those being educated to react to this intention as such--to pursue it out of mere opportunism or to avoid it as much as possible. Education strives for output. It judges whatever exists under the rubrics ability, previous learning, and

school discipline. It varies pedagogical means in the hope of reaching a desired effect. But all this produces unforeseen socializing effects within the system. ⁶⁵ They transform equality into inequality. They motivate and discourage. They link experiences of success to experiences of success and experiences of failure to experiences of failure. They promote attitudes that make it possible to handle educational problems in special ways via educators, teachers, schools, and grade levels. The autonomy of a differentiated input/output arrangement must then submit to correction a reality it has itself created and direct its counterintuitive behavior back to reality. A system that is structured too improbably and that tries to identify itself entirely with the transformation of input into output ends up having to deal with the problems resulting from its own increase-directed reductions.

Input and output are ordering perspectives that can only be applied relative to a system. They concern greatly reduced, punctualized environmental access, the reduction of environmental complexity at and through the system's boundaries. Within the system's communicative processes, themes that define the system's meaning-constituted boundaries can thereby become available, but it is an illusion to believe that this could happen in a way that matches reality or even approaches completion--though at best, it is a well- functioning illusion.

VIII

Only when meaning-constituted boundaries make available a difference between system and environment can there be a *world*. Systems that constitute and use meaning presuppose a world. They experience themselves, their environment, and everything that functions in it as an element, as a selection within a horizon that includes all possibilities and indicates further ones, that indicates an end and a beyond, that is both necessarily and arbitrarily bounded from anywhere within it. Understood in this way, the world is the correlate of meaning's identity; it is co-implicated in every meaning element as a whole so that it is co-implicated in the same way in each.

Of course, one can establish the concept of the world very differently, perhaps as the totality of corrupting influences outside one's own group ⁶⁶ or as the counterpart of a (then necessarily

extramundane) subject.⁶⁷ Even the idea, initially attractive for sociologists, of an "intersubjective" constitution of the world no longer helps;⁶⁸ it is too self-evident and insufficiently theoretically productive. We employ the concept of a world as a concept for the *unity of the difference between system and environment* and use it as an ultimate concept, one free of further differences. The world does not designate a (total, all-encompassing) sum of facts, an *universitas rerum* that could be conceived only as free from difference.⁶⁹ Originally and phenomenologically, the world is given as an ungraspable unity. It can be determined as the unity of a difference only by and in relation to system formation.⁷⁰ In both regards the concept of a world designates a unity that becomes actual only for meaning systems that can distinguish themselves from their environments and thereby reflect the unity of this difference as a unity that trails off in two endless directions, within and without. In this sense, the world is constituted by the differentiation of meaning systems, by the difference between system and environment. To this extent it is (unlike the phenomenally given world) not something original, not an arche, but a unit of closure subsequent to a difference. It is the world after the fall from grace.

This abandons, but does not simply dismiss, the traditional constitution of the world around a "center" or a "subject."⁷¹ The center is replaced by the pivot of difference, or, more precisely, of system/environment differences that are differentiated in the world and that thereby constitute the world. Every difference becomes the center of the world, and precisely that makes the world necessary: for every system/environment difference, the world integrates all the system/environment differences that a system finds in itself and its environment.⁷² In this sense the world has multiple centers--but only so that every difference can fit the others into its own system or its environment.

This may at first glance appear artificial. Other concepts of the world are not, however, particularly reliable. Above all, with this concept of the world we can for the first time propose research that can connect the semantics of "the world" to the socio-structural development of societal systems. Whatever it may otherwise be and however it may otherwise be determined and explained, this evolution is the unfolding of the system/environment difference on the emergent level of social systems.

One should remember that every either/or must be introduced artificially above a substratum where it does not apply. ⁷³ Every difference is a self-imposed difference. It acquires its operational capacity, its ability to stimulate the acquisition of information, by excluding third possibilities. Classical logic followed this principle. The logic of the world, however, can only include excluded third possibilities. What a logic that recognizes this would look like is a problem that has been discussed since Hegel. ⁷⁴ We must content ourselves here with merely situating it.

-- nts --

Notes

- [Note](#): 1. Although it is clearly required as a result of theoretical development, this is rarely stated. An example is Pierre Delattre, *Système, structure, fonction, évolution: Essai d'analyse épistémologique* (Paris, 1971), p. 73. In addition, the psychological theory of Egon Brunswik has worked out possibilities of functional substitution in the system as a requirement of its relation to the environment. See: Brunswik, *The Conceptual Framework of Psychology* (Chicago, 1952), esp. p. 65ff; Brunswik, "Representative Design and Probabilistic Theory in a Functional Psychology," *Psychological Review* 62 (1955): 193-217; also Kenneth R. Hammond, *The Psychology of Egon Brunswik* (New York, 1966).
- [Note](#): 2. The ontology of substance and essences therefore has no concept of environment at all. The eighteenth century began to rethink this in reflections on the significance of "milieus" for the specification of genuinely indeterminate forms (e. g., human beings). The change can be seen in the concept of "milieu" (which originally meant "middle"). See: J. Feldhoff, "Milieu," *Historisches Wörterbuch der Philosophie*, vol. 5 (Basel, 1980), cols. 129-54; also Georges Canguilhem, *La connaissance de la vie*, 2d ed. (Paris, 1965), pp. 129-54. The length of time required to learn this testifies to the difficulty of the idea. Ever since the sixteenth century, word compounds containing "self" and "Selbst" have proliferated in Europe. Yet a good two hundred years were needed before anyone noticed that this presupposes an environment.
- [Note](#): 3. Thus the theory of "open systems"--see Ludwig von Bertalanffy, "Zu einer allgemeinen Systemlehre," *Biologia Generalis* 19 (1949): 114-29.
- [Note](#): 4. See the basic concepts of logic introduced as "distinction" and "indication" in George Spencer Brown, *Laws of Forms*, 2d ed. (New York, 1972).
- [Note](#): 5. See Humberto R. Maturana, *Erkennen: Die Organisation und Verkörperung von Wirklichkeit: Ausgewählte Arbeiten zur biologischen Epistemologie* (Brunswick, 1982). I am disturbed by his thesis that system/environment differences are accessible only to an observer and not to the autopoietic process itself. But this first impression is corrected by the admission of self-observation.
- [Note](#): 6. See Chap. 1, section II, end of item no. 4.
- [Note](#): 7. When this surfaces, for the most part in the theory of science one confidently opts for the "analytical." See, e. g., A. D. Hall and R. E. Fagen, "Definition of System," *General Systems* 1 (1956): 18-28 (20); Hubert M. Blalock and Ann B. Blalock, "Toward a Clarification of System Analysis in the Social Sciences," *Philosophy of Science* 26 (1959): 84-92 (85); Alfred Kuhn, *The Study of Society: A Unified Approach* (Homewood, Ill., 1963), p. 48ff; David Easton, *A Framework for Political Analysis* (Englewood Cliffs, N. J., 1965), p. 65; Stefan Jensen, *Bildungsplanung als Systemtheorie* (Bielefeld, 1970); Roger E. Cavallo, *General Systems and Social Science Research* (Boston, 1979). Soviet systems research also consistently represented a purely analytico-methodological understanding of systems. But the (undisputable) freedom of choice among themes for scientific analysis should not be confused with a (very disputable) freedom for determining the boundaries of objects.
- [Note](#): 8. In scientific observation, especially, this results in the problem of having to infer communication from action and treating something that is not (or hardly, or only indirectly) observable, e. g., information, as a verifiable datum.
- [Note](#): 9. The opposite opinion is frequently found, but it presupposes that one treats persons in the old way as "parts" of social systems. See, e. g., Henri Atlan, *Entre le cristal et la fumée* (Paris, 1979), p. 96f.
- [Note](#): 10. See as an example of such a reinterpretation Michael Fuller and Jan J. Loubser, "Education and Adaptive Capacity," *Sociology of Education* 45 (1972): 271-87.
- [Note](#): 11. This is why the *selective* character of all structural fixing should be emphasized. See Chap. 1, section II, end of item 3.
- [Note](#): 12. This, of course, does not rule out the fact that special precautions are created for handling chance situations and that the tolerance for these situations is thereby both increased and systematized. Thus department stores do not assign a salesperson to every customer who enters the store. They leave it to chance, although they are not uninterested, whether a customer finds the thing he is looking for and a salesperson who is able to sell it. But they create information counters, directional signs, and a systematically planned arrangement of wares to reintegrate

these chances.

- [Note](#): 13. This has been suggested by the distinction between technical, managerial, and institutional levels in Talcott Parsons, "Some Ingredients of a General Theory of Formal Organizations," in Parsons, *Structure and Process in Modern Societies* (New York, 1960), pp. 59-96.
- [Note](#): 14. From the development of the semantic account of the category of causality, one can clearly see that and how a more rigorous differentiation of social systems is accounted for, namely, by relinquishing the "similarity" between causes and effects and by relinquishing "contiguity."
- [Note](#): 15. This aspect has been developed into its own research program, "contingency theory," especially with reference to formally organized social systems. See, as a starting point for far-reaching further developments, Paul R. Lawrence and Jay W. Lorsch, *Organization and Environment: Managing Differentiation and Integration* (Boston, 1967).
- [Note](#): 16. This important distinction is found in Howard E. Aldrich and Sergio Mindlin, "Uncertainty and Dependence: Two Perspectives on Environment," in Lucien Karpik, ed., *Organization and Environment: Theory, Issues and Reality* (London, 1978), pp. 149-70. See also Howard E. Aldrich, *Organizations and Environments* (Englewood Cliffs, N. J., 1979), p. 110ff. [Note](#): 17. See Martin Landau, "Redundancy, Rationality, and the Problem of Duplication and Overlap," *Public Administration Review* 27 (1969): 346-58. See also Richard M. Cyert and James G. March, *A Behavioral Theory of the Firm* (Englewood Cliffs, N. J., 1963), for "organizational slack" (p. 36).
- [Note](#): 18. See William H. McWhinney, "Organizational Form, Decision Modalities and the Environment," *Human Relations* 21 (1968): 269- 81.
- [Note](#): 19. In addition to the works already cited, see Robert B. Duncan, "Characteristics of Organizational Environments and Perceived Environmental Uncertainty," *Administrative Science Quarterly* 17 (1972): 313-27, with a theoretical outline that follows the distinction between fact dimension (simple/complex) and temporal dimension (static/dynamic) and leads to the result that temporal relationships are more important than fact relationships for the emergence of uncertainty.
- [Note](#): 20. See: Roy A. Rappaport, "The Sacred in Human Evolution," *Annual Review of Ecology and Systematics* 2 (1971): 23-44; Rappaport, "Ritual, Sanctity and Cybernetics," *American Anthropologist* 73 (1971): 59-76.
- [Note](#): 21. The term has its origins in organization theory. See James G. March and Herbert A. Simon, *Organizations* (New York, 1958), p. 165.
- [Note](#): 22. For a thorough investigation of this theme, see Werner Bergmann, *Die Zeitstrukturen sozialer Systeme: Eine systemtheoretische Analyse* (Berlin, 1981).
- [Note](#): 23. See Der sinnhafte Aufbau der sozialen Welt: Eine Einleitung in die verstehende Soziologie (Vienna, 1932), p. 111ff.
- [Note](#): 24. Since the environment as such is not capable of experience or action, this can only mean that the system must use a unified chronology suitable for the environment and for itself.
- [Note](#): 25. Unfortunately, this concept of "time that one can have or not have" is frequently confused in ordinary language and in the sociological literature with the more fundamental concept of time that indicates the temporal dimension of all meaningful experience and action, thus the unity of irreversibility/reversibility and of future/past.
- [Note](#): 26. See also: Niklas Luhmann, "Die Knappheit der Zeit und die Vordringlichkeit des Befristeten," in Luhmann, *Politische Planung* (Opladen, 1971), 143-64; and Barry Schwartz, "Waiting, Exchange, and Power: The Distribution of Time in Social Systems," *American Journal of Sociology* 79 (1974): 841-70.
- [Note](#): 27. Many references can be found in Reinhard Koselleck, *Vergangene Zukunft: Zur Semantik geschichtlicher Zeiten* (Frankfurt, 1979). See also Niklas Luhmann, "Temporalisierung von Komplexität: Zur Semantik neuzeitlicher Zeitbegriffe," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), pp. 235-301.
- [Note](#): 28. In the sociological tradition, Durkheim's suggestions toward an investigation of classification are an important forerunner here. [Note](#): 29. We have defined observation as recording information with the help of a difference.
- [Note](#): 30. An extensive investigation of this connection is given in Yves Barel, *La Reproduction sociale: Systèmes vivants, invariance et changement* (Paris, 1973).
- [Note](#): 31. To give another, less interactional example, one could point to the discussion of formal versus informal organization. A formally organized social system can be differentiated formally as a

result of planning, but it necessarily also offers occasions for informal system formation, which then involve an ambivalent relationship with the formal rules. This demonstrates better than earlier organizational research, which worked with the concept of groups, that there are interconnections between ongoing reproduction, differentiation, internal growth, complexification, and the increased channeling of the spontaneity of further differentiation. In contrast to the hitherto dominant opinion, one might suppose that it is formal, not informal, organization that provides the means of regaining elasticity and adaptability.

[Note:](#) 32. Emil Durkheim, Foreword to *Über die Teilung der sozialen Arbeit*, 2d ed. (German trans. Frankfurt, 1977), p. 39ff.

[Note:](#) 33. To this extent Talcott Parsons was right in assuming that all system differentiation proceeds according to a binary principle. See "Comparative Studies and Evolutionary Change," in Ivan Vallier, ed., *Comparative Methods in Sociology: Essays on Trends and Applications* (Berkeley, 1971), pp. 97-139 (p. 100). The facts are more complicated than Parsons thought. A (functionally diffuse) system is not replaced by two (functionally specified) systems, but the binarity rests directly on the system/environment difference, namely, on the double effect this difference has on all further differentiation--as a newly forming system and as an environment for all other systems.

[Note:](#) 34. In the Old European conceptual terminology, this meant that each part is at once its own end and a means for others. See Thomas Aquinas, *Summa Theologiae*, I.65a.2 (Turin, 1952) 1: 319; Immanuel Kant, *Kritik der Urteilskraft* §§ 65 and 66, esp. the Introduction to 66--"internal goal-directedness" --Karl Vorländer, ed., 3d ed. (Leipzig, 1902), p. 245ff.

[Note:](#) 35. See Magoroh Maruyama, "The Second Cybernetics: Deviation-Amplifying Mutual Causal Processes," *General Systems* 8 (1963): 233-41.

[Note:](#) 36. See Shmuel Eisenstadt, *The Political Systems of Empires* (New York, 1963). Although developed from other perspectives, his material suggests the question as it is sketched here.

[Note:](#) 37. This sentence emphasizes that in order for any communication to be as aware of the part being a whole (circularity) as of the part being different from the whole (asymmetry) it must be able to assume both perspectives and thus to change perspective, alternating from that of circularity to that of asymmetry. Louis Dumont (*Essais sur l'individualisme: Une Perspective anthropologique sur l'idéologie moderne* [Paris, 1983], pp. 214-17) calls this "opposition hiérarchique," and it means, e. g., that in a hierarchical firm, management must be as able to adopt the perspective of the whole firm as it must be able to defend the perspective of each department against the unreasonable demands of the board. That is a conflict built into the hierarchy of the firm, presumably underlying the "managerial revolution" (Alfred D. Chandler, Jr., *The Visible Hand: The Managerial Revolution in American Business* [Cambridge, Mass., 1977]) of the nineteenth century. No owner of a firm was able to match the social skills of any manager who knew both sides of the coin of hierarchy: dependence/circularity and independence/asymmetry.--Trans.

[Note:](#) 38. In order to prevent misunderstandings, we should add that this ought not to prevent modern society from composing, with its conceptual means, abstract theories that could be applied to nonmodern societal systems. But then one can see from the semantics of these older societies that they could neither provide such a theory for themselves nor consider it appropriate. In addition, this shows that the old dispute over whether modern theories are capable of adequately grasping traditional societies can be answered affirmatively as well as negatively--negatively when one requires the present description to answer the self-descriptions that would have been possible for these (older) societies.

[Note:](#) 39. See also cybernetic insights into the information-technological advantages of "discrete" states, e. g., W. Ross Ashby, "Systems and Their Informational Measures," in George J. Klir, ed., *Trends in General Systems Theory* (New York, 1972), pp. 78-97 (esp. p. 81).

[Note:](#) 40. "Differentiation matching" therefore becomes a desideratum. See Uriel G. Foa et al., "Differentiation Matching," *Behavioral Science* 16 (1971): 130-42. Such reflections presuppose that there is no "natural" agreement in the difference schematism and that the problem does not lie in knowledge schematized as a binary right/wrong.

[Note:](#) 41. As a survey, see C. R. Carpenter, "Territoriality: A Review of Concepts and Problems," in Anne Roe and George G. Simpson, eds., *Behavior and Evolution* (New Haven, 1958, rpt. 1967), pp. 224-50.

[Note:](#) 42. From the interactional perspective, see Philip D. Roos, "Jurisdiction: An Ecological Concept,"

Human Relations 21 (1968): 75-84; Miles Patterson, "Spatial Factors in Social Interaction," *Human Relations* 21 (1968): 351-61; Stanford M. Lyman and Marvin B. Scott, *A Sociology of the Absurd* (New York, 1970), p. 89ff.

[Note](#): 43. This is also demonstrated in the historical literature on the emergence of *linear* state boundaries. See the references in Chap. 1, n. 44. Unanimity about boundaries was first required by canon law to decide questions of jurisdiction. A traveling bishop did not have authority *extra provinciam*. If it was merely a matter of separating the places where different peoples lived, nonarable lands, mountains, and marshes would have fulfilled this function better.

[Note](#): 44. This is a much debated question--above all in regard to strategies of "warming up to" and "making sure in advance," which one must practice before one declares or gives one's love. See, e. g., the interplay between giving and denial in the early letters of the novel by Claude Crebillon (fils), *Lettres de la Marquise de M. au Comte de R.* (1732), quoted from the Paris 1970 edition. Quite clearly this is a matter of the boundaries of the system!

[Note](#): 45. See esp. Klaus Breiding, "Untersuchungen zur Typus des Pedanten in der französischen Literatur des 17. Jahrhunderts," Diss., Frankfurt, 1970. See also Daniel Mornet, *Histoire de la littérature française classique 1660-1700: Ses caractères véritables, ses aspects inconnus* (Paris, 1940), p. 97ff.

[Note](#): 46. Marriage obviously comes to mind here. See for this--affirming the apparently unavoidable--Elton Mayo, "Should Marriage be Monotonous?," *Harper's Magazine* 151 (1925): 420-27. By contrast, communication between lovers has always been astonishing in that they apparently can talk constantly with one another without any temporal or thematic constraints because all that matters for them is enjoying each others company.

[Note](#): 47. Brevity can also be imposed, with the result that themes and systems that require a certain duration can only be produced by deviant behavior, e. g., "No Loitering" at public toilets.

[Note](#): 48. Given this background, one can understand how the societal Utopia of an endless, open discussion would be in a position to speak to what is being suppressed.

[Note](#): 49. If one views the regulation of membership as an abstract, complexity-promoting substitute for the direct, conscious regulation of themes, then one can understand why a need for "informal organization" appears here--and only here. The members occasionally will want to talk about other things while they carry out their tasks: about their new cars, their home life, their personal attitude to their boss, to their work, to difficult co-workers. Such digressive themes do not change the boundaries of the formal system. But, as one knows from extensive research, informal organization can be significant for work motivation that cannot be secured adequately through formal organization alone.

[Note](#): 50. In Roger G. Barker's sense. See Chap. 1, n. 5.

[Note](#): 51. The investigation of such institutions provided the impulse to formulate the concept of auto-poiesis. See J. Y. Lettvin, H. R. Maturana, W. S. McCulloch, and W. R. Pitts, "What the Frog's Eye Tells the Frog's Brain," *Proceedings of the Institute of Radio Engineers* 47 (1959): 1940-51.

[Note](#): 52. See for this literature, so foreign to present-day sensibilities: Ernst H. Kantorowicz, *The King's Two Bodies: A Study in Medieval Political Theology* (Princeton, N. J., 1957); Pierre Michaud-Quantin, *Universitas: Expressions du mouvement communautaire dans le moyen âge latin* (Paris, 1970); Paul Archambaud, "The Analogy of the Body in Renaissance Political Literature," *Bibliothèque d'Humanisme et Renaissance* 29 (1967): 21-53. The real point of the body metaphor was not to *justify* the capacity for action (which was assumed) but to *bind* it to an internal order of the whole. In transition to Absolutism the metaphor dissolves because it can comprehend far too heterogeneous interpretations (both moderate and radical) and, by the way, did include a new kind of trust in skills, e. g., in the form of a doctor/patient analogy.

[Note](#): 53. See: Talcott Parsons, *The Social System* (Glencoe, Ill., 1951), pp. 41, 96ff; Talcott Parsons and Neil J. Smelser, *Economy and Society* (Glencoe, Ill., 1956), p. 15.

[Note](#): 54. See: James S. Coleman, "Loss of Power," *American Sociological Review* 38 (1973): 1-17; Coleman, *Power and the Structure of Society* (New York, 1974).

[Note](#): 55. See Sally F. Moore, "Legal Liability and Evolutionary Interpretation: Some Aspects of Strict Liability, Self-Help and Collective Responsibility," in Max Gluckman, ed., *The Allocation of Responsibility* (Manchester, 1972), pp. 51-107.

[Note](#): 56. A representative development is Fernando Cortés, Adam Przeworski, and John Sprague, *Systems Analysis for Social Scientists* (New York, 1974). For further, quite diverse examples,

see: John B. Knox, *The Sociology of Industrial Relations* (New York, 1955), p. 144ff; Ralph M. Stogdill, *Individual Behavior and Group Achievement* (New York, 1959), pp. 13f, 196ff, 178ff; Talcott Parsons since the 1950s in many publications, e. g., Parsons and Smelser, or, formulated as "the most general case of systems analysis," in Parsons, "An Approach to Psychological Theory in Terms of the Theory of Action," in Sigmund Koch, ed., *Psychology: A Study of a Science*, vol. 3 (New York, 1959), pp. 612-711 (p. 640); also Gabriel A. Almond, "Introduction: A Functional Approach to Comparative Politics," in Gabriel A. Almond and James S. Coleman, eds., *The Politics of Developing Areas* (Princeton, 1960), pp. 3-64; P. G. Herbst, "A Theory of Simple Behavior Systems," *Human Relations* 14 (1961): 71-94, 193-239; David Easton, *A Systems Analysis of Political Life* (New York, 1965); Niklas Luhmann, "Lob der Routine," in Luhmann, *Politische Planung* (Opladen, 1971), pp. 113-42; Robert E. Herriott and Benjamin J. Hodgkins, *The Environment of Schooling: Formal Education as an Open System* (Englewood Cliffs, N. J., 1973). See also, for use in economic theory (not necessarily according to systems-theoretical interpretations): Wassily W. Leontief, *The Structure of American Economy 1919-1939*, 2d ed. (New York, 1951); Leontief, *Studies in the Structure of the American Economy: Theoretical and Empirical Explorations in Input-Output Analysis* (New York, 1953).

[Note](#): 57. Some have been led by this to conclude that input and output as such exist only for the observer, not for the system itself. See, e. g., Francisco J. Varela, *Principles of Biological Autonomy* (New York, 1979).

[Note](#): 58. Thus Cortés et al. ("Dynamics and Diachrony," p. 10). This research position is opposed by those who propose, on the structural level, concepts like morphogenesis, self-organization, and self-regulation. For social systems, see esp. Walter Buckley, "Society as a Complex Adaptive System," in Buckley, ed., *Modern Systems Research for the Behavioral Scientist* (Chicago, 1968), pp. 490-513.

[Note](#): 59. Today this schema is presented as only one among many conceptualizations of the system/environment relationship. See Jerald Hage, "Toward a Synthesis of the Dialectic Between Historical-Specific and Sociological-General Models of the Environment," in Lucien Karpik, ed., *Organization and Environment: Theory, Issues and Reality* (London, 1978), pp. 103-45. But the mere enumeration of possibilities can hardly suffice.

[Note](#): 60. We consciously avoid "legitimation" and "rationality" here. We must reserve these concepts for further conditionings. [Note](#): 61. See for this Chap. 8, section XI, in relation to other forms for identifying networks of expectations.

[Note](#): 62. See Niklas Luhmann, "Lob der Routine," in Luhmann, *Politische Planung: Aufsätze zur Soziologie von Politik und Verwaltung* (Opladen, 1971), pp. 113-42.

[Note](#): 63. See Niklas Luhmann, Zweckbegriff und Systemrationalität: Über die Funktion von Zwecken in sozialen Systemen (rpt. Frankfurt, 1973).

[Note](#): 64. See esp. Niklas Luhmann and Karl Eberhard Schorr, *Reflexions-probleme im Erziehungssystem* (Stuttgart, 1979).

[Note](#): 65. For an (all too optimistic) evaluation, see Robert Dreeben, *On What Is Learned in School* (Reading, Mass., 1968). See also Niklas Luhmann and Karl Eberhard Schorr, "Wie ist Erziehung möglich?," *Zeitschrift für Sozialforschung und Erziehungssoziologie* 1 (1980): 37-54.

[Note](#): 66. Thus the Rev. John Hofer, leader of a Hutterite settlement in Alberta, Canada, 1981.

[Note](#): 67. See the world as the correlate of consciousness, as merely intentional being, in Edmund Husserl, *Ideen zu einer reinen Phänomenologie und phänomenologischen Philosophie*, vol. 1, in Husserliana, vol. 3 (The Hague, 1950), p. 114ff.

[Note](#): 68. See: Alfred Schütz, "Das Problem der transzendentalen Intersubjektivität bei Husserl," *Philosophische Rundschau* 1 (1957): 81- 107; Aron Gutwitsch, "The Commonsense World as Social Reality: A Discourse on Alfred Schütz," *Social Research* 29 (1962): 50-72; Peter L. Berger and Thomann Luckmann, *The Social Construction of Reality: A Treatise in the Sociology of Knowledge* (Garden City, N. Y., 1966); Richard Grathoff and B. Waldenfels, eds., *Sozialität und Intersubjektivität* (Munich, 1983).

[Note](#): 69. All attempts to do this always postulate emptiness, nothingness, or chaos as being different from the world.

[Note](#): 70. We must at least recall in passing that we are discussing meaningful systems that have the capacity to observe themselves and that there are other schemata of observation outside system/environment that give other worlds: e. g., figure/ground, this and something other.

- [Note:](#) 71. A well-known theme of "world" history. See, e. g., Arthur O. Lovejoy, *The Great Chain of Being: A Study of the History of an Idea* (1936; rpt. Cambridge, Mass., 1950), p. 108ff.
- [Note:](#) 72. One could almost use one of the celebrated world formulas of Pliny the Younger: "extra intra cuncta complexus in se" (hesitating between inner and outer [thus] complex in itself). See Cae- jus Plinius Secundus, *Naturalis Historia*, ed. Mayhoff (rpt. Stuttgart, 1967), bk. 2, p. 128f.
- [Note:](#) 73. See Chap. 1, section II, end of item no. 7.
- [Note:](#) 74. Discussed preeminently in relation to architecture and the operationality of such a logic. Unfortunately, the so-called "positivism dispute" [between, among others, Theodor W. Adorno and Jürgen Habermas on the one side, and Karl R. Popper and Hans Albert, on the other; see Theodor W. Adorno et al., *Der Positivismusstreit in der deutschen Soziologie* (Darmstadt)-- Trans.], has been conducted beneath the conceptual level required here. By contrast, see Gotthard Günther, *Beiträge zur Grundlegung einer operationsfähigen Dialektik*, 3 vols. (Ham- burg, 1976-80). Problems of a recursive, perhaps "dialectical," logic that admits self-reference have also attracted attention in general systems theory. See, e. g., Heinz von Foerster, "The Cu- rious Behavior of Complex Systems: Lessons from Biology," in Harold A. Linstone and W. H. Clive Simmonds, eds., *Futures Research: New Directions* (Reading, Mass., 1977), pp. 104-13; Varela, *Principles of Biological Autonomy*.

Chapter 6: Interpenetration

I

This chapter deals with a specific environment of social systems: human beings and their relations to social systems. We choose the term "human being" to indicate that this concerns both the psychic and the organic systems of human beings. We would like to avoid the term "person" as much as possible in this context, so that we can reserve it to indicate the social identification of a complex of expectations directed toward an individual human being.

The theme of human beings and their relationship to social order has a long tradition that cannot be adequately rehearsed here. ¹ This tradition continues to live on in "humanistic" concepts of norms and values. Because we want to disassociate ourselves from this, we must determine exactly where we break away from it. If a tradition is incapable of continuing--and we believe this happens wherever there is a radical change in societal structure-- one must clarify difference to find possibilities of translation.

The point of difference is that for the humanistic tradition human beings stand within the social order and not outside it. The human being counts as a permanent part of the social order, as an element of society itself. Human beings were called "individuals" because they were the ultimate, indivisible elements of society. It was impossible to conceive the soul and body as separate and then to dismantle them further. Such a dissolution would have destroyed what the human being was in and for society. Accordingly, the human being not only was viewed as dependent on social order

(which no one will dispute), but was also interpreted as bound to a conduct of life within society. The form of human existence could be realized only within society. In the course of the Middle Ages, the political character of societal order was replaced by a social one, but this merely extended the principle, without changing it. The *zoon politikon* was replaced by the *animate sociale*. Both conceived the human being's *nature* (the possibility of growth and the ability to realize a form) as determined by the normative demands of the *social* order. The human being's *nature* was *morality*, the capacity to acquire and lose respect in social life. Human perfection was thus designed for social realization, which did not deny that this could founder on the general corruptibility of all nature.

The semantics of such an order had to be one of "natural law" in the strict sense. It had to conceive nature as dictating the norms. This had ontological features beyond those that formed the foundations for law. One could not attain a more fundamental level of reality than "natural being." Therefore the human being was the ultimate natural element, and society was conceptualized as the coexistence of human beings within cities, as a body of its own type composed of bodies that are not joined physically, and, finally, as the totality of human beings, as humanity. The community rested on a concept of life containing the qualification "the good life." This representation mediated further normative impulses until Humboldt's neo-humanistic idea that the human being must realize within himself as much humanity as possible. How could one, as a human being, deny an interest in humanity? How could one refuse the corresponding demands?

A first step toward a semantic reconstruction is found in late natural-law (law of reason) contract theories. In a certain way, they register changes in the structure of society that required more flexibility and loosened pre-ordained bonds (e. g., to a domestic, local sphere of life).² The idea of viewing society as a contract formulates a new maxim in this transitional period: free, but bound. The ensuing structural developments in society--the political and industrial revolutions, the diversification of the sciences dealing with the human-- exploded this "free but bound." Biology, psychology, and sociology were separated; and the sciences as a whole distanced themselves from the normative regulations of law, from religious ideas, and from political values and goals. By the nineteenth century

the "organism analogy," as a concept, had become constraining and, in the light of progress in biology, seemed unnatural. ³ Ever since, ⁴ scholars have been busy criticizing it. Humanism retreated from nature to mind. Sociology investigated the non-contractual foundations of the binding effect of contracts. From this point of view, the human being was no longer capable of making contracts. Humans owed their sociality--to society.

Instead of remaining, counterfactually and normatively, in domains that have lost their persuasive power, it might be more profitable to formulate the difference. This cannot be done by merely critiquing Old-European conceptual formations or analogical inferences. That would only lead to abstractions out of the residues of tradition, which must be represented as "nonconformist." Thus one would end up in a questionable polemic against "conformism"--only to expect conformity to "nonconformism." In such a situation one should try to shift from hopeless conceptualizations to improbable ones.

If one views human beings as part of the environment of society (instead of as part of society itself), this changes the premises of all the traditional questions, including those of classical humanism. It does not mean that the human being is estimated as less important than traditionally. Anyone who thinks so (and such an understanding either explicitly or implicitly underlies all polemics against this proposal) has not understood the paradigm change in systems theory.

Systems theory begins with the unity of the difference between system and environment. The environment is a constitutive feature of this difference, thus it is no less important for the system than the system itself. On this level of abstraction, the theoretical disposition is completely open to different kinds of valuings. The environment may contain many things that (from whatever perspective) are more important for the system than the parts of the system itself, and the converse may also be so. But the distinction between system and environment offers the possibility of conceiving human beings as parts of the societal environment in a way that is both more complex and less restricting than if they had to be interpreted as parts of society, because in comparison with the system, the environment is the domain of distinction that shows greater complexity and less existing order. The human being is thus conceded

greater freedom in relation to *his* environment, especially freedom for irrational and immoral behavior. He is no longer the measure of society. This idea of humanism cannot continue. Who would seriously and deliberately want to maintain that society could be formed on the model of a human being, that is, with a head at the top and so on?

II

We use the concept of "interpenetration" to indicate a specific way systems within a system's environment contribute to system formation. We must be careful to situate this concept in system/environment relationships, especially since a very unclear understanding of interpenetration has gained currency. ⁵

First, interpenetration is not a general relation between system and environment but an intersystem relation between systems that are environments for each other. In the domain of intersystem relations, the concept of interpenetration indicates a very specific situation, which must be distinguished above all from input/output relations (performances). ⁶ We speak of "penetration" if a system *makes* its own *complexity* (and with it indeterminacy, contingency, and the pressure to select) *available for constructing another system*. Precisely in this sense social systems presuppose "life." Accordingly, *interpenetration* exists when this occurs reciprocally, that is, when both systems enable each other by introducing their own already-constituted complexity into each other. In penetration, one can observe how the *behavior* of the penetrating system is co-determined by the receiving system (and eventually proceeds aimlessly and erratically outside this system, just like ants that have lost their ant hill). In interpenetration, the receiving system also reacts to the *structural formation* of the penetrating system, and it does so in a twofold way, internally and externally. This means that greater degrees of freedom are possible in spite (better: because!) of increased dependencies. This also means that, in the course of evolution, interpenetration individualizes behavior more than penetration does.

This is strikingly true in the relationship of human beings to social systems. The concept of interpenetration gives us the key to the further analysis of this relationship. It replaces not only natural

law theory but also sociological efforts based on role theory, concepts of needs, and theories of socialization. The relationship can be conceptualized more fundamentally as interpenetration because interpenetration includes, rather than excludes, them.

We recall that complexity means that a plurality of elements, here actions, can be linked only selectively. Thus complexity signifies the pressure to select. At the same time, this necessity is freedom, namely, the freedom to condition selections differently. Therefore the determination of action normally has different sources, psychic and social. The stability (= expectability) of actions thus results from a combinatory play, a mixed-motive game. Evolution filters out what is psychically and socially acceptable and thereby destroys kinds, situations, and contexts of actions and systems by withdrawing psychic or social conditioning. One need only imagine how a *Bauherr* of a century ago would attempt to build a house today: none of his expectations would have anything to connect to, not only in the technical, but also in the social domain; in fact, he himself would be the despair of anyone who had to deal with him.

A central feature of this conception cannot be emphasized enough: the interpenetrating systems remain environments for each other. ⁷ This means that the complexity each system makes available is an incomprehensible complexity--that is, disorder-- for the receiving system. Thus one could say that psychic systems supply social systems with adequate disorder and vice versa. The system's *eigen-* selection and its autonomy is not called into question by interpenetration. Even if one imagined systems to be completely determined, interpenetration would infect them with disorder and would expose the unpredictability in how their elemental events come into being. All reproduction and structure formation thus presuppose a combination of order and disorder: a system's own structured and an incomprehensible foreign complexity, a regulated and a free complexity. The construction of social systems (and thus the construction of psychic systems) follows the "order from noise" principle (von Foerster). Social systems come into being on the basis of the noise that psychic systems create in their attempts to communicate. This conceptual account intentionally avoids the considerably simpler approach of focusing on the elements that constitute interpenetrating systems. One might be tempted to be content with

saying that human beings and social systems intersect in individual elements, namely, actions. Actions are simultaneously the actions of human beings and the possible building blocks of social systems. Without the actions of human beings there could be no social systems, just as, conversely, human beings can acquire the capacity to act only in social systems. This interpretation is not false, but it is too simple. The *concept* of element is *not a basic element* of systems-theoretical analysis; we have worked this out in the concepts of complexity and of self-referential systems. Accordingly, we have de-ontologized the concept of element.⁸ Events (actions) are not elements without a substrate. But their unity corresponds to no unity in the substrate; it is created in the system that uses them through their connectivity.⁹ Elements are constituted by the systems that are composed of them, and in this connection the circumstance that complexity requires a selective relating of elements plays a role. One cannot stop short with mere reference to elements, as if they were stones in a mosaic, for immediately behind lurks the question of how to explain the capacity to constitute the elements selectively. More radically than "action theory" can see and formulate, systems theory reaches back to the structural conditions of selectivity.

The concept of interpenetration does not indicate merely an intersection of elements, but a reciprocal contribution to the selective constitution of elements that leads to such an intersection. Decisively, the complexity of human beings can only develop within and be used by social systems as, so to speak, a source of actions that satisfy the conditions of social combinatorics.

To be sure, interpenetrating systems converge in individual elements--that is, they use the same ones--*but they give each of them a different selectivity and connectivity, different pasts and futures.* Because temporalized elements (events) are involved, the convergence is possible only in the present. The elements signify different things in the participating systems, although they are identical as events: they select among different possibilities and lead to different consequences. Not least, this means that the convergence to occur next *is once again selection*, that the difference of the systems is reproduced in the process of interpenetration. Only thus can double contingency be possible *as contingency*--namely, as something that, thanks to its underlying complexity, is also always otherwise

possible and that takes place with an eye to this reference to other possibilities.

Via this conception, we can finally answer a question left open when we discussed the problem of double contingency (Chapter 3). The concept of interpenetration answers the question of how double contingency can be possible. It avoids reference to the nature of human beings, recourse to the (supposedly foundational) subjectivity of consciousness, or formulating the problem as "intersubjectivity" (which presupposes subjects). The question is rather: What must be given in reality so that an experience of double contingency and with it a construction of social systems can emerge with sufficient frequency and density? The answer is interpenetration. It clearly defines the premises of the question that it answers. This is not simply the construction of a stratified world in which lower strata must be complete before one can build any further. Instead, only with the evolution of higher forms of system formation are that evolution's presuppositions brought into the form that is then appropriate. They come about only by use. Therefore evolution is possible only by *interpenetration*, that is, only by *reciprocity*. From the systems-theoretical viewpoint, evolution is a circular process that constitutes itself in reality (and not in nothingness!).

The need to distinguish action from communication gains additional meaning from the concept of interpenetration. A constitutive feature of action is that it must be attributable to individuals; it thus emerges through a principle of separation. Communication, by contrast, comes about through the collapse of three different selections. This collapse cannot occur only now and again, only occasionally; it must be capable of being reproduced regularly and expectably. If it proves its worth often enough, its own system forms, a social system that must assume the ability to produce selections. Human beings are needed for uttering and understanding, and often also for creating facts that function in the communicative nexus as information. Interpenetration--namely, the contribution of complexity to the construction of emergent systems--occurs, therefore, in the form of communication, and conversely, anytime communication is set in motion, this presupposes a relationship of interpenetration. This circularity newly expresses the fact that social systems can emerge only as self-referential systems. It also

confirms that specific, pre-existing properties of human beings do not make the formation of social systems possible--properties like a central nervous system, opposable thumbs, the capacity to make different sounds and to hear them oneself, and so on--but that all this creates social systems only if and because it can be *assumed as a temporalized complexity* that from moment to moment *selects* its own states and can be influenced *therein*.

Finally, an empirically proven hypothesis fits these considerations: social systems that can enlist more complex psychic systems need less structure.¹⁰ They can cope with greater instabilities and quicker structural change. They can expose themselves to chance and thereby relieve their internal regulation. This is comprehensible only if one correctly understands complexity and interpenetration, namely, as a pressure to select that increases with size and as the ability to condition this pressure in an open way.

One cannot understand interpenetration either on the model of the relationship between two separate things or on the model of two partially intersecting circles. Here, all spatial metaphors are misleading. Decisively, the *boundaries of one system can be included in the operational domain of the other*. Thus the boundaries of social systems fall within the consciousnesses of psychic systems. Consciousness intervenes and thereby acquires the possibility of drawing boundaries for social systems precisely because these boundaries are not, at the same time, boundaries of consciousness. The same holds conversely: the boundaries of psychic systems fall within the communicative domain of social systems. In the course of orienting itself, communication is constantly forced to use what psychic systems have already assimilated in their consciousnesses and what they have not. This is possible because the boundaries of psychic systems are not also boundaries of communicative possibilities. Every system that participates in interpenetration realizes the other within itself as the other's difference between system and environment, without destroying its own system/environment difference. Thus every system can actualize its own superiority in complexity, its own modes of description, and its own reductions in relation to the other and thus make its own complexity available to the other.

What the interpenetrating systems accomplish for one another does not reside in any input of resources, energy, or information.

Of course, that remains possible. A human being sees something, talks about it, and thus contributes information to the social system. What we call interpenetration reaches further; it does not connect performances but constitutes connections. Every system stabilizes its own complexity. It conserves stability, although it is composed of elements that are events--that is, is forced by its own structure constantly to change its own states. Thus it produces a structurally limited simultaneity of permanence and change. More precisely, every system stabilizes its own instabilities. It thereby guarantees the continual reproduction of as yet indeterminate potentialities. Their determination can be conditioned. This conditioning always progresses self-referentially--that is, is always a feature of the autopoietic reproduction of its own elements--but because pure self-reference is always tautological, it always includes impulses from the environment. Self-referential systems are able to reserve available potentialities for constructing systems on emergent levels of reality and adjust themselves to the specific environment that is created by this reservation. Viewed in this way, the concept of interpenetration draws out, so to speak, the consequences of the paradigm change in systems theory: the transition from system/environment theory to the theory of self-referential systems. It presupposes this theoretical transition insofar as it conceives the autonomy of interpenetrating systems as an increase in and selection of environmental dependencies.

III

One can speak of interpenetration only if the systems that contribute their own complexity are autopoietic systems. Interpenetration is thus a relationship between autopoietic systems. This delimitation of the conceptual domain gives us a broader perspective on the classical theme of human being and society, one not given in the connotation of "interpenetrating" alone.

Just as the self-reproduction of social systems by communication's triggering further communication will continue if nothing stops it, so there are closed self-referential reproductions in human beings, which can be distinguished broadly as organic and psychic. The medium for one and the form in which it appears ¹¹ is *life*; for the other, this is *consciousness*. Autopoiesis qua life and qua consciousness

is a presupposition for forming social systems, which means that social systems can actualize their own reproduction only if they can be sure that life and consciousness will continue.

This statement sounds trivial. It will surprise no one. But the concept of autopoiesis brings additional perspectives into the picture. For life and consciousness, self-reproduction is possible only within a closed system. This is what permitted *Lebensphilosophie* and transcendental philosophy to call what they studied the "subject." Nevertheless, autopoiesis is possible for both only under ecological conditions, and society belongs to the environmental conditions for the self-reproduction of human life and consciousness. In order to formulate this insight, one must formulate the closure and openness of systems not as an opposition but as a relationship of conditioning. The social system, based on life and consciousness, makes the autopoiesis of these conditions possible in that it enables them to renew themselves constantly in a closed nexus of reproduction. Life and even consciousness need not "know" that this is so. But they must set up their autopoiesis so that closure functions as the basis for openness.

Interpenetration presupposes the capacity for connecting different kinds of autopoiesis--here, organic life, consciousness, and communication. It prevents autopoiesis from becoming allopoiesis; it produces relationships of dependency that evolutionarily prove their worth by being compatible with autopoiesis. This makes it easier to understand why the concept of meaning must be employed on such a high theoretical level. Meaning enables psychic and social system formations to interpenetrate, while protecting their autopoiesis; meaning simultaneously enables consciousness to understand itself and continue to affect itself in communication, and enables communication to be referred back to the consciousnesses of the participants. Therefore the concept of meaning supersedes the concept of the *animale sociale*. Not the property of a specific kind of living being, but the referential wealth of meaning enables the formation of societal systems through which human beings can have consciousness and life.

The situation becomes clearer if one distinguishes self-reproduction as the mere continuation of life, consciousness, or communication from the structures by which this occurs. Autopoiesis is the source of a complexity that the system cannot determine. The

structures facilitate determinative reductions and thus enable the reproduction of the indeterminacy that always appears in what is determinate as a horizon of possibility. Only both together make interpenetration possible. The relationship of interpenetration selects the structures that enable the reproduction of the interpenetrating systems. Or, to use Humberto Maturana's formulation, "An autopoietic system is a system with a changing structure that follows a course of change that is continually being selected through its interaction in the medium in which it realized its autopoiesis," and from this it follows "that an autopoietic system is either in continuous structural coupling with its medium or disintegrates." ¹²

The situation implied here is accessible only in complicated formulations. On both sides one needs the *difference* between and *interlocking* of *autopoiesis* and *structure* (the one continuously reproducing, the other discontinuously changing) for relationships of interpenetration between *organic/psychic* and *social* systems to come about. Conceptualizing this situation presupposes the interplay of a plurality of distinctions. If one leaves even one of them out of consideration, one is catapulted back into the old, eternally unproductive, ideologically besieged discussion of the relationship between individual and society.

With these conceptual decisions, we bid farewell to all *Gemeinschaft* mythologies--more precisely, we relegate them to the level of the self-description of social systems. If "*Gemeinschaft*" means the partial fusing of personal and social systems, then this directly contradicts the concept of interpenetration. To work that out, we would like to distinguish between inclusion and exclusion. Interpenetration leads to inclusion insofar as the complexity of the contributing systems is also used by the receiving systems. But it also leads to exclusion insofar as a multiplicity of interpenetrating systems must distinguish themselves from one another in their autopoiesis to make this possible.

Formulated less abstractly, participation in a social system requires human beings to make their own contributions, and it leads to human beings' distinguishing themselves from one another and behaving exclusively for one another; because they must produce their own contributions themselves, they must motivate themselves. When they cooperate one must clarify, despite all natural similarity, who has made which

contribution. Durkheim formulated this insight as the distinction between mechanical and organic solidarity; however, that concerns not distinct forms of interpenetration but the fact that greater interpenetration requires more inclusion and more (reciprocal) exclusion. The resulting problem is solved by the "individualization" of persons.

The consequences for a theory of psychic systems fall outside the scope of this chapter. I suspect that many themes and even ambitions of transcendental philosophy would reappear. We reject the assertion that consciousness is the subject. It is the subject only for itself.

Nonetheless, one can comprehend how autopoiesis in the medium of consciousness is at once closed and open. In any structure that it accepts, adapts, changes, or relinquishes, it is locked into social systems. This holds for "pattern recognition," language, and everything else. Despite this coupling, it is genuinely autonomous because only what can show the autopoiesis of consciousness and reproduce it within itself can be a structure. With this, one gains access to consciousness's potential for transcending all social experiences and to a typology of the need for meaning that guarantees consciousness its own autopoiesis throughout the change of all specific structures of meaning. In connection with an investigation of "interpretations of life," Dieter Henrich has treated happiness and misery as such slants of meaning, which may permeate an entire consciousness without being graspable and correctable in specific forms of meaning. ¹³

IV

If one begins with the finding that interpenetration permits a relation between autonomous autopoiesis and structural coupling, the next step is to introduce the concept of "binding" and define it more precisely. Binding refers to the relation between structure and interpenetration. Structure cannot form in a vacuum, nor can it base itself only on the autopoiesis of the systems forming the structure. It presupposes "free," unbound material or energy, or (formulated more abstractly) the not yet fully determined possibilities of the interpenetrating systems. Thus binding fixes, through the structure of an emergent system, how these open possibilities are to be used as meaning. One can think of how the demands of

memory, and thus information storage, bind neurophysiological processes. In our context, of course, psychic possibilities are bound by social systems.

This brings together and unifies a great many disparate applications of similar ideas. Usually the concept of binding is introduced in ordinary language (or as a basic concept?) and used without any further clarification. An often-used formulation, "time-binding," derives from Alfred Korzybski and primarily indicates the linguistic performance of keeping the same meaning available. ¹⁴ Parsons, likewise without further clarification, develops two different concepts, whose relationship remains open: "value commitment" as the social system's medium for "pattern maintenance," and "collectively binding decisions" as the function of politics. Under the heading "commitment," one finds rich sociological and social psychological research that via this definition returns to a kind of individual self-obligation, to eliminating contingency, to restricting the possibilities of choice, or even to time-binding, whereby the concept comes to imply involving others (for social psychology) or the social system (for sociology). ¹⁵ The concept offers one of the positive generalizations with which American social scientists like to work. ¹⁶ Examined more closely, however, commitments as such are neither unconditionally good nor unconditionally bad: they can make one happy or unhappy, can help or harm, in both psychic and social systems.

Today ideas about the *grounds* for binding--another branch of research on binding--are tending to move away from an appeal to supernorms valid via natural law (*pacta sunt servanda*, "contracts are to be kept") or the minimal requirements for order (where would one be if ...) toward temporal sequences. Every event in such a sequence has a selective effect, ¹⁷ excluding some possibilities and opening up others. Purely factual responsibilities are thereby assumed and bindings introduced, to be then interpreted normatively within the system and treated as obligations. A "negotiated order," a level of what cannot be disputed, thus emerges, notwithstanding continued dissent and known differences. The differences are not sublated, but merely neutralized for certain connective operations.

Concepts like "coupling" or "bonding" surface in other research contexts. ¹⁸ They indicate a temporary interlocking of independent

units. The observer's perspective thereby comes to the fore. It does not penetrate the units, but it can establish that they occasionally combine, that they adopt the same or complementary values for many variables, or even that they operate as a unified system on specific occasions.

A basic idea can be distilled from these diverse and uncoordinated theoretical fragments. Bindings come about by selection, specifically, by selections that eliminate (more or less securely) other possibilities. This results neither from a natural inclination of processes nor from assigning valuations or norms to a situation, affirming better states, and so on. Bindings may be represented like this in a subsequent apologetics, but that does not explain their genesis or their immanent historicity. The emergence of bindings is largely accidental, which means that it is not motivated by the advantages of binding itself. Once, however, the corresponding selections are working, they acquire a tendency to reinforce themselves, given the irreversibility of time. This is then reproduced in the form of feeling or of justificatory evaluations. One can explain that a binding that has emerged by selection is no longer open for disposition. One can then--as, for example, in the myth of love-- derive the strength of the binding from the freedom of choice. But this only transfers the paradox of selective binding, of the *necessità cercata*, of arbitrary fatalism into a semantics that extols what should not be changed anyway.

V

Of course, relationships of interpenetration and binding exist not only between human beings and social systems but also among human beings. The complexity of a human being has significance for another human being and vice versa. We will speak of interhuman interpenetration in this situation, ¹⁹ and we must include it before we can speak of socialization.

This usage does not change the concept of interpenetration. The relation of human being to human being is understood via the same concept as the relation between human beings and the social order. ²⁰ The notion highlights different phenomena depending on which kinds of system one refers to.

Of course, the relation between human beings remains a social

phenomenon. Only as such does it interest sociology. This means not only that the conditions and forms in which it comes into being are social, but also dependency on further social conditions. Social conditions and forms are implied in what human beings mutually make available as their own complexity. Only thanks to the social system of society can human beings be as complex as they are--in the strictly formal sense of complexity. ²¹ These references do not exclude studying the phenomenon of interhuman interpenetration as such. One must only observe that one is looking at a historically relative phenomenon--historically relativized by the evolution of the changing social presuppositions for the constitution of human beings, that is, by the presupposed interpenetration of human beings and social systems.

To formulate this better, we will call a relationship of interhuman interpenetration *intimacy*-intimacy in the sense of a situation capable of being augmented. Intimacy comes into being when more and more domains of personal experience and bodily behavior become accessible and relevant to another human being and vice versa. This is possible only if double contingency is operationalized by personal attribution. Then alter does not simply behave in conformity to the situation; his behavior is experienced as an inwardly steered selection-

-conditioned by the complexity of his world and not simply by the complexity of ego's environment (in which alter appears along with

many others). ²² Alter is experienced as situating himself in his world. The presupposition that he acts from within his world enables the kind of personal attribution that forms the basis for intimacy.

The genesis of intimacy--both as it has evolved historically and in individual cases--therefore cannot be fully conceptualized if one seeks to interpret it with a schema of egoism and altruism (although this schema also supports attribution processes and provides, so to speak, help in recognizing them). Similarly, theories that work with the idea of reciprocal gratification fall short of the problem. Roughly speaking, one loves, not because one wants gifts, but because one wants their meaning. This meaning does not lie in displaced gratification, not in the indirect satisfaction of needs by diverting them through the other. ²³ It lies in interpenetration itself, not in performances but in the other's complexity, which is acquired via intimacy as a feature of one's own life. It lies in a new

kind of emergent reality that, as the semantics of love has been saying since the seventeenth century, is at odds with the conventional world and creates its own. ²⁴

In contrast to a long tradition that continued under the title of "friendship" well into the eighteenth century, it is impossible to see in intimate personal relations the perfection of social systems or even the real "center" of society. The augmentation of intimacy is conditioned by a functional differentiation of corresponding small systems. Essentially, it requires atypical or even short-lived behavior. Because of its dependence on specific forms of attribution, intimacy cannot become routine. In the love code of the seventeenth century, this was proclaimed as a requirement of "excess"; in the eighteenth century, it became finesse; and in the nineteenth century, it was a flight from the world of labor. ²⁵

The stable component in all these transformations is an interest in social forms that can support an ability to calculate the increasing individualization of single persons and the recognition of this individuality in social contacts. The "I," with special characteristics that can be attributed only to it, becomes an object of communication in which it is itself involved. It represents itself and is observed --not only as fulfilling norms but also in its most personal characteristics. Only when this interest in the I-ness of personality has gained sufficient societal and cultural acceptance can the differentiation of intimate relations occur, in which everyone contributes what is most intimately his own and receives even better in return.

This phenomenon of intimate, interhuman interpenetration is more in need of explanation than one realizes. To examine it, we will have recourse to observations from attribution theory. Anyone who embarks on a socially unsupported, in itself very improbable relation of intimacy must find orientation points that allow one to turn the initially probable collapse of this relation into something improbable. ²⁶ In this attempt to counteract entropy, one can only refer to the individual person of one's partner. All other resources lie outside the system that is specialized for interhuman interpenetration. Therefore one reads the other's behavior in reference to stable personal characteristics, which also are suitable for making the other's acceptance of this intimate relation plausible. The other's "I" becomes the reference point of a certain kind of paradoxical

attribution: there must be both stable dispositions to recognize and the willingness to transcend oneself in the direction of the other, thus not just to follow one's own interests and habits.²⁷ This paradox can be resolved only if the partner is not conceived simply as a sum of characteristics or properties, but as an individualized relationship to the world.²⁸ That explains why the person one turns to becomes a part of one's world and acquires a specific significance within it. Ego, who asks whether alter loves him or her, must see alter as an alter ego, for whom ego, as an alter, becomes the motive for alter's going beyond himself or herself. Attribution to another "I," who guarantees continuity, even when changing or acting in unaccustomed ways or deferring personal interests, presupposes not only double contingency but also interpenetrating system/environment relationships within this contingency. Only thus can one understand that one's own "I" is located in the world of the other and the other's "I" in mine.

Earlier theories could only formulate such situations more or less tautologically. Despite the warning that a *vis dormitiva* ["a force that makes one sleepy"] could not explain sleep, they fell back on capacities like sympathy and empathy.²⁹ Attribution theory, by contrast, starts from observable behavior and asks how persons attribute this behavior to real causes; only in analyzing the conditions and forms of attribution does it introduce increasingly improbable, culturally and interactionally dependent demands that correspond to what was previously expected as empathy. The result is a very much more complex theoretical apparatus--but also greater explanatory power.

Moreover, it then becomes possible to connect up with a multitude of individual questions that have actually come about in connection with intimate relations. The paradox that the problematic of attribution runs its course on several levels of meaning at once makes clear, for example, that the genesis and reproduction of intimacy presupposes a very refined acquaintance with situations and milieus, thus a great deal of culture, because adequately nuanced observation and attribution is possible only on such a basis. Therefore initially intimacy was believed possible only on higher levels of society; for example, cultivated forms of conviviality, festivity, and so forth were valued as the situative context in which intimate relations could be initiated.³⁰ Young "Werther already observes within a broader context of

daily activities, and the semantics of romantic love gradually draws all of nature into consideration as the echo of its own feeling.

But just this expansion, affirmed in the semantics of the world-inclusive subject, has created expectations and sensibilities that bring new problems with them. On the basis of (certainly not yet fully secured) empirical findings, one can agree that general differences in attribution for actors and observers can also be established in intimate relations,³¹ although here the positions of actor and observer are realized almost simultaneously on both sides.³² Actors orient themselves more to the situation, and observers reckon more by personal traits. This is even more true for observers who want to test trust and love and to know whether they can count on stable attitudes from the other side. Thus the driver of a car believes that he is responding to a situation as best he can. His passenger observes him, attributes his peculiarities to personal traits, and, if the driver is important to her and she can expect consideration from him, feels called upon to comment and tell him how she would drive herself or how she would like to be driven. The driver, by contrast, has left the grounds for his behavior behind him; he experienced them within the context of the situation, if at all, and has not transferred them to the level of his personal relations with his passenger. Thus marriages are made in heaven and fall apart in the automobile because conflicts in attribution arise that, broadly speaking, cannot be handled by communication.³³

Even if one disregards this special problematic, intimate relations are famous for involving a great deal of conflict. One might expect that this is precisely where conflicts that emerge on the level of daily behavior and role interpretations could be brought under control on a meta-level of communication via a presupposed interpenetration. One knows that minor squabbles finally don't count and that there is an understanding they cannot shake. But this difference in levels is precarious and is constantly threatened by the fact that partners can attribute behavior to a person and read from that behavior whether the person (still) holds the attitudes that support the relation.³⁴

Further analyses of this sort could be added. But they would only confirm what already ought to have become clear: a noticeable increase in what human beings mean to one another can be achieved by differentiating specific social systems that, like everything

else created with a bent to functional specification, must be capable of meeting specific demands and pressures. Such intimate bindings even seduce one into disloyalty to broader and "more important" societal obligations--such as religious, political, or professional ones. ³⁵ Therefore only seldom and reluctantly are they allowed. As celebrated as the meaning of friend to friend may be, the representation of friendship's value remains bound to concepts that conform to society. Only in the transition to modern society do freer, more individual possibilities develop. Viewed historically and theoretically, human beings do not emerge through interhuman interpenetration but through social interpenetration, and only this makes possible the very late special case in which social and absorbing interhuman interpenetration coincide.

Interhuman interpenetration is indisputably possible only by communication, that is, only by forming social systems. Nevertheless, we must retain the distinction between interhuman and social interpenetration, not just for analytical reasons. Interhuman interpenetration exceeds the possibilities of communication. This refers not only to the boundaries of linguistic possibilities and not only to the meaning of bodily contact. Instead, intimacy includes what is incommunicable and therefore includes the experience of incommunicability. Alter is significant for ego in ways that ego cannot communicate to alter. Ego does not just lack words or the time for communication, nor is it a matter of sparing the other communication with which the other could not cope. Communication itself would give the utterance an unintended meaning, and because within the condition of intimacy one knows or feels this, one does not do it. What fails in such cases is the principle of communication: the difference between information and utterance, which makes the utterance as such a selective event that solicits reaction. Within the condition of intimacy, the need to react becomes even more urgent and more urgently anticipated. Each one knows the other so well that they cannot conceal themselves because this would be another act that would have to be answered.

The rest is silence.

It is perhaps no accident that precisely the century of the Enlightenment -- which viewed the whole of society in terms of interaction -- confronted this problem. Never has there been such a rich repertoire of sophistries--from the consciously playful handling of

forms, through paradox, irony, and cynicism, finally centering on sexuality as the only positive thing still remaining. All were initiated by an error in communication, and the question was: In which forms could one consciously make this error and in which forms could one not? That problem has been familiar ever since the discovery of intimacy, but it seems to elude being phrased in valid forms. Sociology seems to be the most recent attempt to work out ways of loving in silence.

VI

Interpenetration presents the participating systems with information-processing tasks that they cannot solve. This is true for social and for interhuman interpenetration to the same degree. Interpenetrating systems can never fully exploit the possibilities for variation in the complexity of each other's systems, that is, can never fully transfer that complexity into their own systems. One must always remember that nerve cells are not a part of the nervous system and human beings are not a part of society. We must investigate more closely how it is nevertheless possible to use the complexity of another system to construct one's own. For the domain of psychic and social systems, that is, for the domain of meaning-processing systems, the answer is by binary schematization.

Integration is not achieved by connecting complexity onto complexity. Nor does it lie in a point-for-point correspondence between the different systems' elements, so that every conscious event would correspond to a social event and vice versa. No system could use another's complexity in this way, because the system's operations would then be entirely absorbed in producing the complexity required for such a correspondence. *Instead*, systems must find another way, one more parsimonious in its use of elements and relations, of conscious attention and communicative time.

A first attempt at an answer (which we will later need to dissolve) can be formulated in connection with Talcott Parsons's theory of general action systems. It starts with normatively guaranteed structural nexuses.³⁶ From these, it follows that all interpenetration is brought under the schema of conformity and deviance. Norms can never fully accomplish their projection of reality; therefore, they appear to split reality into the difference between conformity

and deviance. Everything in the domain regulated by the norm is sorted according to whether it realizes one possibility or the other. And depending on what is thus determined to be the case, other connections are chosen.

For the interpenetration of human beings and social systems, this implies that the social meaning of an action is judged primarily by whether it corresponds to the norm or not. Other possible meaning references--for example, what kind of character is expressed in it--are screened off. The social order is almost identified with the legal order. Such a preunderstanding underlies the plausibility of the concept "natural law" in Europe from the Middle Ages to the early modern period. It says that order as such is always a schema of conformity and deviance, that as "nature" it has developed in this way.

The consequences of such a schematization of interpenetration for forming human beings as persons have been less well developed. It means that the social is relevant for human beings only (or at least primarily) as a schema of compliance with or deviation from norms. Only in this reduced form is social complexity available to human beings for constructing their own complex systems. The norm schema structures success and failure, or at least acceptance and rejection, and it suggests that one must consolidate oneself biographically on one side or the other. The more clearly the difference prestructures behavior and connective experiences, the more probable it is that socialization will proceed irreversibly along one or the other track.

The norm schema works to reduce complexity within interpenetrative nexuses on two sides, and it works in both directions as difference. For social systems it is a guarantee of order that is relatively easy to attain--especially if norms are varied and mechanisms for sanctioning deviant behavior can be brought to bear. For the societal system this means that the function domains of politics and law become primary. It is much less certain whether and how persons succeed under such conditions. They may sort themselves accordingly and settle on the sunny side or the shady side. But as personal formation becomes increasingly individualized, the "excluded third" is reactivated. The norm schema as such is no longer accepted. It undoubtedly remains necessary for ordering techniques, but it is dispossessed as a vehicle for affirmations of

ultimate meaning. Even in Parsonsonian theory, which is entirely obligated to this schema and defines structures normatively, the excluded third appears as an exception, precisely where we would expect it. In person-oriented behavior, in education and other therapeutic efforts, a "permissive" attitude is permitted, indeed even required as a matter of professional ethics. ³⁷ Above all, individualized persons now form a silent reservoir for protest movements of all kinds, and it is ever easier for understandings that treat the prevailing norms as truly unreasonable demands to come about between persons.

Such phenomena should be an occasion to examine theoretical foundations. At the moment, we must put off discussing the concept of norm. ³⁸ Here, we need only see the norm schema as a binary schematism, project it back into the nexus of interpenetrative relationships, and portray it as a reduction of complexity that could eventually be carried out otherwise. Therefore we begin once again with the question of how systems can constitute themselves using the complexity of another system.

A first step possible for meaning systems in this transformation is to interpret complexity as a special horizon of system operations. One does or sees something determinate against the background of other, not fully defined possibilities. Often complexity is understood as lack of the information necessary for more secure calculations. ³⁹ Interpreting complexity as a special horizon makes comprehensible how the interpenetration of systems can be eased without their having to sacrifice complexity. They can orient themselves to the depths (however filled with meaning) of another system; they can try to penetrate those depths by observing and clarifying, without ever reaching solid ground.

This can happen because complexity operates within horizons. In relationships of interpenetration, every observation and exploration changes its object. It is an operation in both systems at once. It makes itself into a part of its object. Its "object" does not stand still, but takes the operation into itself and is changed by it. One can test, for example, a proposal's capacity to evoke consensus in a social system and thereby change the conditions for consensus in the system. One lets it be known that consensus is what matters; one binds oneself before knowing whether others will agree; and thus one forms the alternative of acceptance or rejection; creating by this

narrowing down connective possibilities for "yeahs" and "nays" that previously would not have existed (at least not with the social consequences now apparent).

In principle, "sounding out," or plumbing the capacity for consensus, is an operation that can always be carried further; ⁴⁰ but the operation--and therewith one's persistence in pursuing it (or the speed with which one gives up)--changes the situation and thus the horizon of further possibilities. As always in continued exploration, at some point it becomes necessary to break off the attempt and turn to other things. Thus a binary schematism is already built into the horizontal structure of all meaningful experience: to continue on or to break off.

On this basis arises a schematization of elements that can be taken up by both systems. *Contingency* is interpreted as *difference*, and this difference is based on a determinate *meaning schema*. If need be, this meaning schema can be made more precise or can be contrasted with other schematizations. In this way a structured openness, which the interpenetrating systems can take up in different ways, is produced *in an individual element*. Integration lies not in an ultimately underlying (substantial, subjective) identity nor (as is usually said) in a partial intersection of systems. It lies in the fact that different systems use the same difference schema in reproducing their elements, so as to process information resulting from the other system's complex operations. Not unity but difference is the formula for interpenetration, and it refers not to the "being" of systems but to their operative reproduction.

On this level of basic theoretical discussion, our portrayal remains necessarily abstract because it cannot attach itself to a conceptual apparatus that presupposes consciousness or communication and therefore is valid only for psychic systems or only for social systems. One can easily clarify the basic problem, however, if one relates it to the case of social interpenetration. Consciousness is enlisted in the reproduction of communication, and communication in the reproduction of consciousness *without fusing the two*. The separateness of the systems, and with it of the contexts in which elements are selectively linked and thereby reproduced is the precondition for reproduction itself: a conscious act determines itself as prompted by communication (or even as prompted by other kinds of experiences of meaning), with reference to other conscious

acts. Analogously, a communicative event determines itself with reference to other communicative events; whereby it enlists the consciousnesses of many psychic systems and even the self-selective variations of issues in the world. Because the structure occurs analogously on both sides, interpenetration, and with it the differential processing of information by both sides, becomes possible. This cohesion depends on the reciprocal presupposition of reproduction and the meaning form that enables the ongoing articulation of interpenetration: the meaning form of a difference that can be schematized.

Against the background of this problematic of interpenetrating systems' complexity, the generally recognized technical advantage of binary schematisms is particularly evident: if one determines the schema oneself, then one can leave to the other system the choice between the two possibilities. The complexity of the other system is accepted insofar as one does not know which of the two possibilities it will choose; yet that complexity is rendered unproblematic because one has ready connective behavior for both possibilities. The consequences of renouncing calculation are minimized. Categorization can be determined in very different ways, and its operative function does not unconditionally presuppose consensus. A system may schematize the use of another system's complexity as friendly/unfriendly, true/false, conforming/deviant, useful/harmful, or however it wants. The schematism itself forces the system to admit the contingency of the behavior and thus the autonomy of the other system. It must have ready a matching complexity of its own that conforms to autonomy. The schematization is thereby opened to a second effort, which channels it: one must now attempt to figure out whether the other system acts in a more friendly than unfriendly way or in a more useful than harmful way, and one can form expectations regarding this that enable crystallizations in one's own system. ⁴¹

Not least, binary schematisms are the precondition for the emergence of the figure that in modern philosophy has gone by the name of the subject. Its indispensable precondition is the possibility of having true *and false* opinions (and what's more, being able to *have* them indisputably), as well as the possibility of acting correctly *and incorrectly* or morally right *and wrong*. When one takes knowledge into consideration, it becomes clear that the problem of

the subject cannot simply be reduced to a problem of freedom. Instead, the subject individualizes itself only in a life history of true and false opinions, of correct and incorrect actions, which in this specific fashion is unique--as the sum of all that is right, as the mirror of the world, it could be nothing more than merely right. Thus the subject is "subject" (if one still seriously accepts this quality of ultimate substratum as part of the concept's meaning) only for the biographically unique constellation of designations and realizations that binary schematisms have held open. It owes its possibility to this feature, not to itself. If one accepts this, one can see that subjectivity is nothing more than the formulation for a result of interpenetration. Uniqueness and fundamentality are not figures for grounding a history, but rather its end products, emissions and crystallizations of interpenetration that are then to be reintroduced into interpenetration.

VII

The foregoing theoretical preparations allow us to formulate a question. We distinguished social interpenetration from interhuman interpenetration. Moreover, by examining problems of complexity in relationships of interpenetration, we explained the advantages of binary schematisms. Our question now is: Is there a binary schematism that can serve both kinds of interpenetration at once, that works in a way functionally diffuse enough to reduce the complexity of both social interpenetration and interhuman interpenetration? The answer is yes. This is the special function of morality.

Before we develop a concept of morality (it cannot, of course, be deduced from its function), it might be worthwhile to define briefly some suppositions resulting from this functional constellation for everything that claims the quality of morality. As a multifunctional institution, morality limits possibilities of functional specification. Social interpenetration cannot then be differentiated without considering interhuman relations. Wherever this occurs-- for example, in the domain of formally organized labor--special moralities emerge. Likewise, intimacy between humans cannot deepen if it remains bound to considerations of societal morality. Thus when society enables more intimacy, special codes for passionate

love, an appeal to nature, and aesthetic formulations take the place of a universally binding morality. Given such developments --which have obviously been successful in Europe since the eighteenth century and which have exploded the world of earlier societal forms--the impression emerges that morality possessed a societally integrating function that it no longer adequately fulfills. Such an interpretation overlooks the fact that morality is laden with conflict, that it has its polemical side. When analyzed by the sociology of knowledge, this interpretation is seen to be a product of the situation that it formulates as deplorable. Only in a superficial and one-sided consideration does morality appear to be a means of binding human beings within society. Morality repels, quarrels, and impedes the resolution of conflicts--an experience that has resulted, among other things, in the separation of law and morality. In any event, the function of morality is not determined adequately by referring to the need for societal integration. Society, fortunately, is not a moral state of affairs. Of course, any theory that disputes this takes on a great argumentative burden. It must provide a replacement. We will attempt to do this via the concept of interpenetration, which means that the phenomenon of morality will no longer be related to the simple relation of human beings and society, but to the relation between relations: to the coordination of two distinct relationships of interpenetration.

All morality finally relates to the question whether and under what conditions human beings esteem or disdain one another. ⁴² By esteem we mean a generalized recognition and evaluation which honors the fact that others accord with the expectations one believes must be assumed for social relations to continue. Esteem is allocated as a reference to a person; all persons can gain or lose it for themselves (although in former societies belonging to a group was important for the bestowal of esteem/disdain). The person as a whole is always intended--in contrast to the estimation of individual merits, capacities, or competence in a profession, in sports, in love, and so forth. ⁴³ Thus esteem is a symbolic generalization that is directed to persons and finds its boundaries in them. These boundaries are not sharply drawn, and more (or less) can be attributed to a person than that person actually deserves, as seen by other observers. Highly moralized systems tend to overattribute. What is important is that the person be judged as a whole. This is

the precondition of the binary schematization, namely, that either esteem or disdain be conferred, not a mixed judgment like: great at sports, warm at heart, but intellectually not up to snuff.

We will define the morality of a social system as the totality of the conditions for deciding the bestowal of esteem or disdain within the system. Questions of morality can be handled quite controversially. The concept does not presuppose a consensus, although the extent of consensus that can be attained is of course an important feature of morality's functional capacity. Efforts have been made to systematize the connection between and the compatibility of moral demands. Since the time of Aristotle, their theoretical form has customarily been called ethics. Within the framework of ethics, particularly in modern Europe, reflexive theories have developed, and they have had difficulty acknowledging that it is moral to act specifically for the purpose of acquiring esteem or avoiding disdain. Ethics may require one to obey the moral law for its own sake. For sociologists, however, such an extravagance would be a symptom of crisis rather than a scientific revelation.

A sociological theory of morality does not replace ethics, but it does replace moral theories that treat the pursuit of esteem or the avoidance of disdain as human nature and leave it at that.⁴⁴ The concept of nature is superseded by abstracter concepts that systems theory can use and that thereby acquire connectivity, and these concepts clarify the function of morality. Morality is a *symbolic generalization* that reduces the full reflexive *complexity* of doubly contingent ego/alter relations to expressions of esteem and by this generalization open up (1) room for the freeplay of *conditionings* and (2) the possibility of reconstructing complexity through the *binary schematism* esteem/disdain.

Generalizing by referring individual actions to a whole person and respecifying this generalization by conditioning: this is the technique that fuses social and interhuman interpenetration. Human beings reciprocally corroborate that others' esteem matters to them. They make esteem depend on conditions that can be absorbed into the requirements for living together socially. The esteem of other human beings thus becomes an anchorage of requirements for social order, and at the same time these requirements vary what is signaled back to the other as a condition of esteem or its loss.

This concept of morality, which expresses a convergence of social and interpersonal interpenetration, leads to a hypothesis that can be tested empirically. According to this hypothesis, morality will be a source of difficulty or will have to transfer functions onto the societal system if these two forms of interpenetration drift apart. This appears to be unavoidable in highly complex societies. The situation came to a head quite dramatically in the first half of the eighteenth century. On the one hand, more was expected of morality because religion's ability to provide security in the world declined after its segmentation into denominations and after the collapse of devotional movements. The social continued to be defined, and now all the more so, in moral terminology. On the other hand, the semantic codes for intimate relations and for public sociality drifted apart. The understanding of friendship became privatized, and ideas about love were extended psychologically in the direction of social reflexivity and transferred from maxim literature to the novel. Social interpenetration was also felt to be problematical because it excluded interhuman interpenetration. Here the theme of the ridiculous, fashionable in the first decades of the eighteenth century, ⁴⁵ served as a delimitation and as instructions for reflection. Ridiculousness was the mortal enemy of morality precisely because they competed. Elegant society could sanction itself--after it had conceded a special development of private relations and friendships ⁴⁶ -- only by ridiculousness, and moral literature deplored this. Obviously, special developments in private social sensibility and in public sociality could no longer be unified in a single canon of aristocratic morality, but the expectations addressed to morality were still strong enough to allow people to see how much reality deviated. Over the long run, Shaftesbury's attempt to make ridiculousness, understood as a testing procedure in the service of a morality based on natural reason, ⁴⁷ had to fail.

These developments in the moral domain signal a loosening of bindings. Where the overall society is concerned, this means a release from possibilities for binding to allow uses that are more strictly specified (i. e., that no longer concern the whole person), yet are cumulative. One recalls currents of fashion (like, perhaps, the devotional movement of the seventeenth century), social movements, groupings for leisure activities, and even organized behavior. By accumulation, aggregations of this kind produce a sort of effect that today determines society more strongly than the

schematism of morality--especially if the public's political orientation and the economy's orientation to consumption hold in store a special sensitivity to this. It all presupposes a weakened, temporary, but sensitive capacity for binding among individuals. ⁴⁸

After one presupposes these socio-structural developments, one can contextualize the resulting need for performances of reflection in the moral domain. Ethical theories seek to compensate theoretically for this structural problematic to prevent morality from being devalued semantically. For a long time this occurred by smuggling morality into nature and finally, in reaction, by the rigorous, transcendental- theoretical grounding of the moral law. ⁴⁹

We can pursue specific problems further via a sociological concept of morality. Other concepts of morality are shut out or are relegated to ethics. Beyond this, ethical theories can endeavor to establish the principles of correct action, or at least generalize widely applicable moral rules or, as is perhaps predominant today, at the very least develop procedures for that. The sociology of morality considers all this as expertise in its domain of research. The true sociological interest is to investigate how the semantic equipment of morality varies with the typology of social systems, above all, with sociocultural evolution. This by no means amounts to an unchecked relativism. On the contrary, the question of the conditions and boundaries of a moralization of themes presumably derives more guidance from sociological analysis than from ethical principles. In any event, whether or not themes qualify as moral is not relegated to discretion (and whose, after all?). Morality succeeds only if it succeeds in coupling both forms of interpenetration, that is, if it succeeds in binding the conditions under which one can relate to another as a person and as a human being back to the construction of a common social system (or to having already lived in such a social system) and if, conversely, the continuation of such a system's operations is inconceivable without considering what human beings personally think of one another and how they include each other's complexity and freedom of decision into their own self-interpretation.

We thus acquire not only the possibility of identifying moralized themes and clarifying their socio-structural conditions but also the possibility of analyzing phenomena of difference and observing the displacement of themes in relation to morality. ⁵⁰ Thus, for

example, from about 1650 until almost 1800 the theme complex of love and sexuality underwent a moral crisis. Love (in connection with sexuality) was reduced to a brief, if not entirely momentary, phenomenon, which signified total fulfillment for the participants --but only for the instant. ⁵¹ This meant that the highest form of interhuman interpenetration required renouncing the formation of a social system that could promise continuity (typically, marriage). In the game of seduction, resistance, and surrender, one had therefore to renounce moral security, even esteem--with all the bitterness and psychological difficulties that this brought with it (especially for women).

Formulated in superficial nomenclature, this was still a matter of virtue and reputation, but the real problem was that, given the inconstancy of love, one had to renounce social support. Where relations between two persons were concerned, the focus of morality moved into the semantics of friendship.

It is the reverse with economic theory. Here societal change enters when productive labor no longer (or no longer only) proceeds domestically but is connected with the economy by the mechanism of money. Here interhuman interpenetration recedes and, in its place, new forms of social interpenetration--the market and organizations--come to the fore. One exchanges labor, according to specific demands, for wages in a certain amount. Here the inclusion of a human being's full complexity in that of another is not only unnecessary but is even avoided as a disturbance factor. Thus social interpenetration can no longer provide for interhuman interpenetration. Esteem can be dispensed with, and the assessment of capacities for work and wage suffices. Adam Smith wrote his economic theory separately from his main work, his *Theory of Moral Sentiments*. ⁵²

Not only is the "history of ideas" more easy to understand wherever it brushes up against the boundaries of how situations can be moralized; one can discover, especially for the modern era, where such situations appear and why it *is no accident* that they appear where they do. One can see that since the twelfth century increasing demands for individualization have been placed on morality, but this is no adequate explanation. Such demands do not explode morality, they merely transform it. The phenomena of difference --we mentioned love and the money economy, but could also have pointed to the political theory of reasons of state or to

the autonomization of positive law--typically appear wherever function domains are differentiated for greater independence and must justify themselves self-referentially with the help of reflexive theories. Changes in the form of societal differentiation appear to be the triggering factor. Naturally, no society renounces morality, if for no other reason than that the problem of reciprocal esteem is continually reproduced in interaction between human beings. But individual contributions to the great function domains can no longer be coordinated by morality. Morality becomes a disturbance factor or, in any event, an attitude that cannot be observed without distrust and must be kept in check. The maxims that Machiavelli wanted to give his prince disturbed the morally disposed minds of his time. Today one would be shocked if, among the campaign staff of a political party, he heard someone say, "All the people want to know is who are the good guys and who are the bad guys, and *this* is what *we* are going to tell them." ⁵³

VIII

In dealing with the question of socialization that now ensues, we must remember:

1. that problems of causality are secondary to problems of self-reference;
2. that all information processing "takes off" not from identities (e. g., grounds) but from differences;
3. that communication (as constituting and reproducing autopoiesis) is distinct from action (as the constituted element of social systems);
4. that human beings are the environment of social systems; and
5. that the relationship of human beings to social system is one of interpenetration. With these points of departure, the groundwork is prepared; the posts to which we can moor a theory of socialization have been driven.

Much to its detriment, research on socialization has developed into one domain of specialized research among others. Only in references to Georg Simmel and George H. Mead does one recall that for them it was an aspect of a general theory. Usually research on

socialization dissolves oversimplified premises by working from within-- such as a linear causality, according to which the social order forms the individual through its agents of socialization-- without, however, troubling to provide an adequate replacement on the level of a general theory. The indisputable fact that human beings distinguish themselves according to the social circumstances in which they grow up stimulates ever-new research that cannot acquire clear contours without conceptual support. In this regard, scientifically grounded resistance to superficial syntheses of empiricism and ideology also falls short: differences that can be established stimulate welfare-state manipulations that seek to compensate for them.

The theoretical results presented above can now serve as controlled premises. In sweeping terms, we *define* socialization as *the process that, by interpenetration, forms the psychic system and the bodily behavior of human beings that it controls*. The concept impinges on several system references; it overlays positively and negatively valued effects; and it comprises conforming and deviant, pathological (e. g., neurotic) and healthy behavior. Socialization in this sense is no occurrence structured by the standards of success (which at worst could fail). A theory that binds the *concept* of socialization to the creation of adaptive behavior that conforms to expectation cannot explain the emergence of opposite behavioral patterns, and it is helpless before discoveries such as, for example, that adaptation can have neurotic consequences or that adaption and neurosis reinforce each other. ⁵⁴

In view of such weaknesses, one must revise the explanatory goal of socialization theory. What first needs to be grasped and explained is how reduction and complexity reinforce each other. The initial question would be: How can the reductions that a psychic system experiences in interpenetration contribute to constructing its own complexity? ⁵⁵ The premises enumerated above can help to pose this question more precisely.

First of all, socialization is always self-socialization: it does not occur by "transferring" a meaning pattern from one system to another; instead, its basic process is the self-referential reproduction of the system that brings about and experiences socialization in itself.

Socialization is like evolution in that it presupposes basal self-reference and deviant reproduction. ⁵⁶ This does not mean that we

accept the highly problematic assumption of a *phase* analogy between ontogenetic and phylogenetic *processes*; instead, we mean only that all socialization processes and all evolution are both based in the self-reference of a system that reproduces itself and can outlast deviant reproduction. Obviously, the environment plays a decisive role. Moreover, it makes little sense to ask whether the system or the environment is more important in determining the result of socialization, because precisely this difference makes socialization possible.

Furthermore, socialization is possible only if there are *difference schemata* that the psychic system can *attribute to the environment* and *relate to itself*--for example, another person's attraction or aversion, understanding or misunderstanding, conformity or deviance, success or failure. As we have seen, all relationships of interpenetration create such schematisms in the course of realizing themselves. Only with their help can situations be grasped and evaluated to acquire information. Only in the schematism understanding/misunderstanding is there the Aha! effect that certain unexpected events light up and that is chalked up as an experience of success. Only in the schematism attraction /aversion can one learn the signals that produce one or the other. "It is," to quote Bateson, "the difference that makes the difference." The difference schema contains a preliminary decision about possible options, and this preliminary decision, not just the option, has far-reaching consequences for the socialization process. Socialization conditioned only by attraction/aversion must--despite all love!--turn out wretchedly and necessarily imply that freedom and independence can be attained, if at all, only by triggering aversion.

In reaction to a socialization process steered--but not determined! --by difference, the psychic system develops a difference-trigger. The fall from grace has occurred; the fullness of being cannot be regained. Everything that can be imagined is possible in reference to something else, and only thus can information be acquired and processed. A psychological theory adequate to this has been worked out by George A. Kelly. ⁵⁷According to it, all attraction to the environment runs through a bipolar schema of "personal constructs," that is, information that depends on difference, and all repression, everything "unconscious," all totalization is only a suppression of the other always intended. Psychotherapy must then clarify this intended other. ⁵⁸

By accentuating the concept of difference, we do not imply that meaning can be experienced only as two-valued, nor do we imply that meaning always appears in a schematization that has already been established. This reservation is even more valid if one accepts that both sides of the schema must be determined as a kind of "duality" like hot/cold or wet/dry. ⁵⁹ One must remember that the formation of differences is always a matter of reductions, but only reductions that prove their worth in relationships of interpenetration and are therefore preferred in constructing socialization.

This is in no way to deny that socialization is also determined by which value of the schema becomes the dominating experience-- whether, for example, it is the experience of being able to understand or that of never understanding, the hope of success based on earlier experiences or the fear of failure, ⁶⁰ or the possibility of being able to provoke attraction or the experience of an aversion that is independent of one's own behavior and that one can therefore do nothing about. Every schema, taken in itself, increases the probability of accumulating socializing experiences in one direction or the other. Thus it is very important that the entire process of socialization not be dominated by a single schema.

A consciously planned pedagogy attempts to address this problem by conditionally combining two schemata--especially in the form of a program: for conformity, attraction; for deviance, aversion. Against the background of the concept of socialization outlined here, one can see in a glance how such (and all) pedagogical concepts dovetail. They select schemata to be combined (more than two are impractical and result in ambiguous situations) and strictly condition how they are linked. When pedagogy takes over socialization, socialization is obviously forced into narrow bounds.

This also has other bases, which can be clarified via the distinction between action and communication. ⁶¹ All socialization occurs as social interpenetration; all social interpenetration, as communication. Communication succeeds and is experienced as successful when three selections (information/utterance/understanding) form a unity to which further communication can connect. Participation in this occurrence--whether as a source of information, as an utterer, or as someone who understands the utterance in relation to information--is the basis of all socialization. This unity that is communication can never be entirely reduced to the meaning of an intended and attributable action, not even if the action

itself wishes to be communication or contains communicative aspects. The communicative occurrence first socializes itself--not by sanctioning correct or incorrect behavior, but by succeeding as communication. ⁶²

The consequences for a theory of education can only be indicated here. Education is (and here it differs from socialization) action that is intentionalized and attributable to intentions. It can attain its goal (we would like to omit for the time being the possibility of indirect and unnoticed manipulation) only by communication. Thus, being communication, education cannot help but socialize, yet it does so with other effects than those intended. Instead, when this intention is communicated, the person who is expected to become educated acquires the freedom to travel some distance or to seek and find "other possibilities." Above all, the concretizations of pedagogical behavior are laden with difference. They indicate lines of success and thereby establish the possibility of failure. Learning and retention involve forgetting, and competence is experienced within its boundaries, that is, as incompetence. Moreover, with all concretizations it becomes more probable that educator and pupil will operate with dissimilar difference schemata, dissimilar attributions, and dissimilar attitudes about preferences within the difference schemata. If one takes all of this into consideration, then it is no longer possible to conceive of education as successfully effective action. Instead, one must see that actions pedagogically intentionalized and understood differentiate a special kind of function system, which produces socialization effects of its own kind. In this system, pedagogical action and the corresponding communication must be continually re-introduced as a contribution to the system's self-observation and as the continual correction of a self-created reality.

IX

Interpenetration involves human bodies as well as psychic systems. To be sure, it does not include the full range of the body's physical, chemical, and organic systems and processes. That is why Parsons adopted the concept of the "behavioral system" (in contrast to the "human organic system") to identify aspects relevant for action. ⁶³ According to it, one must distinguish (always from the perspective

of an action system!) between the "extra-action environment of the physical and biological conditions of action and the intra-action environments" (meaning "of the behavioral system, of personality, social, and cultural systems").⁶⁴ To a great extent, therefore, the human organism remains environment for the action system, but the action system differentiates its demands on this organism, subsystematizes them, so to speak, and is thereby in a better position to adapt to the physical, chemical, and organic conditions of life.

In the theory of social systems presented here, the need for such a distinction results from an entirely different perspective. Because, unlike Parsons, we do not begin with analytical systems but must prove system formations concretely and empirically, this problem of how to distinguish aspects of the bodily environment is not so easy to solve. It is not enough to postulate a special "behavioral system" as one of the four aspects of action. The guiding question arises from the concept of interpenetration: In what sense is the complexity of bodily existence and bodily behavior enlisted within the social system for ordering that system's own connections? And how must the body be disciplined psychically to make this possible?

What the human body is for itself we do not know.⁶⁵ That it can be an object of scientific research is sufficiently documented, but as human biology it lies outside the thematic scope of our investigations. Here we are interested in the everyday use of the body in social systems. The sociology of bodily behavior, seen in light of theoretical demands, is a kind of exception, especially since nothing can be learned from biology.⁶⁶ This does not allow one to do much more than collate observations and eventually classify them.⁶⁷ In this way, Mead proposed the concept of the "gesture" to indicate the social uses of the body. In a short but rich passage he writes, "What is the basic mechanism whereby the social process goes on? It is the mechanism of gesture, which makes possible the appropriate responses to one another's behavior of the different individual organisms involved in the social process. Within any given social act, an adjustment is effected, by means of gestures, of the actions of one organism involved to the actions of another; the gestures are movements of the first organism which act as specific stimuli calling for the (socially) appropriate responses of the second

organism." ⁶⁸ The question remains (disregarding obscurities in the conceptual relationships among behavior, action, and gesture): How can a bodily movement *be specified* so that it can serve as an adequately *specific* trigger of another's behavior? In other words, how do two bodies attain an adequately specified interplay? The concept of gestures only names the result; it does not explain it.

In correspondence with the general assumption of a multiple constitution of self-referential systems and building on the theorem of double contingency, we begin with the fact that the specification is explained by the fact that it is doubled. Specification of the potential for bodily behavior results from specific demands that enlist possibilities for specification. Bodies reciprocally invite their possibilities of reduction. They do so by presenting their own complexity, especially as possibilities for spatial movement, and thereby hold out the prospect that their self-achieved reductions can be conditioned.

Social, reciprocally evoked specification is, of course, only a special actualization of a much more general situation. The general statement is: the environment specifies bodily behavior because it (the environment) is always already specified. If one wants to sit in a chair, he can do so only in a specified way, because the chair is a chair. But the specification already existing in the environment is insufficient for the emergence of higher levels of system formation. Any specification would first have to be dissolved and then replaced or punctuated with an adequate absence of specification in specific systems in the environment. In an already-specified environment, domains that are still unspecified gain particular relevance as stimuli, and it is then no accident when bodies enter into an interplay of reciprocally evoked specification.

Of course, these statements are still much too general to make the social problematic of bodily behavior comprehensible. This generality is imperative as a foundation for further theoretical developments. Finally, human beings must reciprocally presuppose one another as inhabiting bodies; otherwise, they could not localize or perceive each other. Corporeality is and remains a general (and to this extent, theoretically trivial) premise of social life. In other words, the difference between corporeality and noncorporeality has (at least for our present societal system) no social relevance. Thus one cannot display corporeality as relevant by opposing it to

something else. One can only differentiate it as a specific condition, chance, or resource in the formation of social systems. It is then the general and, in specific contexts, also the specific, if not the downright decisive, premise of connective operations. It can be constructed, kept in store, and perfected for specific social functions.

The body as a potential for gesture has been intensively enlisted in explaining the "process of civilization" (Norbert Elias) and has, so to speak, been refined thereby. Detailing gestures allows one to replace psychological insight where it is not yet available. The black box of the other's body is thereby equipped with more strongly differentiated inputs and outputs, without attempting to simulate what goes on "inside." Scientifically, around the year 1700 not much more was available than a theory of fluids and humors; moral concepts were fused with concepts for input sensitivity (especially passion and sensibility) and output potential (will, valor, self-control, and possibly *vanité*) and did not permit any individualization of psychological orientation, not to mention any deduction of situationally adequate strategies.

Accordingly, one was dependent upon a refinement of gestures, including linguistic gestures. One put one's faith in rhetoric, but also in proper behavior. Sighs, kneeling, and tears seemed capable of demonstrating one's love, while the morality and psychology of pickpockets

resided in successfully arranged bodily connections.⁶⁹ In the course of the eighteenth century, however, rhetoric and gesticulation began to decline and psychology came to the fore. That true love cannot be destroyed by a bodily faux pas (for instance, an admirer inadvertently kneels on his beloved's lapdog) was already clear to Marmontel.⁷⁰ The development reached its conclusion with the discovery of the "unconscious" (which is by no means something "bodily!"). Henceforth one could orient oneself, be it in science or everyday life, to the *difference* between conscious and unconscious, and there was no equally effective equivalent in "body language." With the help of the conscious/unconscious difference, the psychic emancipated itself from the bodily (or, more exactly, from the body/soul schema), became autonomous, and in turn became highly complex, while nevertheless remaining easy to interpret. The culture of the body thereby lost its value as an indicator of psychic processes. Of course, reciprocal interpenetration in social life with the help of the conscious/unconscious schema can include bodily behavior as psychically

steered, ⁷¹ but in doing so it renders superfluous the body culture's function of replacing insight into the psychic.

A complaint often heard today is that violence has silenced the body. ⁷² One should then take pity on the body and try to revive it, which does not necessarily mean misusing it as a weapon of protest or as a mute witness to the decline of culture. It might be more productive to begin by more clearly differentiating the processes of interpenetration that made the former multifunctional, spontaneous *and* reified, sensuous *and* semantic use of the body obsolete in many respects. Instead, things seem to depend more than ever before on a generalized availability of bodily potential *as such*: on youth.

This in no way excludes--on the contrary, it makes more plausible --that the body can be used in social nexuses more specifically, so to speak, "fitting to the body." One of these possibilities is to achieve a refined harmony and tempo of behavioral coordination that would not be possible by conscious control. Perhaps the most concise example is dancing. ⁷³ Playing music together also enables this acquisition of a precise coordination of bodily behavior, one knows not whence. It is no accident that in both a rhythm must be given to illuminate an adequate temporal span for an unmediated (continuously connecting) remembrance and anticipation. ⁷⁴ In working together hand in hand--for example, in sawing--such a rhythm is created in the execution itself, and so the demands for coordination are less complicated. In other cases, such as in playing ball, things may depend on extrapolating from one's partner and using the rhythm thus initiated as a foundation for deception, namely, to anticipate--and parry--his next move. Common to all these cases is that a kind of surplus value resides in the bodily harmony itself and that the activity is pursued for this reason--in dancing, precisely for this reason.

As a domain of modern bodily culture, *sports* should be distinguished from this. ⁷⁵ In sports the extreme reduction of further-reaching meaning references--which then serve as the foundation for a complex arrangement of evaluations of performance, measurements of performance, records, comparisons, progressions, and regressions--immediately stands out. Upon this are further built a sporting-supplies industry, spectator interest, and so on. This does not just verify (once again) that reductions enable the

construction of complexity that can then no longer be controlled by the reductions. Instead, the body seems to lend itself to being the virtual vanishing point of meaninglessness when it does not persist in pure facticity but, from the viewpoint of sports, serves as the point of departure for its own sphere of meaning.⁷⁶ Sports needs and brooks no ideology (which, of course, does not exclude its political misuse). It presents the body, which is no longer particularly enlisted anywhere else. It legitimates behavior toward one's own body through the meaning of the body itself--basically as the precise opposite of asceticism, though not free from asceticism, in other words, positively, not negatively. And it does this without having to rely on meaning domains of other provenience. Sports is viewed as healthy,⁷⁷ but this meaning refers only to the body itself.

A third domain (alongside dancing, etc., and sports) in which corporeality is recognized and used as a special phenomenon can be called the domain of *symbiotic mechanisms*.⁷⁸ This concerns aspects of corporeality that are especially important for individual function systems of society--either as sources of disturbance or as the foundation for differentiation. Every improbable differentiation of specific function domains must remain moored to the fact that human beings live together in a bodily existence, that they can see, hear, and touch one another. Even such intellectually, almost immaterially directed systems as the economy or law or scientific research cannot entirely withdraw from this. They may reduce it to a shadow kiss, as in Paul Claudel's *The Satin Slipper*,⁷⁹ but somehow they must include the control of corporeality in the symbolism of their generalized media of communication. They must have triggering and inhibiting signs ready to hand and plan to form corresponding expectations. Sociocultural evolution does not proceed from matter to mind, from energy to information; it leads, rather, to combinations of corporeality and functionally specific communication that are increasingly demanding and increasingly dependent on specific aspects. This can, as one can read in the de-intellectualization of sensibility in Rousseau, amount to a rediscovery of the body's relevance to itself.

It is therefore no accident that all the important function domains must regulate their relationship to the body and that with the differentiation of particular symbolically generalized media of

communication this relationship must be tailored more precisely and more specifically to the function by a specific symbolization, namely, symbiotic mechanisms. Thus a basis in superior physical force has been the underlying presupposition of all politics since the sixteenth century. ⁸⁰ In the seventeenth century science faced the need to regulate its relationship to truth in a new way, to conduct proofs by perceiving the perception of others and thus to establish itself on an empirical foundation. Science became socially organized and (thereby!) empirical research. Not until the eighteenth century does the symbiotic mechanism for love, sexuality, gain its independence and increase in value, ⁸¹ in a kind of positive or negative sexology in the novel and even in the autobiography (Rousseau). Finally, universal steering by the communication medium of money--thus the formation of capital and "capitalism"--could apparently be accomplished only if bodily based needs could be satisfied adequately, indeed, could be satisfied adequately in its way. The reproduction of humankind is relevant no longer as a sexual problem but as an economic one, and "pauperism" is discussed as a modern phenomenon. ⁸²

Of course, the body was already relevant in all the regards we have named: as subject and as object of physical violence, as perceivable, as capable of sexual stimulation, and as the material support for needs. This fact admits of very different relations to social order. In the earliest comprehensible societal formations, a high degree of randomness and a high degree of intermixing these modes of body use seem to have been typical, together with the correspondingly stricter regulation of a few situations. ⁸³ Combinations developed that provided for less randomness but more freedom, that allowed fewer ritual bindings but more discipline, and that evolutionarily proved their worth as such combinations. ⁸⁴

The premise we started from above can be conceptualized as both resulting from this development and grounded in it. The modern semantics of the body can no longer be grasped as the difference *res corporales/res incorporates*, which traditionally gave informational value to the relationship with the body. Thus the difference between (mortal) body and (immortal) soul also loses its hold in a transcendental difference that structures all of creation, indeed, that forms the act of creation itself. The relationship to death changes correspondingly and demands meaning in a new way. ⁸⁵

Perhaps this change can be tested even more clearly in the literature on the cult of friendship in the eighteenth century. ⁸⁶ That literature combines religious ecstasy, the highest moral value, and bodily symbolism in a way that is no longer comprehensible-- except "psychoanalytically" or with a suspicion of homosexuality. ⁸⁷ This literature is written in such a way that it is impossible to presume that the writer feared someone might suppose that thoughts about one's own body motivated one to write. One began quite ingenuously and securely with the difference *res corporales/res incorporales* and used the body metaphor without risk of referring to the other side of the difference. Only in the last third of the eighteenth century did one lose this semantic frame of reference and have to replace it, in part with the less colorful metaphor of the aesthetic, in part with another difference, namely, that of clearly obscene literature. ⁸⁸

With the waning of the guiding difference corporeal/incorporeal, earlier semantic pre-understandings became obsolete. At the same time, the meaning of the body was freed for the special determinations that we indicated for dancing, sport, and symbiotic mechanisms. In part, the body became the point of crystallization for a socially inclusive bestowal of meaning; in part, it was adjusted for use in the combinatory nexuses of large-scale function systems. Thus the semantics of corporeality, with its undeniable influence on the experience and use of the body, correlates with the change of forms in sociocultural evolution, not because the human body is a mere substance (as a support for capabilities) or a mere instrument for social use, but because it is included in the interpenetration of human beings and the social system.

To be sure, legs remain legs and ears remain ears, despite all sociocultural evolution. As environment, the body is given in advance to society (this includes, rather than ignores, that sociocultural evolution also influences organic evolution). But as a highly complex agglomeration of systems, one that can therefore be conditioned, the body has a meaning that allows complexity in social systems to appear as available: one immediately sees, takes into account, and anticipates that one can behave in one way or another. But this unity of complexity, as well as this immediacy in orienting to it, are not the body itself; they become a unity and an immediacy only in the difference schemata produced by interpenetration.

X

The relationships summarized under the conceptual heading "interpenetration" have a complex structure, which cannot be captured in simple formulations, unless these are very abstract. In the course of this presentation, we have broken them down into individual aspects, which are, however, intermeshed. In the place of a summary, we will emphasize once again that interpenetration is a state of affairs that varies historically in all the respects mentioned above: that is, it is constructed and changes with the evolution of the societal system. This assumption rests on the thesis that relationships of complexity do not permit a random order or an order independent of themselves. If the complexity that interpenetrating systems provide for one another increases, if the contingency of its reduction is discernible, and if the selectivity of all restrictions is strengthened, then this also changes the forms of interpenetration that can still prove their worth.

The hero (or heroine) of Greek tragedy provides a splendid (because clearly formulated) starting point for this analysis. The hero does not act according to a clear binary schematism; the origin of his fate changes his insistence on right into wrong; the *nómos ágraphos* ["unwritten law"] allocates right and wrong to his stand-point and its opposite.⁸⁹ The hero is completely responsible for his actions.

Without a binary schematism, there is no "excluded third." There is no sparing the body, and no salvation of the soul to compensate for suffering or be conferred by grace. There are no pension rights to survive the crime. Action is interpenetration of person and law in which no room for reciprocal freeplay is allowed (or is allowed only in the form of paradoxical, hopeless situations). Greatness consists in performing the action.

What is set in motion with the polis supersedes this and differentiates interpenetrations. It becomes clear how one can acquire esteem and how not, and ethics formulates this under the aegis of logic. Correct action can no longer also be reproached. Social and interhuman interpenetration begin to separate. Personal solidarity (*philia*, friendship) is made ethical in reference to the polis, but it is not collapsed into the good life in and for the polis—it is not simply of a political nature. In the course of the civilizing process, body and soul are finally substantialized separately, for different destinies,

and distinct sensibilities and refinements follow for both--a process of separation that finally surrenders even hell to the "Enlightenment." It is no longer apparent why the body should burn there.

If one conceives of the differentiations that are required as the correlate of increases in the complexity of social structures, then one can understand why the unity of action and personal destiny cannot be recovered. This is precisely what Jean Genet tried to do, and failed. Action and poetry fall apart. To be what they want to be, heroes are forced to observe themselves and comment in a language that (despite all argot) is not that of their action. The problem is not to be solved by transposing positive into negative and back again; it has already become inaccessible because positive and negative exclude one another.

Not only roles, function systems, and types of action, but also interpenetrative relationships and the forms of their use become diversified. Above all, social and interhuman interpenetration separate from each other. What one expects from another human being can be neither promised nor delivered by society (although, of course, every communication is and remains a societal process). Symbols like "luck" and "chance" appear and reflect this state of affairs. If one projects the use of morality onto this development, then the far-reaching congruence of society and morality (which includes positively and negatively judged actions) no longer suits either the initial situation or today's reality. A complex society needs so many different kinds of expectations for its autopoiesis-- including possibilities for entering into and living out intimate relations--that it is impossible for it to sanction all these expectations via the acquisition, maintenance, and loss of esteem. This is also bound up with the detachment of interaction and societal systems, to which we will devote an entire chapter.

Therefore, moralizing becomes a problem in many domains of social life, not least of all love relations. ⁹⁰ It puts too much at stake, and too little of what specifically matters.

This also points to relationships in which socialization and casual education depending on situations no longer suffice to put into effect the preconditions on the human side for the autopoiesis of society. Having conceptualized socialization as a result of interpenetration for human beings, we can also say that interpenetration

does not reproduce itself automatically, simply out of itself; it needs to be intentionalized as education, and finally to be organized, which, in turn, creates special interpenetrations with (unintentional) effects on socialization. Against this background, "moral education" becomes a problem. "Against this background" means on the basis of the experience that society cannot be brought under control by morality or socialization by education. Finally, one should bear in mind that relationships of interpenetration are system/environment relationships, indeed, relationships of a system to a particular environment of interpenetrating systems. There are always other environmental domains than these, and those are also relevant for the system. For social systems, human beings and things are important, being the environment comprising cognitions and motives and the environment comprising resources. An increase in complexity has consequences for the relationship of social systems to both of these environments and for how sharply they are differentiated from the social system as *this* environment. ⁹¹ The reproduction of environmental preconditions for the potential to communicate and act ultimately makes different demands from the reproduction of natural resources; this concerns differently mediated spheres of interdependency and different sources of disturbance, then, increasingly, different chains of effects that the social system triggers in both environments. When this becomes apparent--and in Europe the process became irreversible at the latest in the eighteenth century--human beings cannot be conceptualized traditionally via the thing schema. The guiding difference *res corporales/res incorporates* loses its central position as the coordinator of many semantic domains. The two environments cannot be separated by the concept of embodiment. Human beings become subjects and *res* becomes matter--regardless of how provisionally and unreliably these tradition-laden concepts formulate what is to be said.

To a great extent, all of this is formulated as a theory of society and no longer as a general theory of social systems. But it proves the general thesis that increases in the complexity of social systems (and society is the most complex, because it includes all others within it) change relationships of interpenetration, diversify them, and bind them less immediately back to their own "natural" course. Forms and boundaries must then be created, which have consequences of their own.

Notes

- [Note](#): 1. See Niklas Luhmann, "Wie ist soziale Ordnung möglich?" in Luhmann, *Gesellschaftsstruktur und Semantik: Studien zur Wissenssoziologie der modernen Gesellschaft*, vol. 2 (Frankfurt, 1981), pp. 195-285.
- [Note](#): 2. For a very clear presentation, see Mervyn James, *Family, Lineage, and Civil Society: A Study of Society, Politics, and Mentality in the Durham Region* (Oxford, 1974). The significance of printing for such developments should be noted.
- [Note](#): 3. Moreover, the argumentative value of "analogy" was not as convincing as it had been in antiquity and the Middle Ages. This was further connected with the decline of rhetoric. See, e. g., René Worms, *Organisme et société* (Paris, 1895).
- [Note](#): 4. For typical examples, see: Paul Kellermann, *Kritik einer Soziologie der Ordnung: Organismus und System bei Comte, Spencer und Parsons* (Freiburg, 1967); A. James Gregor, "Political Science and the Uses of Functional Analysis," *American Political Science Review* 62 (1968): 425-39. For instructive consequences in the area of public law, see Gerhart Niemeyer, *Law Without Force: The Function of Politics in International Law* (Princeton, 1941), esp. p. 290ff.
- [Note](#): 5. In Parsons the concept receives clear contours from the total architecture of his theory, although here too much can be disputed. See: Stefan Jensen, "Interpenetration--Zum Verhältnis personaler und sozialer Systeme," *Zeitschrift für Soziologie* 7 (1978): 116-29; Niklas Luhmann, "Interpenetration bei Parsons," *Zeitschrift für Soziologie* 7 (1978): 299-302. Besides, the concept remains vague if one uses it to indicate the reciprocal overlapping of systems without more specific explanation. See, e. g., Ronald L. Breiger, "The Duality of Persons and Groups," *Social Forces* 53 (1974): 181-90; Richard Münch, "Über Parsons zu Weber: Von der Theorie der Rationalisierung zur Theorie der Interpenetration," *Zeitschrift für Soziologie* 9 (1980): 18-53; Münch, *Theorie des Handelns: Zur Rekonstruktion der Beiträge von Talcott Parsons, Emile Durkheim und Max Weber* (Frankfurt, 1982).
- [Note](#): 6. See Chap. 5, section VII.
- [Note](#): 7. Obviously, this also holds for other cases of interpenetration. Thus one's own organism is the environment of one's psychic system, brain cells the environment of the nervous system, etc. Alfred Kuhn, *The Logic of Social Systems* (San Francisco, 1974), p. 40, says the same for behavioral system and biological system.
- [Note](#): 8. See Chap. 1, section II, item no. 4.
- [Note](#): 9. Both parallels to and divergences from Kant's treatment of the problem of complexity are particularly apparent here. Kant also begins from the manifold and asks how one arrives at unity. But because he wants to give the answer through references to syntheses in consciousness, the entire question is psychologized; and because this is not acceptable, transcendentalism must be added. Today, one is inclined to re-naturalize the entire question (including epistemology), without thereby returning to an ontology.
- [Note](#): 10. See Paul Stager, "Conceptual Level as a Composition Variable in Small-Group Decision Making," *Journal of Personality and Social Psychology* 5 (1967): 152-61.
- [Note](#): 11. I use "form in which it appears" to refer to the possibility of observation arising out of autopoiesis.
- [Note](#): 12. Humberto R. Maturana, "Man and Society," in Frank Benseler, Peter M. Hejl, and Wolfram K. Kock, eds., *Autopoiesis, Communication, and Society: The Theory of Autopoietic System in the Social Sciences* (Frankfurt, 1980), pp. 1-31 (p. 12). "Medium" in this quotation means social system. Maturana's remarks on social systems and their autopoiesis are affected by the fact that as a biologist he holds social systems to be living systems, too, and grasps them inadequately as a "collection of interacting living systems" (p. 11). Thus he lacks an adequate analysis of what we are trying to understand as interpenetration.
- [Note](#): 13. Dieter Henrich, *Fluchtlinien: Philosophische Essays* (Frankfurt, 1982), p. 11ff.
- [Note](#): 14. Alfred Korzybski, *Science and Sanity: An Introduction to Nonaristotelian Systems and General Semantics* (1933; rpt. of 3d ed., Lakeville, Ct., 1949). See also the treatment of time-binding as the "most basic property of the nervous system" in Karl H. Pribram, *Languages of the Brain* (Englewood Cliffs, N. J., 1971), p. 26; and further the cosmological generalization in the idea of the binding of space and time in Erich Jantsch, *The Self-Organizing Universe: Scientific and Human Implications of the Emerging Paradigm of Evolution* (Oxford, 1980), p.

231ff.

- [Note](#): 15. See, e. g., Thornton B. Roby, "Commitment," *Behavioral Science* 5 (1960): 253-64; Helen P. Gouldner, "Dimensions of Organizational Commitment," *Administrative Science Quarterly* 4 (1960): 468-90; Howard S. Becker, "Notes on the Concept of Commitment," *American Journal of Sociology* 66 (1960): 32-40; Wilbert E. Moore and Arnold S. Feldman, "Spheres of Commitment," in Moore and Feldman, eds., *Labor Commitment and Social Change in Developing Areas* (New York, 1960), pp. 1-77; Clark Kerr et al., *Industrialism and Industrial Man: The Problems of Labor and Management in Economic Growth* (Cambridge, Mass., 1960), esp. p. 170ff; Amitai Etzioni, *A Comparative Analysis of Complex Organizations: On Power, Involvement and Their Correlates* (New York, 1961); William Kornhauser, "Social Bases of Political Commitment: A Study of Liberals and Radicals," in Arnold M. Rose, ed., *Human Behavior and Social Process: An Interactionist Approach* (Boston, 1962), pp. 321-39; Alfred Kiesler, ed., *The Psychology of Commitment: Experiments Linking Behavior to Belief* (New York, 1971); Rosabeth Moss Kanter, *Commitment and Community* (Cambridge, Mass., 1972); Michael P. Johnson, "Commitment: A Conceptual Structure and Empirical Application," *Sociological Quarterly* 14 (1973): 395-406; Paul C. Rosenblatt, "Needed Research on Commitment in Marriage," in George Levinger and Harold L. Raush, eds., *Close Relationship: Perspectives on the Meaning of Intimacy* (Amherst, Mass., 1977), pp. 73-86. As these examples show, the concept became fashionable in the 1960's in an attempt to offset the crises of loyalty and motivation in the industrial age and as a result took a turn toward the more personal and private.
- [Note](#): 16. See esp. Ray Holland, *Self and Social Context* (New York, 1977).
- [Note](#): 17. See, e. g., Dean E. Hewes, "The Sequential Analysis of Social Interaction," *Quarterly Journal of Speech* 65 (1979): 56-73; Ronald W. Manderscheid, Donald S. Rae, Anne K. McCarrick, and Sam Silbergeld, "A Stochastic Model of Relational Control in Dyadic Interaction," *American Sociological Review* 47 (1982): 62-75.
- [Note](#): 18. See Robert B. Glassman, "Persistence and Loose Coupling in Living Systems," *Behavioral Science* 18 (1973): 83-98; Karl E. Weick, "Educational Organizations as Loosely Coupled Systems," *Administrative Science Quarterly* 21 (1976): 1-19. For "bonding," see, e. g., its use in Milan Zeleny, "Self-Organization of Living Systems: A Formal Model of Autopoiesis," *International Journal of General Systems* 4 (1977): 13-28, or Ricardo B. Uribe, "Modeling Autopoiesis," in Zeleny, ed., *Autopoiesis: A Theory of Living Organization* (New York, 1981), pp. 51-62. In sociology Charles P. Loomis has proposed the concept "systemic linkage," without finding much resonance. See "Tentative Types of Directed Social Change Involving Systemic Linkage," *Rural Sociology* 24 (1959): 383-90; Loomis, *Social Systems: Essays on Their Persistence and Change* (Princeton, 1960).
- [Note](#): 19. As far as terminology is concerned, contrary to earlier usage I do not speak here of interpersonal interpenetration, because bodily behavior must be included and because one should not assume that the psychic is part of the socially constituted form of personality.
- [Note](#): 20. For the semantic tradition alluded to by this double formulation of the question, see Niklas Luhmann, "Wie ist soziale Ordnung möglich?"
- [Note](#): 21. A comparison with other formulations of similar statements would be advisable here. Many times one finds the concept of individuality or identity where we speak of complexity. But how is one to say exactly what one means in saying that individuality or identity is something that can be socially amplified "more or less"? (Such a clarification is difficult enough for "complexity," in view of the multidimensionality of the concept, but not as hopeless as for individuality/identity.) Moreover, the difference between both theoretical interpretations is not as great as it might appear, because the concept of complexity always indicates the unity in the complex and not plurality and diversity as such emanating from it.
- [Note](#): 22. World in the sense used in Chap. 5, section 8, i. e., in the sense of a system/environment relationship with a double horizon.
- [Note](#): 23. One finds this view throughout the eighteenth century, and also among contemporary psychologists. See, e. g. (on the way to a corresponding theory of double contingency), Robert R. Sears, "A Theoretical Framework for Personality and Social Behavior," *American Psychologist* 6 (1951): 476-83--with the interpretation (matching the formulations we have attempted above) that persons enter into interaction as the "potentiality for action."
- [Note](#): 24. See Niklas Luhmann, *Liebe als Passion: Zur Codierung von Intimität* (Frankfurt, 1982); English trans. *Love as Passion: The Codification of Intimacy*, trans. Jeremy Gaines and Doris

L. Jones (Cambridge, Mass., 1986).

- [Note](#): 25. For some arbitrarily selected, but typical examples, see: Charles Jaulnay, *Questions d'amour ou conversations galantes: Dediées aux Belles* (Paris, 1671); Bussy Rabutin, *Histoire amoureuse des Gaules*, 4 vols., new ed. (Paris, 1856; rpt. Nendeln/Liechtenstein, 1972), esp. 1: 347-98; Claude Crébillon (fils), *Les Égarements du coeur et de l'esprit* (1736), quoted from *Oeuvres complètes*, vol. 3 (London, 1777); Jules Michelet, *L'Amour* (Paris, 1858).
- [Note](#): 26. For this risk, see Philip E. Slater, "On Social Regression," *American Sociological Review* 28 (1963): 339-64.
- [Note](#): 27. For these demands on dispositional attribution, see Harold H. Kelley, *Personal Relationships: Their Structures and Processes* (Hillsdale, N. J., 1979), esp. p. 93ff.
- [Note](#): 28. The Romantics and neo-Humanism, above all Wilhelm von Humboldt, are to thank for the *formulation* of this concept. [Note](#): 29. Admittedly, this enabled very sensitive descriptions. See, e. g., Max Scheler, *Wesen und Formen der Sympathie*, 5th ed. (Frankfurt, 1948). But see also the empirical research based on such concepts--e. g., Glenn M. Vernon and Robert L. Stewart, "Empathy as a Process in the Dating Situation," *American Sociological Review* 22 (1957): 48-52; Charles W. Hobart and Nancy Fahlberg, "The Measurement of Empathy," *American Journal of Sociology* 70 (1965): 595-603. See also the article "Sympathy and Empathy," by Laureen G. Wispe, in *International Encyclopedia of the Social Sciences*, vol. 15 (New York, 1968), pp. 441-47.
- [Note](#): 30. See Stendhal's testimony in *De l'amour*, ed. Henri Martineau (Paris, 1959) P. 33f, also Christian Garve, *Ueber Qesellschaft und Einsamkeit*, vol. 1 (Breslau, 1797), p. 308ff.
- [Note](#): 31. See Edward E. Jones and Richard E. Nisbett, "The Actor and the Observer: Divergent Perceptions of the Causes of Behavior," in Edward E. Jones et al., *Attribution: Perceiving the Causes of Behavior* (Morristown, N. J., 1971), pp. 79-94. For a subsequently more differentiated presentation, see also Harold H. Kelley, "An Application of Attribution Theory to Research Methodology for Close Relationships," in George Levinger and Harold L. Rausch, eds., *Close Relationships: Perspectives on the Meaning of Intimacy* (Amherst, Mass., 1977), pp. 87-113 (p. 96ff).
- [Note](#): 32. See for this Table 4.2 (based on very general data) in Kelley, *Personal Relationships*, p. 101. The actor has a self-attribution percentage of 11.4 percent, while his partner attributes causality to him at 33.9 percent. The actor puts down 3.3 percent of his behavior to negative attitudes toward his partner, his partner 12.9 percent.
- [Note](#): 33. This example is extreme because the positions of actor or observer are technically, artificially separated and, at least for a short time, cannot be interchanged. Yet what is dangerous in this differentiation permits one to see solutions, namely, either rigid and self-evident role differentiation (he always does the driving, she has to admire him) or (precisely what cannot be carried out here) intensifying action/observation sequences, e. g., by direct bodily contact or conversation.
- [Note](#): 34. See Harriet B. Braiker and Harold H. Kelley, "Conflict in the Development of Close Relationships," in Robert L. Burgess and Ted L. Huston, eds., *Social Exchange in Developing Relationships* (New York, 1979), PP. 135-68.
- [Note](#): 35. In antiquity this was already a frequently discussed theme. See Fritz-Arthur Steinmetz, *Die Freundschaftslehre des Panaitios* (Wiesbaden, 1967).
- [Note](#): 36. The guarantee of normative structure was introduced as the "second best" theoretical form, thus was left susceptible to being dissolved again. In this sense, Parsons spoke of "structural functionalism." One must be content with this because the complexity of reality forces the theoretician *to begin* with reductions and suggests taking up the (normative!) reductions already to be found in reality.
- [Note](#): 37. But see also Parsons's hesitant, careful, and theoretically uncontrolled (!) formulations of concession, e. g., in *The Social System* (Glencoe, Ill., 1951), pp. 235, 299ff.
- [Note](#): 38. We will return to this in Chap. 8, section XII, in discussing the formation of structure in social systems. [Note](#): 39. See Chap. 1, section II, end of item no. 6.
- [Note](#): 40. See Johan P. Olsen, "Voting 'Sounding Out' and the Governance of Modern Organizations," *Acta Sociologica* 15 (1972): 267-83. [Note](#): 41. The concept of "crystallization" is understood in the sense of Stendhal, *De l'amour*, e. g., pp. 8f, 17f.
- [Note](#): 42. For more detail, see Niklas Luhmann, "Soziologie der Moral," in Niklas Luhmann and Steph-

an H. Pfürtner, eds., *Theorietechnik und Moral* (Frankfurt, 1978), pp. 8-117 (esp. p. 43ff).

- [Note](#): 43. See also the distinction between esteem and approval in Talcott Parsons, *The Social System*, pp. 186, 192. The distinction is an old one. See, e. g., the distinction between *estime* and *consideration*, *respect*, etc. in Jacques Abbadie, *L'Art de se connoître soi-mesme, ou la recherche des sources de la morale* (Rotterdam, 1692), p. 430, or the mocking concept of the "virtuoso," which emerged at that time and was contrasted to moral qualities.
- [Note](#): 44. Or that saw in this the wisdom of the Creator's provision for order--as, e. g., Abbadie, p. 378ff. See also Claude Buffier, *Traité de la société civile* (Paris, 1726), vols. 1-3 (continuous pagination), pp. 53f 269ff; Abbé Pluquet, *De la sociabilité* (Yverdon, 1770), 1: 200ff, 212ff. For further examples from the eighteenth century, see Arthur O. Lovejoy, *Reflections on Human Nature* (Baltimore, 1961), p. 128ff.
- [Note](#): 45. See, e. g.: Jean Baptiste Morvan de Bellegarde, *Réflexions sur le ridicule, et sur les moyens de l'éviter*, 2d ed. (Amsterdam, 1701); Charles Duclos, *Considérations sur les moeurs de ce siècle* (1751), quoted from the ed. of Olivier de Magny (Paris, 1970), p. 187ff.
- [Note](#): 46. The Marquise de Lambert is an advocate of this. She quite consciously draws this conclusion from the (however regrettable) collapse of traditional gallantry. See esp. her *Traité de l'amitié*, quoted from Anne-Thérèse, Marquise de Lambert, *Oeuvres* (Paris, 1808), pp. 105-29.
- [Note](#): 47. *An Essay on the Freedom of Wit and Humour* (1709), quoted from Anthony, Earl of Shaftesbury, *Characteristicks of Men, Manners, Opinions, Times*, vol. 1 (London, 1714), pp. 57-150. See esp. the insight that as the "liberty of the club" this is not applicable to politics or the public!
- [Note](#): 48. There are striking parallels with the weak, cumulative, and specifically chemical binding capacity of particular macromolecules as conditions of the emergence of life.
- [Note](#): 49. A typical example (if one does not wish to resort to Rousseau all the time) is Louis-Sébastien Mercier, *L'Homme sauvage, histoire traduite de ...* (Paris, 1767).
- [Note](#): 50. See, as a case study, Troy Duster, *The Legislation of Morality: Law, Drugs, and Moral Judgment* (New York, 1970).
- [Note](#): 51. The secondary literature views this as preeminently an eighteenth-century theme. See, e. g., Georges Poulet, *Etudes sur le temps humain*, vol. 2 (Paris, 1952); Clifton Cherpach, *An Essay on Crébillon fils* (Durham, N. C., 1962), p. 28ff; Laurent Versini, *Laclot et la tradition: Essai sur les sources et la technique des Liaisons Dangereuses* (Paris, 1968), p. 436ff. The evanescence and inconstancy of love and the thesis that this follows from love's own logic can also, however, be found fully developed in the literature of the second half of the seventeenth century.
- [Note](#): 52. The much-discussed problem of the relationship between the *Inquiry into the Nature and Causes of the Wealth of Nations* and the *Theory of Moral Sentiments* cannot, of course, be explained by the mere distinction between altruism (natural sympathy) and egoism. See the survey in the Introduction, by Walter Eckstein, to Adam Smith, *Theorie des ethischen Gefühle* (Leipzig, 1926). Above all, one needs an adequately selective concept of morality.
- [Note](#): 53. I make no attempt to verify the quotation (which one would have to do if one wanted to connect a moral judgment with the citation and have esteem and disdain at one's service).
- [Note](#): 54. See, e. g., Snell Putney and Geil J. Putney, *The Adjusted American: Normal Neuroses in the Individual and Society* (New York, 1964).
- [Note](#): 55. The psychological theories that could best address this question and substantiate it are those that assign central place to the variable syndrome of "cognitive complexity." See esp.: O. J. Harvey, David E. Hunt, and Harold M. Schroder, *Conceptual Systems and Personality Organization* (New York, 1961); Siegfried Streufert and Harold M. Schroder, "Conceptual Structure, Environmental Complexity and Task Performance," *Journal of Experimental Research in Personality* 1 (1965): 132-37; Harold M. Schroder, Michael J. Driver, and Siegfried Streufert, *Human Information Processing* (New York, 1967); Thomas Bernard Seiler, ed., *Kognitive Strukturiertheit: Theorien, Analysen, Befunde* (Stuttgart, 1973).
- [Note](#): 56. See esp. Francisco J. Varela, *Principles of Biological Autonomy* (New York, 1979). esp. p. 37.
- [Note](#): 57. See George A. Kelly, *The Psychology of Personal Constructs*, 2 vols. (New York, 1955). For further research, see D. Bannister, *Perspectives in Personal Construct Theory* (New York, 1970). Additionally interesting is the comparison of this psychological binarism with Lévi-Strauss's linguistico-anthropological one in Ray Holland, *Self and Social Context* (New York, 1977), p. 148ff.

- [Note](#): 58. For a psychotherapeutics that deviates from this, see George A. Kelly, *Clinical Psychology and Personality* (New York, 1969).
- [Note](#): 59. Obviously, one can call on this reservation only now and then; statements of this kind are always to be read as being relative to the kind of social system and to the level of socio-cultural evolution. Earlier societies obviously had a much broader and more rigorously generalized (but not exclusive!) use of concretely determined dualities. This must have been of considerable significance for the process of socialization. See as a representative anthology and for further references, Rodney Needham, ed., *Right and Left: Essays on Dual Symbolic Classification* (Chicago, 1973), and also, above all, G. E. R. Lloyd, *Polarity and Analogy: Two Types of Argumentation in Early Greek Thought* (Cambridge, 1966).
- [Note](#): 60. Heinz Heckhausen uses this difference to support his concept of achievement motivation. The binarism of the conceptual formation contains a reference to the architecture of differences that finally are actualized by the system/environment difference. See Heinz Heckhausen, *Hoffnung und Furcht in der Leistungsmotivation* (Meisenheim am Glan, 1963); Heckhausen, *The Anatomy of Achievement Motivation* (New York, 1967).
- [Note](#): 61. See Chap. 4.
- [Note](#): 62. As always, one must remember that "success" also includes negative experiences, e. g., communication can be used to emphasize a failure, to prevent retraction of a rejection, to force reaction to an injury, etc.
- [Note](#): 63. See Talcott Parsons, "A Paradigm of the Human Condition," in Parsons, *Action Theory and the Human Condition* (New York, 1978), pp. 361, 382f. The initiative and the technical term for this come from Charles W. Lidz and Victor M. Lidz, "Piaget's Psychology of Intelligence and the Theory of Action," in Jan J. Loubser et al., *Explorations in General Theory in Social Science: Essays in Honor of Talcott Parsons* (New York, 1976), 1: 195-239 (esp. p. 215ff).
- [Note](#): 64. Lidz and Lidz, p. 216.
- [Note](#): 65. This does not, of course, prevent us from observing "life," from defining it, from anticipating behavior, etc.
- [Note](#): 66. For the state of research, see Luc Boltanski, "Die soziale Verwendung des Körpers," in Dietmar Kamper and Volker Rittner, eds., *Zur Geschichte des Körpers* (Munich, 1976), pp. 138-83.
- [Note](#): 67. As a good example, see Marcel Mauss, "Les Techniques du corps," *Journal de Psychologie Normale et Pathologique* 32 (1936): 271-93.
- [Note](#): 68. George H. Mead, *Mind, Self and Society: From the Standpoint of a Social Behaviorist* (Chicago, 1934, rpt. 1952), p. 13f.
- [Note](#): 69. I have in mind here Daniel Defoe's *Moll Flanders* (1722), a novel that provides many examples for the argument that the observation of gestures takes the place of a psychology that does not yet exist. In addition, one is reminded of the contemporary predilection for the epistolary novel, of the intricate style of Crébillon, fils, who concerned himself with psychological complexity in the form of dialogues with highly complex linguistic gestures and was as celebrated as he was criticized for this, or of the abundance of tears that were shed in French novels in the middle of the century. That all of this is already exaggerated (or at least has that effect on today's reader) indicates that the body was already being overused as a placeholder for the consciously and unconsciously psychic.
- [Note](#): 70. See Jean-François Marmontel, "Le Scrupule ou l'amour mécontent de lui-même," in *Oeuvres complètes*, vol. 2, 1 (1819-20, rpt. Geneva, 1968), p. 28ff (p. 30). In comparison see, in the film *Welcome to L. A.*, how disturbing it is, and how spontaneity is broken, when before making love the man has to run out quickly to pee. That is too much for a thorough-going reduction to bodily processes--despite all the understanding of their necessity and despite all open communication about them.
- [Note](#): 71. Theories of bodily presentation in the style of Goffman, though they thrive on interpretive finesse, are indebted to a conscious/unconscious schema. But they allow--and this makes up their curious (also linguistic!) appeal--an incongruous perspective that remains alien to the body itself: *The Presentation of Self in Everyday Life*.
- [Note](#): 72. For such interpretations, in connection with Foucault, see Dietmar Kamper and Volker Rittner, eds., *Zur Geschichte des Körpers* (Munich, 1976).
- [Note](#): 73. Because dance has been externally differentiated as the perfect form of bodily synchronization, it can also serve as the starting point for reversing the symbolism. In its solitary gyrations

in modern discotheques, dance replaces beauty with ugliness, measure with excess, form with impulse--and thereby shows that a partner is lacking.

[Note](#): 74. The true social relevance of the purely temporal structure of rhythm can also be justified conversely. Rhythm not only enacts social coordination but also presupposes it for adequate comprehension. Thus there are rhythms in modern lyric poetry that cannot be comprehended by reading or even by reading aloud (to oneself), but only by having the poem read to one. I owe this experience to Friedrich Rudolf Hohl.

[Note](#): 75. I owe suggestions for the following outline to Volker Rittner.

[Note](#): 76. Formally similar (and not accidentally similar!) observations can be made about the "drug culture." See Dean R. Gerstein, "Cultural Action and Heroin Addiction," Ms., 1981.

[Note](#): 77. We need not concern ourselves here with the many doubts stirred up by this statement.

[Note](#): 78. See Niklas Luhmann, "Symbiotische Mechanismen," in Luhmann, *Soziologische Aufklärung*, vol. 3 (Opladen, 1981), pp. 228-44. [Note](#): 79. This is then, in the theater, already symbolized as the symbolization of minimum requirements.

[Note](#): 80. Parsons speaks in this sense of "real assets." See "On the Concept of Political Power," and "Some Reflections on the Place of Force in Social Process," in Parsons, *Sociological Theory and Modern Society* (New York, 1967), pp. 297-354 and 264-96. See also Niklas Luhmann, *Macht* (Stuttgart, 1975), p. 61ff (English trans. *Trust and Power* [Chichester, 1979]), and for the problematical relationship of the political system and the legal system (especially as a theme in the eighteenth century), Niklas Luhmann, "Rechtszwang und politische Gewalt," in Luhmann, *Ausdifferenzierung des Rechts* (Frankfurt, 1981), pp. 154-72.

[Note](#): 81. See Niklas Luhmann, *Liebe als Passion*, chap. 13. It is significant that French literature proves this thesis. In France in the seventeenth and eighteenth centuries a model of this was tested, driven to extremes, and brought to collapse. As uncommonly (from the contemporary perspective) high degree of freedom for women to dispose of their own bodies required considerable discipline of linguistic behavior (which at the same time gave the "language of the eyes" a much-noted significance). In the eighteenth century, then, what was finally needed for seduction was only "esprit" and no longer "coeur," only strategy and no longer passion, only cleverness and adroitness and no longer readiness for commitment--a result against which its own presentation revolted: the novel *Liaisons Dangereuses*.

[Note](#): 82. See, as the testimony of a physician, Charles Hall, *The Effects of Civilization on the People in European States* (London, 1805; rpt. New York, 1962).

[Note](#): 83. See Ronald M. Berndt, *Excess and Restraint: Social Control Among a New Guinea Mountain People* (Chicago, 1962).

[Note](#): 84. We come close here to the largescale investigations of Norbert Elias, *Über den Prozeß der Zivilisation: Soziogenetische und psychogenetische Untersuchungen*, 2 vols. (Basel, 1939).

[Note](#): 85. Here too the eighteenth century seems to be the turning point, indeed, long before the French Revolution and the Napoleonic Wars, as extensive empirical work has shown. See: Michel Vovelle and Gaby Vovelle, *Vision de la mort et de l'au-delà en Provence d'après des autels des âmes du purgatoires* (Paris, 1970); Michel Vovelle, *Piété baroque et déchristianisation en Provence au XVIII siècle: Les attitudes devant la mort d'après les clauses des testaments* (Paris, 1973); Vovelle, *Mourir autrefois* (Paris, 1974); Pierre Chaunu, "Mourir à Paris (XVIIe-XVIIIe siècles)," *Annales E. C. S.* 31 (1976): 29-50; Lawrence Stone, *The Family, Sex and Marriage in England 1500-1800* (London, 1977), p. 246ff; Reinhart Koselleck, "Kriegserdenkmale als Identitätsstiftungen der Überlebenden," in Odo Marquard and Karlheinz Stierle, eds., *Identität, Poetik und Hermeneutik*, vol. 8 (Munich, 1979), pp. 255-76. For a contemporary example (in itself unimportant, but for this reason typical), see Jacques Perneti, *Les Conseils de l'amitié*, 2d ed. (Frankfurt, 1748), p. 110f: honoring the dead for the sake of a use for the fatherland: "Whatever is not useful to society counts for nothing."

[Note](#): 86. See esp. Ladislao Mittner, "Freundschaft und Liebe in der deutschen Literatur des 18. Jahrhunderts," in *Festschrift für Hans Heinrich Borchardt* (Munich, 1962), pp. 97-138. See also, for earlier treatises, Paul Kluckhohn, *Die Auffassung der Liebe in der Literatur des 18. Jahrhunderts und in der deutschen Romantik* (1922; 3d ed., Tübingen, 1966); Wolfdieter Rasch, *Freundschaftskult und Freundschaftsdichtung im deutschen Schrifttum des 18. Jahrhunderts vom Ausgang des Barock bis zu Klopstock* (Halle, 1936).

[Note](#): 87. But perhaps no longer as openly as in the 1720's. See, e. g.: Oskar Pfister, *Die Frömmigkeit*

des Grafen Ludwig von Zinzendorf, 2d ed. (Zürich, 1925); Hans Dietrich, *Die Freundesliebe in der deutschen Literatur* (Leipzig, 1931).

[Note](#): 88. A difference that, as unstable, can in turn become an object of sociological investigation. See esp. Vilfredo Pareto, *Der Tugendmythos und die unmoralische Literatur* (Neuwied, 1968).

[Note](#): 89. See Erik Wolf's interpretation of Sophocles, *Griechisches Rechtsdenken*, vol. 2 (Frankfurt, 1952), p. 198ff.

[Note](#): 90. Joseph Droz believed that the wife must be able to love her husband, despite his moral defects (*Essai sur l'art d'être heureux*, new ed. [Amsterdam, 1827], p. 108ff). It took somewhat longer to reverse this idea.

[Note](#): 91. We rely here on the remarks about environmental differentiation in Chap. 5, section IV.

-- [255] --

Chapter 7: The Individuality of Psychic Systems

I

In dealing with the theme of this chapter, it might be useful to recall some distinguishing features of the theoretical dispositions encountered up to now. We are dealing with social, not psychic systems. We assume that social systems are not composed of psychic systems, let alone of bodily human beings. Therefore, psychic systems belong to the environment of social systems. Of course, they are a part of the environment that is especially relevant for the formation of social systems. We emphasized this in the previous chapter by examining the concept of interpenetration. Such environmental relevance for the construction of social systems constrains what is possible, but it does not prevent social systems from forming themselves autonomously and on the basis of their own elemental operations. These operations are communications--not psychic processes per se, and also not the processes of consciousness.

For a long time, in sociology the representatives of an individualistic reductionism claimed to have achieved special access to the elementary, empirically graspable foundations of social life. Very often, indeed most of the time, the "individual" functioned as the unit of empirical investigations. One believed that observing the behavior of individuals gave a much more direct insight into what determined how the social order is constituted than did statistical aggregates, not to mention grand theories.

"These arguments, however, are only partially valid," Bernhard Giesen unpretentiously remarked. ¹ I would formulate it more strongly: they are false, for reasons that are easy to see. The material to be observed is without a doubt finally human behavior, but not individual behavior. Ralf Dahrendorf already recognized this problem and presented it, with Kant in the background, as the opposition between freedom and necessity. ² This is surely excessive, and only the basic assumptions of a transcendental reflection could justify it. We weaken that opposition with the thesis that different system references--that is, different system-environment relationships and thus different--accesses to the world--are what is at issue. Each of these systems has its own "internal endlessness." None can be observed in its totality and in the bases for its decisions. Therefore it is in principle false to assume that individuals are better, or at least more directly observable, than social systems. If an observer attributes behavior to individuals and not to social systems, that is *the observer's* decision. It does not express an ontological primacy of human individuality, but merely structures of self-referential systems for observation, and possibly also individual preference for individuals, which can be justified politically, ideologically, and morally, but should not be projected onto the object of observation. ³

Every version of individualistic reductionism has encountered the objection that, as reductionism, it cannot be fair to the "emergent" properties of social systems. We would object further that the issue is not even reductionism, but relating (in an extremely abbreviated way) to psychic rather than social systems. This state of affairs is misrepresented if one defines psychic systems by a sort of shorthand as individuals--that is, if one views them as being adequately characterized if one explains that they are "indivisible." Yet critical remarks about our position of emphasizing reference to social systems often leave the impression that we are denying or misunderstanding an important fact. Therefore we will add to the presentation of the theory of social systems a chapter on individuality, even though it is marginal to this theory.

The contention that social systems are not composed of individuals and cannot be created out of bodily or psychic processes does not mean, of course, that there are no individuals in the world of social systems. On the contrary, a theory of self-referential autopoietic

social systems provokes the question of psychic systems' self-referential autopoiesis and with it the question of how psychic systems can establish their self-reproduction, the "stream" of their "conscious life," from one moment to the next so that its closure is compatible with an environment of social systems.

II

One possibility for theoretical development is always to clarify continuities and discontinuities in the tradition. Under the title of the individual and individuality, a long and momentous history has transpired, which we will briefly sketch, only to clarify the underlying options.

The late-medieval questions of what the individuality of the individual might really entail already lead to results that we can take up directly. ⁴ Obviously, individuality cannot be treated as some additional quality, even less as a determination attributed from without. Instead, the individual had to be conceptualized as being individualized through itself, and in individuation then resided the difference between the individual and everything else. In accordance with a long history of the concept, Francisco Suárez already determined individuality by self-reference: "a substantial modus, too, which is simple and indivisible in its way, gets its individuation out of itself, and not out of any principle that is distinguished from it as a matter of fact." ⁵ All other definitions had failed.

Until the eighteenth century, however, the concept of the individual was still a thing concept, interpreted as the conceptual opposite to units that are complex and therefore can be dismantled. Its original etymological meaning governed the concept. Everything indivisible could be designated an individual; the person as the indivisibility of rational substance was merely a special case. The individuality of the soul guaranteed its indestructibility, thus its immortality, and this explained why human beings had to answer for themselves at the Last Judgment. On this conceptual foundation, one could preach a religion and morality that constantly attempted to motivate human beings to act against their immediate interests.

Moreover, a society still differentiated via stratification could

get by with a kind of glamor version of individualism, namely, heroes versus villains. It was enough to indicate the direction in which one distinguished oneself and refer it to being's general scale of qualities. Self-orientation was bound up with being better than others, not with being different from them. It ran its course either upward--or downward.

Therefore this basic configuration of human individuality could admit no historical change. In 1759 Edward Young, certainly not a tradition-bound author, could still write, "I think that human souls, through all periods, are equal." ⁶ The completely new anthropology of constant unrest and desire, of interests and *plaisir*, of passion and self-love, which had been in existence for a hundred years, initially slipped by this safeguarding concept of individuality. ⁷ Transcendental philosophy first proclaimed a prohibition on using the concept of a thing for what truly constitutes a human being: namely, a self-referential consciousness that makes its own laws. Now human beings had to discover by themselves, so to speak, whether they were immortal or not.

A century-long, specifically German discussion of the relationship between the universal and the particular had prepared for this development. This partially aesthetic, partially epistemological, and partially anthropological discussion focused on the question of how the concretely particular could be discerned within the universally valid. ⁸ One began with a continuum of increasing determinacy, in which the universal as something more or less indeterminate constituted one pole and concrete things as respectively particular constituted the other, and one went from the human being in general to the concrete individual in particular by adding on determinations. This conceptual schema was compatible with stratification because one could simultaneously express similarity (and difference from animals and angels) in terms of what is universally human, and express class differences, nationality, and so forth as levels of concretization.

Within this context, individuals were conceived as concrete persons and thereby as the real foundation for the construction of the world--a world whose order, however, resided in the more general references of genera and species.

When this intellectual construct could no longer rely on the structure of a stratified order, the gnawing question of what can be grasped as universal in the particular brought about its collapse. We

can bypass transcendental theory in the narrow sense; the return of the individual into the theory and the re-anthropologization in transcendentalism reversed the relationship: precisely individuality is universal, because it applies to everyone without exception. Of course, neo-humanist thinkers up to and including Hegel and Marx could not be satisfied with the statement that everyone is an individual; but they began with, and therefore — had to confront the question of how this merely quantitative universality, this mere aggregation, can be filled with content. ⁹ The important question then became how the individual realizes within itself the universal, humanity, the world. For Humboldt, and even for Hegel, this was a matter of *Bildung*. ¹⁰

The nineteenth century made great efforts to give the individual its rights, yet to bind it to certain constraints. Theoretically, these efforts were not very successful. On the level of societal descriptions, which one calls ideology, starting in the 1820s they led to controversies over "individualism" and "socialism" (later "collectivism"), which ended up in mere contradiction. The individual, who of course did not necessarily have to be an "individualist," was not taken into consideration. And if the universal could only be presented as ideology, then the individual could not possibly be brought into society. The individual was required to realize the universal in the particular as self-realization--but precisely this program could no longer be mediated by real psychic and social systems.

Early sociology, preoccupied with defending its existence against the other sciences, not least of all psychology, initially wrestled with the opposition between individualism and collectivism. It could not come down on one side or the other, could not, for example, uncritically accept either utilitarian positions or holistic conceptual totalities (which could not empirically be further dissolved). Its main achievement lay in attempts to mediate individualistic and collectivist positions, and thus to escape the politico-ideological dispute. The greatest stimulus in this was: not to conceptualize the relationship between individual and society as opposing interests, but to formulate it as a relationship of augmentation --a theoretical turn to which one could attach a research program concerned with the *specific conditions* of augmentation (or, conversely, decline), of more individuality and more solidarity,

more freedom and stronger state authority at once. This theoretical position was set out in Durkheim's *De la division du travail social* (1893), but the research program was not carried out. It was not even able to answer the questions of what an "individual" really is and how it enables itself under changing societal conditions.

Instead, research oriented itself to one consequence: that now the difference between individual and society was situated within the individual as the difference between personal and social identity. George Herbert Mead is the standard reference for this. But even independently of Mead, it was accepted that individuality cannot be viewed as purely the individual's own performance, thus not as mere self-reflection.¹¹ Thereby one merely repeats the doubled paradigm of individual and society within the individual, without clarifying which problems should be addressed. It cannot remain a mere "both--and." The "universal" is reconstituted as the "social"; the world is given through others. This may be advantageous heuristically, but the question of how the I relates to the universal and how the I becomes universal are not carried a single step further by it.

This is also a problem for Habermas: in theoretical provisos he is careful to say that an individual who enters into understanding-oriented communication *can* freely examine whether that individual *can* acknowledge its grounds as universally binding. But will the individual *do* so? And if alter eludes this, should ego then nevertheless accept for ego's self what ego believes alter should accept for alter's self? In other words, who should be the first to get involved in the general--perhaps by disarmament? And if every individual must decide this individually, could anyone reasonably expect himself to begin with the general?¹²

An exception to this predominant theoretical pattern of a socially generalized but also de-individualized personal "identity" [i. e., one that neglects the incomparability of individuals], is Talcott Parsons's theory of general action systems. At first glance, it takes care to separate clearly personal and social systems. In their own right, that is, in regard to other functions, both are subsystems of the general action system. Had Parsons raised the question of how the universal could exist in particular individuals, he would have answered that this was simply the universal's contribution to the emergence of action. Of course, one must then theoretically

clarify the emergence of action, and this affects what functions as universal in any system, including the psychic system. Characteristically, given the complexity of Parsons's theoretical conception, a double answer is possible. The totality of what is necessary for the emergence of action is expressed in the four-function schema. To contribute to the emergence of action (or to be able to systematize its contribution), the psychic system must fulfill the four functions. In addition, orientation to underlying values is brought into this schema as a *special* function, namely, as the function of "latent pattern maintenance." This function is hierarchically superordinate to the others. This is where traditional mysticisms of totality, in any event, the Hegelian state, would be subsumed. Decisively for the openness of the Parsonsonian schema, this always remains merely one contribution to the formation of systems among others and the four-function schema sees to it that in every subsystem all other functions receive their due, internally as well as in external relations.

Parsons speaks of interpenetration in relation to this demand. But then interpenetration is not *constitutive* of individuality in either a cultural or social regard. Instead, interpenetrations are merely appearances that follow from system differentiation, and what finally guarantees the systemicity of psychic systems (dare we say, the individuality of psychic systems?) is the thesis that the characteristics of the concept (!) of action cannot be met in any other way.

This theory seems to renounce entirely the feature of self-reference, which dominated the thematic till then.¹³ Self-reference is replaced in the theoretical architecture by orientation to guiding differences, with which the four-function table is constructed. Therein lies the specific modernity of this theory: it begins not with unity, but with difference. It pays for this by confessing that it is concerned only with the *concept* of action, that it is formulated only from the perspective of an *observer*, and that it can only be an *analytic* theory. Thus it does not comprehend what occurs in the black boxes of systems, and, consequently, one does not get an answer to the question: In what sense and under what constraints are individuals individuals for themselves?

This very brief overview of theories of individuality has the following result: if one retains the feature of self-reference, then one confronts the problem of having to determine under what restrictions self-referentiality constitutes individuality. Traditionally, this

question has been combined with the problem of the conditions of reasonable individuality, with the realization of the universal in individual life, with reference to a totality, and in this form it can hardly be revived today. ¹⁴ But if one relinquishes the feature of self-reference, then one takes back the position of an observer who cannot provide any information about his own individuality, cannot even report how he came to the position from which he observes. The question is whether this exhausts all possibilities.

III

In the theory of autopoietic systems, one can find a starting point to newly take up and follow out the problem of the individuality of psychic systems. Whether and how one can extricate oneself from the well-known difficulties of a philosophy of self-referential consciousness (of a Fichtean kind) must be left to later examination. In what follows, one must above all carefully distinguish the autopoiesis of psychic systems from that of social systems (although both operate on the basis of meaningful self-reference) ¹⁵ and not merely strive for a new justification of individualistic reductionism. ¹⁶ Instead, the basic concept of a closed, self-referential reproduction of the system can be applied directly to psychic systems, that is, to systems that reproduce consciousness by consciousness and thereby must fend for themselves, without receiving consciousness from or giving consciousness away to what is outside. By "consciousness" we do not mean something that exists substantially (as language constantly suggests), but only the specific operational mode of psychic systems.

In view of their environmental situation, there can be no doubt that psychic systems are autopoietic systems--but systems based on consciousness, not on life. They use consciousness only in the context of their own operations, while all contacts with the environment (including contacts with their own bodies) are mediated by the nervous system, and so must use different levels of reality. The nervous system is likewise a closed system, and therefore psychic systems operating with consciousness must construct themselves out of self-constituted elements. ¹⁷ However one wants to define the elemental units of consciousness (we will leave aside the distinction between ideas and sensations and speak of thoughts), ¹⁸

only the arrangement of these elements can produce new elements. Thoughts are necessary in order to arrive at thoughts. One can artificially delay the continual process of newly forming thoughts out of thoughts--but only with the effect that a peculiar outwardly directed consciousness of time occurs, which waits until the reproduction of thoughts begins anew and maintains this possibility via a virtual attention.

Important preparatory work toward a theory of psychic systems based on consciousness was provided by Husserl, and it is worth pausing a moment to assess the degree to which our position approaches and departs from transcendental phenomenology. The two agree above all in an insight into the temporality--not merely the temporal dependence!--of consciousness, that is, in the thesis that consciousness, with all its retentions and protentions, always operates in the present and that it therefore can have no duration. It must constantly maintain and replace itself (something Derrida will call *différance*). But *Logical Investigations* already sets the course of bringing all subsequent analysis into the form of a transcendental theory. This follows from the way in which the relationship of consciousness to communication (i. e., psychic and social systems) is determined. ¹⁹

Husserl views communication strictly as one of the possible operations of individual consciousness. This moves the concept of consciousness into a theoretically preeminent position. Consciousness can lend expressive value and meaning to communication, but to know how this is possible and what it means, one must first analyze consciousness itself as the "solitary life of the soul." One then runs into problems of self-reference, thus structures that, in the scientific thinking of the time, were denied the quality "empirical." In consequence, the self-continuation of consciousness was not viewed as an empirical reality. At this functional point in the theory, the concept of ideality enters to guarantee apodictically the unconditional repeatability of thoughts, and thus the enduring richness in content of transcendental "life." Phenomenology could then be presented as a rigorous science, which by working out such idealities traces out the "richness of meaning" that make consciousness's transcendental life possible, whereby "life" is nothing more than a metaphor for what we call autopoiesis. The fatal difference between empirical and transcendental cuts in two the unity of the

autopoiesis of consciousness. That unity can be maintained only as long as one assumes that consciousness is the unique example of an autopoietic system. If one adds organic life and communication in social systems, then the entire theory must be rewritten to accommodate a plurality of system references, and it becomes meaningless to award one of these system references priority as the transcendental subject. The result is that the difference between empirical and transcendental can be dropped from the analysis of consciousness as a no longer necessary doubling of phenomena.

But let us return to the theory of psychically autopoietic systems. If one starts from this concept, then individuality cannot be anything other than the circular closure of this self-referential reproduction.²⁰ In reflection (itself a conscious process among others, one that is actualized only occasionally) this closure appears as consciousness's presupposition of itself. It knows what it is only by knowing what it is. But first and before all reflection, self-reference always already occurs on the level of basal operations, where one thought produces the next and is a thought only when it does so. This level of basal operations already determines that consciousness does not know what it does not know, does not see what it does not see, and does not mean what it does not mean--and that nothing in the environment corresponds to this negativity. Therefore reality is never given to consciousness as such, but only in the way that the operations of consciousness control themselves.²¹

What is true of reflection holds also for the pursuit of goals in psychic systems. Goals can be posited only *in* consciousness, and they presuppose its autopoiesis. Goals establish an end for specific sequences, but this is possible only if that end is not also the end of the self-continuation of consciousness. This becomes more apparent the more a goal's attainment requires a contingent, arbitrary combination of possibilities. Therefore consciousness cannot intend its own autopoiesis, since this would mean ending it.²² We call this circular closure, which contains everything determinate that helps carry out the autopoiesis, individuality, because it is indivisible, like all autopoiesis. It can be destroyed, it can cease, but it cannot be modified. It is inflexible and necessary as long as consciousness continues. But it requires at least two additional conditions of operation: difference and limitation. Subsequent thoughts must be able to distinguish themselves from what fills consciousness

at any instant, and they must be accessible in a bounded repertoire, because no continuation could be recognized as connection if at any instant everything were possible and equally probable.

By difference and limitation, consciousness compels itself to take its environment into consideration. It uses friction with the environment to create information that, if it does not impose, then at least suggests the next thought. Its closure forces openness. This openness is not the possibility of being directly affected by the environment, as if there were direct environmentally related sensations alongside ideas, in the way that earlier psychology understood it. This would be incompatible with closure. Instead, reliance on difference and limitation only means that consciousness must prove its worth in an environment and that it can represent this need to itself. It can, for example, rehearse the difference between its own system and environment and then use this difference to deal with conscious events as information.

Thus the autopoiesis of consciousness is the factual basis of the individuality of psychic systems. It lies outside all social systems-- which should not prevent one from admitting that its self-reproduction has a chance for success only in a social environment. But autopoiesis (even as the autopoiesis of consciousness) is blind, namely, fascinated by the next thought that approaches. It can be deflected onto itself, but only by thinking about itself for just a moment longer. But this does not exhaust the theme of individuality. The theory of autopoiesis distinguishes conceptually between the execution of autopoiesis and observations or descriptions. Autopoietic systems can be observed and described by other systems or by themselves, and observation/description means nothing more than reference to a difference under the precondition of limitation, that is, to difference in a domain of distinctions that could also be otherwise. ²³

Observing psychic systems does not necessarily imply observing their consciousness, as must be expressly emphasized against a widespread but ill-founded opinion. ²⁴ Observations that produce this reference to consciousness are commonly designated "understanding," and an understanding oriented to the difference conscious/unconscious is a particularly rare, demanding case that is especially dependent on theory.

An individual system can observe and describe itself if it can organize difference and limitation for this purpose. It can include these preconditions of its autopoiesis in representation. The (certainly minimal) capacity of an individual thought suffices to have something else in mind. The individual can describe and know itself as a Bavarian and yet know that this excludes being a Prussian. But can an individual describe itself as an individual? It would use its own individuality as a formula for self-description, and in the description it would only discover that it reproduces itself as an individual and is thereby separated from its environment. What should such a self-description serve, save to establish what happens anyway via the mediation of conscious autopoiesis, which will run its course anyway, via its duration? But to maintain meaning for such a self-description, doesn't the individual have to accept being something "universal" in exchange? Even if the individual doesn't directly provide the concept of humanity with the greatest possible content, doesn't it still hope to be more than the mere execution of autopoiesis? And why should the reproduction of consciousness, which goes on anyway, still be duplicated in the processes of observation and description?

Might it be *social* conditions that provide the occasion *for this*?

This question brings us to the problem of "social identity," of the social constituents of psychic systems' self-description. In distinguishing between autopoiesis and self-observation/self-description, we found a way to explicate this problem. We need no longer ask whether and how the evolutionary appearance and preservation of consciousness in psychic systems presupposes society. However conditioned by its environment, autopoietic individuality is a closed system. Another question is: What social stimulation does such a system need to observe and describe itself? Autopoiesis either occurs or does not--just as a biological system either is alive or is not. Self-description, by contrast, is a process that can articulate and modify itself and that develops a semantics for this, with which the system can consciously operate. To do this, the individual can and must use formulas, distinctions, and definitions, with which it can acquire social resonance or rejection. Here a question arises: Whether and under what societal conditions can the individual's insistence on individuality as self-description be permitted or even dictated?

With this question, one can return to the history of how the semantics of individual/individuality/individualism developed. The hypothesis would be that the history of the concept mirrors a process in which individuals gradually become capable of referring to their individuality when describing themselves. Heroism could be seen as a first attempt at this--appropriate only to a few and perhaps inclined to discourage the many. Then followed a cult of genius, which no longer distinguished individual works and utterances solely from the perspective of their greater or lesser perfection, but took into account individuality-conditioned distinctions of execution and innovative quality, and socially secured these by "taste." ²⁵ The *homme universel* and alignment to the human universal was a transitional phase: it allowed everyone to be included, but it was still bound to cultural conditioning, which ultimately caused the individual to be subsumed in the universal. Accordingly, individuals that sought to conform to the individuality expected of them were forced into deviation: they identified their autopoeisis with a methodology of evil, with shocking normality, with avantgardism, revolution, a compulsive critique of everything established, and similar self-stylizations. But this, too, has devolved into imitable gestures and has thereby become unsuitable as a form for the self-description of the individual as an individual. That seems to hold for everything that is still possible, even for the unanimously monotonous complaint about the loss of meaning. Does this history prove that the rise of the individual was a decline and that the expectation that the individual describe himself as an individual leads to meaninglessness? Or can we, blinded by the cultural imperative of value, not see correctly into which forms the individual decays when the differentiation of psychic and social systems has been carried so far that the individual can only use his individuality for self-description?

IV

Generally, an individual psychic system exposes itself to the contingency of its environment in the form of *expectation*. This is also used in forming social structures. *Vis-à-vis* the environment, expectation is put forward as consciousness; *vis-à-vis* the social structure, as communication. In consequence, the concept of expectation

must be interpreted broadly to encompass both a psychical and a social use, as well as their interdependence. We can, for the moment, leave open the dependence of expectations on historical conditions, which alter the nexus of the psychic and social formation of expectations. For psychic systems, we understand expectations to signify a form of orientation by which the system scans the contingency of its environment in relation to itself and which it then assumes as its own uncertainty within the process of autopoietic reproduction.

Expectations establish terminable episodes in the course of consciousness. As indicated in the preceding section, they are possible only if it is certain that autopoietic reproduction will continue. Co-operating in the emergence of new elements, they are part of the autopoietic process, yet arranged within it so that a leap to entirely different guiding structures always remains possible. Despite all its attention to concrete meaning structures, consciousness can always be perturbed and is never entirely given over to a single meaning; it can, so to speak, still observe the contours of meaning's operation (what William James calls its "fringes").

An expectation reconnoiters unknown terrain using a difference it can experience within itself: it can be fulfilled or disappointed, and this does not depend on itself alone.

The indeterminable environment, which does not enter at all into the closed operation of pure autopoiesis, is brought into the form of expectations so that it can express itself in a way that the system can understand and use operatively, in that the system projects an expectation and then records whether what was expected actually occurred or not.

Forming expectations is a primitive technique pure and simple. It involves almost no presuppositions. It does not presuppose that one knows (or even can describe) who one is, or that one knows one's way around the environment. One can formulate an expectation without being familiar with the world--for example, by good luck. It is only necessary for the expectation to be used autopoietically, namely, for it adequately to prestructure access to the connection between thoughts. It then offers subsequent experience as the fulfillment or disappointment of the expectation, thereby prestructuring a further repertoire of further behavioral possibilities. After a certain period of conscious life enriched by social experiences, completely random expectations cease to occur. In the

normal succession that progresses from one thought to another, one no longer encounters anything perverse. One is forced to orient oneself to one's own history of consciousness, however unique it may be; and the determinacy of one's actual experience at any moment makes sure that arbitrary contrary expectations cannot be formed. Therefore socially standardized types are at one's disposal, to hold on to as a kind of rough orientation.

Expectations can be condensed into *claims*. This occurs by strengthening the self-commitment and vulnerability established and put into play in the difference between fulfillment and disappointment. This too is possible almost without involving presuppositions, though only with correspondingly increased risk. Similarly, the process of internal adaptation to fulfillment or disappointment is more complex and appears within the system as *emotion*.²⁶ The transition from expectations to claims increases the chance and the danger that emotion will form, just as one can, conversely, cool down emotions by retreating to mere expectation. The boundary is fluid and can shift during the process; this concerns a single dimension, which can assume the quality of an expectation or a claim depending on how many internal interdependencies are at stake.

The distinction between expectations and claims makes it possible to pursue the question of what occurs psychologically when *individually* grounded claims are increasingly *socially* legitimated and when the social order finally incites individuals to put forward even their individuality as a claim--as the claim to recognition and as the claim to promoting what makes one happy. This "new right to be what one pleases" appears largely self-evident today.²⁷ But how is it possible and how does it come about that an individual can ground a claim to individuality--can, so to speak, claim the *droit de seigneur*, "tel est mon plaisir"?²⁸

One must begin with the fact that claims must be offset by merits, because otherwise the balance would be upset and no social agreement would be possible. This is, of course, a requirement only for social, not for psychic, systems. In other words, when an individual has claims, he will have no difficulty in thinking up merits. One can therefore read the situation of the claim from the semantics of merit (*Verdienst, m rite*). Stratified societies already manipulate this relationship. They infer the merits of higher strata from their

claims, and merit can already be seen in the fact that the higher strata lead a correspondingly good (noble) life. If this no longer appears necessary and if the difference between noble and common as such no longer implies an attribution of merit, then the balance of claims and merits cannot be reproduced on the level of society as a whole. To a certain extent, the money mechanism intervenes here to enable a transference of merits into (entirely different kinds of) claims. Merits and claims find their synthesis in income. This makes it more and more natural to ground claims in one's own wishes, ideas, goals, and interests. One builds one's house as one would have it. By legitimating (and thus removing all communicative obstructions to) a claim to "self-actualization," the societal system answers the individual's position outside the social structure, namely, the circumstance that the individual with all his claims and merits can no longer be included in any of the societal subsystems.

But what does all this mean for the individual? We had said that expectations organize episodes of autopoietic existence and claims reintegrate such episodes in the psychic system. For one thing, this implies that, if claims cannot be made routine, the individual is increasingly subject to the individual's own emotions. Thus modern society is more endangered by emotionality than one usually thinks. For another, individuals are encouraged to talk about themselves and their problems. If one accepts that an individual can justify claims not just by merit but by individuality alone, then the individual must provide self-descriptions. The blindly progressing autopoiesis of consciousness is insufficient for this; it must be "identified" as a point of reference for statements--that is, it must be capable of being handled as a difference from something else. This, however, is possible in the psychic system only as the performance of autopoiesis-- that is, as episodes that can be terminated and transcended, with fluid boundaries, the possibility of being perturbed or distracted, and so on. The individual is forced to produce reflections and self-presentations (which can never be "accurate"). One encounters difficulties in doing this, looks for assistance, and develops the additional claim to a comprehensible, if not therapeutic, treatment of one's claims. This last claim to assistance in grounding claims is so absurd that it is as easy to accept as to reject. The doctor in T. S. Eliot's *The Cocktail Party* thought the latter advisable, on the grounds that this sickness is too general to

claim treatment. Contrary to the Freudian psychology of sublimation, the suppressed universal does not return to consciousness in an improved state, but in a worsened one, as sickness.

Brought to this pass, the individual can choose to escape by declaring that society, not he, is sick. The repertoire that is then available ranges from anarchism through terrorism to resignation --from the claim to act however one wishes to the claim of being confronted by no claims. Without a doubt, these are versions driven literarily to an extreme, not what one finds in real life. The real individual helps himself by making copies (occasionally even by copying these extreme models). He lives as a *homme-copie* (Stendhal). Protest against this is as futile as protest against domination. ²⁹ Within the context of social systems (and from the viewpoint of social innovation in science, art, and technology, the judgment may turn out differently) psychic systems can only copy individually, and no one can deny Emma Bovary her individuality. Pleasure in the new, that "vero nuovo e meraviglioso dilettevole" ("true, new, and wonderfully entertaining") ³⁰ refers to a socially valued difference that emerges from temporalizing the societal system's complexity. ³¹ It does not have an immediate psychological function (or at best it has one that is provided as a copy).

V

On the basis of the preceding analyses, let us return to the problem of the significance attributed to social systems in the constitution of individual psychic systems. First, undoubtedly, is that psychic systems and social systems come into being in the course of co-evolution. This already shows itself in the common use of meaning to present and reduce (systems' own and the environment's) complexity. But autopoietic difference is equally important: in the self-referential closure of their reproduction (thus in what is "unity" for each) psychic and social systems cannot be reduced to each other. They use different media of reproduction: consciousness and communication. Only thus can their respective nexuses of reproduction be conceived as a continuous occurrence that unifies itself. In other words, no autopoietic supersystem could integrate both as a unity: no consciousness revolves around communication and no communication around consciousness.

Once this is established, one can meaningfully ask how communication plays a part in the autopoietic reproduction of consciousness. In the terminology of the preceding chapter, this is a case of interpenetration. The social system places its own complexity, which has stood the test of communicative manageability, at the psychic system's disposal. The evolutionary achievement developed to perform this transfer is language. Psychic processes are not linguistic processes, nor is thought in any way "internal dialogue" (as has been falsely maintained).³² It lacks an "internal addressee." There is no "second I," no "self" in the conscious system, no "me" vis-à-vis an "I," no additional authority that examines all linguistically formed thoughts to see whether it will accept or reject them and whose decision consciousness seeks to anticipate. All of these are theoretical artifacts induced by an understanding of discourse (or, in parallel, reflection) as an intentional activity. To be sure, there are internal self-descriptions that serve to simplify reflection. Everyone knows his own name and birthday, aspects of her own biography, and so forth. But these self-descriptions are not used as an alter ego, as an addressee of communication. There is no sign use with the function of explaining to the "self" what the "I" wants to say to it.³³ If one considers in an unprejudiced way what actually happens when consciousness moves to the next thought using the form of language (e. g., while I am writing this), then nothing more and nothing less is given than the linguistic structuring of the progress from one thought to the next.

This enables, for example, scaling down discrete individual conscious events to the format of individual words, increasing different kinds of possibilities and alternatives, concluding, and continuously beginning anew. Language transfers social complexity into psychic complexity. But the course of consciousness is never identical with linguistic form, not even in the "application" of linguistic "rules" (just as with living systems, the autopoietics of reproduction is a structured process but never exists as the application of structure).³⁴ One need only observe one's own groping thoughts, the search for correct words, the experience of failing to find them, the hesitation in making up one's mind, the temptation to be distracted by the noises that one hears, or the resignation when, finally, nothing turns up and one immediately sees that much more is present than the linguistic sequence of words with

meanings that can be isolated for communication. Thinking must also perform the thoughtless self-continuation of consciousness; only thus can consciousness confirm its own existence.

But what does it mean to say that linguistically formed thoughts play a part in the autopoiesis of consciousness, help to produce it but cannot replace it? Through this, the psychic system acquires what one could call the *capacity to form episodes*. It can differentiate and discontinue operations. It can leap from one context of linguistic thought to the next without bringing the self-reproduction of consciousness to an end, without preventing the possibility of further thoughts becoming conscious. It can equip the difference between before and after in the succession of thoughts with an immense and constantly changing capacity for exclusive operations --for example, to read a newspaper on a train with selective horizons that change from article to article, to ask a fellow passenger for a light (and not anyone else for anything else), to determine that one has not yet arrived in Cologne, and so forth. Borrowing a concept from Spencer's evolutionary psychology, one could also formulate this by saying that language increases the "range of correspondences"; ³⁵ whether and how far this possibility can be elaborated and made psychically available obviously depends on many other conditions. ³⁶ All this makes the unity of the continuation of the autopoietic reproductive nexus compatible with the constant installation and elaboration of changing structures, which fill up and perform the autopoietic process, which produce breaks and transitions without exposing it to the risk of coming to an end. If one no longer speaks, he can still always be silent. If one no longer thinks, he can still always let his thoughts wander. Without this security, perhaps no one would have the courage to give himself over to a word, a sentence, or a thought.

As important as the linguistic forming of consciousness is, social systems also influence psychic systems in other, less mediated ways. Above all, one must remember the fulfillment and disappointment of expectations and claims by which consciousness can be socially directed, although (and precisely because) it itself positions expectations in order to orient itself. In this way, for example, a kind of conscious certainty about judging and feeling can come about, something like taste, which proves itself in the objects and the social resonance of judging. One may then also be

aware of the impossibility of expressing a judgment, indeed, may enjoy this as a kind of superiority. ³⁷

Given the conceptual foundation of an autopoiesis based on consciousness, it is easy to gain access to a sphere of problems that until now have proved quite difficult for sociology (and therefore have hardly been treated), namely, the world of emotions. ³⁸ Emotions arise and grip body and consciousness when the autopoiesis of consciousness is in danger. This may have many kinds of causes, such as external danger, the discrediting of a self-presentation, and even new modes of conscious commitment that take consciousness itself by surprise, like love. Emotions are not representations that refer to the environment but *internal* adaptations to *internal* problem situations in the psychic system that concern the ongoing production of the system's elements by the system's elements. ³⁹ Emotions are not necessarily formed in an occasional and spontaneous manner; one can be more or less disposed to an emotion-laden reaction. ⁴⁰ Nevertheless, emotions are unstable because they die away when order is restored in the self-continuation of consciousness. Both, dispositionality and instability, are important givens for socially processing emotions when they arise, but these characteristics of emotion result from its psychic, not its social function.

In terms of their function, emotions can be compared to immune systems; they seem to assume an immunizing role for the psychic system. ⁴¹ With unusual means, they secure the continuing performance of autopoiesis--here not the autopoiesis of life but of consciousness--in the face of problems that arise, and in doing so they use simplified procedures of discrimination, which permit decisions without considering the consequences. ⁴² They can augment and weaken without direct reference to occurrences in the environment, depending on consciousness's own experience of itself.

Perhaps the most important insight, however, is that all emotions occur as essentially unitary and homogeneous. ⁴³ This results not only from increased interdependence with bodily occurrences, through which one experiences emotion, ⁴⁴ but also from the immunizing function, which, to guarantee autopoiesis against unforeseeable disturbances, cannot keep in store a separate emotion for everything that happens. One can establish in the biochemical domain that emotions occur as a unity, but emotions are more than interpreted biochemistry--they are the psychic system's self-interpretation with regard to whether its operation can continue.

The well-known variety of distinct emotions comes about only secondarily, only through cognitive and linguistic interpretation; thus it is socially conditioned, like the constitution of all complexity in psychic systems. This holds even more for everything one could designate a "culture of emotions": for refinements of the occasions and the forms of expression in which emotions take shape. Such transformations serve, on the one hand, to control emotions socially but, on the other, are burdened with problems of authenticity. Anyone who can say what he is suffering already finds himself no longer entirely in the situation he would like to express. Thus special problems of incommunicability come into being-- not of the emotions per se, but of their authenticity--which affect social systems and may burden psychic ones.

VI

The considerations of social systems' psychic relevance for the emotional and linguistic domain sketched only briefly here could offer a starting point for investigations of the psychic consequences and, above all, the burdens of reflection posed by modern individualism. ⁴⁵ Surely the problem cannot simply be conceived as a diminution of the portion of *conscience collective* within individual consciousness (with a simultaneous increase in the capacity to copy?), as if this concerned a displacement within a sum of possibilities that remained constant. Nor does it help to lay down a theory of two identities, a personal and a social one--altogether ignoring that no individual identifies himself doubly in this way and that no observer would be in a situation to keep the two identities separate. ⁴⁶ Instead, it might be more rewarding to return to Spencer and, with autopoietic individualization always already given, characterize the psychological effects of evolution as "greater complexity of correspondences." ⁴⁷ This leads to the hypothesis that the structuring of autopoiesis makes greater demands, that greater contingency and instability must be coped with, that more dependencies become capable of being experienced, more indifferences necessary, and that, with all this, it becomes harder to select an I.

Must one then follow the philosophy of reflection and empirically expect that reflection in the direction of one's own I-identity becomes more probable? To pose this question empirically, one must determine more precisely what it implies. If one views reflection

as an act and identity as the act's correlate, then this theory leads to a kind of over-identification of the ego. In the conceptual framework of systems theory, here we have at our disposal the notions of self-observation and self-description. In them, individualizing autopoiesis is always already presupposed as the operation that is also (but not only) reproduced by self-observation and self-description. The necessity of self-simplification is also implied. Perhaps one can employ a proposal made by Robert Rosen and see the system's eigen-complexity in that, depending on the interaction (here, interaction with an environment that interacts with the system), different self-descriptions can be made.⁴⁸ Must one then thematize these as a unity wherever consciousness itself is and cannot help but be an operative unity?

Perhaps the only real problem is to develop a sufficient knack for transitions and to keep in store possible solutions in case of conflict.⁴⁹

What cannot thereby be grasped is perhaps the most important problem for the autopoiesis of consciousness: the problem of death. One can imagine one's own death as the end of life, but not as the end of consciousness.⁵⁰ "La mort est une surprise que fait l'inconcevable au concevable."⁵¹ All the elements of consciousness are concerned with reproducing consciousness, and this and-so-forth cannot be denied without their losing their character as elements in the autopoietic reproductive nexus. No futureless element, no end of the entire series can be produced in this system because such a final element could not function as an autopoietic element, that is, could not be a unit and thus could not be determinable. Consciousness cannot really know itself as terminable and, largely with the permission of society, it consequently attributes eternal life to itself, only abstracting from all the contents it knows.⁵² Any termination that it can foresee is the termination of an episode within consciousness, and in this sense one understood "life on this earth" to be an episode. Death is no goal. Consciousness cannot reach an end; it simply stops. If there is, besides the unity of autopoiesis, a "second unity" of the totality of consciousness, it can only be this unacceptable unity of death, namely, the possibility of simply stopping that accompanies every renewal of vanishing conscious events.

Although they are inaccessible (or, in a certain way, only linguistically accessible) to consciousness, even ideas about death are

subject to social shaping. Since the eighteenth century the historically new kind of individualism has become apparent in societal attitudes toward death. ⁵³ Death became privatized, which then required society to provide death in the public interest, particularly death in war, with a special meaning. ⁵⁴ At the same time the individual was also--if only by the conspiratorial silence of his doctor --distracted from his death. Even if this did not succeed, he was expected not to communicate about it. Attempts to do so were felt to be distressing and found little resonance.

The theory of an autopoiesis based in consciousness only reformulates these well-known states of affairs. It postulates a distinctive converse relationship between individualization and the semantics of death: the more individual a psychic system conceives itself to be and the more it reflects that in its own autopoiesis, the less it can imagine living after death and, in conjunction, the less imaginable becomes the final moment of death. Even communication does not help with the unimaginable. It leaves consciousness to itself. The difference between psychic and social systems cannot be made any more brutally. The social system can guarantee or deny the psychic system neither constant self-continuation nor the accompanying implicit possibility of an ever-present end, neither the positive nor the negative unity of the psychic system's own autopoiesis.

-- nts --

Notes

- [Note](#): 1. Bernhard Giesen, *Makrosoziologie: Eine evolutionstheoretische Einführung* (Hamburg, 1980), p. 29. [Note](#): 2. See Ralf Dahrendorf, *Homo Sociologicus*, 7th ed. (Köln-pladen, 1968).
- [Note](#): 3. Here, it is easy to detect the principal weaknesses of a *transcendental* founding of *individuality* (instead of the working categories of reason). According to his own theory the transcendental theorist must postulate himself as a free, and therefore unknowable, individual, i. e., as a theoretician who doesn't show his cards.
- [Note](#): 4. See Johannes Assenmacher, *Die Geschichte des Individuationsprinzips in der Scholastik* (Leipzig, 1926).
- [Note](#): 5. Francisco Suarez, "Dispositiones Metaphysicae," Disp. VI, 14, quoted from *Opera omnia*, vol. 1 (Paris, 1866; rpt. Hildesheim, 1966), p. 185. Orig. pub. 1597.
- [Note](#): 6. In "Conjectures on Original Composition," in Edward Young, *The Complete Works* (London, 1854; rpt. Hildesheim, 1968), 2: 547- 86 (p. 554).
- [Note](#): 7. For greater detail, see Niklas Luhmann, "Frühneuzeitliche Anthropologie: Theoretische Lösungen für ein Evolutionsproblem der Gesellschaft," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), pp. 162-234.
- [Note](#): 8. This should be interpreted sociologically against the background of the stratified society that was then dissolving. It had presupposed that membership in a certain social stratum guaranteed taste and judgment, but it could no longer supply convincing criteria for this. See, for this and for the transition to the discussion of the universal in the particular, Alfred Baeumler, *Das Irrationalitätsproblem in der Ästhetik und Logik des 18. Jahrhunderts bis zur Kritik der Urteils-kraft*, 2d ed. (Darmstadt, 1967). Orig. pub. 1923.
- [Note](#): 9. Marx raised this explicitly in his critique of Hegel, specifically, §308 of the *Philosophy of Right*. See "Kritik des Hegelschen Staatsrechtes" (§§261-313), in Karl Marx and Friedrich Engels, *Historisch-kritische Gesamtausgabe* (Frankfurt, 1927; rpt. Glashütten/Taunus, 1970), 1: 401-553 (p. 539ff).
- [Note](#): 10. "The ultimate task of our existence: to give as great as possible a content to the concept of humanity in our person, both during our lifetime and beyond it [there is no word of 'indestructibility'] through the traces left behind by our life's work; this task can be fulfilled only by linking our ego with the world for the most universal, vivid, and freest reciprocal action." (Wilhelm von Humboldt, "Theorie der Bildung des Menschen," *Werke*, vol. 1, 2d ed. [Darmstadt, 1969], p. 235f).
- [Note](#): 11. See, e. g., Emile Durkheim, *Leçons de sociologie: Physique des moeurs et du droit* (Paris, 1950), p. 68ff.
- [Note](#): 12. Habermas neutralizes this problem, if he does not solve it, by collapsing cognitive and motivational components in the concept of "reasons." One cannot understand reasons without taking a positive or negative stand toward them (Jürgen Habermas, *Theorie des kommunikativen Handelns*, vol. 1 [Frankfurt, 1981], p. 191). But taking such a stand compels (if one is not to be inconsistent) a corresponding orientation to action. This excludes individuality, because individuality is achieved precisely through orientation to the *difference* between cognitions and motives. That one need not be compelled by one's own insight is the reason one is free to follow it. Otherwise, all motives would be locked into a world machine. In other words, one need not use insight to distance oneself from the world; one can do this with motives.
- [Note](#): 13. See Niklas Luhmann, "Talcott Parsons: Zur Zukunft eines Theorieprogramms," *Zeitschrift für Soziologie* 9 (1980): 5-7 (p. 12ff). [Note](#): 14. See Michael Theunissen, *Selbstverwirklichung und Allgemeinheit: Zur Kritik des gegenwärtigen Bewußtseins* (Berlin, 1982).
- [Note](#): 15. This distinction excludes positions that take consciousness to be a basic sociological concept. To give one especially clear example: "perhaps the most important concept in the social sciences is the concept of consciousness" (Arthur Brittan, *Meanings and Situations* [London, 1973], p. 11). [Note](#): 16. Peter M. Hejl argues the opposite in both respects, *Sozialwissenschaft als Theorie selbstreferentieller Systeme* (Frankfurt, 1982); Hejl, "Die Theorie autopoietischer Systeme: Perspektiven für die soziologische Systemtheorie," *Rechtstheorie* 13 (1982): 45-88.
- [Note](#): 17. See Gerhard Roth, "Cognition as a Self-Organizing System," in Frank Benseler et al., *Autopoiesis, Communication and Society: The Theory of Autopoietic System in the Social Sciences* (Frankfurt, 1980), pp. 45-62.

[Note](#): 18. One could appeal here to Gottlob Frege, but then one would have to abstract from the (some-what casual) determination of ideas as an "internal picture." An "idea" should be any element that gets identified by the consciousness as an operative unity in the production of further elements.

[Note](#): 19. We rely here on Chap. 4, section III.

[Note](#): 20. For the same thesis, that autopoiesis is individuality, Maturana and Varela posit the imperative of self-maintenance. See Humberto Maturana, *Erkennen: Die Organisation und Verkörperung von Wirklichkeit* (Brunswick, 1982), p. 192. In any event, the justification is the facticity of closed reproduction, which can be observed as different from the environment, and not a norm or a value for being or remaining what one is.

[Note](#): 21. See Heinz von Foerster, "On Constructing a Reality," in Wolfgang F. E. Preiser, ed., *Environmental Design Research*, vol. 2 (Stroudsburg, Pa., 1973), pp. 35-46.

[Note](#): 22. See the distinction between the flow of thought and goal-directed speech in Friedrich E. D. Schleiermacher, *Hermeneutik und Kritik*, ed. Manfred Frank (Frankfurt, 1977), p. 178f: "There it flows like an unendingness, an indeterminate transition from one thought to the next without any necessary connection. Here, in continuous speech, there is a specific goal to which everything refers. One thought necessarily determines the next, and if the goal is attained, then the series comes to an end. In the first case, the individual, purely psychological dominates; in the second, the consciousness of a determinate progress towards a goal." In contrast to Schleiermacher, we, of course, do not only understand the psychic aspect of the continuous flow of thought as a relationship to its own internal unendingness or as a relationship to the part of the whole that is actual at any moment, but as the circular closure of the system's self-reproduction and thereby as the condition for working in episodes that can be ended.

[Note](#): 23. Maturana might argue differently, since the consequent temporalization of the performance of autopoiesis, i. e., its grounding in events as elements, goes beyond his claims. We leave it to others to investigate and justify our argument, not by reference to an author, but by reference to the facts.

[Note](#): 24. See also, for the observation of action, Charles K. Warriner, *The Emergence of Society* (Homewood, Ill., 1970), p. 24: "The observation of action as I have defined it here does not imply that the structured act nor the meanings identified are what the actors *now* have in their minds. We may wish to make this inference, but this is a separate operation from observation and has nothing to do with the objectivity of the observational procedure."

[Note](#): 25. A typical example is Ludovico A. Muratori, *Della perfetta poesia italiana* (1706; Milan, 1971).

[Note](#): 26. "Emotion" is understood here not as an indefinable experiential quality (perhaps within the classic triad reason/will/feeling) but as the *internal* adaptation to *internal* problem situations of psychic systems. Here we cannot explore further the related research perspectives, but can only mention that according to the functional concept of emotion presented here, one might expect that emotional qualities would expire when claims are reduced to mere expectations, and also when they are routinely fulfilled or disappointed. This is confirmed by a glance at the literature on love and is demonstrated by the classical topos of the instability of emotions.

[Note](#): 27. Thus Orrin E. Klapp, *Collective Search for Identity* (New York, 1969), p. x.

[Note](#): 28. The derivation of this formula of arbitrariness deserves study. It seems to have a social origin, that is to say, it seems to have been related at first to an alter ego. "Si eis placet" (if it pleases them) is the polite formula with which Roman magistrates addressed the Senate.

[Note](#): 29. Both were launched almost simultaneously (perhaps as copies?). "Born originals, how comes it to pass that we die copies?" asks Edward Young in 1759, "Conjectures on Original Composition," in Young, *The Complete Works*, 2: 547-86 (p. 561). And "Man is born free, and everywhere he is in chains," writes Jean-Jacques Rousseau in 1762, *Du contrat social, Oeuvres complètes*, vol. 3, éd. de la Pléiade (Paris, 1964), pp. 347-470 (p. 351).

[Note](#): 30. Muratori, p. 104.

[Note](#): 31. See Niklas Luhmann, "Temporalisierung von Komplexität: Zur Semantik neuzeitlicher Zeitbegriffe," in Luhmann, *Gesellschaftsstruktur und Semantik*, 1: 235-300.

[Note](#): 32. For an introductory outline that no longer examines the problem as such, see Joel M. Charon, *Symbolic Interactionism: An Introduction, an Interpretation, an Integration* (Englewood Cliffs, N. J., 1979), p. 86f. One should avoid calling this interpretation "phenomenology." Husserl himself rejected it because "internal speech" would require the use of signs, and this is precise-

ly what reflexive consciousness does not depend on. See *Logische Untersuchungen*, vol. 2, 1, §8, 3d ed. (Halle, 1922), p. 35ff. The argument has fundamental significance for the theory of transcendental consciousness (see for this Jacques Derrida, *Speech and Phenomena and Other Essays on Husserl's Theory of Signs*, trans. David B. Allison [Evanston, Ill., 1973]). It excludes any attempt to combine the theoretical traditions of Husserl and Mead.

[Note](#): 33. This was, above all, Husserl's argument.

[Note](#): 34. It hardly needs to be mentioned that precisely the opposite holds for Searle's concept of the speech act. Speech acts are related not to psychic but to social systems. They signify elemental events, but with a different system reference. Therefore intention, meaning, and recognition coincide in them. A speech act owes its quality as event to the reproduction of comprehensible language, not to the reproduction of consciousness.

[Note](#): 35. Herbert Spencer, *Principles of Psychology* (1899; rpt. Osnabrück, 1966), 1: 300ff.

[Note](#): 36. This is once again in part, but only in part, a question of linguistic competence. See the well-known distinction between restricted and elaborated codes in Basil Bernstein, *Class, Codes and Control*, 3 vols. (London, 1971-75).

[Note](#): 37. Much of the literature of the seventeenth and early eighteenth centuries supports this--e. g., the justification of a judgment with a provocative "je ne sais quoi"--leaving the impression that a justification of the natural superiority of those belonging to the higher strata (a justification whose basis is rapidly disappearing) could be found once again, whereas the professional literature (above all the juristic literature) dealing with stratification already emphasized the entire system's artificiality.

[Note](#): 38. Sociology's typical reaction to this theme can be given quite simply: omissions in research! Or, the need for unconventional methods. See Norman K. Denzin, "A Phenomenology of Emotion and Deviance," *Zeitschrift für Soziologie* 9 (1980): 251-61. In reality, factual conditions escape direct sociological treatment. At best, sociology can concern itself with communicating emotions, with their stimulation, observation, processing, cooling out, etc. in social systems, but not with emotions themselves. A good model of this is Erving Goffman, "On Cooling the Mark Out," *Psychiatry* 15 (1952): 451-63.

[Note](#): 39. With Karl H. Pribram, *Languages of the Brain* (Englewood Cliffs, N. J., 1971), p. 208, one could perhaps say more carefully that "these internal adjustments are felt as emotions." I will return directly to the neurophysiological references intended here.

[Note](#): 40. For this question, see Arlie Russell Hochschild, "Emotion Work, Feeling Rules, and Social Structures," *American Journal of Sociology* 85 (1979): 551-75.

[Note](#): 41. For more on the concept and on systems-theoretical interpretation of the immune system for social systems, see Chap. 9.

[Note](#): 42. This has often been remarked. See, e. g., J. A. Easterbrook, "The Effect of Emotion on Cue Utilization and the Organization of Behavior," *Psychological Review* 66 (1959): 183-201: "the number of cues utilized in any situation tends to become smaller with increase in emotion." By contrast, it is equally well-known that emotions can also increase sensitivity to specific information.

[Note](#): 43. Parsons uses the emptiness of affect in an entirely different way, namely, to interpret "affect" as a symbolically generalized medium. To be sure, Parsons relates this medium, in a way parallel with "intelligence," not to the system of personality but to the general action system. See esp. Parsons, "Social Structure and the Symbolic Media of Interchange," in Parsons, *Social Systems and the Evolution of Action Theory* (New York, 1977), p. 204-28 (p. 214ff); also Talcott Parsons and Gerald M. Platt, *The American University* (Cambridge, Mass., 1973), p. 83: "Affect is contentless in a sense parallel to that in which intelligence is contentless."

[Note](#): 44. This idea seems to go back to William James. For an experimental examination, see Stanley Schachter and Jerome E. Singer, "Cognitive, Social, and Physiological Determinants of Emotional State," *Psychological Review* 69 (1962): 379-99.

[Note](#): 45. We will deal with the social relevance of psychic systems in the following chapter under the concept of *person*.

[Note](#): 46. To round off this critique, we would like to say that this is only a matter of a theoretical artifact, in fact of a mere correlate of the concept of reflection interpreted as an act that presupposes something as at once a subject and an object and then builds a social determination into the objectivity of the subject in order to mark the difference between the two.

[Note](#): 47. See Spencer, *Principles of Psychology*.

[Note](#): 48. See Robert Rosen, "Complexity as a System Problem," *International Journal of General Systems* 3 (1977): 227-32. [Note](#): 49. One is almost reminded here of dialectics: of unity revealed in transition.

[Note](#): 50. Interesting empirical evidence for this emerges from studies of the conscious experiences of those on the verge of death (which, of course, say nothing for "life after death"). See, e. g., Karlis Osis and Erlendur Haraldsson, *At the Hour of Death* (New York, 1977); also Elisabeth Kübler-Ross, *Interviews mit Sterbenden* (Stuttgart, 1969); Raymond A. Moody, *Life After Life* (New York, 1976); Moody, *Reflections on Life After Life* (New York, 1978). In the philosophical literature, a similar interpretation is found in Jean-Paul Sartre, *Being and Nothingness*, trans. Hazel E. Barnes (New York, 1953, rpt. 1966), p. 661: "since the for-itself is the being which always lays claim to an `after,' there is no place for death in the being which is for-itself." Therefore *its own* death remains completely indeterminate for the for-itself (and not only indeterminate at a specific point in time), because a future aspect always belongs to the determination of a for-itself. Therefore its own death does not belong to the ontological structure of the for-itself; it is forced upon one by the fact that another can observe one (and one can know this): "it is also the triumph of the point of view of the Other over the point of view *which I am toward myself*" (p. 661).

[Note](#): 51. Paul Valéry, "Rhumbs," from *Oeuvres*, ed. de la Pléiade, vol. 2 (Paris, 1960), p. 611.

[Note](#): 52. Perhaps Simmel had this structurally purified, so to speak, autopoiesis in mind when he determined immortality as the state of the soul "in which it no longer experiences, in which its meaning no longer realizes itself in a content that exists in any meaning outside itself ("Tod und Unsterblichkeit," in Georg Simmel, *Lebensanschauung: Vier metaphysische Kapitel* [Munich, 1918], pp. 99-153 (p. 117).

[Note](#): 53. See Alois Hahn, "Tod und Individualität: Eine Übersicht über neuere französische Literatur," *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 31 (1979): pp. 746-65. Now and again, one should recall that what is "typical" in the modern period has by no means been realized everywhere and that one should keep in mind the simultaneity of the unsimultaneous. For the underlying theme, see Italo Pardo, "L'elaborazione del lutto in un quartiere tradizionale di Napoli," *Rassegna Italiana di Sociologia* 23 (1982): 535-69.

[Note](#): 54. See Reinhart Koselleck, "Kriegerdenkmale als Identitätsstiftungen der Überlebenden," in Odo Marquard and Karlheinz Stierle, eds., *Identität, Poetik und Hermeneutik*, vol. 8 (Munich, 1979), pp. 255-76.

Chapter 8: Structure and Time

I

In view of the extensive literature on structuralism and structural functionalism, it is not easy to introduce the theme and concept of "structure" into a theory that does not conceive itself to be a "structuralist" one. The placement of this theme in our sequence of chapters--in chapter eight out of twelve--already indicates that systems theory does not, in its self-representation, need to cede priority to the concept of structure. But this may be misleading because the presentation of a theory does not necessarily parallel its architecture. Therefore we must look into why a structuralist theory is not an acceptable option for a theory of self-referential systems.

First let us cross-examine the principal witness. For Lévi-Strauss the concept of structure does not refer to empirical reality as such but to an abstract model of it. ¹ "The basic principle is that the notion of social structure does not relate to empirical reality but to models constructed on its basis." ² This takes into account what, after Hegel and Marx, one can hardly deny, namely, that reality itself produces such structural models, "home-made models, models already constructed by a culture that is viewed as interpretations." ³ The key question is therefore what degree of freedom scientific analysis possesses when it concerns a reality that has already modeled itself, that has already produced a self-description. This question can no longer be answered by structuralism, however it is decided in concrete analyses, because an answer cannot be

derived from the concept of structure. And this seems to be why structuralist theories remain ambivalent with regard to critical or conservative, leftist or rightist use. Whether and how far one follows out the self-description of society using analytical models or bypasses them remains a decision that is no longer guided by theory.

Perhaps this is why structuralists like to work with texts--with remarks made elsewhere, with discourse, with theories, indeed even with philosophy. ⁴ No one, least of all the present author, would contest the reality of these objects. One can simply forget the question of reality. But then the ambivalence mentioned above returns even more pointedly. For objects that contain *ex officio* and constitutively, so to speak, a self-description, one must ask: What degree of freedom does structuralist analysis allow itself regarding the self-description of its object? Again, the concept of structure cannot answer this question because both sides use it.

Structuralists are mesmerized by a theoretical technique--and this is symptomatic of an interest in complexity--that is generally called "mathematics." It leaves indeterminate what elements really "are" and tries to get by with characterizing relations. Of course, concretely presented analyses do not meet the demands of this theoretical technique; in practice, they merely borrow from it the right to speak of "models." However this may be, the problem of complexity dominates the theoretical consciousness of structuralists.

In Lévi-Strauss, structuralism is explicitly oriented to the difference between structured and unstructured complexity. ⁵ It is the same with Parsons. At first Parsons wanted a universal theory à la Newton, one that takes into account all variables with all their interdependencies. But he immediately saw that such a plan was not feasible and contented himself with the next best theory, which starts out from specific structural givens without ever problematizing them. ⁶ Parsons later weakened this structural functionalist presentation and finally retracted it in favor of his own theoretical edifice, based on four fundamental functions. ⁷ In fact, later developments of the theory only bore out its structuralist basis, indeed actually formulated it: ⁸ as in the assumption that one can attain results by analyzing the smallest components of the concept (!) of action, which can adequately guarantee the theory's contact

with reality regardless of the deviations from the theoretical model one discovers in empirical reality. Both structuralism and structural functionalism can be characterized as an epistemological ontology or as an analytical realism. The scientific analysis of systems, texts, language games, and so on is attributed a reference to reality and *this reference to reality is guaranteed by the concept of structure*. Because the analysis comes up against structures, because specific, precise (e. g., binary) configurations can be discerned, a sense that this is not accidental comes into being, which certifies to itself its access to reality. If in general analysis discovers order and not chaos, if despite its abstractness it does not slip into randomness but bumps into well-contoured states of affairs, then it takes this to be a symptom that it concerns reality. To a certain degree, the experience of precision removes the old epistemological doubt that neither transcendental synthesis nor dialectics could deal with. Everything is much simpler than Hegel and Kant thought: if in general analysis comes up against structures, then those structures cannot be attributed to itself alone. It always brings along a consciousness of its own contingency, its own open attitude toward other possibilities, and is therefore forced, when it runs into structures, to attribute them to reality, not to itself. Radicalizing an awareness of the analysis's contingency leads to an attitude in which reality is necessarily inscribed--as the reduction of a completely open, indeterminable complexity.

If this accurately outlines the position of structuralism, then both transcendental and dialectical aspects enter in. Husserl, especially in his later work, held a similar view. ⁹ The possibility of stylizing the whole concept dialectically is obvious because precisely "free variation" (Husserl) permits structures to appear as the negation of their freedom, an appearance that then fuses analysis and reality into a unity. Therefore structuralism can rightly be conceived as the final form of a long epistemological development --a development that sought entry to the problems of reality via a self-analysis of knowledge. Structuralists are inclined to equip themselves with prefixes like "trans-" or "post-." All epistemologies can be analyzed in the structuralist fashion or arranged within Parsons's tables of cross-classification. But one asks whether structuralism is in the process of bringing forth its own epistemology, its own "episteme." ¹⁰ So far only fragments are available. We have already

noted that the concept of structure provides inadequate guidance, and the danger is undeniable that, lacking better criteria of reality, ultimately the literary structure--still always structure!-- of structuralist analyses will be considered adequate, especially in Paris.

In contrast to the structuralist or structural functionalist theoretical approaches that have been sketched, the theory of self-referential systems cannot be reduced to an epistemological (and certainly not to a semiotic) starting point. It begins by observing its object.

Epistemological questions are bracketed for the time being. ¹¹ At first, the difference between knowledge and object is neglected. This should not be confused with the epistemologically unreflective, naive attitude of everyday life. In view of a long tradition, such an attitude would be untenable within contemporary science. The bracketing, the provisional omitting of epistemological questions, is itself an epistemological attitude. It must be capable of epistemological justification, and it justifies itself through the expectation that knowledge will appear as one of its objects as soon as research can be comprehended on an adequate level of abstraction.

Furthermore, the theory of self-referential systems gives us perspective on a discussion that was triggered when the concept of structure was applied to systems. In describing systems by relatively invariant structural features, one was immediately faced with the alternative of explaining the system's behavior by its own features or by the features of its situation, that is, by its actual time sector in its environment. ¹² Psychology, in particular, has concerned itself with this alternative. ¹³ The basis of this discussion changes if one understands structures from the viewpoint of the necessity for autopoietic self-reproduction. This can allow highly individualized dovetailing, which makes it easier quickly to discover modes of connective behavior, modes that must, however, remain sensitive to demands specific to a given situation and that therefore can at any time extend or contract the cognitive range of behavioral choice if what has formerly proved its worth does not seem likely to reach a goal.

We must defer detailed treatment of these questions. For the time being, it is enough to note that the concept of structure loses its central position, although it remains indispensable. No systems

theorist would deny that complex systems form structures and that they could not exist without them. But the concept of structure is now ordered within a pluralistic arrangement of different concepts without claiming preeminence among them. It indicates an important aspect of reality, perhaps even an indispensable aid for the observer ¹⁴ --but it is no longer the feature in which knowledge and object coincide in their conditions of possibility. Therefore we are not concerned here with *structuralism*.

II

Taken abstractly, the concept of structure refers to communication or to action. The structures that link communication to communication include information, and because information relates to the world, they are structures of the world. Within the system they comprehend everything that could be relevant for that system. To the extent that they hold ready forms of meaning that communication treats as worth preserving, we will at times also speak of "semantics." In the following, we will restrict ourselves, however, to structures that order the actions of a social system, that is, to the structures of the system itself. This does not deny that the same concept of structure also applies to world structures, languages, and semantics.

Drawing on general systems theory (see Chap. 1) and structuralism, we obtain an initial characteristic of the concept of structure by referring to problems of complexity. Structure transforms unstructured complexity into structured complexity--but how? Unstructured complexity is entropic complexity, which can at any time disintegrate into incoherence. The formation of structure *uses this disintegration* and constructs order *out of it*. ¹⁵ Out of the disintegration of elements (i. e., the necessary cessation of every action), it draws the energy and information to reproduce elements that therefore always appear within existing structural categories yet still always appear as new. ¹⁶ In other words, the concept of structure defines more precisely how elements relate across temporal distance. Thus we must begin with the relationship between elements and relations and view it as constitutive for discriminating elements ¹⁷ --thus in social systems, for qualifying the meaning of actions.

Systems theory and structuralism agree that structures abstract from the concrete quality of elements. This does not mean that every structure can be materialized in every kind of element but that structures endure despite change in their elements and can be reactualized. This is perhaps what Siegfried Nadel means in saying, "The parts composing any structure can vary widely in their concrete character without changing the identity of the structure." ¹⁸ Precisely for this reason one cannot follow a widely held interpretation and define structures as relations between elements, because then when each element disappeared, the relations that linked it to other elements would also disappear. These relations acquire structural value only because the relations realized at any given time present a *selection from a plurality of combinatory possibilities* and thus introduce both the advantages and the risks of a selective reduction. And only *this selection* can be held *constant* across change in elements, that is, can be reproduced with new elements.

Thus structure, whatever else it may be, consists in *how permissible relations are constrained within the system*. ¹⁹ This constraint constitutes the meaning of actions, and in the ongoing operation of self-referential systems, the meaning of an action motivates and makes plausible what appears as connectability. Without structural givens one could only say "Act!" and presumably one could not even determine whether this action had occurred. Only by excluding almost all conceivable linkages can there be something like: "Would you give me a refill?" "You've forgotten to clean the back seat of the car!" or "Tomorrow at three at the movie theater ticket office!"

Translated into the terminology of the theory of autopoietic systems (which, however, uses the concept of structure quite differently), this means that only by a structuring that constrains can a system acquire enough "internal guidance" to make self-reproduction possible.

From every element, specific other (not just any other) elements must be accessible, and this must be so due to specific qualities of the elements that stem from their own accessibility. To this extent structure as the selection of constrained possibilities is presupposed in the constitution of qualified elements and thus in autopoiesis. Yet it is no productive factor, no underlying cause, but merely the constraint on the quality and connectability of the elements.

The selection of structures aims to consolidate constraints. Selection enables the system to distinguish between external constraints ("parameters") and internal, that is, selected, constraints. Furthermore, structural selection can also be conditioned-- whether by already- existing structures (tradition) or by points of intensification, or finally by a point of view that underlines as rational the possibility of increasing the system's capacity for being constrained.

Alongside an unqualified use of the concept of relation, *interdependence* is also often mentioned as the distinguishing feature of structures. ²⁰ Because complete interdependence is unattainable, however, interdependencies only come about by selection. Specific modes of dependence are contrasted with other, neutral, indifferent possibilities, and only thus does the preferred model maintain structural value. Successfully established interdependencies then serve as perspectives for and constraints on the structural selections that connect onto them; insofar as it participates in interdependencies, every innovation brings with it a multiplicity of effects that cannot be foreseen and that surely cannot be valued exclusively as positive. The selection of constraints works as a constraint on selections, *and this consolidates the structure.*

The same argument also applies to the feature of structures that is most frequently named and almost always taken into consideration: their (relative) *invariance*. Invariance is often rashly interpreted as system stability-- particularly by critics. But this requires a more precise analysis. Initially, invariance is nothing more than an operative requirement for constraints. For it to succeed, it must have (relative) safeguards that excluded possibilities will not be reintroduced. Only thus can structures fulfill their function.

On closer inspection, one must distinguish between invariance in the fact dimension and invariance in the temporal dimension. Factually, one must guard against the constant chiming in of other possibilities; temporally, this protection must last. Situations change from moment to moment and shift the other possibilities that they suggest. A specific program of action can immunize itself against such irritations, but they would not be irritations if they did not change. There are shrill demands for action that cannot be ignored--for example, a phone ringing or the smell of something burning in the kitchen. But such alarming information is effective

because it remains an exception. Constant irritation by everything or almost everything could not crystallize into any meaning for action. In effect, it would coincide with the absence of any stimulation: with boredom. ²¹

As a selective constraint on relational possibilities, the formation of structures does away with a situation where every connection between individual elements is equally possible (entropy). That elements which have passed away can be replaced by others is a presupposition of *self-reproduction*. On the same grounds, structural formation is a precondition for the *observation and description of a system*, indeed, for observation (or description) from without as well as for self-observation (or description). From this viewpoint, the formation of structures is also interpreted as the creation of redundancy. ²² This means that to describe a system one need not ascertain every element in its full concreteness, but can fasten one observation to another (if the water is running then the faucet is not properly turned off or is leaking). ²³ This simplifies the task of observation or description and brings it within the scope of the information-processing capacity of real systems.

Despite this mutuality of reproduction and description in that both operations presuppose the formation of structures, this does not tell us that both operations use the same structures. There can be considerable divergence. Reproduction requires adequate local security, requires that the next element be within reach, so to speak, like an answer to a question. By contrast, description seeks generalized security, and it therefore depends on the fact that a few indicators make many inferences possible. Reproduction must replace concrete elements with concrete elements. Description can be satisfied with statistically calculated probabilities. One seeks a capacity for forming connections; the other seeks redundancy; and in highly complex systems the two may significantly diverge. Thus the modern world-society ceaselessly reproduces itself on the level of interaction steered by expectations; but it is hardly in a position to describe itself adequately.

III

Thus the features that predominantly define the concept of structure (whose variety initially left the impression of a vague and

disputed notion) can be subsumed under the selection of a constraint. Only the contingency bound up with this gives structural value to a relation between elements--and this holds on the level of systems that actually reproduce themselves as well as on that of their descriptions. This bypasses the standard alternative of a concrete (reality-related) or an analytical (methodologically introduced) concept of structure. Selectivity also explains why the concept of structure is necessary generally and why it expresses more than a mere statement of relations, interdependencies, and invariance. All this has the function of a structure only if it is selectively introduced as a constraint on combinatory possibilities.

Any further refinement of the concept of structure must therefore be presented as a constraint on constraints. Not all constraints have structural value, but only those of a specific kind. Thus Merton ties his concept of structure to the idea of boundaries to functional interchangeability.²⁴ But this presupposes as a condition of interchangeability stabilizations ("roles," in the sociology of the 1950's) that can no longer be grasped with this concept of structure. That, however, overlooks the much deeper-seated problem of systems with temporalized complexity,²⁵ which allow elements only as events, which cannot stabilize or interchange them, and which must take this as the starting point for forming structures. Therefore we will constrain the concept of structure in another way: not as a special type of stability but by its function of enabling the autopoietic reproduction of the system from one event to the next. For social systems the concept of double contingency states this precisely. The selection of constraints acquires structural value only if it enables reproduction under the condition of double contingency. This means, not least, that the structure must anticipate disappointments.

The theory of autopoietic systems presented here brings together two different components of reproductive self-determination, which are called "structure" and "process" in the standard nomenclature. Structure keeps ready a range of possibilities because (!--not only although) it emerges by selection. Given structure, the ongoing determination of the next element comes about by *excluding* other available (systemically possible) possibilities. For a process, the *before/after difference* is what counts. The process determines itself by departing from what is momentarily actual and

making the transition to a suitable but different (new) element. Both procedures--exclusion as well as the search for connection-- are contingent. Therefore they can work hand in hand and reduce the contingency of the component on the other side of the difference to a minimum that can be taken in stride, so to speak. Perhaps the best, in any event the most far-reaching, example of this is the way of talking that uses language.

This conception becomes fully comprehensible only if one considers that time is built into it and how. Above all, one must radically relate the concept of event, and with it the concept of action, to what is momentary and immediately passes away.²⁶ Floyd Allport has pursued this in analyses of the conceptual nexus of event and structure.²⁷ According to him, an event is the (socially smallest possible) temporal atom, "an indivisible, all-or-nothing happening." "A single event, then, is a 'dichotomizing,' non-quantifiable happening, and nothing more. Its representation on a spatio-temporal model would be merely a point."²⁸ Accordingly, for itself the event, as well as action, remains uncharacterized, like a point. Nothing about even a minimum temporal span can be made out--except relative to selective, structural linkages.²⁹

An action can be characterized as an event in two ways--both unfamiliar to "action theory." On the one hand, the event, if one may say so, suffers the consequences of the fact that no object can change its relationship to the course of time. To endure, objects must change in time. Events prefer to pass away. On the other hand, every event brings about a total change in past, present, and future--simply because it gives up the quality of being present to the next event and becomes a past for it (i. e., for its future). This minimal displacement can change the perspective of relevance that structures and bounds the horizon of past and future. In this sense, every event brings about a total modification of time. The temporal punctualization of elements as events is *possible only in time* and *only thanks to time*, but through passing away and through total modification it realizes *a maximum freedom vis-à-vis time*. This freedom is acquired at the expense of structural formation, because it becomes necessary to regulate the reproduction of events by events.

When social systems describe themselves as action systems, they assume this arrangement of freedom in relation to time. They

must then develop structures capable of connecting action-events together. In this function (and not in a more or less lengthy, unchanging permanence) structures find their primary relationship to time, because connection can be accomplished only in time. In other words, the interpretive form "event" forces explication via the schema of before and after. Without this temporal linkage (which cannot be replaced by any determination of meaning from the fact dimension or the social dimension), the system, and even action, would disappear with the last actualized event. Every event, every action appears with a minimal feature of surprise, namely, as different from what preceded it. To this extent, novelty is constitutive of the emergence of action. But everything new appears (at first) as singular. Action owes its uniqueness and distinctiveness to this component of novelty, not to a subjective intention that can be repeated. Not the subject but time dissolving into events gives action its individuality.

Uncertainty is and remains a condition of structure. ³⁰ Structure would cease were all uncertainty to be eradicated, because structure's function is to make autopoietic reproduction possible despite unpredictability. A necessary measure of uncertainty always comes into being when structures are formed, and one cannot without a certain malicious enjoyment—observe in security-obsessed structural formations like bureaucracies and legal orders how uncertainty multiplies when bureaucratization and regulations increase. The same state of affairs can also be observed in reverse: action cannot be temporalized, cannot be anchored to a specific temporal point, without a certain component of surprise, without deviation from what is factually fixed. Therefore without an aspect of surprise there would be no structural formation because nothing would happen for other things to link onto. ³¹ What is new does not remain new; it is immediately restored to the continuum of time in that it constitutes its own temporal horizons of the (for it) past and (for it) future. It is, so to speak, glued back in place and treated as if one could have expected it. ³² This is also true of one's own actions. One can be surprised by them, ³³ yet a theory of renormalization that applies even to this situation already exists: the theory of variable levels of aspiration suggested by Kurt Lewin. ³⁴

This reinstatement of expectability is a requirement not of stability but of reproduction. Expectations are the autopoietic requirement

for the reproduction of actions, and to this extent they are structures. Without them a system lacking an *internal* capacity for forming connections in a given *environment* would simply cease, indeed, would cease of itself. This is not a problem of incapacity to adjust in relation to the environment. (The system does not react to such a problem through structures pure and simple, but by structural flexibility and by steering the selection of structures.) Structures of expectation are basically the condition of possibility for connective action and thus the condition of possibility for elements' self-reproduction through their own arrangement. Being temporally bound, elements must continually be renewed; otherwise the system would cease to exist. The present would disappear into the past, and nothing would follow. This can only be prevented if the meaning of an action is constituted within a horizon of expectation that anticipates further actions - whether by expecting that a meaningful sequence will continue (as with the next digit in the sequence when dialing a phone number) or by expecting complementary behavior of various sorts (as in opening the door when one hears the doorbell ring). Action then seems to escape its momentary transitoriness, to go beyond itself. ³⁵ This is possible, however, not because of an immanent *energeia*, a force, an *élan vital* of action but by structures of expectation that are pre-given and constantly reactivated, reducing the uncertainties of the future (and along with them the temporal self-reference of the individual elements, i. e., actions) so that action can specify itself by selecting relations. How far this holds for systems other than social ones would require a separate investigation. The stability of expectations rests on the constant cessation and renewal of actions, on their "eventuality," their being events. The fluctuation of the material in the basal events is the precondition for forming and retaining expectations that distinguish themselves from what is changing.

Thus the concept of structure complements the conceptualization of elements as events. ³⁶ It indicates a condition of possibility for basal self-reference and the system's self-referential reproduction. ³⁷ Therefore, structures can--as the verb "complements" indicates --never be conceived as a sum or mere collection of elements. The concept of structure indicates a level of order in reality different from the concept of event.

Correspondingly, the concept of event must be understood

as complementing that of structure. The concept of basal self-reference brings this to light. ³⁸ In the philosophy of Alfred North Whitehead, the concept of "actual occasion" occupies this basal position, and because it was the only way of guaranteeing connectivity, it was also endowed with the possibility of self-reference (it "has significance for itself"). Self-reference became the criterion of reality pure and simple, and this occurred on the level of elements that could not be dissolved any further because that was the only way to guarantee coherence. But self-reference is a more complex concept than this would indicate. It includes the capacity to determine itself internally through a combination of "self-identity" and "self-diversity" and at the same time to leave room for external codetermination. ³⁹ One cannot bypass this level of articulation; it enables an adequate reconstruction of what Weber might have had in mind when he spoke of the "subjectively intended meaning" of an action.

One can describe what one attains in this way as a nexus of several variables that, on the surface, contradict one another, namely, as the unity of (i) the selective linkage of elements, (2) the binding of free energies from other levels of reality through interpenetration, (3) the constant instantaneous dissolution of linkage and binding, (4) the reproduction of elements on the basis of the selectivity of all the linked and bound relations, and (5) the capacity for evolution in the sense of a deviant reproduction that opens up possibilities for a new selection. ⁴⁰ Such a system has no temporally fixed essence. It is subject to time not merely in the sense that it must adapt and if necessary alter structures. Not even the interchangeability of elements (the theory of autopoiesis began with a consideration of macromolecules or cells) grasps the temporal reference radically enough. Action systems use time to force their continuing self-dissolution and thereby guarantee the selectivity of all self-renewal; and they use this selectivity to enable self-renewal in an environment that makes continuously varying demands.

IV

The concept of event/structure just introduced has far-reaching consequences for the theory of science, as was particularly clear in Whitehead's philosophical cosmology. We should at least briefly comment on this issue.

To refresh one's memory, a system is fully concretized only on the level of its elements. Only there does it achieve a real temporal existence. But temporalized elements (events, actions) always contain an aspect of surprise, are always new combinations of determinacy and indeterminacy. This precludes a scientific program whose intention is to explain what is concrete. It does not suffice to make cutbacks in this program, to forgo numerous specific details and be satisfied with approximately comprehending what is concrete because the problem lies not only in the incomprehensible complexity of the concrete but also in its temporal discontinuity. This insight forces a radical shift in the scientific program. The guiding question is then no longer: How has this or that concrete state come to be? Instead, it becomes: How is abstraction possible? This change makes it possible to include science (and especially knowledge) within science's own epistemic program. Science's concepts, statements, and theories are not to be explained only as instruments more or less suitable for understanding or even reflecting the concrete. They are abstractions that, by selection, seek to outlast the transiency of the moment. If one wishes to know how this is possible, one must first ask how abstraction in general is possible on the basis of a concrete reality composed of events. If the explanation is aiming toward what is abstract, then this implicitly steers science toward self-explanation. In the process of gaining knowledge, science also comes to learn something about how knowledge is possible.

This rearrangement undermines the classical nexus of ground, law, and necessity. What is necessary is not necessary on the basis of a ground or of a law. Necessity is merely autopoietic reproduction itself. Its necessity consists in that only one alternative exists: cessation, the end of the system. ⁴¹ In this sense, all order is oriented *antiteleologically*: it definitely does *not* want this end!

Cessation would mean that one would take the mere chance of the moment, actual event as an occasion for doing nothing more. Chance, therefore, is the counterpart of necessity. Under the condition of autopoietic systems, cessation is chance, and continuation is necessity. The ground of the necessity is nothing more than this difference. A theory that disposes over this finds that it has switched over from identity to difference.

If epistemology has to deal with theories of this kind, then it can no longer pose as a lawgiver. It can conceive itself as what makes a

difference. This is the sense in which we defined the concept of paradigm as a guiding difference. Epistemology is a theory only if it conceives its necessity as the necessity of reproducing the experience of knowing and if it sees its task as sketching the abstractions necessary for this. The title "theory" not only determines a revisionary domain but thereby signals a combinatory increase of chance and necessity.

V

With this deepening of the temporal dimension and with the interpretation of action as event converges a development in social scientific theory that, ever since the 1940's and 1950's, has accorded the concept of *expectations*, and especially behavioral expectations, increasing importance. ⁴² In part, this concept was used as a defining component of "roles" and then of "norms"; in part, it served to explain the integration of reciprocal perspectives; in part, it formed the basis of decision theories that, in the face of an uncertain future, wanted to open up avenues to rational decision-making. In all of this, however, the concept of expectations carried conviction more by its applicability than by its comprehensibility. On the whole, it increased the analytical bite of scientific research with respect to compact concepts like roles, norms, sociality, and utility. This is why we introduced the concept of expectation within the theory of meaning, ⁴³ to emphasize its central theoretical position and to integrate its advantages, which were heretofore convincing only at certain points. When one realizes that social structures are expectational structures, one can link this theoretical advance with systems theory.

Expectations come into being by constraining ranges of possibilities. Finally, they are this constraint itself. ⁴⁴ What is left is then just what is expected; it benefits from the condensation. Perceptible constellations of things make that readily plausible; but the communication process, by choosing a theme and contributions to it, promptly excludes a lot and thereby grounds expectations (even if there are no prospects or nothing promised).

Significantly, the formation of expectations reveals deviance to be disturbance without requiring one to know why. We will return to this in discussing the social system's "immune system" (Chapter

9). This, too, includes an effective reduction of complexity. The formation of expectations equalizes a multiplicity of highly heterogeneous occurrences under the common denominator of disappointing an expectation and thereby indicates lines of action. One is almost forced to react to disappointment. One can do so by adapting the expectation to the disappointment (learning) or, conversely, by retaining the expectation despite the disappointment and insisting on behavior conforming to the expectation. The mode of reaction chosen can be structured into the system, and on this depends how far and in what way one must concern oneself with the causes of deviation. Later, in section XII, we will reduce the distinction between cognitive and normative styles of expectation to this difference. For the time being, we want only to emphasize that everything that in the semantic apparatus of a culture functions as "knowledge" or as a "norm" rests on an antecedent reduction, which brings very different kinds of events into the form of disappointing an expectation. This shows how sharply every structural formation makes its selections.

In contrast to Parsons, we cannot say that expectations are a "property" of action. ⁴⁵ Instead, the relationship between expectation and action is nothing more than the relationship between structure and action, seen from the perspective of action, and the relationship between structure and action is one of reciprocal enabling. ⁴⁶ Such a concept must renounce tracing order back to an origin that is independent of this origin. Instead, one can say that relatively chance action-events, when they happen, form expectations by their very occurrence and that any connections onto this become less subject to chance. ⁴⁷

Event/structure theory and theory of expectations come together in the thesis that the structures of social systems consist in expectations, that they are *structures of expectation*, and that there *are no other structural possibilities* for social systems, because social systems temporalize their elements as action-events. This means that structures exist only in a present; they extend through time only in the temporal horizon of the present, integrating the present's future with the present's past. Thus a future disappointment of expectations does not mean that no structure was present. This is no "subjective" concept of structure (in contrast to an "objective" one). As a form of meaning, an expectation is no internal psychic

process. The concept of structures of expectation is, however, related to self-referential systems that structure themselves by expectations. To what extent these structures are accessible to an observer and to what extent an observer can see nexuses that are inaccessible to the system itself is another question. One must therefore be careful with the concept "latent structure." If all one means by this is a reference to statistical artifacts or nexuses, one should indicate it as such. ⁴⁸ This might be a question of instrumentalizing an observation, even a self-observation. But it must be distinguished from latency in the sense of expectancy, of a possible rearrangement of a system's meaning references that for historical reasons is not yet visible or for structural reasons is blocked.

VI

Only after it is clear that system structures are formed out of expectations is it possible to take up a further theme that is customarily discussed in connection with the concept of action, if at all. I am thinking of *decision*.

Perhaps for fear of trespassing on the terrain of psychology or economics, sociology has avoided working out its own decision theory. ⁴⁹ It has understood itself to be a science of actions and not of decisions. Of course, it could not ignore the fact that in social life decisions occur, but the relationship between decision and action was not clarified. One contented oneself with a commonsense understanding of decisions--perhaps as choice among alternatives-- and then asked after the social conditioning of the decision's results. In what follows this should be corrected by a proposal formulating the concept of decision. In so doing we embark on uncharted territory and therefore cannot foresee all consequences.

One can speak of a *decision: if and insofar as the slant of meaning an action has is in reaction to an expectation directed to that action*. An action is, self-evidently, always oriented by expectations. This generates no pressure to make a decision. Situations in which a decision is made emerge only, if the action is expected, when the expectation is directed back to the action or its omission. The expectation creates the alternative of conformity or deviation, and then one must decide.

We thereby abandon the customary assumption that the unity

of a decision can be interpreted as expressing the unity of a (however aggregated, cost-inclusive) preference. This assumption has been superseded in the general domain of "collective" decision making,⁵⁰ and for psychic systems it is largely unrealistic (except in specially prepared situations). We would like to replace the difference between better or worse with regard to preferences (a determination left to the system) with the difference between conforming to or deviating from expectations as constituting the need to decide. This includes preference-oriented decisions and the special case of optimizing decisions, because one can interpret preferences and optimizing attempts as expectations directed toward behavior by the decision maker or by others. We merely argue that, viewed sociologically, this is not the original or even the normal trigger to decision-making behavior.

In determining the concept of decision, we have left open who confers meaning: whether the actor or an observer. Insofar as it is a decision, action is always a decision *for someone*--often for the actor, but sometimes only for others.⁵¹ Therefore it often happens that a person surprises herself or others with the discovery that she has made a decision. The impression that it confirmed or violated an expectation is then added to the meaning of an action that has already gone by.

The concept of expectation is relative insofar as it concerns the expectations of others or of the actor himself. Typically, the situation is mixed. One skips brushing his teeth after dinner because the taxi has already arrived and he does not want to keep it waiting or pay for being late. Frequently, conflicting expectations force decision, but the characteristics of our concept are fulfilled if one complies with an individual expectation or does not. The expectation's reference needs to be incorporated in the determination of meaning; one needs to act in a certain way because it is expected. Mere execution is not enough. Therefore a routine action loses the character of a decision. It is nevertheless possible to reactivate the decisional content of the action in case of conflict or deviation, because the decision is equivalent in meaning to an expectation.

Thus decision making actualizes the self-reference that occurs in expectation. Action refers to itself in that being expected is part of its meaning. Obviously, consciousness is required for this, but consciousness is only a presupposition, not a characteristic of decision

making. Decision making is not a state of consciousness, but a structure of meaning. We must leave it to psychological investigations to determine the adequacy of the consciousness required, whose consciousness it is, and how much the conscious contents of different psychic systems agree concerning a decision.

With the help of a structurally guaranteed, relatively stable, orientation to expectations, the decision can bridge the before/after difference. If one can say so, decision is different before a decision and after it. Before a decision, the alternatives formed by expectation lie open. It is not yet determined which will be chosen. Every option could also be otherwise. One can seek grounds for one or the other choice, or can, under certain circumstances, put off deciding. Should I send the soup back because it is too salty or not (although it is *expected* that a guest eat without complaining)? After the decision, the choice has been determined: I have complained and must bear the consequences. We can see this was a decision because the choice is treated as contingent and the actions connected with it are motivated by this contingency (and not only by the facticity of the state it brings about). The waiter grimaces at the salty soup, does not bring a replacement, and waits to be paid. Thus before the decision there is a difference between alternatives; after the decision there is, in addition, a relation to this relation, namely, the relation of the chosen alternative to the difference between possible choices. Two forms of contingency, open contingency and the decision's having-been-also-otherwise-possible, are unified. The decision transfers contingency from one into the other form, and it can do so because contingency is constituted along with the expectations that structure the situation. Similarly, the semantics of "decision making" are necessarily ambivalent. The standard definition of decision making as choice indicates only one aspect of this overall behavior. The complicated internal structure of decision making as the transformation of contingency makes clear how the difference between alternatives can change during and after decision. A decision may drop old expectations and introduce new ones in order to maintain its contingency. An overlooked alternative (not to eat the soup but also not to complain) may appear in retrospect. One realizes that there might be more elegant solutions to the problem, for example, those that do not accentuate its character as a decision

so strongly because the chosen alternative is closer to the expectation that structures the situation in which the decision is made. In other words, a decision can change its quality before, during, and after the decision. Frequently, for example, being caught red-handed is a reason for restructuring alternative horizons, and the participants (observers) may disagree and persist in their disagreement without the decision's losing its character or identifiability as a decision. The situation of deciding remains constituted, but its definition can still be changed. ⁵²

This range of possible variation, above all, is used by the decision maker who wants to make or to have made a relatively rational decision. The decision maker does not aspire to extremes--neither an optimal relation between choice of means and the attainment of a goal nor a maximization of expected utility. One seeks a favorable constellation of action and expectation, in which the expectations and the alternatives formed by this constellation in social and temporal complexity (i. e., relative to an observer and relative to the continuation of time) form the material with which one works. There are, however, exceptions, in which the expectation of rational decision making in the sense of optimization or maximization --that is, in the sense of a uniquely correct decision--comes into play. One may have to reckon with such expectations in organized firms, and this may make it necessary to support decisions about one's decisions. Everyday living, however, gets by without superlatives.

Sociology searches for excellence in other domains: for example, delinquents who are not confronted with their decision in the way that they expected, or women before and after a seduction, or students taking examinations, or possible excuses in bureaucratic organizations. We will leave open whether general standards for rational comparison can be developed here or whether one can use the standards already established. More important sociologically are, on the one hand, the suspected connections between expectational structures, their amount of determinacy or ambiguity, and their shaping in cognitive or normative directions and, on the other, the expectation, burden, and range of decision. This is less a matter of a subject or an entrepreneur who makes up his mind after examining the situation than that of a structurally compelled variation in the mode of self-referential action, of greater demands on

the constitution of the elements out of which social systems are formed. Above all, it is a matter of the multiplicity of consequences with which one must reckon when a social system augments itself in the direction of decision making and reflects itself accordingly.

VII

After this excursus into the concept of action, let us return to the main theme of this chapter. Having clarified the concept of structure and identified structures for social systems as structures of expectation, we can now turn to the question of what structures have a chance of being chosen and proving their worth in the course of evolution. In the context of a general theory of social systems, this, of course, cannot concern characteristics of content, but only of form. Thus we are not asking about genres and species of expectations and are not attempting to construct types. Nor are we concerned with divisions like economic, cultural, political, or pedagogical--that is to say, with different domains of life. Such analyses would lose sight of the reference to the system's unity. The question is, rather, whether evidence is possible concerning how reference to a system's unity and its difference from the environment is realized on the level of structural formation--through the selection of structures and, therefore, in a precise form. Or rather, does the mere fact of the necessity to reduce open complexity and select structure already lead to forms of a specific type, independently of all contents of expectations?

The most widely accepted answer to this question in general systems theory depends on the principle of *hierarchy*.⁵³ This can mean many different things, for example, chains of command, means/end hierarchies, and complications within subsystems. In any event, in such explanations the system's unity is represented as a transitive order, and anything that does not fit into it has no chance to become a structure. Other, free-floating forms may appear, but in the long run they have no chance of proving their worth. They are not simple in relation to the system's unity.

Although this concept is also increasingly advocated for social systems,⁵⁴ it is inappropriate for that type of system formation. Viewed realistically, it is simply not true that social systems always form as hierarchies;⁵⁵ this principle would clearly restrict, centralize,

and simplify them too much. One need not contest that hierarchy is a form of system formation that especially favors complexity, or that it unmistakably expresses the unity of a complex system. Nor need one contest that this form can be and has been chosen in the domain of social systems. There are, however, obviously other possibilities, forms that are perhaps less efficient but easier to attain. We see such possibilities in selective retention operating with respect to *function*.

Functions always synthesize a plurality of possibilities. They are always viewpoints for comparing possibilities that have been realized with other ones. To this extent they are suitable expressions of unity and difference--just like hierarchy. Like subhierarchies, they can be related to subdomains of a system,—but they always lie within the system's "problem horizon." Thus one can investigate everything that contributes to regulating shortages and thereby come to a combination of economic and moral precautions that can be treated and compared in itself; ⁵⁶ but the question of why shortages must be regulated at all leads beyond this function and can finally be answered only with reference to system/environment differences. Thus, like hierarchy, function leads one's eye to unity, but it does not rigidify structure as much. Functions help a complex system to describe itself, to introduce an expression of identity and difference into the system. They also help the system both to simplify itself and to make itself more complex--a two-fold function that must be purchased at the cost of concrete completeness in self-description. One can therefore surmise that orientation to function keeps in store a mode of ordering that acquires pre-eminent importance if systems become too complex to be hierarchized.

At the same time, orientation to function is a *form of creating redundancy*, that is, security. It allows different modes of fulfilling a function to appear to be functionally equivalent. They can stand in for one another and therefore they offer a certain security against failures in performance. Of course, this holds only for the level of abstraction to which a specific problem of functionalization is addressed, and with abstraction the quality of security provided by redundancy diminishes. No one feels secure simply because everything that happens has the function of reducing complexity. (Here, in a way, the only person who is secure is the theoretician, who, if he has no better ideas, can always still say and write this.)

To be sure, orientation to function is not a requirement of self-referential reproduction--as little as orientation to goals is a requirement of action. The concretely unfolding reproduction of the entirety precedes all efforts to provide a semantics of its unity. Action adequately prepares for connective action, and normally the requirements of tempo--too much time should not pass without something happening-- will also prohibit too many intervening considerations. The relations that refer events, actions, conditionings, expectations, and structures to problems and that bind functions, references to unity, and possibilities for comparison to them is not provided for in the performance of action alone; it is a matter of *observation*, that is, a matter of events or processes that are not immediately under pressure from a situation. Reproduction of the system can and will carry on without its unity being observed. Not everything depends on observation.

Therefore, free of the pressure of having to produce results, observation can afford a more complex view of the system. Accordingly, in the domain of the societal system what we have called functional analysis is a principle of scientific system observation and not *eo ipso* a principle of self-organization for societal relationships that reproduce themselves every day. ⁵⁷

Nevertheless, much argues that orientation to function is a morphogenetic principle of decisive significance and that it steers the evolutionary selection of successful structures. ⁵⁸ This is possible because *action and observation do not necessarily exclude each other*. Above all, in *social* situations (and even more so in complex social situations) both almost necessarily facilitate each other because the requirements for communication rule out all participants' acting at the same time. Chances for action and observation constantly fluctuate; both occur together and collaborate as soon as observation is communicated or even observed. The accompanying observation's somewhat more complex view of the matter can enter into the situationally bound selection of connective actions, even more so into the selection, rejection, and new selection of expectations, which provides structure. Taking distance from the action, one can see the reasons for success or failure, for the acceptance of satisfying values and for why actions or sequences of actions come to a conclusion (*telos*)-- and if one holds onto such guiding perspectives, one can use them to modify the sequence somewhat the next

time it occurs, to adapt to a changed situation or even to replace it with different kinds of arrangements that have the same result.

One can therefore say of the system of social action that a more or less necessary *self-observation* emerges on the basis of a difference between action and observation, however minimal or fleeting. Everything else is then a matter of elaboration, of profiting from happenstance, or of an occasional but systematizable use of potential. As the communicable difference between action and observation, self-observation is the operation that underlies the formation of structures in the social system that produces them. If a differentiation, however slight, between action and observation is to be expected in (practically) all social situations, then this provides a point of departure for experimenting with how to pose problems and how to attribute functions, and self-observation will be the process of communication that transforms this possibility into the formation of structures.

Accordingly, we can seek points of departure for increasing orientation to function, up to what is relatively improbable, in a *stronger differentiation between action and observation*, in a differentiation that clearly separates the two but that *at the same time does not question the communicative execution of self-observation*. We thereby avoid teleological explanations, and also causal explanations, which would view functions, problems, needs, or the like as real, propelling factors in the development of corresponding mechanisms. Instead, the hypothesis is that with a stronger differentiation between action and observation under the condition of the ongoing communication of self-observation, it becomes probable that relatively improbable (more demanding, e. g., more specialized) functional orientations will take place and select corresponding structures. A stronger differentiation between action and observation can be attained in at least two ways. One is more direct, the other seemingly more secure and, viewed in the long run, more successful. The first, more obvious possibility consists in differentiating roles for observers. The observer is relieved of the pressure to act and is compensated for this by a special prestige that secures the relevance for action of his observations and their semantics, thus also securing self-observation in the social system. Wisdom, love of truth, religious stimulation, or something of the sort is attributed to the observer. ⁵⁹ The content of observation cannot

bridge a difference between action and observation; prestige must enter in, secured, for example, by control over access to roles, by religiously interpretable exceptionality, or by achieved reputation. The increasing institutionalization of research establishments, leading up to the differentiation of a special system for science, finally made it possible to grant prestige out of a more or less unlimited charge account. Only recently does the trust that this requires seem to have turned into distrust.

The only way of differentiating action and observation separates observation technically rather than by roles. It results from the technical expansion of possibilities of communication by writing and later by mechanical duplication (the printing press). Whether it legitimizes roles or not, written or printed communication forces a separation of action and observation because while reading one can hardly act or participate in the actions of others. Instead, one is set free to evaluate the communication being read and, in doing so, to observe. At first, recording what is read merely forms a content of consciousness. Any communication that follows from reading, however, is very likely to be different from what would have been offered by participants interacting in a situation, especially if readers can assume that their communication partners also read and have an understanding of the reality content of what they have merely read. Even someone who writes for readers must differentiate communication, adopting a style of description that objectifies the matter to be presented to readers who, for their part, must learn to read in a corresponding way. ⁶⁰

Writing, therefore, initiates a structural development because it strengthens the basis for such development, the difference between action and observation. Not only is "more knowledge" at one's disposal, but structurally different arrangements and semantics for processing knowledge are formed, and in consequence themes for self-observation are opened up. Society, and in it many social systems, are given a much greater capacity for communicating self-observation without having to restrict or attenuate their capacity for action.

Given this aspect, the historically connected emergence of the alphabetization of writing and the teleologization of philosophical theory is

no accident. ⁶¹ Printing intensified this trend, especially after the size of the reading public grew and after the transition to daily mass communication. The consequences of this

for enabling or blocking society's self-observation cannot yet be calculated,⁶² but in the meantime orientation to function has largely freed itself from society's self-observation as the societal system's shift to functional differentiation has been organizationally implemented.

If in the long run self-observation on the basis of a difference between action and observation crystallizes references to function and bases structural development on them, then this is an evolutionary process of "blind" variation and selection.⁶³ Self-observation on the level of elementary communicational processes, namely, the infiltration of action observations back into communication, is not a process that an existing system comes to know better and better. For this reason it is a creative, morphogenetic mechanism, which scans events for their function and occasionally fixes the result in successful structural achievements. The operation does not depend on anticipating its result. It does not guarantee that the formation of structures realizes the best ones possible or improves the lot of humankind. Even Leibniz's best of all possible worlds contained no guarantee of happiness for individuals, and this is even more true of functional structuring. All that this explains--but that is quite a lot--is how it is still possible, in however mediated a fashion, to use the system's unity and its selectivity vis-à-vis other possibilities to orient structural selection under the condition of greater complexity.

VIII

In social systems, expectations are the temporal form in which structures develop. But as structures of social systems expectations acquire social relevance and thus suitability only if, on their part, they can be anticipated.⁶⁴ Only in this way can situations with double contingency be ordered. Expectation must become reflexive; it must be able to relate to itself, not only in the sense of a diffuse accompanying consciousness but so that it knows that it is anticipated as anticipating. This is how expectation can order a social field that includes more than one participant. Ego must be able to anticipate what alter anticipates of him to make his own anticipations and behavior agree with alter's anticipation. When reflexive anticipation is secured, and only then, can self-control

make use of it. The individual participant then anticipates specific anticipations concerning others, for example, the opinion that one owes it to oneself not to tolerate a specific behavior that goes against one's own expectations (regarding oneself or others). One develops a feeling for the precedent-setting value of specific modes of action. They not only frustrate specific expectations, they can also unsettle expectational security, that is, the secure anticipation of there being expectations. Thus a peculiar sensibility and problem of control emerge on, and only on, the level of reflexive anticipation. Anyone who accepts a behavior that disappoints expectation must reckon that in the future alter no longer anticipates the disappointed expectations, but only those that correspond to alter's own behavior. Someone is not on time, for example. The range of tolerance for being punctual is extended. Any precautionary block requires that the situation have already been diagnosed on a third level of reflexivity. One takes precautions, anticipating that the anticipation of expectations will change when one does not clarify what is expected.

Herbert Blumer has emphasized that, as an emerging phenomenon, this does not result simply from adding psychic states onto each other. ⁶⁵ Blumer terms "transaction" the unity that emerges through such a "taking into account of taking into account." The autonomy therein is an autonomous selectivity projected back upon the participants. In order to be participants, they must be able to inhibit themselves; they must restrain impulses and be able to proceed selectively. This is the only reason they need a social identity. With George Herbert Mead, one can view inhibition as a necessary component of action. ⁶⁶ For the present thematic, this means that the possibility of action is given only out of the manner and the way in which connections between actions are coordinated by anticipating expectations.

Given these considerations, we must revisit an over-simplified understanding of the complementarity of anticipation. The complementarity of anticipation is not merely a mental picture of the complementarity of action. It is not merely a matter of a giver having to expect, even when giving, a taking, by his opposite in which his own giving finds completion. He can't just expect similar behavior--that is, giving! Of course, this remains correct and necessary. But the level of the expectation of expectations offers

additional means of integrating expectations as a means of steering behavior. The level of reflection forms an emergent level of order with its own forms of sensibility. The entire schema of giving/ taking is depicted in it, and this makes visible why alter must be prepared not only to take but also to accept what is given, and that therefore one must count on further expectations, indeed, on modes of behavior that accept the entire giving/taking complex for specific situations--or even reject it (perhaps for the sake of avoiding a debt of thanks). Tact exists on this level. Only here are there sophisticated strategies for forcing a definition of the situation that considers the possibility--indeed seeks to produce it--that one's partner finds himself bound to expectations that he never wanted and that he now has to come to terms with anticipating expectations that cannot be denied without also denying his own previous behavior and triggering justified indignation. ⁶⁷ The anticipation of expectations induces all participants to take up orientations that reciprocally overlap in time and are, in this sense structural. This prevents social systems from being formed as mere chains of reactions in which one event more or less predictably leads to the next. Such a system would very soon get out of hand; it would at least have to rely on corrections that address events that have already become irreversible. The reflexivity of anticipation makes corrections (and even a struggle for corrections) possible on the level of expectation itself. This is an inestimable advantage because expectations provide structures with a content that can be revised. One has not yet acted, but only toys with the possibility. Expectations obligate, especially if they are expressed irreversibly through communication, that is, through action, but this is only a kind of preliminary commitment, which can still be revised up until the expected event. In principle, structures formed on the level of the expectation of expectations, that is, ones established *only* by the *expectation* of expectations, provide a chance of reversibility. ⁶⁸

Once one is clear about this basic mechanism of the reflexive establishment of expectations, then a series of phenomena based on it become comprehensible, above all, a dovetailing of the structurally relevant domain of expectations, which is important for sociocultural evolution. One can simply anticipate natural events, the stability of things, and their decline. Perhaps as a correlate of

their intensified uncertainty and arbitrariness, one must address expectations of expectations. One can anticipate expectations only from someone who can also act. ⁶⁹ The domain of regulation capable of being ordered on this level is restricted to expectations concerning behavior. No one expects expectations about big ears or noses, the sun or the moon. Here the general social dimension of meaning suffices: one perceives along with and anticipates the perceptions of others. Only the expectation that a person does not show repugnance at the length of someone else's nose can be expected. The nose itself is easy enough to anticipate; only one's attitude and behavior toward it need regulation consolidated by expecting expectations. ⁷⁰ Consequently, this advanced, highly risky type of anticipation leads to the differentiation of a subdomain of events that can be expected--to the differentiation of social systems. This brings us to the hypothesis of an evolutionary connection between amplified insecurity and differentiation--a connection that implies its own capacity for intensification, because the differentiation and denaturalization of behavior increases insecurity concerning expectations and thereby requires stronger support in anticipating expectations, which propels further differentiation.

A further point concerns the fact that one cannot survey at a glance the complex situation of who expects what--especially if one takes into consideration more than two participants and possibilities of changing expectations. This is why Max Weber hesitated to concede indispensable importance to orientation by expectations (although his concept of *Einverständnis* is geared exactly to that). ⁷¹ But the fact that one cannot take this complexity in at a glance entails, not that expecting expectations is irrelevant, but that symbolic abbreviations representing highly complex expectational situations are necessary for ongoing orientation. Stipulations of what should be done, values, concepts of obligation, and references to custom, normality, or what is usual are, for example, abstractions with this function. They have settled on the meta-level of expectations that are *expected* and serve there as a surrogate for a tedious investigation, enumeration, and publication of the actual expectations implied in any given situation. Expectations that can be revoked at any time then recede into the social horizon of this surrogate symbolism. These symbols would not have been formed if orientation from expecting certain expectations was not important.

As sweeping assumptions, they make an adequate tempo and fluidity of communication possible. They can make themselves more or less independent of the actual expectational situation and set in view something that does not correspond to its realities.⁷² Nevertheless, this remains fundamentally only a matter of expecting certain expectations. This can be shown by the effect of unmasking --the Kinsey effect, which occurs when someone finds out that the assumed expectations were not expected at all.

Finally, one must not overlook the fact that the structural level of expectation concerning expectations is a source of conflict. It ignites conflicts long before they are really necessary because it motivates the participants to stop or suppress expectations they expect to be uncomfortable. Besides, and this is what is discussed most often,⁷³ this level also offers specific possibilities for conflict management, for advancing one's position, or for stabilizing oppositions symbolically. Precisely the identity of the expectation can then be an occasion for the ongoing reproduction of opposing valuations, and this can in turn become capable of being expected.⁷⁴

One does not want to limit the relevance of all this to systems of interaction among people who know each other well. Neither democratic politics, nor a money-oriented market economy, nor scientific research, which begins with an accepted state of knowledge, would be possible without reflexive expectational structures. This also means that the problems of such meta-perspectives, for example, the internal life of their symbolic abbreviations or the creation of conflict, is also important for the large systems of societal life.

IX

A structureless chaos would be absolutely insecure; only that would be secure. Basically, the concepts of security and insecurity have no meaning for such a state. Through the differentiation of expectational structures, this state is replaced by a combinatory interplay of relatively secure or insecure positive and negative expectations. The formation of structures does not simply mean replacing insecurity by security. Instead, something determinate is made possible with a higher degree of probability and other things are excluded, so that expectations can then be more or less secure/insecure.

The price of structural formation is, as it were, the need to get involved with what is secure/insecure. Structural formation recasts the problem by establishing something upon which concomitant expectations about the security/insecurity of realizing expectations can crystallize. ⁷⁵

We relate the concept of security to expectations, especially to the built-in expectation that what is expected is likely to occur. In this respect, an expectation can be more or less secure. This must, however, be distinguished from the precision or ambiguity with which what is expected is determined. As a rule, the more explicit the expectation, the more insecure it is. I can rather securely presume to come home between the hours of five and seven o'clock. If, however, I am expected to arrive home at 5:36, then this expectation is very insecure. One could hardly take its fulfillment for granted; it would depend on too many uncontrollable factors. Therefore making expectations ambiguous is a strategy for creating relative security and for protecting them from environmentally conditioned disturbances. The logical, conceptual, and linguistic possibilities of detailing an expectation are therefore never exhausted. One is precise about an expectation only insofar as is necessary to secure connective behavior.

Thus aspects of risk prevention and the increase of system-internal security enter into the formation of expectational structures. If expectations are formed at all, they immediately possess a security value that cannot be derived from the system's environment but is achieved by the system itself. The system-internal regulator for this seems to be the capacity for making connections. Only part of the insecurity is absorbed by making expectations ambiguous; the rest is worked off in the form of decisions. As section VI showed, behavioral expectations force action into the form of decisions. They transfer contingency from structure to the level where the autopoiesis of the system occurs: expectations acquire determinacy at the cost of having to decide whether one wants to fulfill them or not. By this transformation one can activate social resources, especially communication media, that suggest that alter's expectations are fulfilled by ego (but not by alter himself).

Expectations reveal the system's temporal horizons. As soon as one can establish what is anticipated, one can calculate futures and pasts. Time becomes flexible through anticipation, that is, organized

with more mobility within itself: as soon as I have paid my debts, I can buy a car, and then ... A time worked through in this way is a system-internal time, and yet it refers to both system and environment. A system in which expectations can be formed and ordered no longer depends on point-for-point agreement with its environment. ⁷⁶ One can prepare the environment for system actions that have not yet occurred, and one can prepare internal reactions for environmental events that have not yet occurred. One can compensate for insecurely expected events with very secure anticipations, for example, keeping a fire extinguisher handy in case of fire and reducing the remaining insecurities about the extinguisher's functioning with reliable yearly inspections. In this way the system's own temporality-- which is not the time of the outside world but generalized within it--emerges as motivated by security, not in the sense of being a different time but in the sense of having a special relevance for temporal horizons within time. Thus the system-internal time of preparations for fire is entirely independent of how long an electric cable takes to burn through or how securely/insecurely the biography of an arsonist motivates him to start fires.

One can recognize the space for maneuver in how system-internal structures form in that security and insecurity are not simply a function of time. Insecurity often increases with temporal distance from the present, but not always and not for all fields of meaning. The very next moment may bring events that cast all calculation to the wind, yet there are very distant temporal events that one can quite securely expect. Moreover, the time that is measured chronologically is still the most secure one: no matter what happens, it continues on. At least one condition of insecurity is absolutely secure. Time and security/insecurity are different dimensions, and this difference can be used to steer the selection of expectational structures. Even organic life develops anticipatory systems by means of it, selecting indicators in the present (which is all that is available) that will correlate more securely with changes in the future and can thereby prepare for the future without "knowing" it. ⁷⁷ Meaning systems consolidate this technique by forming expectations and giving these structural, that is, connective, value.

If this is possible, then insecurity can finally be "voluntarily" accepted and enhanced. All evolution seems to rest on massing and

amplifying insecurities. This principle of amplifying insecurity is repeated in sociocultural evolution and in the for it decisive inter- penetration of entire human beings into the social order. One must treat human beings as if they were reliable and at the same time secure expectations against disappointment. One can form riskier expectations if one can guarantee that disappointments remain tied to specific events and do not trigger accumulations that would endanger security. Viewed in this way, evolution is an ever-new incorporation of insecurities into securities and of securities into insecurities without an ultimate guarantee that this will always succeed on every level of complexity.

X

These very generally posed reflections on the connections among temporality, expectational structures, and the security/insecurity balance in social systems have a series of consequences, which we must work through in succession. ⁷⁸ The first point we will take up concerns consequences for the temporal dimension of meaningful experience and actions and for the semantics of temporality with which temporal orientations are reproduced within society.

Every present is, as a present, sure of its own actuality. Only to the extent that the present is temporalized, that is, conceived as a difference between past and future, ⁷⁹ does a problem of securing expectations arise. The world thereby loses aspects of reliable presence and acquires aspects of mutability, aspects of "not yet" and of "perhaps no longer." This (already temporally dependent) problem of security seems to be the guiding problem that motivates the differentiation of a special temporal dimension of meaningful experience and action. It catalyzes the experience of time and then the development of a semantics of temporality as a domain for itself that can be reduced neither to the factual order of connections in the world nor to beliefs about it.

Expectational security increasingly becomes problematic in connection with the complexity of social systems, especially with the complexity of the societal system, which increases as evolution advances. The great insecurities of life in the earliest societal systems are obviously not solely decisive here. More important is the extent to which society thwarts its own expectations and thereby creates an insecurity that cannot be externalized. Then recourse

neither to established rituals without alternatives nor to political power can provide adequate security. Religion invites doubt, politics leads to fear,⁸⁰ and only time itself offers adequate security, precisely as the condition of all insecurity. Its continuation can still be experienced in the present, its passing is present in every memory, and its measurement therefore serves as a symbol of the eternal.

Once the problem of security becomes actual within society, a special experience of time is formed, plus, to record it, a special temporal conceptuality.⁸¹ The temporal dimension and the social dimension separate from each other.⁸² On the one hand, social behavior is disciplined by reference to consequences--an office of prophets. On the other, a symbolism of reversal becomes apparent. The powerful are the most exposed to danger; the last shall be first. Ideas about a fate after death begin to detach themselves from the circumstances of death, that is, from its immediate context, and are related to good deeds at various points in one's lifetime.⁸³ With all this, time itself is abstracted to a symbol of duration, and finally, as including any possible change, to a measure, constant in itself, of all movement.

Because time is obliged to account for security as well as insecurity, a dual semantics of time formed, which can be read in the Greek difference between *chrónos* and *kairós*.⁸⁴ In the hierarchical world architecture of the Middle Ages, there could be many temporal levels at once,⁸⁵ together with God as simultaneous on all of them. *Aeternitas* and *tempus* were distinguished. *Aeternitas* was not simply a long duration without a beginning and end but a pure present: time without past and future.⁸⁶ Therefore it was simultaneous with the time in which every moment constitutes a difference between past and future (*tempus*). But such differences, when they spring from an interest in inquiry or a motive for security, cannot be pushed too far. They must be mediated. Thus in the difference between *chrónos* and *kairós* was established a practice of divination (however mysteriously founded), which used secure indications to handle insecure situations.⁸⁷ It rested on knowledge of present signs of what is not present, including the future.⁸⁸ The difference between *aeternitas* and *tempus* was mediated by a hierarchy running through it⁸⁹ and also by an *aevum*, a level of ages that are relatively constant. This made possible a conception of history, however global.

Stronger differentiation of the temporal dimension created tension

in the relationship between the temporal and fact dimensions. Time cannot be experienced or conceived without reference to some fact. Well into the modern period the answer to this problem was found in the concept of *nature*.⁹⁰ Nature is a becoming; as a state, it is what has become, that is, something that needs its own time to unfold. Moreover, this concerns patterns, ideas, and essential forms that are realized in the course of time--or can even fall short of their perfection. Thus a normative, or at least evaluative, component underlay this concept, making it possible to distinguish success and failure and referring to the human faculty for making judgments (*phrónesis, ratio*). This faculty contained a temporal feature, too, especially when it was called *prudentia* and related to the practical sphere. Precisely this temporal feature distinguished humans from (other) animals: only humans consider things in the light of the past and future, of experience and expectation, and are able to handle what is present with a certain distance.

This entire edifice, together with the semantic mediations that were built into it, collapsed in the eighteenth century. Viewed from the perspective of the history of ideas, there are certainly many, partly immanent, partly external, causes for this, but we cannot pursue them further here. Nevertheless, this collapse strikingly confirms our initial hypothesis: in the transition to the modern period, society turned increasingly to functional system differentiation. It thereby became so much more complex than all earlier societal formations that time as a test of security had to be abstracted anew. The (securer) present was no longer suitable as a guarantor or symbol of duration.

Reference to the present was replaced in many places in the semantic tradition (e. g., in the interpretation of passion and *plaisir*) by *reference to variety*.⁹¹

Beginning in the second half of the seventeenth century, security became a theme of explicit communication as never before.⁹² The same holds for insecurity, not least of all for explicitly produced insecurity. At the same time, when the investigation of nature became mathematized, the notion of time became abstract: its causal influence on occurrences was disputed, for example; it neither located favorable moments nor portended a future still concealed. Furthermore, time became self-reflexive: every moment became the carrier of its own temporal horizons; every epoch was historically individualized on the basis of a future and past that

were valid only for it. On the one hand, renouncing time's guide-line character meant that time could be conceived in a much more complex way; but, on the other hand, it becomes doubtful whether what is secure with respect to time (i. e., its self-reflexivity) still bears some relevance. One still needed calendars--no longer *to be able to know* what was to be done at specific points in time,⁹³ but *to be able to agree about* what was to be done at specific points in time.

Of course, one need not assume that experience actually occurs in the way a semantics prescribes. Attempts to record important experiences of meaning, forms of communication worth preserving, became subject to their own laws, especially after the invention of writing and printing. One cannot read them as summary formulas of the actual experience of their time. But to be convincing, a serious semantics, one worth preserving, must deal with the same problems as daily life. If one can read in the semantics of time that in the course of a long historical development motives for forming more secure expectations (or conversely, experiences of forming more insecure expectations) differentiated the temporal dimension and purged it of factual and social implications, then this must have had a basis in daily societal life, which we can grasp through the concept of complexity, though only very globally. This means, above all, that one must take into account deep-rooted historical dependencies in using the concepts of time, structure, and expectation; yet these dependencies, too, can be clarified through a general theoretical analysis.

XI

One way to establish expectations that are relatively fixed over time is to relate them to something that is not itself an event, that is, cannot in the strict sense itself be expected. One can project identities onto which one can attach expectations, and expectations can be factually ordered by ascription to things that remain identical. One thereby establishes connections and distinctions. Identities do not combine the same or the same type of expectations (and therein lies their ordering performance), but different ones, and they distinguish themselves according to how they combine these expectations. Books inadvertently snap shut, fall off tables, and yellow with age, but they cannot break like glass or blow off one's head

like a hat. Identity is not a perspective that orders things categorically but a punctualized, highly selective aspect of ordering the world. The expectation "that the next page has print on it and continues the book" is not something one could direct to deck chairs, and the "unexpected" (but, on the basis of some experiences, quite probably expectable) snapping shut of deck chairs is dangerous in an entirely different way from the snapping shut of books. The identity of the term "snapping shut" and the similarity of the events do not offer a practically relevant perspective for ordering experience. After all, who learns anything about books from deck chairs?

Much of what can actually be experienced as expectable is ordered thus by the identity of things.⁹⁴ For ordering behavioral expectations, however, the thing form has increasingly proved inadequate. With the increasing complexity of the societal system, with the increasing analytical capacity of function systems, with increasing instability and need for change, conceptualizations based on the thing, and especially on that special thing, the "human being," no longer suffice. This is linked to the collapse of the system of stratification, after which one can expect *all* behavior from *every* human being. This development can be seen very well in the "discovery of the child."⁹⁵ One can no longer capture the multiplicity and variety of specifically human behavior by distinguishing the thing "human being" by means of special qualities such as reason, freedom of the will, sensibility, or even the empty formula of internal indeterminacy.⁹⁶ This prevents one from saying that society is composed of human beings, that it is an ordered collection of human beings, a group, a people.⁹⁷

Hegel already saw that this problem cannot be solved by a proposed disjunction of thing and subject. Increasingly abstract perspectives for identification are needed. They must differentiate and make independent of one another what that special thing the human being cannot accomplish any longer: ordering ~~the~~ the anticipation of expectations concerning behavior. The semantics of the human being is thereby set free to take on a new meaning, namely, a new meaning of freedom and a self-referential individuality built upon it. But no promise of order follows from this.⁹⁸

Sociological theory has experimented here with different ideas, all of which assume that perspectives identifying nexuses of behavioral

expectations must be ordered along a continuum from abstract to concrete. ⁹⁹ By contrast, we place the concept of norms in a different dimension, namely, the temporal one, ¹⁰⁰ and distinguish *persons*, *roles*, *programs*, and *values* as perspectives for factual identification of expectational nexuses. Expectations, which are bundled together in such identities, can be more or less standardized depending on how one handles possible disappointments.

By *persons* we do not mean psychic systems, not to mention human beings as such. Instead, a person is constituted for the sake of ordering behavioral expectations that can be fulfilled by her and her alone. One can be a person for oneself and for others. Being a person requires that one draws and binds expectations to oneself with the help of one's psychic system and body, including expectations about oneself with regard to others. The more expectations and the more different types of them that are individualized in this way, the more complex the person. Being a person in this sense is quite compatible with milieu-specific differences: in prison a brilliant hero, in freedom trivial and dull, as Jean Genet characterizes Harcamone. ¹⁰¹ Precisely such contrasts distinguish a person and regulate what is expected of him.

With this concept of the person and with the distinction between person and psychic system, sociology can gain access to themes that until now have been reserved for the literary tradition, but that include typically modern experiences. This holds, on the one hand, for the theme-complex of sincerity and authenticity, ¹⁰² and on the other, for the insight that no secure paths of knowledge lead from the person into the depths of the psychic system, but that all attempts that are not content with the person and really seek to know another sink into the abyss of the always-also-otherwise-possible. Furthermore, this explains why a person copies personality models or gestures (Stendhal), nevertheless with unique results: one copies a person as a model into a concrete, and therefore always distinctive, psychic system. One dresses oneself and styles one's hair after successful models--but always only with one's own body. ¹⁰³ We can assume that such problems and their literary treatment are first actualized when society needs and differentiates personality for bundling expectational nexes.

What results--as can be read in the etymology of *persona* (mask, role, legal status)--is a differentiation of person and role. *Roles* can,

as distinguished from individual persons, then serve as abstracter perspectives for the identification of expectational nexes. To be sure, a role is tailored to what an individual human being can perform, but with respect to any individual person it is both more specific and more general. On the one hand, only a portion of a human being's behavior is expected in the form of a role; on the other, the role is a unity that can be performed by many different human beings: the role of a patient, a teacher, an opera singer, a mother, a first-aid worker, and so forth.

The ordering performance of roles for actual behavior and behavioral expectations has been considerably overestimated in sociology. This has resulted in an extensive research literature, to which we can refer here only in the most general terms. Perhaps its most important insights are that special expectational securities can be created on the level of roles that presuppose no (or little) acquaintance with concrete persons but can remain anonymous, and that one finds special conflict situations, distancing, manipulations, and stress-reducing customs on the role level that one would not risk or would not think appropriate with respect to one's person.

That personally addressed expectations which "die" with the addressee can clearly be separated from role expectations is a result of sociocultural evolution and has only gradually become apparent.¹⁰⁴ One can see this in the history of the difference between office and person.¹⁰⁵ But what one today calls formal organization is possible only thanks to this separation.¹⁰⁶ This does not mean that "the personal" has lost all meaning. This is not a "trend" from an orientation to persons to an orientation to roles. The development is characterized by the importance this *difference* has gained within the internal life of formal organizations.¹⁰⁷ One must distinguish expectations addressed exclusively to specific persons from those that can be asserted on the basis of formal position. Only by conjoining both contact networks--even though they reciprocally obstruct each other--can one optimize the possibilities of effectiveness in organizations. Only against the background of such a difference can one observe how roles are performed with a "personal style" and how persons are stamped by their roles: for example, teachers always appear to be teaching.¹⁰⁸

Once the difference between person and role is established, it

changes the environment of psychic systems. They can identify themselves as persons and orient themselves to roles. They thereby come under "role stress." They can try to manipulate access to and avoidance of roles and even learn to anticipate that this is expected of "them personally." They can assume that their person is constant and nevertheless foresee an open future with changing roles, perhaps in the form of a career. ¹⁰⁹ The experience of difference can, but does not have to, be an experience of discrepancy. In any event, this prestructures what has influence in the context of interpenetration.

Role-bound expectational identifications do not exhaust the possibilities for abstraction, however. A person can go beyond this by not restricting himself to the behavioral possibilities open to an individual person. We call the order of expectations that results from this *programs*. ¹¹⁰ This concept, which is seldom used in sociology, is chosen to encompass orientation toward goals and toward conditions (or programming by goals and by conditions). A program is a complex of conditions for the correctness (and thus the social acceptability) of behavior. The level of programs becomes independent of the level of roles to arrive at this abstractness if the behavior of more than one person has to be regulated and made expectable. Thus a surgical operation is not only a role performance but a program. The reconstruction of an automobile engine under specific limitations, the preparation of a department store for an "end of the season" sale, the planning and performance of an opera, the transition from a colony to an independent state, and the reduction of the amount of pollution in a lake--there is no lack of examples. Thanks to the degree of abstraction involved in establishing expectations, the complexity of such programs can be very high. There are one-time programs, but also programs for ongoing and repeated use. The degree of detail involved in establishing expectations can differ greatly, as can, correspondingly, the provision for including chance and for the possibility of changing the program while the program is being executed.

On the highest attainable level of establishing expectations, one must, by contrast, renounce all claim to establishing the correctness of specific actions. One works only with--or talks only about--*values*. Values are general, individually symbolized perspectives which allow one to prefer certain states or events. ¹¹¹ Even action can be assessed in this way--for example, as promoting

peace, as just, as polluting the environment, as an expression of solidarity, as the willingness to help, as race hatred, and so forth. Because all actions can be valued positively and negatively, one can tell nothing about the correctness of an action from its valuation. Not only is this often overlooked, but it is also often covered up. If one wanted to obtain information about the correctness of an action from valuations, one would have to presuppose a logical ranking order, for example, transitivity in the relationship of a plurality of values-- perhaps in the sense that the preservation of freedom is more important than the preservation of peace, which is more important than culture, which is more important than profit, but which is not more important than freedom.

Nevertheless, values are not without importance for the way in which expectations are anticipated. That importance arises from the *difference* between values and programs. If they are to perform their specific task in the best possible way, programs often must be formulated as highly complex, variable, and unstable with regard to details. Value consensus then alleviates communication about the program's contingency: about program development, adaptation to a situation, change in programs, or even their becoming obsolescent. ¹¹² In view of such problems, one can at least, in communication, use points of departure that are undisputed (or are very difficult to dispute because they are backed by morality) and build on the expectation that everyone must agree on at least these values. Values serve in the communication process as a kind of probe with which one can test whether more concrete expectations are also at work, if not generally, then at least in the concrete situation one faces. Consequently, the hierarchical relations among values cannot be established once and for all, but must be managed as changing, that is, opportunistically. ¹¹³

If one views these four levels of abstraction at once, then a developmental tendency becomes apparent. The mere opposition of actual behavior and normative, morally charged rules for correct behavior with which earlier societies could manage is broadened. Within such a double schema, further differences become differentiated. Ordering schemas with much greater complexity can be installed on the level of roles as well as of programs. On these levels the demands of a society that is in the process of becoming increasingly more complex, increasingly more reliant on organization,

can be transformed into behavioral expectations. This innovation revolutionizes the entire structure of the identification of behavioral nexes: purely personal aspects can be extracted and more strongly individualized in contradistinction to role demands. Purely evaluative aspects can be extracted and more starkly ideologized in distinction to program demands. Individuals and values then join forces to symbolize the foundation of societal life, while roles and programs underline the requirements of complexity. An important consequence of this differentiation of levels is that a "value change," as can be observed at present in the highly developed regions of world society, ¹¹⁴ does not necessarily extend to more concrete structural levels. It works as a disturbance and thus re-inforces itself. As a consequence of the high structural differentiation of values, such a change of values is relatively easy to perform. It does not encounter significant resistance on "its" level and triggers hardly any thoroughgoing structural consequences. One can imagine that values and persons pursue new kinds of symbioses--and thereby more or less leave out of consideration what underlies and supports the complexity of society on the level of roles and programs. Despite changes in values and the recently emphasized individualism, roles and programs remain bound together in society by the requirements of complexity.

Such a highly differentiated, total structure is infected with conflicts in other respects, as one knows especially from research into roles. This corresponds to a permissive attitude toward what individuals present as their persons. An evolution that creates this result possesses doubtful value for progress. Surely this does not attest to a tendency toward social harmony or "organic solidarity" (Durkheim). Instead, one is impressed by an increase in complexity and diversity in ways of conditioning behavioral expectations. The advance here does not lie in the classical opposition of freedom versus constraint, because both of these increase together. It lies in the structural forms that make possible an *increase in the system's capacity for being constrained*.

XII

Our next point concerns the possibility of increasing the insecurity that can be accepted and, along with it, the possibility of anticipating

more expectations and giving improbable expectations a structuring function. Two forms are available for this, which we will call normative and cognitive modalizations of expectations (or, simply, norms and cognitions).

Modalization directly concerns the security/insecurity problem, namely, how one behaves when one has been disappointed. By no means all expectations contain preliminary regulation of disappointment. Most of one's daily expectations are familiar and secure enough so that one does not have to think about them any further. If, however, sociocultural evolution creates occasions that place expectations in an insecurity one can anticipate, this reflects back on the expectations themselves. They cannot simply be consigned to insecurity. One cannot simply answer insecurity in the system with more insecurity concerning expectations. Instead, the mode of expectation must be shaped in a further way--"mode" or "modality" no longer conceived in the Kantian sense as a form of the knowing subject, but as a form in which something reacts to the problematization of its problem. ¹¹⁵ A predisposition to disappointment is built in to expectations. This enables one also to anticipate how one will behave if one is disappointed. It gives the expectation additional stability, as many experiments have shown. ¹¹⁶ And what is most important, by modalizing expectation, this predisposition achieves visibility for the style of expectation and can be communicated. Thus one can in the present take technical precautions and, above all, arrange social agreements to create security, so that one will not be left helpless by disappointment or reveal oneself as someone who simply does not know the world and harbored false expectations.

Orienting expectations to cases when they will be disappointed means orienting them to a *difference*. The difference starts with cases of disappointment; thus it does not reside in the question of whether the expectation will be disappointed or not. Instead, what is insecure, disappointment, is handled as if it were secure, and the question is then: In this case, should one give up the expectation, or change it, or not? To learn or not to learn, that is the question. Expectations that are willing to learn are stylized as *cognitions*. One is ready to change them if reality reveals other, unanticipated aspects. One thought one's friend was at home, but no one answers the phone: thus he must not be at home. One must begin with this

situation and look for the next meaningful behavior. By contrast, we will call expectations not disposed toward learning *norms*. When disappointed, they are counterfactually retained. One later finds out that one's friend was at home but didn't want to be disturbed. Or he had promised to be home and to wait for the call. In this case, one sees no reason to revise one's expectations, because one does not want to relinquish the rules that people should answer the phone and keep promises. One feels one is in the right and lets the friend know about it, looking for an excuse that would re-establish the expectation.

This example is chosen to yoke and even incrementally merge cognitive and normative expectation. ¹¹⁷ One cannot help noticing the facts and does not permit the phone to go on ringing endlessly. And at that moment one experiences traces of a resistance to an expectation's being thwarted. How irritating! One had something important to impart, and now one must look for other ways to realize this intention. A complete separation of cognitive and normative expectations, an establishment of the difference, is therefore hardly possible on the level of expectation--not even in the case of the improbable expectation of being able to speak to someone one cannot see. A mixture of cognitive and normative expectational components is a normal, daily state of affairs and requires a great deal of skill (with corresponding problems of agreement in social behavior) to dispense reactions to disappointment. Only in such mixed forms can a readiness for expectation be extended to fields of meaning and modes of behavior that are so complex one cannot blindly trust in an assumed course of action.

Often, modal forms of expectation become established only in the wake of disappointment. One stumbles into a situation without giving it much thought. Then disappointment strikes. The Chancellor started smoking again! ¹¹⁸ One must now be clear whether one could have expected the opposite cognitively or normatively. The disappointment is an event in the precise sense established in section III above: an event that carries with it an aspect of surprise and therefore must be re-embedded in the normal structures of expectation.

Despite everything, the difference works itself out. Once admitted, it recruits chance, forms sensibilities, strengthens the capacity for making distinctions, and forces ever more decisions. The

difference becomes a point of reference for further form building, symbolization, and information processing, and thereby strengthens expectations that are experienced as insecure. Above all, normative, counterfactual expectation can be consolidated by entitling the one holding the expectation to continue to retain it despite disappointment and to reassert it. Knowledge of disappointment does not then decide the fate of the expectation, and this pre-decision can be symbolized as a special, valid sphere of meaning. ¹¹⁹ The difference can finally be formulated as one of "is" and "ought," and with this, semantics is re-introduced into social systems. ¹²⁰

The semantics of "is" and "ought" is connected with the ontologizing of predicates--predicates that in the communication system only symbolize the expectation that a communicative selection will be accepted. ¹²¹ This has in turn promoted ideas of success and progress that reflect on the social system as a self-fulfilling prophecy. It seems then as if conforming behavior can, to a large degree, be attained by establishing norms and as if an advance has been made that increases knowledge and decreases ignorance. But what has basically and immediately been achieved is merely the precipitation of new differences: the normative style of expectation corresponds to the difference between conformative and deviant behavior; the cognitive style, to the difference between knowledge and ignorance. Thus the modalization selected only creates further differences dependent upon it. Within the overall conceptual architecture, this is already the third level: the difference between the fulfillment or disappointment of expectations is built in to the difference between normative and cognitive expectations and is then made to depend on its reconstruction in conformity or deviance and knowledge or ignorance, respectively. Whether social relations are improved by this is something we can safely leave open. What are attained are different points of departure for conditioning the social system, which can attain desired results depending on circumstances and concrete anticipatory contexts.

This concept borders on themes that have been increasingly discussed in recent decades. It takes into account the "labeling approach" (without, of course, maintaining that deviant behavior is harmless in itself or acceptable, and is tainted only by being designated as deviant). ¹²² It also takes into account the fact that so-called scientific progress typically creates more unsolved problems

than solved ones; that is, it increases ignorance disproportionately to knowledge. But we cannot content ourselves by merely reversing traditional views of success. We do not maintain merely the opposite (which normally leads to an equally false theory), but seek to establish different fundamental structural assumptions. The place occupied in earlier theories by value perspectives and goals of progress (which were, in turn, successors to the a priori) is taken by the category of difference, and the place of the improvement or worsening of a situation with regard to these values is taken by the increased complexity in the acquisition and processing of information based on differences that produce differences. Valuation is left to the observer, and as an aspect of a system's self-observation it is possible only within the context of this self-referential processing of information.

This does not mean that a fundamental conceptualization of normative versus cognitive expectations remains stuck at this level of abstraction. The concept of conditioning enables transition to further analyses. Once the difference between cognitive and normative expectation is introduced, it is easier to channel expectations into one or the other form. Different security nets are developed for cognitions and for norms, and different systems are differentiated for attending to them, above all the systems of science and law. As a result, new insecurities that presuppose the security of the modal form of expectation can then be admitted: for instance, science formulates only hypotheses, and the law admits only changeable, positive laws--in both cases with the paradoxical necessity of having to maintain the opposite in at least one place.

In the context of science and law, extremely improbable expectations can be established and provided with adequate security. The price that must be paid for this is that it must be possible to retract them. Ever-new structural possibilities are thereby acquired, and only very recently has the question been raised whether this increasing acquisition has any limits. ¹²³ Besides, one can also ascertain in daily situations that different forms of risk absorption are being used, depending on whether expectations are cognitive or normative. Thus social pressure for conformity may be greater for normative expectations than for cognitive expectations, where one can confidently leave it to reality to decide what is correct. ¹²⁴ Furthermore, a normative expectation binds the person who raises

it more than a cognitive projection does. The pressure to hold to it, even against resistance, is greater, as is the care with which one normatively commits oneself in insecure situations. ¹²⁵ A different style of interpenetration, a stronger and more decisive commitment, and, eventually, corresponding emotions are expected of normative expectations. ¹²⁶ This does not, of course, mean that norms are to be defined as emotional attitudes. But the higher risk of an explicitly counterfactual and consciously irremediable expectational attitude must be compensated by corresponding internal attitudes, because only thus can others anticipate and believe in one's commitment to the expectation. ¹²⁷ Finally, a readiness to re-establish the norm, at least in the form of explanations and excuses, can be expected when normative expectations have been violated; even lying may suffice to reconstruct the norm. ¹²⁸ The norm is transformed into the obligation to cooperate in clearing up the situation. It requires a symbolic confirmation even when the damage cannot be undone.

Once the difference between normative and cognitive expectations is established, a peculiar intermediate domain emerges. More and more, accidents or other kinds of accidental damage are handled as chance, that is, as not providing occasion for normative sanctions or cognitive adaptation. ¹²⁹ They seem an unfortunate coincidence of different circumstances, which no one needed to take into account, nor will have to hereafter (although the newspapers report these things day after day). This structural problem is brought under control by interpreting it as unique and unrepeatable --and insurance pays for the damage.

Without going into further details, ¹³⁰ we would like to emphasize the central theoretical idea that the inclusion and processing of greater insecurity is made possible by structures whose genesis and reproduction are due to a *difference*. ¹³¹ Structural formation is not preformed in a principle, an *arché*, nor does it occur according to objective historical laws that establish how state A is transformed into state B. Instead, the decisive point seems to be the translation of problems in system formation into differences. If a decisive point is reached--and we believe that socially double contingency and temporal expectations that can be disappointed constitute such a point -- order emerges out of chance events in the course of time. Whatever happens, (1) the formation of expectations and (2)

testing of these expectations according to the alternative of retaining them or giving them up strongly suggest themselves. Meanings eventually crystallize, which make it possible to anticipate this decision and provide it with justifications, opportunities for consensus, allowances for exceptions, and so forth. Anticipatory structures, which form over time in this way, are sensitive to disturbances, so that new strata of meaning and more abstract semantics and theories form, with which one can discuss these disturbances, guard against them, or even transform them into structural gains. On this level, then, normative systems incline toward learning once again; for example, a moral casuistry guided by individual cases or a juridical dogmatism can form. Conversely, normative supports are brought into cognitive systems. One grows less inclined to give up systematized knowledge when individual experiences contradict it, because such a renunciation would nullify too much, and there is nothing to take its place.

After a lengthy evolution it is no longer possible to grasp the emerging order as due to a single principle or even to describe it with relatively simple conceptual means. Although genetic regulation may be simple to understand, its results are not. This holds for every organism--as well as for social systems.

XIII

To introduce the concept of norms in a theoretically secondary, derivative position not only is unusual with respect to the natural law tradition but also runs contrary to important contributions to sociological theory. Unlike the Old-European theory of society, we do not begin with normative presuppositions. Nor, like Durkheim or Parsons, do we view the concept of norms as the ultimate explanation of the facticity or possibility of social order pure and simple. ¹³² We do not even set sociological theory the task of formulating its own task with regard to societal norms or values. Past efforts--even recent past efforts--in this direction have been too discouraging to warrant repetition. The recently erected temples of emancipation are already overgrown with weeds, and the faithful appear to have abandoned the cult.

This skeptical abstinence vis-à-vis norm-centered theory does not, of course, imply that one can imagine a possible societal life

without norms. Binding oneself to norms or values is a pervasive aspect of social life. It does not, however, come about because human beings value living in a social order and honor this through a kind of constitutional consensus. No such "social contract" exists, because the situation of choice presupposed by the argument does not exist. But there is--actually, at all times, and in every concrete detail--a need for meaningfully self-referential (autopoietic) reproduction, and with it a need for generalizations that openly remain immanent to meaning and do not pretend to refer to some transcendent entity, as well as a need to support these generalizations wherever they appear risky and susceptible to disappointment. Only in this--theoretically derivative and no longer "fundamental" --place do norms function. They come into demand and are developed to the extent that generalizations that must be retained counterfactually become necessary.

This theoretical rearrangement dispenses with nothing in the social or societal importance of norms. It only requires that a sociological theory must be able to correlate normativity as a variable with types of systems or with structural developments of society, and it attempts to redeem this requirement by functional analysis and not by simple norm-immanent generalizations (e. g., *pacta sunt servanda*) or by emptying fundamentally maintained norms and values of their content. On the basis of the theoretical account that we have sketched, one can investigate, for example, whether there are trends in societal systems or in individual societal domains (e. g., the economy or science) toward structural transference from a normative to a cognitive style of expectation and how such changes affect the whole system if they exist only in its subsystems. ¹³³ The empirically indisputable thesis that *every* social order produces norms and depends on them is then detached from this (trivial) first version and reformulated by specifying the problem of reference more precisely and with greater critical potential as the "meaning-immanent risk of generalization." This change shifts the basic problem from the concept of norms to the concept of generalization.

One can call expectations that hold with a certain independence of the actual events to which they refer *generalized*. In saying this, we draw on what has already been said concerning the generalization of meaning (Chap. 2, section IX). Generalized expectations leave the content of precisely what is anticipated more or less

indeterminate--for example, how the shards of a plate would look if one were to drop it. They can even leave open the time of occurrence, if it is to happen at all. Finally, they can leave open questions in the social dimension, above all the question of who experiences things in the same way and who does not. Insecurity is incorporated and absorbed through temporal, factual, and social generalizations. Expectations remain valid nevertheless and satisfy their requirements, for otherwise they would be abandoned.

When it first established the concept of generalization, behavioristic psychology emphasized a different function.¹³⁴ It relates to the difference in relative degree of complexity between system and environment. The concept registers two observations that make it difficult to work with a simple stimulus/response schema, and it accounts for both observations with a single concept. On the one hand, a system can answer different environmental stimuli with the same reaction; it chooses a unified mode of reaction despite the environment's variety and thus can reduce the environment's complexity. On the other, a system can react differently to unified and constant situations; it can condition itself to focus on internal conditions that have no immediate correlate in the environment. To this extent, its complexity is superior to the environment's in specific respects.

The functions of both absorbing insecurity and balancing complexity are obviously interconnected, and generalization is the concept for this interconnection. The system assumes the risk of generalization, the insecurity of what is not fully determinate, and thus buys the possibility of treating what is dissimilar as similar and vice versa--depending on problems arising in the relationship between system and environment.

The *concept* of generalization is, of course, *itself a generalization*. It does not provide any information about how the system generalizes which expectations. It is not (or in any event, not necessarily) an operative concept of the system that generalizes its structures. Above all, it says nothing about the distinction between successful and unsuccessful generalizations. These are difficult things for knowledge to do without.¹³⁵ It becomes ever more important to work out the specific epistemological gain generalization achieves. This concerns the *conditions for and resulting problems of an increase in generalization*.

First of all, generalization is indeterminacy (of the system itself or of the environment) that is reconstructed within the system. It distinguishes itself from mere unfamiliarity, diffuseness, and vagueness by requiring *respecifications* and providing grounds for them. It would be possible to give many examples on a relatively concrete level. An interest in increase, that is, an interest in greater generalization that encompasses many different things as well as things still unknown, works very selectively in connection with this. It requires that the function of generalizing expectations be made precise. This occurs through modalization, in choosing between expectations that are more cognitive or more normative. Depending on which direction a specific problem of anticipating disappointment is temporally generalized, different conditions of respecification result, namely, the preparation for learning from or retaining, if not enforcing, an expectation.

Viewed from one perspective, generalization is a *condition of learning*. Under this aspect as learning, expectations are treated as *knowledge*. Without a generalizing anticipation learning would not be possible in either the psychic or the social system, because different states of affairs could never confirm the same experience, that is, could never substantiate structural gain (reinforcement). ¹³⁶ One must know in order to be able to learn to know. Thus learning requires an open combination of knowledge to be retained and knowledge to be changed, and only in such a combination are generalized cognitive expectations treated as knowledge. ¹³⁷ "Knowledge" is the semantic symbolization of this function.

Even the transformation of ignorance into knowledge falls under this concept of learning and knowledge. Every worldview is complete. Therefore even the acquisition of knowledge where none existed before requires restructuring a pre-existing state of knowledge. One did not know beforehand that there are avocados. Now the horizon of what is edible has been expanded, and one can also learn that the local supermarket sells them.

Knowledge is therefore the condition for and regulator of learning processes, more precisely, for building learning possibilities into the existing structure of expectations. If learning possibilities are to be developed, then the situation of knowledge must be correspondingly prepared. It must, implicitly or even explicitly, take hold of its own changeability. This means that it can no longer

seek the security of its expectations, the value of its structures, in rigidity and invariance, but rather in that one can state precisely the conditions that would compel a change. Security rests then on conditioned changeability and on an "otherwise not!"

A readiness to learn can refer to extremely improbable, to more or less probable, and to intentionally produced (experimental) conditions. To the extent that learning is bound to a thing schema, it usually occurs cumulatively. If one were to find out that avocados were a kind of Indian projectile, this would not destroy knowledge of their edibility, but would supplement it. Learning processes make the world more complex. And forgetting is the corrective that goes along with this, especially in societies that do not possess writing. ¹³⁸

A further aspect is that one can afford a readiness to learn only if one knows precisely under what conditions expectations will have to be changed and in which direction. It must be possible to establish these conditions quickly and adequately for situations of surprise and disappointment. This requires adequate knowledge of alternatives, of the milieu, and of comparisons--in short, a critical mass of cognitions that one can fall back on. All these are conditions of respecification, which make it possible to admit insecurity as the equivalent of security and correspondingly to generalize demands for security.

In the transition to conceptual and theoretical constructions of knowledge (which receives a decisive impetus from writing and printing), this cognitive way of handling knowledge gets specified once again in the direction of function, and this specification allows readiness to learn to be differentiated systematically--even and especially when this must be at the expense of existing knowledge. ¹³⁹

An adequately complex theory can clarify how this is possible. Specification, generalization, and respecification work together, leading to cognitive structures that can be more highly constrained. Here too, insecurity is amplified in the interest of a specific function. What is important for the acquisition of knowledge is specification of the conditions under which a knowledge claim can be disproved. Instead of sufficient security, this merely requires reference to the dimension of cognitive expectations, which extends from secure to insecure. This structural deficit (namely, the absence of guaranteed security), is compensated by sophisticated demands

addressed to theory and method, that is, by reference to structures that hold only for a function system specifically differentiated for this purpose: for science. ¹⁴⁰

These considerations lead to specialized areas of research and so must be broken off here. But they no doubt make clear that "sociology of knowledge" in the classical style viewed its task too narrowly. ¹⁴¹ Knowledge pretends to structure expectations cognitively --these expectations, however, are modalized according to a readiness to be changed, though they may not necessarily be changed right now (at least not yet). Thus behavioral expectations are bound up with a knowledge of things. A commodity's usefulness guarantees that it will sell, or at least one hopes so. Blocking a street stops the flow of traffic. An illness justifies remaining in bed. Countless additional behavioral expectations are directly secured by cognition. Without them, social life could not function. Above all, this holds for everything that experience says is impossible (e. g., being in two different places at the same time, such as taking part in two different meetings), but it also holds for a multitude of signals to which one reacts by becoming aware of them--for example, increases in prices or traffic, or, not least, the constant facticity of one's own death. From the perspective of generalization, this means that the structural value of cognitive expectations, and thus their capacity to link events and especially actions, can be increased if greater contingencies can be included. Thus it becomes possible to form more complex social systems. At the same time, a sharper profiling of the specific cognitive style in which expectations are generalized also means that the cognitive/normative difference becomes more important and that it dissolves earlier symbolizations --for example, knowledge as wisdom or the foundation of systems of norms as nature. ¹⁴²

The same state of affairs can be demonstrated, *mutatis mutandis*, for generalizations attached to normative expectation. Here increase in the possibility of holding expectations takes the form of law. Here too, increase occurs by constraining (and thus more precisely defining) the expectations that come into consideration. Not all normative expectations can *eo ipso* qualify as law. It must be possible to assume a consensus, not only on the normative style of expectation, but also on a readiness to impose sanctions and to settle possible conflicts if the expectation is disappointed. To this

extent, law is not a means of solving social conflicts, but first and foremost a means of creating them: a support for demands, claims, and refusals, even and especially where resistance is anticipated.¹⁴³ Moreover, the requirement of a consensus that can be assumed restricts factual generalization: such generalization must be purged of specific reference to the person who holds the expectation, because only then can social support in the event of disappointment be adequately assumed. Thus law emerges under specific temporal, social, and factual demands for congruent generalization.¹⁴⁴

Like knowledge, law emerges in a rudimentary form in all social systems, without recourse to the official law posited and sanctioned by the state--thus in organizations, families, groups that exchange postage stamps, neighborhood relationships, and so on. No system can manage cognitive or normative expectations for any length of time without knowledge and law emerging. This may be a matter of selectively appropriated knowledge or law, or new formations whose range is specific to the system. Historically, knowledge and law existed long before the emergence of stratified, politically consolidated societal systems. But the evolution of such societal systems introduced something new, which transformed what could be acknowledged as knowledge or law on the societal level--moreover, it did so by constraining and thereby broadening possibilities for structural formation. Laws and officially valid knowledge were written down in texts, were codified, and then became the "final authority" for dubious new formations.¹⁴⁵ Nevertheless, system-specific structures of expectation in the form of knowledge or law are preserved--for example, knowledge and claims concerning bedtime for children, bringing gifts on long trips, table manners, and so on.

If one draws parallels between structural advances mediated by knowledge and law, that does not merely provide new points of departure for a sociology of knowledge and a sociology of law. Instead, such parallels, which cannot be purely accidental, confirm the more theoretical disposition of systems theory. At least they make plausible (we can't discuss demands for rigorous scientific proof here) that generalizing expectations enables increased structural achievements, and that generalization selectively grasps only a subdomain of what can possibly be anticipated and uses the difference between cognitive and normative expectations to orient

this selection, because this difference reformulates the dominant temporal problem in all temporal systems.

XIV

In the preceding sections we have kept in mind that expectations, especially when they bear the burden of structure, are susceptible to disappointment. The possibility of being disappointed is a problem inherent to expectation, a problem of its security and stability. An expectation must be able to absorb the danger that it will be disappointed, to prevent disappointment from becoming symbolically destructive of the expectation. Certain contexts of expectation are more sensitive than others in this respect, as, for example, expectations regarding life or pensions. Whatever might lead to the loss of life or pensions is avoided as much as possible, and this is, of course, done by persons who have not yet experienced death. This situation of extreme structural sensitivity to mere possibility is symbolized in the concept of *peace*--a concept designed to counter anxiety, which recently has come to cover not only life expectations but also expectations concerning pensions and welfare of all kinds (perhaps under the presupposition that harm of any kind tends to make human beings aggressive).¹⁴⁶ In this sense, peace is the structural condition par excellence. By peace one understands not only the positive correlate of the negative valuation of certain events, but also the structural value of avoiding them: if one had to anticipate these events, too much would become impossible.

But disappointments do happen. Therefore precautions for dealing with actual disappointment are a necessary part of the mechanisms that protect structures in social systems. They are a necessary part of the context of expectation and operate to safeguard expectations. They also serve to weaken the symbolic and actual scope of unexpected disappointments. Therefore we will call them *mechanisms for undoing disappointment*.

Essentially, this is a matter of explaining disappointments and of sanctions--depending on whether cognitive or normative expectations have been disappointed. With cognitive expectations, explaining away disappointment serves to renormalize the situation that has emerged. There are a multitude of examples, especially in earlier societal formations. They can be distinguished from

normal cognitions_in that they are specialized to limit the imperative to learn from what has happened or to isolate individual instances and encapsulate them as special cases with a limited range. Magical practices, belief in sorcery, even ideas like good and bad luck possess such a function. ¹⁴⁷ In modern society the cooler semantics of "accidents" seems to occupy this position. ¹⁴⁸ An accident is not an intervention of special powers or a special (rare) cause but, interpreted in terms of complexity, a constellation of causes that occurs rarely, if ever. The expectations that it affects are thereby protected from the imperative of learning from the accident, especially in nexuses of events where no similarly secure substitute expectation is at hand to fill the gap. Explanation by "inability" seems to be similarly convincing; it, too, limits the necessity of learning from an individual instance to what can be explained away as the shortcomings of a single person, leaving the remaining framework intact. ¹⁴⁹ Explaining away disappointments provides precise results that can be fitted into a cognitive picture of the world and into the enduring knowledge that has been handed down, and it re-establishes the security of expectations in the mode "prepared for change, but without sufficient occasion for it."

With normative expectations, one must solve a problem of excess pressure. Here those who are disappointed are encouraged to show that they retain their expectations, to provoke conflict, and to prevail, if possible. As a result, it is difficult to argue with anyone who becomes aggressive because one must concede that person's rights. The consequences, however, can extend far beyond the occasion. And what appears to be public support and thus contributes to the decisiveness of expectations can become a problem as *colère publique* (Durkheim) toward breaking the law. If one trusts reports from ancient societies, legal rules emerged to control this problem. Only secondarily did they provide security for expectations, but because of this they were retained, promoted, and refined. ¹⁵⁰ The solution resides once again in a choice of forms that can both augment and channel. Law adopted such a solution in its model of success: one can sue, but one cannot decide the suit or coerce those who will.

One can find a systemic basis for such performances of selection and augmentation in the societal system and in its functional mechanisms and subsystems. Although every social system develops

formulations of its own knowledge, its own laws, and its own ways of undoing disappointment, this systemic basis cannot be guaranteed in every social system with the means available to it. This, too, is an aspect of the selectivity of problem solving, which makes the improbable possible. But it is not without consequences. Above all, the difference between system and environment is intensified on the level of interaction systems. The official culture of scientific knowledge is hardly useful for explaining disappointment in everyday experience, and this is especially true of how society's function systems work through disappointment. ¹⁵¹ The possibilities of turning expectations and disappointments in daily life into law, especially in dense systems of interaction that are calculated for reproduction, are equally problematic. ¹⁵² On the one hand, interaction concerns how models work to provide stylized solutions to societal problems. On the other, the solutions are bound to the distinctive type of societal system and cannot be carried over pure and simple into interaction. ¹⁵³ The difference is known as such from case to case and becomes a point of reference for related new developments.

In the seventeenth century one practiced, even if one didn't see, this problem (i. e., the difference between interaction and society) as an alternative. On the one hand, political centralism, including the legal system, tended to look after peace. These efforts had long-term effects on social structure and semantics. Moreover, the cultivation of fellowship, gallant conversation, the refinement of gestures and language, and, above all, norms that forbade belligerence, public disputes, and inflammatory themes such as politics and religion attempted to ensure peace on the level of interaction. ¹⁵⁴ These behavioral models were oriented to the upper strata of society, however. They could not withstand the dissolution of the stratified societal order, at least not as an expectation of cultivation. On the level of interaction, one now provides for "permissiveness" and randomness, while provision for peace is transferred entirely to society, which earns nothing but unrest as thanks.

XV

A final means of securing structure was once held to be the *latency* of structures' function, or even of structures themselves. Precisely

what is to be understood by this must be analyzed more closely. ¹⁵⁵ If they did not take the concept as given or self-evident, sociologists as a rule were content to define latency as a lack of explicit awareness. Often they gave this more point with the thesis that it concerned invisibility. The impossibility of creating explicit awareness was then grounded in the function of latency itself, or it concerned a fortunate symbiosis of an inability to see and know everything, on the one hand, and mystifications in the interest of political order. ¹⁵⁶ Thus latency as a lack of explicit awareness had significance for psychic and social systems. Why psychic and social systems hold together was thus transferred to the unconscious. Sociologists, who no longer dared to believe in nature and reason, then at least believed in latency. In ignorance one is innocent, is of one mind, yet the sociologist finds himself excluded from this unconscious consensus of the unconscious: he finds himself at the gates through which destructive knowledge could be admitted. The sociologist occupies the position of an observer who can perceive knowledge and ignorance, manifest and latent "contents," at once, ¹⁵⁷ which is impossible for the observed object. As an observer, the sociologist used the idea that latency has a *function* for the system to bring manifest and latent structures into a nexus of order and thus to transcend the object's possibilities of self-observation. ¹⁵⁸

In the setting of a theory of self-referential social systems, this concept must be modified in many ways. Above all, a sharper separation of psychic and social systems opens up the problem of latency with respect to system references. One must distinguish between psychically feasible consciousness and socially feasible communication. Similarly, one must distinguish between the *latency of consciousness* and the *latency of communication*. Consciousness belongs to the (interpenetrating) environment of social systems; the latency of consciousness (unawareness, ignorance) is therefore at first only an environmental precondition for forming social systems. All-knowing psychic systems are fully transparent to one another and therefore cannot form a social system. This should be distinguished from the latency of communication, in the sense of a lack of specific themes to enable and steer communication. To be sure, there are connections, because communication requires an adequate measure of explicit awareness, while consciousness

pushes toward communication. On the one hand, specific social regulators maintain thresholds of communication and prevent communication that would consciously be possible; on the other hand, an enormous therapeutic industry tries to create consciousness precisely where consciousness fails because of its own necessary latencies. Precisely as consciousness can a psychic system experience the impossibility of communication. Only human beings (and not, e. g., animals) can, in this sense, be reprimanded; only their communicative behavior can be consciously regulated and suppressed. Conversely, communication can be used to extend consciousness and to bring into it themes that can be formulated. ¹⁵⁹

Thus the entire theory of latency must be worked out along two lines. The basic concept of the difference between environment and system forces a distinction between the latency of consciousness and that of communication, particularly if the theory aims to delineate interdependencies. Moreover, at least three levels of situating the problem must be distinguished for both kinds of latency. There are: (1) purely factual latency, in the sense of ignorance or lack of consideration in choosing themes for the communicative process; (2) factual latency that rests on the impossibility of knowing or communicating (just as the Greeks knew nothing about pianos and could not communicate about them); and (3) structurally functional latency, namely, latency that functions to protect structure. Only the last is truly explosive, and only to the extent that the latency is not covered up by a factual impossibility of either communication about or consciousness of it. If structures require the protection of latency, this does not mean that consciousness or communication is impossible, only that consciousness or communication could destroy structures or trigger considerable restructuring, and that this prospect preserves latency, and thus blocks consciousness or communication.

Analysis of the third case, structurally functional latency, must be oriented to the difference between the latencies of consciousness and communication, because this difference gives structurally functional latency its precarious character for psychic and social systems.

Consciousness can undermine social latencies when it forces communication, ¹⁶⁰ and communication can sabotage psychic latencies, especially in the form of communication about the communication of a person who is defined as seeking to protect

and conceal personal latencies. ¹⁶¹ Thus psychic and social systems endanger each other simply in that their latency needs do not agree and their operative processes are not identical.

Because preserving latency is a problem, it is important to be clear about what that problem is. This holds particularly if one does not simply define the problem away as a factual impossibility, that is, does not reduce it to limited capacities, to the bounds of attention, or to the limited thematic capacity of a social system. As we have seen, limits on capacity generally force systems of every kind to reduce complexity, to simplify themselves, and to realize their possibilities only selectively. Everything that is thereby screened off remains latent in a purely factual way, as a remainder with no function. Many of the possibilities thus screened off could be adopted if the requisite capacity were free and the time and occasion favored. One could speak of "harmless latency" here. Other possibilities, however, contradict the premises or the results of structural selection--as, for example, anything that would clearly show that one did not marry "out of love." ¹⁶² In these, and only in these, cases is structure--here, the cultural imperative to love-- protected by "functional latency," which also ordinarily means that the function of structure itself must remain latent. Thus selectivity also differentiates what is not taken into consideration. The range of what it eliminates is not merely a gray area but mirrors the demands of structural selection.

In section VII we distinguished hierarchy and orientation to function as forms of this selection (and thereby as forms of structural "manifesting"). According to our hypothesis, each of these structures creates its related latencies. The more starkly a system is hierarchized, the more clearly do forms whose latent function is to protect hierarchy's need for latency stand out. ¹⁶³ This is true, for example, of the partially negative, partially individualistic, certainly "renunciatory" tinge to the semantics for life forms that take place outside the Indian caste system. ¹⁶⁴ Basically the same holds for medieval forms of the ironic, subversive (but not earnest), and inverted treatment of official religious and political claims to validity. ¹⁶⁵ The fool lived at court. The famous "courts of love"--which decided questions of love in the manner of legal ones, produced maxims and casuistries, and thus arranged "their domain"--also seem to present a playful inversion of the dominant (and male-dominated)

order. ¹⁶⁶ This is supported, among other things, by the precision of the copies when sex roles were reversed. ¹⁶⁷ In addition, one can think of the cleverness of servants in eighteenth-century theater, without which nothing could succeed, or of the slang, argot, or situational wit of the lower strata of society. Thus a hierarchy (especially a stratified societal order) typically seems to confirm its own choice of form by allowing semantic variants that draw and bind other possibilities to themselves, *but that do not appear as an alternative to hierarchy*. Hierarchy is treated as *functionally irreplaceable*, and precisely this makes it possible to give concise form to the meanings that swirl freely around the hierarchical: as inversion, as parody, as attack that does not need to be answered, because it is recognized as both hitting the target and being in jest.

One can observe functional equivalences in organizations ordered hierarchically, although in different kinds of forms. Extensive research into this exists under the code name "informal organization."¹⁶⁸ Here, too, solutions are distinguished by the fact that communication about the hierarchically structured organization and the formation of a correspondingly critical consciousness in the informal domain are not obstructed, but care is taken that informal communication is not confused with organizational execution or mistaken for a change in the formal organization and its practices. One can endlessly hash over hiring, firing, employing, and circumventing superiors. But this does not change the fact that superiors are superiors; rather, it confirms it, because such informal communication has meaning only under this condition.

We could conclude that a hierarchy transfers its own particularity to its domain of latency. Even meaning references that do not fit into it because the hierarchy is too selective may find forms that at once express this fact and confirm the hierarchy's selection. *However, this becomes impossible if reference to the system's unity can be produced only by functional orientation to a problem.* The question is: What then protects structure's necessary domain of latency, the specificity of its selection, and the system's self-simplification? One can also view this problem in terms of the risks that a system incurs if it fixes its unity as the selection of structure. A hierarchy can be inverted, short-circuited, and detransitized. In specific regards it can be hurt, and this can be exploited by a

counter-semantics to find forms for the play into which the hierarchy's contingency can be transformed. Orientation to function not only lacks the necessary particularity for this but also the corresponding specification of risks and possibilities of inversion. It is itself a contingency that has already been formulated, namely, the formulated equivalence between problem solutions and possibilities for substitution or replacement. If one thing does not work any more, then something else will. The pressure to conform is weaker but more inevitable, because access to alternatives is channeled through structures that are directed to function. Forms exercise a pacifying effect only because they make visible what could replace them and what that would cost. ¹⁶⁹

Replacing the representation of the system's unity within the system as hierarchy by representation via reference to function does not eliminate hierarchies. Rather, they are measured by function and thereby de-substantialized. They become subject to criticism where no sufficient function can be found--for example, in a class-based inequality of distribution--and they are confirmed where their function is evident and there seem to be no functional equivalents, above all, in formally organized social systems. ¹⁷⁰ But the functional substitute for hierarchy is orientation to function itself, and one must then ask after latency needs.

One cannot expect counter-cultural forms in a functionally oriented system to be as well-defined as those in a hierarchical one. Obviously, no established framework for fulfilling functions can be completely satisfactory. A functionally oriented system stimulates criticism because its unity resides in the principle that all its figures can be replaced under certain conditions. As a formula for criticism, the search for an "alternative" becomes a formula for legitimation pure and simple. What appears as an alternative has the right to a hearing and a chance to prove its worth. Such an arrangement might be self-sufficient. In the next section we will discuss this question with regard to the boundaries of sociological enlightenment. At the moment, one has the impression, though without yet having at one's disposal fully secured empirical and theoretical grounds for the judgment, that any contingency functionalism formulates cannot establish itself as necessary. Alternative and rejective lifestyles are conspicuously available. Their language, wherever there is talk of "criticism" and "alternatives," is precisely that

of the dominant order. One cannot formulate in the domain of latency an alternative order oriented to function because precisely this has long since been the principle of the system one would reject. A consolidation beyond all possibilities of replacement would have to be possible; even replacing the present society with one having better regulated techniques of distribution, even Marcuse's dream, would not in itself suffice. Nor is the problem solved any better by attempts to copy the old model that worked for hierarchical systems, namely, to attack the order as "domination," to parody it, or to stage carnivalesque inversions of official institutions like universities or courts. The slightest mention of problems or gesture of taking them more seriously is enough to dissolve silliness of this sort. The structure of an entire formal discourse via latency, whose latent function was to shore up the systemic order's self-simplification in its need for latency, seems to have become obsolete. The reason for this might be that a systemic order oriented to function cannot functionalize what must remain latent without including it in the order itself. The only possible remaining form for latency is then a sort of blind, mute, functionless terrorism: a counter-contingency reduced to countering existence itself.

XVI

If a system cannot be protected by latency, then contingencies must either be expelled from it as environment or worked into it. This reveals an interconnection between: (1) functional orientation, (2) sharper differentiation, with a correspondingly sharper consciousness of the environment, (3) managing contingency, and (4) enlightenment. Here we will take up the relationship between the loss of latency and enlightenment. Normally, one views the retreat of the occult, the secret, the unknown, and the unknowable as a consequence of the Enlightenment. But one can, conversely, consider the Enlightenment as emerging when the occult and the necessarily latent retreated.

Everything that is substantial [*alles Wesentliche*] is secret by its very nature--this was still a common, though sometimes already ironic statement in the seventeenth century, ¹⁷¹ and soon thereafter the official Enlightenment of Reason was established. The flood of enlightenment and the ebb of latency can presumably be reduced to a common factor: to a gradual

replacement of the hierarchical orientation of the European societal system (and correspondingly of many particular social systems) by a functional one.

If this theory is correct, one must be able to establish that latency became a problem with the transition from a hierarchical to a functional societal order, and this is in fact the case. The "secret by its very nature" was translated into problems of and barriers to communication. That was how Pascal saw the situation. People live in illusions, and those who see through them are not supposed to say so. Not the fact of illusions, but the knowledge of them must be concealed. In many places Pascal still speaks of *mystère*, but he also emphasizes that accepting the existing order rests on illusions about the justice of traditional law, about the qualities of the nobility, and about the legitimacy of domination, and that this truth may not be expressed, that it must remain a *pensée cachée, pensée de derrière*. Such communicative restraint should be the Christian's contribution to order, thereby accepting the fall from grace; any nobleman who sees through the illusions should also forgo presenting a true picture of the nobility's quality and humanity. ¹⁷² The theory of salon conversation also soon found itself replete with communicative proscriptions and obligations to remain silent that were needed to keep social intercourse going. ¹⁷³ And even moral theory accepted the insight that an interest in moral esteem cannot enter into communication, but that one must demand moral action for the sake of morality itself (whatever its true motives, which might better remain undisclosed).

In the second half of the eighteenth century, this problem came to a head. The Enlightenment claimed a public role as "philosophe," symbolizing in his person the self-reflection of the societal system. One began to call upon public opinion. *Public* opinion, of all things, was declared to be the *invisible* authority. ¹⁷⁴ Manifest and latent collapsed--and only the fact that this had happened remained latent. ¹⁷⁵ ___

This problematization of latency (which could at the time be related only to the old society's preconditions of order) was accompanied by a readiness to pursue alternatives, that is, to think in terms of references to function. In the eighteenth century, criticism, as the use of the faculty of judgment, became the universal virtue--conceived at first as a procedure for selecting what is truly

rational, then, in the nineteenth century, as the practice of change for change's sake, as revolution, as upheaval, and as a practice that self-critically gives itself its own goal, measure, and law. ¹⁷⁶ One must be able to reduce precisely this radicalization to a latent relation to the problem of latency. It is not voluntarily radical; it must become radical in a peculiarly helpless fashion, because it can no longer find a form to respect latent functions and structures. In consequence, it does not accomplish much more than a negative presentation of what is already the case, and it can very quickly sink into despair and resignation. Or a new elite finds itself in Pascal's situation once again: knowing, but not being allowed to say, that it does not deserve to be an elite!

The semantics with which the eighteenth century first reacted cannot be used again today for the referential network of functional orientation, differentiation, criticism, coping with contingency, and enlightenment. Functional orientation cannot be conceptualized as mere usefulness, and the Enlightenment was not concerned simply with implementing the sovereignty of reason or actualizing the human within humanity. Confronted with the contingencies of the modern age, the Enlightenment eventually separated itself from commitments that a supposed reason prescribed for it and from what (from anyone's view) human beings should be as human beings. The search for a kind of counter-instance that could support the consciousness of contingency continued. Baudelaire and many others proposed art. ¹⁷⁷ By contrast, a sociological enlightenment can follow out problems that exist in the domain of its objects. It seeks to increase consciousness about and communication of the system's contingencies by grasping its reality with great depth and precision, and by penetrating to basic problems in its analyses.

One begins to manage contingency by realizing that it always happens. Social systems, as we established above in section VII, reproduce a continual difference between autopoietic reproduction and self-observation. In situations with double contingency, *both* modes of operation are accessible to *every* participant. Every participant functions--if not simultaneously, then in rapid succession --as an actor and as an observer and imparts both positions to the communication process. In interaction systems these positions can hardly be separated. But after the invention of writing and printing, society could separate them quite easily. This enabled the

use of difference schemas that are appropriate only for observation. The schema of manifest/latent is an observation schema in this sense, and the same is true of functionally oriented comparison. Printing then becomes the precondition for society to find possibilities of communicating about what is incommunicable and about latent structures and functions. By using both forms of orientation to difference, society can carry out enlightenment upon itself.

Internally, however, these schemata do not behave neutrally with regard to each other. Enlightenment means, on the one hand, making latent structures and functions manifest and, on the other, using function as a measure of comparison. The schemas work hand in hand. They contradict each other, however, when functional analysis discovers the function of latencies. At this point society finds out that it is not permitted to know that it is not permitted to know what it is not permitted to know. The function of latency requires the latency of its function. The way out of this dilemma has been known since the nineteenth century. It consists in recourse to the underlying difference between observation and action and in the option of taking action. As long as he is a philistine, Kater Murr is unable to know what it means to be one, and Kater Muzius cannot explain it to him. Communication flounders on the protective function of latency. The way out lies in a liberating action. In this case, it leads out of the house and onto the roof. ¹⁷⁸

Action is always faster than observation. Therefore, evolution in social systems is also faster than functional analysis. Recourse to any difference between action and observation leads back to reflection on a temporal problem: the problem of Tristram Shandy's autobiography. Ever since the movements against the Enlightenment at the end of the eighteenth century, one has suspected that enlightenment wreaks havoc with domains of latency, which cannot tolerate it. Yet seemingly irrational institutions like religion (for the lower levels of society) and taste (for the upper levels) were celebrated for their advantages in tempo, and interpreted functionally at least to that extent. ¹⁷⁹ Every social system is under temporal pressure to make immediate connective selections, and it cannot realize all the possibilities that are disclosed through functional comparison or ferret out the best of them. Sir Geoffrey Vickers hits the nail on the head with typical British nonchalance when he writes, "To multiply indefinitely what is possible does not

add anything to what becomes actual. Multiplying the opportunity and the need to choose increases the volume of what will never be realized. A man who can read ten languages cannot in a lifetime read more than a man who can read only one. He had a wider choice; but whether this is for him a benefit, a disaster or merely neutral depends on him." 180

The problem of time therefore suppresses other concerns in the domain of themes for societal reflection. Communication, as the unity of the difference between action and observation, becomes a central problem. Every reflection may reach a point where it contradicts itself and where, as communication, it can neither continue nor break off. Whether it does something or refrains from doing something, that is what occurs. The auto-poiesis of reflection, too, runs ahead of all reflection and changes the conditions under which it holds true, once again, that there are points where reflection, as communication, can neither continue nor break off. Instead of insisting on a solution to this contradiction (and doing nothing in the face of it) it might be more productive to continue an approach that in the eighteenth century was still viewed as irrational, as lying outside all reason: to adjust the criteria of observation to the need for accelerating observation and thereby to the reduction of complexity. Then, perhaps, the fact that this must occur will no longer need to remain latent. XVII

We will close this chapter with a much and fruitlessly discussed theme: structural change. This is what is meant when one speaks of social change. Since the French Revolution the concept of social change has replaced the constants of nature and the contractual constructions of natural and rational law, though at first it replaced them only with a kind of "natural" property of social orders, called change. Things change--that cannot be denied. What changes and to what degree is simply a question of the time span one is looking at. From "immutability" one cannot deduce privileges that can, for that reason, be called immutable themselves. Besides, the concept of change is a factual one, with normative implications: one can require that a change that has occurred be acknowledged as a condition of any attitude toward reality that is worthy of discussion.

There are advantages to a politics of ideas that has supported the concept. This positioning gave the debates of the nineteenth century a weather-proof, uncorrodible guideline, which made further conceptual and theoretical investigation seem to be unnecessary. But the concept has been used up in this sense of a politics of ideas. Now one wants to know not only what has changed and in what way, but, fundamentally, what is meant when one speaks of change.

Before one speaks of change, one must establish what, precisely, this concept refers to. Only after one has clarified what is to be understood by change can one ask whether change occurs as a process or as a collection of uncoordinated individual events. Important distinctions are blurred if one too bluntly opposes structure to process or statics to dynamics. Even the concept of a "dynamic system" does not help much. We have already implicitly replaced it with the concept of a temporalized complexity or temporalized system (a system with temporalized complexity). Such systems are automatically dynamic to a certain degree because they constitute their elements as events and therefore are themselves compelled to change them, regardless of whatever help or hindrance their environment contributes. But does a dynamics constituted in this way also mean that systems can change their structures?

One can speak of change *only in relation to structures*.¹⁸¹ Events cannot change, because there is no duration between their emergence and their passing away in which something "eventlike" exists and can continue despite change. The identity of events is bound to temporal points--however extended such a "specious present" must be to possess meaning. Only structures keep what can be continued (and therefore changed) relatively constant. Despite *the irreversibility of events* structures guarantee a certain *reversibility of relationships*. On the level of expectations, not on that of actions, a system can learn, can dissolve what has been established, and can adapt to external or internal changes. Strictly speaking (though we ignore this convention for practical and linguistic reasons), one cannot say that "a system" changes, because the system is composed of immutable elements, namely, events. Yet systems are identified by structures, which can change. To this extent, one is justified in saying that the system changes when its structures change because, after all, something that belongs to the system (i. e., what makes its autopoietic reproduction possible) changes.

The classical discourse about structural change was conducted within the schema of constant versus variable. Therefore it sought a counter to structural change in invariant or at least relatively constant features of the system, thus once again in structure. The dispute centered on the importance of constant structures and the radicality of the sought-for change. The theory of self-referential systems works with completely different conceptual preconditions and therefore cannot be included within the classical disputes, such as the distinction between static and dynamic concepts of system. For systems theory, only events that can be referred to a minimal temporal point count as immutable. Only what passes so quickly that there is no time for it to change can be immutable. Therefore the constraints on structural change do not lie in structures with specific qualities that resist change, but in the problem of selectively combining events that pass away as soon as they emerge, and thus in the function of structures.

Basically, these remarks are still at the level of conceptual clarification. They do not yet explain how structural change is possible, not to mention how it comes about. The state of sociological research in this matter can be presented very briefly: a multitude of relatively successful explanations exist, which are not mutually exclusive yet which cannot be integrated into a unified theory. Often one works with structural contradictions and conflicts under the assumption that systems destabilized in this way tend toward structural change.

Furthermore, there is the nineteenth-century heritage of a theory of evolution that applies only to societal systems and not to all social systems, as well as the presociological theory of paradoxical change, which maintains that an increase in wish fulfillment, well-being, and success disproportionately increases dissatisfaction and leads to structural change. Others see the main stimulus to social change in the symbolic structure of society, such as Max Weber in religion and its significance for motivating action. Also worth mentioning are theories that, following Gabriel Tarde, work with imitation and diffusion. This nucleus is surrounded by lesser theories that explain things like fanaticism and radicality by status incongruence or that attribute a triggering significance to specific technical inventions like writing, printing, the plough, or the steam engine. Common to all these attempts is a reductive way of putting the question. They try to grasp the typology

of change at the point of its causes, to enrich the model with additional constellatory or historical conditions (this does not always work: for example, printing revolutionized Europe but not China) and from this perspective to describe structural change as a historical process. The cost of this is that the initiating causes that the model considers to be decisive lose much of their persuasive power within the overall constellation.

One can see at a glance, I believe, that such ways of proceeding do not permit higher aggregation into an overall theory "of" social change. They must and can be satisfied with their results (which does not, of course, rule out new developments within their framework). A general theory must start somewhere else. For a point of departure, we return to the concept of autopoietic self-maintenance. Because a social system (like all other temporalized systems, including life) exists as elements that are events, it is confronted at every moment with the alternative of ceasing or continuing. Its "substance" continually vanishes, so to speak, and must be reproduced with the help of structural models. Action must follow on action--or nothing will follow at all! Autopoietic reproduction presupposes structural models, but it can innovatively or deviantly emerge from a situation if action remains communicable, meaningfully comprehensible, and capable of connection. After thirty-one years of marriage a husband, on his fifty-seventh birthday, tells his amazed wife, "I don't like plum tarts. And I never have liked them." Then the question of what to cook him on his birthday must be decided anew. If both birthdays and desserts, married life and candor, do not lose their meaning, the structure can be meaningfully changed. ¹⁸²

Structural change presupposes self-maintenance; this much has always been clear. It follows that change and preservation cannot be explained by different theories (perhaps "progressive" on one hand and "conservative" on the other), but that every theory must always deal with both. What is new here is the insight that the problem does not lie on the level of a "whole" equipped with many "qualities" that is either preserved or not, but on the level of relations among elemental events whose reproduction is continued or not. ¹⁸³ This means that every situation contains a three-fold difference: (1) connective action within the framework of existing structures of expectation, (2) connective action on the basis of

deviant structures of expectation, and (3) cessation. Choices between (1) and (2) are made from the perspective of conformity/ deviance, between (1, 2) and (3) from the perspective of autopoietic difference. The selection can be binarized, but only by coupling two of the differences.

The difference between these differences defines the matrix within which structures can be disturbed and changed. If one eliminates pure cessation as a possibility, there still remains the possibility of conforming or deviant connective action, which includes conforming deviation (accepted innovation, e. g., lawmaking) as well as deviation from still-undefined expectations, namely, evasion into an as yet semantically unoccupied structural domain. Thus autopoiesis is the condition under which structure can change or not. Autopoiesis takes account of the fact that no object can change its position in time (only itself or something other). Any object remains at the mercy of the course of time, whether it changes or not, and therefore, given a certain degree of complexity, it must preserve itself by autopoiesis.

Viewed from the perspective of autopoietic reproduction and processed with the help of autopoietic difference, the problem of structural change possesses its own conditions of possibility and its own degrees of freedom relatively independent of the structure that has been problematized (but naturally not independent of all structures that enable the discovery and appointment of connective actions). Here more than ever what is important is the situation and its means of persuasion.

Structural changes must be persuasive in situ.¹⁸⁴ First, it must be possible to go on acting; only then can one tell whether the change has any structural value, any capacity to form expectations. This also means that structural changes constantly occur without being announced, wanted, or answered to. Families with grown children or organizations with a history of development described by Philip Selznick as institutional formation are examples of this,¹⁸⁵ and often one becomes aware of structures and they become communicable only when they must be changed.¹⁸⁶

On this basis considerations can be worked out concerning the interconnection of (1) the system's complexity, (2) the contingency and relative improbability of its structures, (3) the need for specific destabilization (e. g., capricious deities, variable prices, governments

that can be elected), (4) sensitivity to information, and (5) the frequency or tempo of structural changes. But this does not lead to theories of process, namely, theories that explain why many events that change structure condition one another sequentially. One must rid oneself of the notion that the category of process is a necessary form for concretizing the problem of structural change.

Thus far, we have gotten by without invoking the concept of *adaptation*. Normally, adaptation is understood as the adaptation of system structures to the environment (more narrowly, to changes in the environment).¹⁸⁷ With this version of the concept, one can formulate why a turbulent environment that changes frequently and invisibly requires greater adaptive performances by the system, and thus greater structural flexibility.¹⁸⁸ But if one must then assume that the environment's turbulence is created by systems (in the environment of the respective system of reference) attempting to adapt to it, then one can anticipate increases in turbulence and flexibility that can lead to catastrophe--catastrophe understood as a different, quicker way to entropy.

But perhaps such prospects are only the perspectives of a theory that is too simplistic. Sociology has always behaved with a certain reserve toward the concept of adaptation offered by biology.¹⁸⁹ Parsons, for example, considers adaptation only one of four systemic functions. It can be increased only by differentiating corresponding subsystems and by being brought into agreement with other systemic functions and their increase. Increase of functional differentiation, not adaptation, is the historical law governing the structural development of action systems. However, the concept of adaptation has an undeniable (however suppressed or unacknowledged) prominence as long as the system/environment difference is the guiding paradigm of systems theory because this difference channels the system's information processing (or that of the system observer) through two alternatives: the system adapts to the environment, or the environment adapts to the system. But if one turns to a theory of self-referential systems, the concept of adaptation recedes, without losing its significance, to a secondary rank. The primary question then becomes: With which semantics does the system determine the distinction between system and environment, and how does this semantics affect the processes of information processing and what necessities of adaptation appear in

consequence against the backdrop of the system? One need only remember the significance the language of money possesses for politics and the economy to have a striking example: this language understands the difference between system and environment as the difference between whether one has money or not. Changes in this distribution then steer the processes of structural adaptation without considering another schematization of difference.

Self-referential systems are closed systems in the sense that they produce their own elements and thus their own structural changes. There is no direct, causal intervention of the environment on the system without the system's cooperation. That is why the system endows its own structure (although it is no event) with causality. This is the form and condition of all adaptation. Structure can work only in combination with sporadically occurring events in the system and/or environment, just as, conversely, events in the system work only in combination with structurally prepared causes. Similarly, causes that are continuously present can work discontinuously and possibilities that are reliably at hand can be rendered discontinuous, as, for example, a legal order, which is highly reliable, though that does not allow one to foresee when and where it will intervene. This latent causal contribution, which must be triggered, can adapt to changing requirements by structural change. Without such cooperation from the system, the environment would remain merely the possibility of destroying autopoietic reproduction. (For example, an avalanche buries skiers, so that they can no longer communicate with one another. The *danger* of an avalanche is captured, if possible, by communication and the structural change that it thereafter triggers.)

All structural change, whether adaptation to the environment or not, is self-change. In social systems it is possible only by communication. This does not mean that the structural change must be a theme of communication or even planned in any sophisticated sense. But it requires situations in the system in which a change in expectations can be observed, understood, and believed. Such situations are possible only when the system and its elements are temporalized. The environment remains a stimulus to structural change.

Communication within the system must convey information and maintain an ongoing reference to the environment. Changes in expectations are interpreted with a view to

the difference between system and environment; perhaps this is the only way they can be comprehended. This makes it probable (but not necessary) that a social system adapts to its environment through structural changes. But since elements and structures, situatedness and semantics are performances of the system, too much "of its own" enters into the "adaptation" for one to infer an increased compatibility of system and environment as a result. Paradoxically, precisely its own part in the process of structural adaptation may prevent a system from successfully stabilizing itself within its environment in the long run.

The concept of adaptation as related to the environment by no means encompasses all forms of structural change. We must supplement it first with the concept of *self-adaptation*. We arrive at this concept if we take, not the distinction between system and environment, but the distinction between element and relation, and thus the problem of complexity, to be fundamental.¹⁹⁰ Self-adaptation eliminates system-internal difficulties that result from imbalances in how elements relate, that is, result from reductions of internal complexity (which can be a result of adaptation to the environment). One suspects that adaptive processes in bureaucratic organizations largely follow this type of self-adaptation because they require a great deal of fine-tuning constantly in need of correction and they promote intense sensitivity to minute differences. By contrast, in families, which show great ability to themselves determine the personal characteristics of their few members, it is rather adaptation to the environment that is typical--above all, as adaptation to its members' growing older (being born, leaving the family). This might be why a different climate of conflict dominates in families than in bureaucracies--conflict viewed as the consequence of not performing a required adaptation. In families, a change in the self-interest of a family member paves the way to conflict; in bureaucracies, by contrast, different lines of reduction within the framework of collaboration collide.

The comparison of adaptation to the environment and self-adaptation still does not provide a complete picture of the possible forms of structural change. We must add a third case, which we call *morphogenesis*, drawing on a wide-ranging terminology.¹⁹¹ Morphogenesis does not result from pressure to adapt, and its failure to appear does not lead to conflict. It develops in open terrain. It is not

based on either the difference between system and environment or on that between element and relation, but rather on the difference between activation and inhibition (or enabling and repression). It assumes that there are systems whose possibilities are to a great extent inhibited, whose meaning references, for example, are exploited only to a very limited degree by the structures of expectation necessary for reproduction. In such cases, the relationship between activation and inhibition can be changed by evolutionary variation so that structurally deviant, inhibited possibilities can occasionally be disinhibited, that is, re-activated. One could also speak of permanent inhibition and short-term, situationally dependent, accidental re-activation. Thereby an internal problem of adaptation and, maybe, a possibility of adaptation related to the environment emerges *ad hoc* and can then be exploited. But the development can equally well run around in a vicious circle if the possibility of re-inhibition fails--somewhat in the sense of Myrdal's famous "American dilemma" or in the sense of the contemporary widespread diagnosis of affluent societies. More and more, they come under pressure to react to the problems that they create, without being able to achieve a better relationship to their environment or themselves in doing so.

Although morphogenesis creates new structures, it is always also structural change. It builds on an existing system, for otherwise it would not be possible. This follows from the basic concept of autopoiesis. Thus, to cite a famous example, ¹⁹² the development of corporative institutions in archaic societies (which were initially composed only of families) did not leave the structure of the existing society untouched. It didn't just add something on. The old societal order composed of families was replaced by a societal order composed of families *and* corporations, which by and large continued, the old one, but with greater specification and corresponding generalization.

Thus the morphogenetically advanced situation is a system because it can further develop the old order only by maintaining all its

components, which means that the continuing components, here families, acquire a new meaning. ¹⁹³

The conceptual distinctions now introduced make it possible to examine the relationship between structural change and events and, in connection, the relationship between structural change and process. To be sure, all structural change presupposes events because

systems are composed of events and can transform themselves only through them. But are structural changes themselves events? ¹⁹⁴ They can be, but they need not be. ¹⁹⁵ One need only call to mind the structural change that a family undergoes when children grow up to see that the description of changes as events has clear (even if imprecise) limits. One can view changes as events only if the difference between before and after can be condensed to an identity that cannot itself change and that occupies a greater or lesser temporal space in which the change is carried out. It never makes sense to say "the" event is "the cause" of structural change; an event only identifies change. The possibility of identifying, and correspondingly, of carrying out structural change via events (e. g., in law making) may catalyze, focus, and bundle together many causes and thereby make possible structural changes that would not be otherwise. This tends to result in an overinterpretation of events as the causes of change. But it is entirely unrealistic and should not escape the notice of social scientists. It belongs within the context of the strongly simplifying self-description of changing social systems.

This very briefly discussed question of whether structural changes are events should not be confused with the question of whether structural changes, if not events, are at least processes composed of events. But collections of events are not automatically processes. One must distinguish, at least on the conceptual level, between structural changes and processes. One should speak of processes only if events interlink or, more precisely, if the selection of one event makes that of another possible. ¹⁹⁶ Thus the concept of process designates an increase in selectivity of a special kind: an increase in selectivity that enlists time.

The collection of adaptations (to the independently changing environment or to oneself) is very hard to conceptualize as a process. Their interconnection emerges only out of the system's unity, and not necessarily from one adaptation's being a condition for the emergence of others and vice versa. (That would be so only if the system's existence or nonexistence was at stake in every adaptation. Then *a* system would be *a* process.) Development in the form of a process is more likely in morphogenetic structural changes. Here, new structures are created, and these structures will most likely become the point of departure for further structural formation --

for example, political domination is the point of departure for the formation of cities, cities for writing, and writing for philosophy-- or, to put it in a nutshell, agriculture, after a brief civilizing interlude of a few thousand years, is the point of departure for the atomic devastation of the planet. Yet even such instances are really only series of events that can be ordered on a Guttman scale: without agriculture, no atomic explosions. ¹⁹⁷ But what gives these series of events the quality of a process?

Before we go further into this question, we must establish that the most up-to-date and sophisticated theories of structural change are not theories of process. Neither Parsons nor the neo-Darwinian theoretical accounts currently in vogue arrive at a concept of process. Parsons's "theory of evolution," scattered over numerous publications, merely deals with four structural requirements of system development, namely, adaptive upgrading, differentiation, inclusion, and value generalization. ¹⁹⁸ They refer to the four functions (or function systems) that Parsons believes are necessary to make action possible. When there is an increase in the complexity of the conditions enabling action, all four functions must satisfy corresponding structural conditions--or development breaks off. This is not a theory of unilinear increase a la Spencer, as critics are wont to assume. ¹⁹⁹ The opposite is true. Parsons emphasizes that no individual function can be perfected in itself. The achievement of this theory is to name many of the structural conditions for attaining greater complexity. These condition one another and thus make progress more improbable by requiring compatibility. But even if one emphasizes this aspect and perhaps reveals the improbability more clearly than Parsons himself has done, this does not put forward a theory of process. The theory merely contains statements about the conditions for attaining greater complexity and attempts to show historically how these conditions must actually be met through "evolutionary universals" wherever more complex societal systems have formed.

Nor can one view neo-Darwinian theories of evolution as theories of process. These too merely account for the adequate probability and frequency of structural change one must presuppose to explain how complex orders can emerge so remarkably quickly in the organic or the social world. This type of theory (among which Parsons erroneously includes his own) draws on the difference

between variation, selection, and restabilization for its explanations, but that history occurs in the form of process, not to mention that this process is regulated by a historical law, cannot be derived from it.

A succession of events is a process if and only if it fulfills the characteristic of increasing selectivity. This can, for example, occur in the form of anticipatory (or teleological) processes,²⁰⁰ namely, insofar as events are triggered and actions are chosen because they have consequences that occur only if the triggering events are realized. But this strong form of the *reciprocal* selectivity of preceding and succeeding events is not the only possibility for forming processes. In addition to these teleological processes, there are the evolutionary processes of morphogenesis. These are characterized by the fact that they handle the increase in selectivity one-sidedly. They connect one structural change to another without orienting themselves by anticipation of or retrospection on the results; they thereby accumulate improbabilities without including them in the process as a meaningful result. They remain dependent on "chance," that is, on an uncoordinated interplay of selection and variation. Language, then writing, and then printing emerged in this way out of an exchange of signals. A succeeding development transforms--as we have said, this is structural *change*--the levels that have already been attained.

Thus, for example, modern national languages emerged as a consequence of printing. This gives the sequence an internal cohesiveness.

A direction emerges, which can be described as the attainment of structures with greater improbability.²⁰¹

We must leave open the question of whether this contrast between teleological and morphogenetic processes presents a complete schema of the possibilities for conceptualizing sequences of structural change as processes.²⁰² In any event, the comparison itself is instructive (and precisely as a comparison within the narrow framework of the problem of how sequences of structural change are possible as processes). A more important perspective for comparison is that teleological processes can include their own end, whereas morphogenetic processes cannot. Only if one orients selections to the selection of the end of the process can one terminate the process when it reaches the goal or can no longer reach it.²⁰³ Morphogenetic processes, by contrast, rely on external interference

or on a lack of possibilities for forming new structures. They cannot terminate themselves because they cannot imagine their end. Instead, they tend toward unanticipated phases of development, toward stagnation, and toward destruction. ²⁰⁴ Though one can frequently find goal-directed action and structural changes that have been intended and planned, until recently teleologically conceived sequences of structural change were rare. The modern technique of organization has created new forms of planning, but here too the main condition of success is contraction of the time it takes to switch to a new structure. ²⁰⁵ Thus on the whole structural changes are either ad hoc adaptations or morphogenetically uncontrolled, and one suspects that a stronger teleologization of processes of structural change would lead to constantly breaking off attempts because along the way one would see that the goals either could not be attained or could not be attained in the context of foreseen costs and side effects. Sociology would therefore be well advised to pay more attention to observing and describing morphogenetic processes, which normalize and accumulate improbabilities without being able to terminate them.

-- nts --

Notes

- [Note](#): 1. We follow Claude Lévi-Strauss, "La Notion de structure en Ethnologie," in Lévi-Strauss, *Anthropologie structurale* (Paris, 1958), pp. 303-51.
- [Note](#): 2. *Ibid.*, p. 305.
- [Note](#): 3. *Ibid.*, p. 309.
- [Note](#): 4. For examples that also demonstrate the problem that self-descriptions seek plausible deviations, see: Louis Marin, *La Critique du discours sur la logique de port-royal et les pensées de Pascal* (Paris, 1975), in which, following this logic, the lowercase lettering in the title ought to indicate the demotion of the text; Roland Barthes, *Sade, Fourier, Loyola* (Paris, 1971); Karl-Heinz Ladeur, *Rechtssubjekt und Rechtsstruktur: Versuch über die Funktionsweise der Rechtssubjektivität* (GieBen, 1978).
- [Note](#): 5. See Lévi-Strauss, pp. 311ff, 350, with reference to the influential essay by Warren Weaver, "Science and Complexity," *American Scientist* 36 (1948): 536-44.
- [Note](#): 6. See Talcott Parsons, *The Social System* (Glencoe, Ill. é, 1951), pp. 19ff, 202f. See also Parsons, "Introduction," in Max Weber, *The Theory of Social and Economic Organization*, ed. Parsons (London, 1947), p. 20f.
- [Note](#): 7. See Talcott Parsons, "Die jüngsten Entwicklungen in der strukturellfunktionalen Theorie," *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 16 (1964): 30-49; Parsons, "The Present Status of 'Structural-Functional' Theory in Sociology," in Parsons, *Social Systems and the Evolution of Action Theory* (New York, 1977), pp. 100-117.
- [Note](#): 8. See the critique from the viewpoint of the theory of knowledge by J. Bershady, *Ideology and Social Knowledge* (Oxford, 1973).
- [Note](#): 9. See Husserl, *Erfahrung und Urteil: Untersuchungen zur Genealogie der Logik* (Hamburg, 1948), esp. the remarks on free variation as a method of essential intuition [*Wesenserschauung*], p. 409ff.
- [Note](#): 10. See François Wahl, ed., *Qu'est-ce-que le structuralisme?* (Paris, 1968), esp. the concluding contribution by the editor.
- [Note](#): 11. Surprisingly, the model for this is and remains the epoché of Husserl's transcendental phenomenology. But it is not only the statement's sense of existence that is bracketed, i. e., not only the question of the criterion of knowledge's reality, but also the difference between knowledge and its object as an epistemological question within which the problem of the criterion of reality first becomes acute.
- [Note](#): 12. In both cases this is an "ontological" account, by contrast to structuralism's "analytical" one. When discussing the concept of element, we noted that the theory of self-referential systems undermines the difference between ontological and analytical. See Chap. 1, section II, item no. 4, and for communication and action, Chap. 4, sections VIII and X. Here we face the same situation with regard to structure.
- [Note](#): 13. See the critique in: Walter Mischel, *Personality and Assessment* (New York, 1968); Mischel, "Toward a Cognitive Social Learning Reconceptualization of Personality," *Psychological Review* 80 (1973): 252-83 (esp. p. 273ff, for a solution by "self-regulation").
- [Note](#): 14. See, e. g., Lars Löfgren, "Complexity Descriptions of Systems: A Foundational Study," *International Journal of General Systems* 3 (1977): 197-214.
- [Note](#): 15. Our argument here parallels the concept of "dissipative structures."
- [Note](#): 16. See also Day Österberg, *Meta-Sociological Essay* (Pittsburgh, 1976), p. 64ff.
- [Note](#): 17. Theoretically, this means above all that structure is no longer defined as the relationship between whole and parts. As an example of this common view, we will mention only one typical citation: "I take 'structure' to refer to a distinguishable whole ... which is susceptible of analysis ... into parts that have an ordered arrangement in space and time" (Meyer Fortes, "Time and Social Structure: An Ashanti Case Study," in Fortes, ed., *Social Structure: Studies Presented to A. R. Radcliffe-Brown* [1949; rpt. 1963], pp. 54-84 [p. 56]). For a continuation of this way of defining structure, see, e. g., HelgeWendt, "Bemerkungen zum Strukturbegriff und zum Begriff Strukturgesetz," *Deutsche Zeitschrift für Philosophie* 14 (1966): 545-61.
- [Note](#): 18. Siegfried F. Nadel, *The Theory of Social Structure* (Glencoe, Ill., 1957), p. 8.
- [Note](#): 19. One encounters the same concept of structure, but more narrowly interpreted, when one focuses on constraint, on the relations allowed in a *description* of the system. Thus, e. g., Roger

E. Cavallo, *The Role of Systems Methodology in Social Science Research* (Boston, 1979), p. 89. This parallels a use of the concept of "constraints" and structure that relates to the statistical analysis of data and defines constraints (and thereby structure) as a restriction on the independence of variables. See, e. g., B. G. Broekstra, "Constraint Analysis and Structure Identification," *Annals of System Research* 5 (1976): 67-80. This account requires, of course, a previous definition of the "variables" with which one wants to describe a real system, and it cannot rule out that one must take account of the system's complexity through a multiplicity of variable-complexes (i. e., through a multiplicity of descriptions). See esp. Robert Rosen, "Complexity as a System Property," *International Journal of General Systems* 3 (1977): 227-32.

[Note](#): 20. See, e. g., Raymond Boudon, *A quoi sert la notion de 'Structure'?* Essai sur la signification de la notion de structure dans les sciences humaines (Paris, 1968), p. 35.

[Note](#): 21. Both are contained in the semantics of "ennui": irritation by others and irritation by the lack of irritation. Both amount to functional defects of structure--viewed historically, functional defects in interaction structures in the upper stratum of society.

[Note](#): 22. See Cavallo, p. 84ff.

[Note](#): 23. This viewpoint has central significance for Alfred Kuhn, *The Logic of Social Systems: A Unified, Deductive, System-Based Approach to Social Science* (San Francisco, 1974).

[Note](#): 24. See Robert K. Merton, *Social Theory and Social Structure*, 2nd ed. (Glencoe, Ill., 1957), esp. p. 52f. See also Ernest Nagel, *Logic Without Metaphysics* (Glencoe, Ill., 1956), p. 278ff.

[Note](#): 25. See Chap. 1, section III.

[Note](#): 26. Thus Dewey, e. g., failed in the following description of structure (which is nevertheless very close to what we advocate): "A set of traits is called structure because of its limiting function in relation to other traits of events.... It is ... an arrangement of changing events such that properties which change slowly limit and direct a series of quick changes and give them order which they do not otherwise possess." (John Dewey, *Experience and Nature* [Chicago, 1926], p. 72.) The mistake lies in the idea that events, like substances, can be carriers of quickly or slowly changing properties, with the slower exercising a structuring influence. The concept of events as merely momentary actualities contradicts this difference.

[Note](#): 27. See: Floyd Allport, "An Event-System Theory of Collective Action: With Illustrations from Economic and Political Phenomena and the Production of War," *Journal of Social Psychology* 11 (1940): 417-45; Allport, "The Structuring of Events: Outline of a General Theory with Applications to Psychology," *Psychological Review* 61 (1954): 281-303; Allport, "A Structural-Organic Conception of Behavior: Individual and Collective I," *Journal of Abnormal and Social Psychology* 64 (1962): 3-30. For the alternative of thing-language and event-language (which underestimates factual distinction as a linguistic distinction, however), see also Wilfred Sellars, "Time and the World Order," *Minnesota Studies in the Philosophy of Science*, vol. 3 (Minneapolis, 1962), pp. 527-616.

[Note](#): 28. Both citations are from Allport, "Structuring of Events," p. 292.

[Note](#): 29. Mead positions the objective concepts of stimulus and response here to provide temporal boundaries for the action-unit "act." See his *The Philosophy of the Act* (Chicago, 1938), p. 65f. This is unacceptable for a number of reasons--not the least being that it is bound to the system reference "behavioral organism" and fails to take self-stimulation into consideration.

[Note](#): 30. We will return to this in section IX.

[Note](#): 31. Not enough attention is paid to this viewpoint in sociology. An exception, however, is Thomas Mathiesen, "The Unanticipated Event and Astonishment," *Inquiry* 3 (1960): 1-17. But this is related to completely unexpected events. See also Østerberg, p. 64ff.

[Note](#): 32. A similar interpretation of Mead's concept of action is provided by Werner Bergmann, "Zeit, Handlung und Sozialität bei G. H. Mead," *Zeitschrift für Soziologie* 10 (1981): 351-63 (esp. p. 360ff). Also important for this is Gaston Bachelard, *La Dialectique de la durée*, 2d ed. (Paris, 1950; rpt. 1972), who uses the example of listening to music, "One will not remember having anticipated; one will simply realize that one had to anticipate" (p. 115).

[Note](#): 33. This is treated explicitly, e. g., in Anselm Strauss, *Mirrors and Masks: The Search for Identity* (Glencoe, Ill., 1959), p. 39.

[Note](#): 34. See, e. g.: Margarete Jucknat, "Leistung, Anspruchsniveau und Selbstbewußtsein," *Psychologische Forschung* 22 (1937): 89- 179; Kurt Lewin et al., "Level of Aspiration," in J. McV. Hunt, ed., *Personality and the Behavior Disorders* (New York, 1944) 1: 333-78; Leonard Reissman, "Levels of Aspiration and Social Class," *American Sociological Review* 18 (1953):

- [Note](#): 35. Thus the hints toward a theory of action in Vauvenargues (1715-47). See Niklas Luhmann, "Zeit und Handlung: Eine vergessene Theorie," *Zeitschrift für Soziologie* 8 (1979): 63-81.
- [Note](#): 36. In part, this is where, following Ilya Prigogine, one locates "dissipative structures"--a concept that is, however, based on the concept of energy. See, e. g., Erich Jantsch, *The Self-Organizing Universe: Scientific and Human Implications of the Emerging Paradigm of Evolution* (Oxford, 1980).
- [Note](#): 37. See also Daniel Katz and Robert L. Kahn, *The Social Psychology of Organizations* (New York, 1966), p. 20f, with an appeal to Allport: "The structure is to be found in an interrelated set of events which return upon themselves to complete and renew a cycle of activities. It is events rather than things which are structured, so that social structure is a dynamic rather than a static concept."
- [Note](#): 38. See Chap. 4, section II and Chap. 11, section III.
- [Note](#): 39. A quotation from Alfred N. Whitehead, *Process and Reality: An Essay on Cosmology* (New York, 1969), p. 30. The German translation of this work unfortunately simplifies "self-identity" to "identity" and "self-diversity" to "diversity." See in addition Reiner Wiehl, "Zeit und Zeitlosigkeit in der Philosophie A. N. Whiteheads," in *Natur und Geschichte: Karl Löwith zum 70. Geburtstag* (Stuttgart, 1967), pp. 373-405, and for a transition to action theory, Thomas J. Fararo, "On the Foundations of the Theory of Action in Whitehead and Parsons," in Jan J. Loubser et al., eds., *Explorations in General Theory in Social Science: Essays in Honor of Talcott Parsons*, vol. 1 (New York, 1976), pp. 90-122.
- [Note](#): 40. Something quite similar, though without considering that elements are events and without thematizing interpenetration, can be found in the variables of the computer model of autopoietic systems with which Milan Zeleny works, namely, production, bonding, and disintegration. See his "Self-Organization of Living Systems: A Formal Model of Autopoiesis," *International Journal of General Systems* 4 (1977): 13-28; Zeleny, "Autopoiesis: A Paradigm Lost?," in Zeleny, ed., *Autopoiesis, Dissipative Structures, and Spontaneous Social Orders* (Boulder, Colo., 1980), pp. 3-43.
- [Note](#): 41. In a strict sense this holds only for societal systems. Only for them would cessation at any specific moment be a matter of pure chance (and therefore extremely improbable). Other systems can foresee their own end structurally, can create understandings about their termination, and can institutionalize ceremonies for this--all based on the certainty that society continues on and preserves other system foundations for social action. Interaction systems always reproduce society by regulating their termination. See for this Stuart Albert and William Jones, "The Temporal Transition from Being Together to Being Alone: The Significance and Structure of Children's Bedtime Stories," in Bernard S. Gorman and Alden E. Wessman, eds., *The Personal Experience of Time* (New York, 1977), pp. 111-32.
- [Note](#): 42. See the theoretically central position of "expectations and evaluations" and "complementarity of expectations" in the "General Statement" in Talcott Parsons and Edward A. Shils, eds., *Toward a General Theory of Action* (Cambridge, Mass., 1951), pp. 11ff, 14ff. Further references to the literature on this can be found in Chap. 2, n. 76.
- [Note](#): 43. See Chap. 2, section IX.
- [Note](#): 44. See the definitions of "field expectancy" and "bounding conditions" in Allport, "Structuring of Events," p. 295. Walter Buckley, *Sociology and Modern Systems Theory* (Englewood Cliffs, N. J., 1967), also comes close to this interpretation. On p. 128 he says, "The structure of such a system is then viewed in terms of sets of alternative actions or tendencies to act in certain ways, associated with the components and the constraints that specify or limit these alternative actions. The genesis of organization is thus the generation of these sets of alternatives and the constraints defining them."
- [Note](#): 45. "It is a fundamental property of action thus defined," says Parsons in *The Social System* (Glencoe, Ill., 1951), p. 5, "that it does not consist only of ad hoc 'responses' to particular situational 'stimuli' but that the actor develops a system of 'expectations' relative to the various objects of the situation." All of this is fine, especially the rejection of the stimulus-response schema and the idea that actions systematize themselves by means of expectations. But this is not a property of action, because one can also argue the opposite, that a system can constitute and reproduce itself only via structures of expectation. One should also note the ambivalent attribution of expectations--in part to actions and in part to actors.

- [Note](#): 46. See, e. g., Anthony Giddens, *Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis* (London, 1979), p. 49.
- [Note](#): 47. "The natural Event is improbable in itself, but its occurrence changes the probabilities of other `random intrusions,'" is how Anthony Wilden, *System and Structure: Essays in Communication and Exchange*, 2d ed. (London, 1980), p. 400, formulates this for a general theory of evolution.
- [Note](#): 48. See, e. g., Paul F. Lazarsfeld, "The Logic and Mathematical Foundation of Latent Structure Analysis," in Samuel A. Stouffer et al., *Measurement and Prediction* (Princeton, N. J., 1950), pp. 362-412.
- [Note](#): 49. Even an explicit treatment in systems theory is rare. One finds it, e. g., in Alfred Kuhn, *The Logic of Social Systems: A Unified, Deductive, System-Based Approach to Social Science* (San Francisco, 1974), p. 104ff-- but only as a copy of economic decision theory and without developing an independent, sociological conception.
- [Note](#): 50. Most recently since Kenneth J. Arrow, *Social Choice and Individual Values* (New York, 1951). Herbert A. Simon, above all, showed that the decision-making process with all its premises thereby becomes significant. See his *Models of Man: Social and Rational: Mathematical Essays on Rational Human Behavior in a Social Setting* (New York, 1957).
- [Note](#): 51. This relativity is confirmed by analyses of organized decision-making behavior. See Niklas Luhmann, "Organisation und Entscheidung," in Luhmann, *Soziologische Aufklärung*, vol. 3 (Opladen, 1981), pp. 335-89.
- [Note](#): 52. This distinction between the constitution and definition of situations was introduced by Jürgen Markowitz, *Die soziale Situation* (Frankfurt, 1979), p. 164ff.
- [Note](#): 53. See Chap. 1, section II, item no. 2.
- [Note](#): 54. See, e. g., Arvid Aulin, *The Cybernetic Laws of Social Progress: Towards a Critical Social Philosophy and a Criticism of Marxism* (Oxford, 1982).
- [Note](#): 55. See the refutation of this in Christopher Alexander, "A City Is Not a Tree," *Architectural Forum* 122 (1965): April ed., pp. 58-62; May ed., pp. 58-61. For biological systems, see also Gerhard Roth, "Biological Systems Theory and the Problem of Reductionism," in Gerhard Roth and Helmut Schwegler, eds., *Self-Organizing Systems: An Interdisciplinary Approach* (Frankfurt, 1981), pp. 106-20.
- [Note](#): 56. See, e. g., George M. Foster, "Peasant Society and the Image of Limited Good," *American Anthropologist* 67 (1965): 293-315. [Note](#): 57. See Chap. 1, section IV.
- [Note](#): 58. This is confirmed by extensive research in comparative cultural anthropology in connection with Durkheim, which also demonstrates the interconnections between functional specification and social complexity. For methods and results, see esp. Raoul Naroll, "A Preliminary Index of Social Development," *American Anthropologist* 58 (1956), pp. 687-715, and Terrence A. Tatje and Raoul Naroll, "Two Measures of Societal Complexity: An Empirical Cross-cultural Comparison," in Raoul Naroll and Ronald Cohen, eds., *A Handbook of Method in Cultural Anthropology* (Garden City, N. Y., 1970), pp. 766-833. We would emphasize that functional specification in the sense of this developmental theory should not be confused with functional system differentiation. One could go beyond this developmental theory and ask whether the true asymmetry of evolution could not be reduced to the fact that functions can direct the construction of specialized orders, but that their destruction cannot appeal to a function and that it is not typically achieved as the exchange of carriers maintaining a constant function but occurs instead in the form of catastrophe.
- [Note](#): 59. The classical text for this is Florian Znaniecki, *The Social Role of the Man of Knowledge* (New York, 1940). See also Joseph Ben-David, *The Scientist's Role in Society: A Comparative Study* (Englewood Cliffs, N. J., 1971).
- [Note](#): 60. See Michael Giesecke, "Schriftspracherwerb und Erstlesedidaktik in der Zeit des `gemein deutsch'-eine sprachhistorische Interpretation der Lehrbücher Valentin Ickelsamers," *Osnabrücker Beiträge zur Sprachtheorie* 11 (1979): 48-72.
- [Note](#): 61. We see teleologizing as an Old-European preliminary stage of functionalization characterized by the premise that processes (movements) possess a natural end that explains their occurrence, whether this end is attained or not. For the continuation of this form of thought in the modern period and for its reformulations in the mental domain, see Niklas Luhmann, "Selbstreferenz und Teleologie in gesellschaftstheoretischer Perspektive," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 2 (Frankfurt, 1981), pp. 9-44.
- [Note](#): 62. The high sensitivity of the process can be established, however, and it is an indicator of self-

observation: it reacts to itself. By the seventeenth century a certain irreality was noted as a consequence of reading and was then brought into a form that could be read; similarly, there was a strong interest in the mistakes of others. See Pierre Daniel Huet, *Traité de l'origine des romans* (Paris, 1670). In the eighteenth century, reading became privatized as the author's perspective, characters were individualized, and their destinies became those of ordinary people. See for England, Ian Watt, *The Rise of the Novel: Studies in Defoe, Richardson and Fielding* (London, 1957); for France, Servais Etienne, *Le Genre Romanesque en France depuis l'apparition de la 'Nouvelle Héloïse' jusqu'au approches de la Revolution* (Paris, 1922). Since the middle of the nineteenth century, the daily press, and later radio, seems to have adjusted very selectively to themes that simultaneously can and cannot be anticipated--innovations, deviations, and sensations--with the result that society depicts an overdramatized picture of itself.

[Note:](#) 63. In the sense of Donald T. Campbell, "Blind Variation and Selective Retention in Creative Thought as in Other Knowledge Processes," *Psychological Review* 67 (1960): 380-400.

[Note:](#) 64. There is no lack of analyses of this phenomenon, yet I know of no author who explicitly maintains the position that the formation of social structures would be impossible without reflexive expectation. As a small selection of noteworthy contributions to the theme of the expectation of expectations see, e. g.: Robert E. Park, "Human Nature and Collective Behavior," *American Journal of Sociology* 32 (1927): 733-41; Herbert Blumer, "Psychological Import of the Human Group," in Muzafer Sherif and M. O. Wilson, eds., *Group Relations at the Crossroads* (New York, 1953), pp. 185-202; P.-H. Maucorps and René Bassoul, "Jeux des miroirs et sociologie de la connaissance d'autrui," *Cahiers internationaux de Sociologie* 32 (1962): 43-60; Barney Glaser and Anselm Strauss, "Awareness Contexts and Social Interaction," *American Sociological Review* 29 (1964): 669-79; Ronald D. Laing, Herbert Phillipson, and A. Russell Lee, *Interpersonal Perception: A Theory and a Method of Research* (London, 1966); Wilhelm Aubert, *Elements of Sociology* (New York, 1967), p. 18ff; Thomas J. Scheff, "Toward a Sociological Theory of Consensus," *American Sociological Review* 32 (1967): 32-46; V. A. Lefebvre, "A Formal Method of Investigating Reflective Processes," *General Systems* 17 (1972): 181-88.

[Note:](#) 65. Blumer, p. 195ff.

[Note:](#) 66. See, e. g., G. H. Mead, *The Philosophy of the Act*, p. 353ff.

[Note:](#) 67. Since at least the seventeenth century, such situations have been common. They are discussed, above all, in the literature on seduction, as tactics both for seduction and for defending against it. See, e. g.: François Hedelin, Abbé d'Aubignac, *Les Conseils d'Ariste à Célumène sur les moyens de conserver sa reputation* (Paris, 1666); Claude Crébillon, fils, *Lettres de la Marquise de M. au Comte de R.* (1732; Paris, 1970). Remarkably, this sophistication developed after the view had become accepted that love (at least sensuous love) is a temporary phenomenon, thus immanently insecure.

[Note:](#) 68. This is why the development of law took so long to make the *nuda pactio* (naked contract) binding, so that one could sue for violations. At first it could not be adequately distinguished from a mere agreement in expectations--given a relatively primitive state of legal techniques for proving the truth.

[Note:](#) 69. More precisely, from someone oriented by his own expectations and capable of transforming them into action. This can be formulated in traditional terminology so that the other must be interpretable as the "subject" of his own contingency--to be sure, an attitude full of phylogenetic and ontogenetic presuppositions. See, for this and for the corresponding problems of attribution, Edward E. Jones and Kenneth E. Davis, "From Acts to Dispositions: The Attribution Process in Person Perception," in Leonard Berkowitz, ed., *Advances in Experimental Social Psychology*, vol. 2 (New York, 1965), pp. 219-66; Shlomo Breznitz and Sol Kugelmass, "Intentionality in Moral Judgment: Developmental Stages," *Child Development* 38 (1967): 469-79.

[Note:](#) 70. A sociological glance at this can be found in Erving Goffman, *Stigma: Notes on the Management of Spoiled Identity* (Englewood Cliffs, N. J., 1963).

[Note:](#) 71. He believes that "The possible (subjectively intended) meaning of communal action is not exhausted by orientation to 'expectations' of 'action' by a third party. In an extreme case these can be disregarded entirely and action related to a third party can be oriented to the subjectively intended 'value' of its meaning-content as such ('duty' or whatever); thus action is oriented to values, not expectations" (Weber, "Über einige Kategorien der verstehenden Soziologie," in Weber, *Gesammelte Aufsätze zur Wissenschaftslehre*, 2d ed. [Tübingen, 1951], pp. 427-74 [p.

442]). There is agreement "that action oriented to others' expectations about behavior for that very reason has an empirically `valid' chance of seeing these expectations fulfilled because there is an objective probability that these others will treat those expectations, even despite lack of agreement, as meaningfully `valid' for their behavior" (ibid., p. 456).

- [Note](#): 72. For a long time one spoke of this as "pluralistic ignorance." See, e. g.: Richard L. Schanck, *A Study of a Community and Its Groups and Institutions Conceived of as Behaviors of Individuals* (Princeton, 1932); Ragnar Rommetveit, *Social Norms and Roles: Explorations in the Psychology of Enduring Social Pressures* (Oslo, 1955); and recently Elihu Katz, "Publicity and Pluralistic Ignorance: Notes on 'The Spiral of Silence,'" in *Öffentliche Meinung und sozialer Wandel: Festschrift Elisabeth Noelle-Neumann* (Opladen, 1981), pp. 28-38.
- [Note](#): 73. See, e. g.: Thomas C. Schelling, *The Strategy of Conflict* (Cambridge, Mass., 1960); Laing et al.; Thomas J. Scheff, "A Theory of Social Coordination Applicable to Mixed-Motive-Games," *Sociometry* 32 (1967): 215-34.
- [Note](#): 74. Examples can be found in Laing et al., p. 11: "I act in a way that is cautious to me but cowardly to you. You act in a way, that is courageous to you but foolhardy to me," etc. This reciprocal stabilization of permanent conflicts is obviously facilitated by the fact that symbolic abbreviations are used in communication.
- [Note](#): 75. We follow Wendell R. Garner, *Uncertainty and Structure as Psychological Concepts* (New York, 1962), and the meaning of this insight justifies a somewhat long citation: "It sounds reasonable to say that structure is the lack of uncertainty, but the statement is wrong. Structure is related to uncertainty, but not the lack of it, and to have structure is to have uncertainty. Furthermore, to increase structure is also to increase uncertainty, and it is this aspect of the problem which is conceptually so important. It is for these reasons that I have used a notation in which every term is symbolized as an uncertainty--to emphasize the fact that uncertainty and structure, or uncertainty and information, are the same commodity" (p. 339). See also Fred E. Katz, "Indeterminacy and General Systems Theory," in William Gray and Nicholas D. Rizzo, eds., *Unity Through Diversity*, vol. 2 (New York, 1973), pp. 969-82.
- [Note](#): 76. In the language of eighteenth-century psychology, this means that it is oriented not merely to "sensations" but also to "ideas" and "reflections." In the language of behaviorist psychology, this means that "stimulus" and "response" are mediated by "generalizations." The connection between system/environment and time is, moreover, the principle by which Parsons's four-field schematic is constructed. See esp. "Some Problems of General Theory in Sociology," in Talcott Parsons, *Social Systems and the Evolution of Action Theory* (New York, 1977), pp. 229-69. This contains a late justification of the central position of the concept of expectations in Parsons's theory.
- [Note](#): 77. See the remarks on "directive correlation" in: Gerd Sommerhoff, *Analytical Biology* (Oxford, 1950), p. 54ff; Sommerhoff, *Logic of the Living Brain* (London, 1974), p. 73ff.
- [Note](#): 78. The obligation of a sequential textual presentation is particularly unfortunate here because it leads one to underappreciate interdependencies. The theory sketched above dissolves compact symbols (e. g., "nature") used for the nexuses intended here, and it must then rescue interdependencies in such a complicated way that they can no longer be grasped at a glance. This concerns especially the nexus of time and law that followed the collapse of natural law, but also the requirement of learning connected with it.
- [Note](#): 79. This process of temporalizing the present can be grasped well in the historical semantics of concepts of time; thus it becomes clear to society only gradually. See: Niklas Luhmann, "Temporalisierung von Komplexität: Zur Semantik neuzeitlicher Zeitbegriffe," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), pp. 235-300, esp. p. 260ff; Luhmann, "The Future Cannot Begin," in Luhmann, *The Differentiation of Society*, trans. Stephen Holmes and Charles Larmore (New York, 1982), pp. 271-88.
- [Note](#): 80. See, e. g., Hartmut Gese, "Geschichtliches Denken im Alten Orient und im Alten Testament," *Zeitschrift für Theologie und Kirche* 55 (1958): 127-45; John G. Gunnell, *Political Philosophy and Time* (Middletown, Ct., 1968).
- [Note](#): 81. For the early historical development, see, among others, Hermann Fraenkel, "Die Zeitauffassung in der archaischen griechischen Literatur," in Fraenkel, *Wege und Formen frühgriechischen Denkens* (Munich, 1958), pp. 1-22; Silvio Accame, "La concezione del tempo nell'età arcaica," *Rivista di filologia e di istruzione classica*, n. s. 39 (1961): 359-94. Regarding the differentiation of the temporal dimension and a semantics specialized for it, it is especially

interesting to follow the history of the term *aion* in the transition from "life- force," "seat of life" (perhaps spinal cord) and then "lifetime" (and in this sense "importance") to "duration" and "eternity." See: Enzo Degani, *da Omero ad Aristotele* (Padua, 1961); A. P. Orbán, *Les dénominations du monde chez les premiers chrétiens* (Nijmegen, 1970), p. 97ff.

- [Note](#): 82. With repeated, intermediate periods of backlash. A good example is how, in the lyrical poetry of the troubadours, *jovens* as a vernacular version of *iuvenis* is no longer a specific age of human life but primarily a moral quality that can be won or lost by one's own social action. See examples and analyses in Moshé Lazar, *Amour couteois et Fin'Amours dans la littérature du XIIe siècle* (Paris, 1964), p. 33ff.
- [Note](#): 83. See Christoph von Fürer-Haimendorf, "The After-Life in Indian Tribal Belief," *Journal of the Royal Anthropological Institute* 83 (1953): 37-49.
- [Note](#): 84. See Jacqueline de Romilly, *Le Temps dans la tragédie grecque* (Paris, 1971).
- [Note](#): 85. Other advanced cultures also form such multi-level models to resolve contradictions in the idea of time. For India see, e. g., Stanislaw Schayer, *Contributions to the Problem of Time in Indian Philosophy* (Krakow, 1938), pp. 6f, 15, 19.
- [Note](#): 86. Or, viewed cyclically: time, into which future and past collapse. [Note](#): 87. See Victor Goldschmidt, *Le Système stoïcienne et l'idée de temps* (Paris, 1953), p. 80ff. See also Omar K. Moore, "Divination--A New Perspective," *American Anthropologist* 59 (1957): 69-74.
- [Note](#): 88. When divination is unattainable or fails, one assumes that the future will bring the truth to light: *veritas filia temporis!* For the Renaissance tradition and its classical foundations, see: Fritz Saxl, "Veritas Filia Temporis," in *Philosophy and History: Essays Presented to Ernst Cassirer* (Oxford, 1936), pp. 197-222; de Romilly, p. 49f.
- [Note](#): 89. Here the relationship between eternity and time is conceived strictly as a *relationship of domination*. A typical text is: "Hoc tempus descendit ab evo, quia ab evo Deus omnia providit et per temporales successiones disposuit." [Thi--i. e., our--time derives from eternity because from eternity God provides for all things and arranges them in temporal succession.] (From the Boethius commentary of Wilhelm von Conches, quoted in J. M. Parent, *La Doctrine de la création dans l'école de Chartres: Etude et Textes* [Paris-Ottawa, 1938], p. 125.) Thus both temporal levels, from eternity to the moment, were linked hierarchically. As soon as one saw that this connection was not in agreement with the conception of the world but could be taken only on faith (Pascal), the security residing in it collapsed, and the first result was anxiety.
- [Note](#): 90. It is important to remember the derivation of a (largely tradition-laden) notion. The semantic use-value of *phýsis* lay originally in formulating two differences: *nómos* and *téchne*. In both cases the concept opposed to *phýsis* formulated a domain of regulation or production in which the high contingencies of societal (city) life became apparent. Thus the concept of nature began its semantic career as a concept that opposed contingency, and in this function it had to emphasize the value of time for constructing order. For the context of the history of these ideas in general, see: Felix Heinemann, *Nomos und Physis: Herkunft und Bedeutung einer Antithese im griechischen Denken des fünften Jahrhunderts* (Basel, 1945); J. Walter Jones, *The Law and Legal Theory of the Greeks* (Oxford, 1956), esp. pp. 34- 72; Karl Ulmer, *Wahrheit, Kunst und Natur bei Aristoteles: Ein Beitrag zur Aufklärung der metaphysischen Herkunft der modernen Technik* (Tübingen, 1953); Margherita Isnardi, *Techne: Momenti del pensiero greco da Platone ad Epicuro* (Florence, 1966); Jörg Kube, *TEXNH und APETH: Sophistisches und platonisches Tugendwissen* (Berlin, 1969).
- [Note](#): 91. Thus, e. g., Georges-Louis Le Sage, *Le Mecanisme de l'esprit*, in Le Sage, *Cours abrégé de Philosophie par Aphorismes* (Geneva, 1718). For this brilliant, but today entirely unknown, author, this had the consequence that security could no longer be attained through *prudencia*, but only through possessions!
- [Note](#): 92. Among others, see: Lucien Febvre, "Pour l'histoire d'un sentiment: Le besoin de sécurité," *Annales E. S. C.* 11 (1956): 244-47; John Gilissen, "Individualisme et sécurité juridique: La prépondérance de la loi et de l'acte écrit au XVI siècle dans l'ancienne droit belge," in *Individu et société à la Renaissance: Colloque internationale 1965* (Brussels, 1967), pp. 33-58; Franz-Xaver Kaufmann, *Sicherheit als soziologisches und sozialpolitisches Problem* (Stuttgart, 1970).
- [Note](#): 93. For China, see Joseph Needham, "Time and Knowledge in China and the West," in J. T. Frazer, *The Voices of Time: A Cooperative Study of Man's View of Time as Expressed by the Sciences and by the Humanities* (London, 1968), pp. 92-135 (p. 100).

- [Note:](#) 94. We have already referred to the historico-semantic significance of the history of the thing schema for the Old-European conception of the world (Chap. 2, section II). The difference *res corporales/res incorporales* dominated thought as a difference that could claim comprehensiveness, so that with its help one could distance oneself from "the world" (if one viewed it not as a *universitas rerum* but as a *congregatio corporum*). Only with distancing from the "thing in itself," i. e., only with Kant, was this guiding idea abandoned. The reasons for this have not yet been discovered. We suspect that one could find them in a social development that makes it necessary to resolve ideas of things into individual expectations, that consequently makes it possible to investigate the function of thingness and to complain about reification, and that then suggests one seek other viewpoints for identification, especially in the domain of expectations concerning behavior. The analyses that follow try to find a theoretical concept for this.
- [Note:](#) 95. This has been a subject of discussion since Philippe Ariès; see *L'Enfant et la vie familiale sous l'ancien régime* (Paris, 1960).
- [Note:](#) 96. As a historico-semantic series of human attributes with ever greater arbitrariness in what it includes, this would require closer investigation. Here one might also suggest a clear connection with increasing societal complexity, which finally breaks with using the conceptuality of things for human beings.
- [Note:](#) 97. See Chap. 6, section I.
- [Note:](#) 98. To cite an arbitrary illustration that says it all: in the Introduction to the second edition (1829) of his *Memoires sur les cent-jours*, Benjamin Constant says: "I view the much-criticized individuality as the perfection of the species because the species is basically nothing but the aggregation of individuals. It is enriched by the moral value that is part of each one. The intellectual anarchy that is deplored seems to me to be an immense intellectual advancement because the triumph of intelligence does not lie in discovering absolute truth, which can never be found, but in strengthening itself by exercising its powers, in arriving at partial and relative truths that it collects and records along the way, and thus in advancing along this path where each step is a victory, while the end remains unknown." One sees how order is replaced by a time that draws its security from an unknown future. The political consequence is that the indispensable quiescence in the present must be based on order and order on freedom.
- [Note:](#) 99. Daniel Katz and Robert L. Kahn, *The Social Psychology of Organizations* (New York, 1966), pp. 37, 48ff, distinguish "roles," "norms," and "values" according to degree of abstractness. See for similar hierarchized distinctions Talcott Parsons's "levels of normative culture," namely, "roles," "collectivities," "norms," and "values," in, e. g., Parsons, "Durkheim's Contribution to the Theory of Integration of Social Systems," in Parsons, *Sociological Theory and Modern Society* (New York, 1967), pp. 3-34 (p. 7ff); with variations, Neil Smelser, *Theory of Collective Behavior* (New York, 1963); Leon Mayhew, *Law and Equal Opportunity: A Study of the Massachusetts Commission Against Discrimination* (Cambridge, Mass., 1968).
- [Note:](#) 100. See the following section.
- [Note:](#) 101. "He was as dull and unimpressive outside as he was brilliant in prison" (Jean Genet, *Miracle de la rose*, in Genet, *Oeuvres complètes*, vol. 2 [Paris, 1951], P. 265).
- [Note:](#) 102. For the specifically modern contours of this thematic, see, e. g.: Henri Peyre, *Literature and Sincerity* (New Haven, 1963); Lionel Trilling, *Sincerity and Authenticity* (Cambridge, Mass., 1972).
- [Note:](#) 103. Heinrich Popitz, *Der Begriff der sozialen Rolle als Element soziologischer Theorie* (Tübingen, 1967) seems to have something similar in mind when he speaks of socially standardized models of individuality (p. 15f).
- [Note:](#) 104. See Daniel Bell, "The Disjunction of Culture and Social Structure: Some Notes on the Meaning of Social Reality," in Gerald Holton, ed., *Science and Culture: A Study of Cohesive and Disjunctive Forces* (Boston, 1965), pp. 236-50 (p. 241ff).
- [Note:](#) 105. This question affected clergy as well as kings, which gave it a special cultural and social prominence. Moreover, it had many practical consequences, above all juristic ones, e. g., continuity in filling offices when someone dies, questions of liability, problems of legitimating an (unquestionably factual) holding of office, continuation of responsibilities that have been incurred despite change of office, *ultra-vires* (highest virtues) problems, etc. For a theoretically as well as historically oriented presentation, see, e. g., Ralf Dreier, *Das kirchliche Amt: Eine kirchenrechts-theoretische Studie* (Munich, 1972).
- [Note:](#) 106. See Niklas Luhmann, *Funktionen und Folgen formaler Organisation* (Berlin, 1964).

- [Note](#): 107. But this difference is also important for all areas of professional dealings with clients, patients, and customers, both within and outside of organizations, in particular as the problem of thresholds or as the danger of too strong a "personal involvement." A good, but little-known, analysis is Renate Mayntz, "The Nature and Genesis of Impersonality: Some Results of a Study on the Doctor-Patient Relationship," *Social Research* 37 (1970): 428-46.
- [Note](#): 108. See Ralph H. Turner, "The Role and the Person," *American Journal of Sociology* 84 (1978): 1-23. (Turner does not distinguish between psychic system and person.)
- [Note](#): 109. See, esp. for the meaning of the difference between family and school for triggering career consciousness (including the negation of career plans), Niklas Luhmann and Karl Eberhard Schorr, *Reflexions-probleme im Erziehungssystem* (Stuttgart, 1979), p. 277ff.
- [Note](#): 110. The concept of strategy can be assigned to the concept of program. Programs can be designated as strategies if and insofar as one provides for them to change, on occasion, while they are being carried out. The advantage of a selection fixed in advance is then replaced by specifying the information that would be an occasion for changing the program in specific respects.
- [Note](#): 111. Useful and typical is the definition by Jürgen Friedrichs, *Werte und soziales Handeln* (Tübingen, 1968), p. 113: "Values are conscious or unconscious ideas of what is wanted that precipitate as preferences in choosing between alternatives for action."
- [Note](#): 112. There are more detailed discussions of this in the legal system and in its literature--unfortunately, often mistakenly affixed to a "teleological" interpretive method. See, however, Josef Esser, *Vorverständnis und Methodenwahl in der Rechtsfindung: Rationalitätsgarantien in der richterlichen Entscheidungspraxis* (Frankfurt, 1970). Jurists typically overestimate the rational content of the evaluation of value perspectives. Viewed sociologically, this is where the advantage of security provided by a differentiated system and an established profession can help. A good sociological analysis with a legal theme is Mayhew.
- [Note](#): 113. See, as the judgments of practitioners: Chester I. Barnard, *The Functions of the Executive* (Cambridge, Mass., 1938), p. 200ff; Sir Geoffrey Vickers, *The Undirected Society: Essays on the Human Implications of Industrialization in Canada* (Toronto, 1959), p. 61ff.
- [Note](#): 114. See, e. g.: Ronald Inglehart, *The Silent Revolution: Changing Values and Political Styles among Western Publics* (Princeton, 1977); Thomas Herz, "Der Wandel von Wertvorstellungen in westlichen Industriegesellschaften," *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 31 (1979): 282-302; Helmut Klages and Peter Kmiecik, eds., *Wertwandel und gesellschaftlicher Wandel* (Frankfurt, 1979).
- [Note](#): 115. The concept of "mode" or "modality" parallels the modalities of being. Its relation to its more famous cousins "possibility" and "necessity" is apparent. Just as these emerge when the being of being is questioned and thus contingency is recognized, the modalities of expecting emerge when doubt arises about whether expectations can be expected and thus their contingency becomes apparent.
- [Note](#): 116. An overview of the research is offered by Ralph M. Stogdill, *Individual Behavior and Group Achievement* (New York, 1959), pp. 59-119.
- [Note](#): 117. Time and again this has been illustrated by sociological research that works with this difference. For a case study, see Barbara Frankel, "The Cautionary Tale of the Seven-Day Hospital: Ideological Messages and Sociological Muddles in a Therapeutic Community," in Klaus Krippendorff, ed., *Communication and Control in Society* (New York, 1979), pp. 353-73.
- [Note](#): 118. Newspaper article of January 12, 1982.
- [Note](#): 119. This is where ethnological and sociological determinations begin, which means that they do not investigate the function of "ought-ideas" but define norms through the factual presence of such "ought-ideas." See Paul Bohannon, "The Differing Realms of the Law," in Bohannon, *Law and Warfare: Studies in the Anthropology of Conflict* (Garden City, N. Y., 1967), pp. 43-56 (p. 45): "A norm is a rule, more or less overt, which expresses 'ought' aspects of relationships between human beings."
- [Note](#): 120. This difference may then deny any reference to what is empirical --as in Hans Kelsen's theory of law. For the perspective of later theoretical developments, see Ralf Dreier, "Sein und Sollen: Bemerkungen zur Reinen Rechtslehre Kelsens," in Dreier, *Recht-Moral- Ideologie: Studien zur Rechtslehre* (Frankfurt, 1981), pp. 217-40. The question is not whether this statement is right or even whether it can be supported but what orientation to pure (purified) differences means for anticipating and reducing disappointments. [Note](#): 121. See Chap. 4, section IV.

- [Note:](#) 122. Whether and how far advocates of the labeling approach really maintain this is often unclear. Their theory has a well-placed indeterminacy here. But interest in clarification is directed one-sidedly against institutions of "criminalization," and the self-representation of these institutions is not bought: namely, they must intervene to prevent damaging behavior *and only for this reason*.
- [Note:](#) 123. As, e. g., in critical discussions of the increasing scope of the law in social life and legal limits on guarantees of the increase and distribution of wealth. See, e. g., Rüdiger Voigt, "Mehr Gerechtigkeit durch mehr Gesetze?," *Aus Politik und Zeitgeschichte* B 21 (1981): 3-23; for much material on the same theme, see Voigt, ed., *Gegentendenzen zur Verrechtlichung* (Opladen, 1983).
- [Note:](#) 124. See Peter M. Blau, "Patterns of Deviation in Work Groups," *Sociometry* 23 (1960): 245-61 (p. 258f), for "value judgments" in contrast to "factual judgments."
- [Note:](#) 125. For the thematization of legal questions in daily life, see Niklas Luhmann, "Kommunikation über Recht in Interaktionssystemen," in Luhmann, *Ausdifferenzierung des Rechts: Beiträge zur Rechtssoziologie und Rechtslehre* (Frankfurt, 1981), pp. 53-72. (English trans. in Karin Knorr Cetina and Aaron V. Cicourel, eds., *Advances in Social Theory and Methodology: Toward an Integration of Micro- and Macro-Sociologies* [Boston, 1987], pp. 234-56.)
- [Note:](#) 126. See William J. Goode, "Norm Commitment and Role Conformity to Role-Status Obligations," *American Journal of Sociology* 66 (1960): 246-58 (esp. p. 256f).
- [Note:](#) 127. It remains quite unclear—for this is a matter of communication—whether and why it is *psychologically* plausible to expect greater consistency or less internal discrepancy from emotionalized attitudes. A further question, deserving more attention, especially for large societies of the modern type, would be: Should one expect emotionalized attitudes only when one does not know someone personally, and do these attitudes become largely superfluous if someone is more familiar?
- [Note:](#) 128. See: Marvin B. Scott and Stanford M. Lyman, "Accounts," *American Sociological Review* 33 (1968): 46-62; Philip W. Blumstein et al., "The Honoring of Accounts," *American Sociological Review* 39 (1974): 551-66; John P. Hewitt and Randall Stokes, "Disclaimers," *American Sociological Review* 40 (1975): 1-11.
- [Note:](#) 129. See Edward A. Suchman, "A Conceptual Analysis of the Accidental Phenomenon," *Social Problems* 8 (1960-61): 241-53. [Note:](#) 130. See also Niklas Luhmann, *Rechtssoziologie* 2d ed. (Opladen, 1983), p. 40ff. (English trans. *A Sociological Theory of Law* [London, 1985], p. 31ff.) [Note:](#) 131. See Chap. 2, section V.
- [Note:](#) 132. Cláudio Souto, e. g., takes this position with the argument that sociality arises through normative reductions. See: Souto, "Die soziale Norm," *Archiv für Rechts- und Sozialphilosophie* 63 (177): 1-26; "Die soziale Prozesse: Eine theoretische Reduktion," *Archiv für Rechts- und Sozialphilosophie* 66 (1980): 27-50; Souto, *Allgemeinste wissenschaftliche Grundlagen des Sozialen* (Wiesbaden, 1984). Similarly, Roberto Mangabeira Unger, *Law in Modern Society: Toward a Criticism of Social Theory* (New York, 1976).
- [Note:](#) 133. See Niklas Luhmann, "Die Weltgesellschaft," in Luhmann, *Soziologische Aufklärung*, vol. 2 (Opladen, 1975), pp. 51-71.
- [Note:](#) 134. For a survey, see Franz Josef Stendenbach, *Soziale Interaktion und Lernprozesse* (Cologne, 1963), esp. p. 90ff. Further references can be found in Chap. 2, n. 73, above. Talcott Parsons brought this problem into sociology. See: *The Social System* (Glencoe, Ill., 1951), esp. pp. 10f, 209ff; Parsons, "The Theory of Symbolism in Relation to Action," in Talcott Parsons, Robert F. Bales, and Edward A. Shils, *Working Papers in the Theory of Action* (Glencoe, Ill., 1953), pp. 31-62 (esp. p. 41f). Among his decisive insights is that generalization is a condition of possibility for communication because the situations of ego and alter are never completely identical. It follows that the range of possible communication varies with symbolic generalizations, i. e., can increase or decrease.
- [Note:](#) 135. They can be mitigated by being combined with evolutionary theory (or similarly constructed theories of learning). The statement then runs: which expectations can be successfully generalized emerges through evolution (or through learning).
- [Note:](#) 136. See, e. g., Alfred Kuhn, *The Study of Society: A Unified Approach* (Homewood, Ill. 1965), p. 84ff, for "generalized reinforcers." A survey of the psychological literature is contained in Stogdill, p. 60ff or in the contributions of Klaus Eyferth to the *Handbuch der Psychologie*, vol. 1 (Göttingen, 1964), pp. 76-117 (p. 103ff) and 347-70 (p. 357ff).

- [Note:](#) 137. One can register this as a functional "definition" of the concept of knowledge and at the same time note that the concept of knowledge is thereby detached from all anthropological definitions, thus no longer interpreted as the mere correlate of specific mental capacities.
- [Note:](#) 138. See Jack Goody and Ian Watt, "The Consequences of Literacy," *Comparative Studies in Society and History* 5 (1963): pp. 304- 45 (p. 308ff).
- [Note:](#) 139. See--concentrating on the important but surely not solely decisive innovation of printing-- Elisabeth Eisenstein, *The Printing Press as an Agent of Social Change: Communications and Cultural Transformations in Early-Modern Europe*, 2 vols. (Cambridge, 1979). See also Jack Goody, "Literacy, Criticism, and the Growth of Knowledge," in Joseph Ben-David and Terry N. Clark, eds., *Culture and Its Creators: Essays in Honor of Edward Shils* (Chicago, 1977), pp. 226-43.
- [Note:](#) 140. See Niklas Luhmann, "Die Ausdifferenzierung von Erkenntnisgewinn: Zur Genese von Wissenschaft," in Noco Stehr and Volker Meja, eds., *Wissenssoziologie*, special ed. 22 (1980) of the *Kölner Zeitschrift für Soziologie und Sozialpsychologie* (Opladen, 1981), 102-39 (English trans. in Stehr and Meja, eds., *Society and Knowledge* [New Brunswick, N. J., 1984], pp. 103-48).
- [Note:](#) 141. We cannot pursue the reasons for this further here. They lie, in part, in a "materialist" heritage; in part, in the problematic of truth, in which one becomes involved when one makes statements about truth, which are only insufficiently answered for by the theory of types; in part also in the opposition between rigorous scientific truth and ideology. In addition, given the differentiation of disciplines, investigations into the theory of learning have found a home mainly in psychology, not sociology. Efforts at a broader understanding of the sociology of knowledge are, nonetheless, on their way. See the volume edited by Stehr and Meja, quoted above.
- [Note:](#) 142. As so often in socio-cultural evolution, this was not a straightforward advance. It is remarkable, on the contrary, that, preceding a thoroughly modern thinking, the notions of wisdom (*sagesse*) and nature were even more strongly emphasized around 1600. Perhaps one tried to use the familiar terminology now all the more determinedly.
- [Note:](#) 143. See Niklas Luhmann, "Konflikt und Recht," in Luhmann, *Ausdifferenzierung des Rechts: Beiträge zur Rechtssoziologie und Rechtslehre* (Frankfurt, 1981), pp. 92-112 (pp. 73ff of the English trans.).
- [Note:](#) 144. See Luhmann, *Rechtssoziologie*, p. 94ff.
- [Note:](#) 145. This could also be pursued on the semantic level--perhaps by developing concepts of law, types of law, and finally the concept of the "sources of law." For the last, see Niklas Luhmann, "Die juristische Rechtsquellenlehre in soziologischer Sicht," in Luhmann, *Ausdifferenzierung des Rechts*, pp. 308-25.
- [Note:](#) 146. To forestall any objections, this can be proven with the following definition: "Peace is not only the absence of war, but also the absence of every form of personal and structural violence. In addition, it comprises worldwide economic, political, and social justice, as well as complete disarmament on all sides, a new world economic system, and a life in ecological balance. It would be wrong to understand it statically as an end state. Instead, it is a product of dynamic, processual world relations, which is secured through association or dissociation with as little violence as possible" (Klaus Schütz, *Mobilmachung für das Überleben als Aufgabe von Friedensforschung, Friedenspädagogik, Friedensbewegung* [Waldkirch, 1981], p. 26). In truth, this concept of peace makes a claim to sovereignty: it forbids violence to others and reserves it for itself ("with as little violence as possible").
- [Note:](#) 147. One is struck by an intensive use of this soon to be obsolete means in the sixteenth and seventeenth centuries. In the face of a rapidly progressing evolution, one returns, at first, to old forms of eliminating disappointment, until they lose their plausibility.
- [Note:](#) 148. See section XII of this chapter.
- [Note:](#) 149. One aspect of this topos is that it can help transform normative expectations into cognitive expectations. See Lawrence D. Haber and Richard T. Smith, "Disability and Deviance: Normative Adaptations of Role Behavior," *American Sociological Review* 36 (1971): 87-97.
- [Note:](#) 150. See: Alfred R. Radcliffe-Brown, "The Andaman Islanders" (1922; rpt. Glencoe, Ill., 1948); Ronald M. Berndt, *Excess and Restraint: Social Control among a New Guinea Mountain People* (Chicago, 1962).
- [Note:](#) 151. See Robert E. Lane, "The Decline of Politics and Ideology in a Knowledgeable Society,"

American Sociological Review 31 (1966): 649-62, and also the discussion in *American Sociological Review* 32 (1967): 302-4.

[Note](#): 152. See Niklas Luhmann, "Kommunikation über Recht in Interaktionssystemen."

[Note](#): 153. We assume here the distinction between the several ways of forming social systems presented in the Introduction. See also Chap. 10.

[Note](#): 154. For an overview and for references to the contemporary literature, see: Norbert Elias, *Die höfische Gesellschaft* (Neuwied, 1969); Christoph Strosetzki, *Konversation: Eine Kapitel gesellschaftlicher und literarischer Pragmatik im Frankreich des 18. Jahrhunderts* (Frankfurt, 1978); Niklas Luhmann, "Interaktion in Oberschichten: Zur Transformation ihrer Semantik im 17. und 18. Jahrhunderts," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), pp. 72-161.

[Note](#): 155. An interesting proposal, though it ignores the main problem, is presented by Colin Campbell, "A Dubious Distinction: An Inquiry into the Value and Use of Merton's Concepts of Manifest and Latent Function," *American Sociological Review* 47 (1982): 29-44. It reduces the problem to the difference between lifeworld and scientific (sociological) perspectives.

[Note](#): 156. Such interpretations are not unconditionally bound to the word "latent," but at best they repeat its customary meaning. See, e. g.: Wilbert E. Moore and Melvin M. Tumin, "Some Social Functions of Ignorance," *American Sociological Review* 44 (1949): 787-95; Arnold Gehlen, "Nichtbewußte kulturanthropologische Kategorien," *Zeitschrift für philosophische Forschung* 4 (1950): 321-46; Robert E. Lane, *Political Life: Why People Get Involved in Politics* (Glencoe, Ill., 1959), p. 113f; Louis Schneider, "The Role of the Category of Ignorance in Sociological Theory: An Exploratory Statement," *American Sociological Review* 27 (1962): 492-508; Heinrich Popitz, *Über die Präventivwirkung des Nichtwissens: Dunkelziffer, Norm und Strafe* (Tübingen, 1968).

[Note](#): 157. As in relation to Freud's dreams. In sociology, the problem of latency is also occasionally formulated in relation to meaning contents, topics, and themes. See, e. g., Fritz J. Roethlisberger and William J. Dickson, *Management and the Worker* (Cambridge, Mass., 1939), p. 265ff (manifest vs. latent contents of complaints), or, quite similarly, Alvin W. Gouldner, *Wildcat Strike* (Yellow Springs, Ohio, 1954).

[Note](#): 158. References to the literature can be found in Chap. 1, n. 115. [Note](#): 159. Here too the "transmission model" of communication theory must be revised. Not only must one remember that alter already knows something and ego experiences it through communication and then comes to know it too, one must also realize that communication *genuinely creates consciousness for both sides*: the utterer often creates conscious contents only by speaking.

[Note](#): 160. Here one could draw on an analysis of wit and irony. Consciousness can use these forms to present itself as faulty, and as consciously fallible. It commits a category mistake, so to speak, a confusion of levels, an impossible attribution, to break down and respect social latencies at once. The gag justifies the means--and one can *say* this if one's right to irony is contested. (The history of the word "gag" is worth noting: from a gag in the mouth, something that blocks or impedes speech, to something improvised, and finally to a witticism--starting as slang and then increasingly appearing in everyday language.) Wit can create solidarity by enlisting implicitly assumed understanding, and thus consciousness, *without forming social structures based on it*. This is why the form of individual events is indispensable to it: a witticism must be new and unique. It must surprise, but it may not inform. Although it uses consciousness in a complex way, it must be capable of being grasped quickly so that it can be actualized as something experienced in common without consensus about what follows from it. It actualizes the social dimension without thematizing it communicatively. It does not bind. It drastically cuts off any further communication, further questioning, and efforts at further clarification by choosing the form of a paradox. The fact that witticisms are directed toward *social latencies* can be seen in that they are not allowed at the expense of those present, i. e., at the expense of consciousness--a norm whose explicit form can be followed far back in the history of the literature on conversation.

[Note](#): 161. Jokes are the opposite of the professional conduct of the therapist and the legitimation of his goals, defined by concepts of health.

[Note](#): 162. See for the Enlightenment Jürgen Habermas, "Illusionen auf dem Heiratsmarkt," *Merkur* 10 (1956): pp. 995-1004.

[Note](#): 163. This formulation consciously emphasizes the *doubling* of latency. The official structure must

keep latent other possibilities that could dissolve it, but this cannot be *its* function. Therefore forms are created whose function refers to the latency needs of *other* forms, and then *function* must then remain latent. This fact is too sharply abbreviated in the usual formula "stabilizing the system," and for the same reason the long-familiar concepts of counterstructure, counter-culture, countermores, etc., are too indeterminate. See, e. g.: Talcott Parsons, *The Social System*, p. 158f, on "adaptive structures"; Harold D. Lasswell and Abraham Kaplan, *Power and Society* (New Haven, 1950), p. 49f, on "countermores"; also J. Milton Yinger, "Contraculture and Subculture," *American Sociological Review* 25 (1960): pp. 625- 35.

[Note](#): 164. See: Louis Dumont, *Homo Hierarchicus: The Caste System and Its Implications* (London, 1970), esp. p. 184ff; Dumont, Religion, Politics and History in India: Collected Papers in Indian Sociology (Paris, 1970), esp. pp. 31ff, 133ff.

[Note](#): 165. See: Mikhail Bakhtin, *Rabelais and His World* (Cambridge, Mass., 1968); also Rainer Warning, *Funktion und Struktur: Die Ambivalenzen des geistlichen Spiels* (Munich, 1974); David Gross, "Culture and Negativity: Notes Toward a Theory of Carnival," *Telos* 36 (1978): pp. 127-32, and its systematic continuation in Hans Ulrich Gumbrecht, "Literarische Gegenwelten, Karnevalskultur und die Epochenschwelle vom Spätmittelalter zur Renaissance," in Gumbrecht, ed., *Literatur in der Gesellschaft des Spätmittelalters* (Heidelberg, 1980), pp. 95-144. The carnival model can be practiced in nonhierarchical societies as the transformation of individualism into sociability. See Anthony H. Gait, "Carnival on the Island of Pantelleria: Ritualized Community Solidarity in an Atomistic Society," *Ethnology* 12 (1973): 325-39.

[Note](#): 166. To be sure, the facts as well as interpretations are hotly contested here. See: Paul Remy, "Les `cours d'amour': légende et réalité," *Revue de l'Université de Bruxelles* 7 (1954-55): 179-97; Jacques Lafitte-Houssat, *Troubadours et cours d'amour*, 4th ed. (Paris, 1971).

[Note](#): 167. This aspect is absent in the later, hopelessly serious feminist movements that begin in the seventeenth century and now belong to the modern world.

[Note](#): 168. This demonstrates the weakness of a mere counterconceptuality or a switch to counterstructures (see n. 163, above). See the critique of the theoretical content of such mere classificatory disjunctions in Martin Irlé, *Soziale Systeme: Eine kritische Analyse der Theorie von formalen und informalen Organisationen* (Göttingen, 1963). The material that has been introduced and documented must be extensively reanalyzed from a theoretical perspective.

[Note](#): 169. A typical example--the German Commission to Study Reform of the Civil Service Law (1970-73)--considered replacing the present retirement benefit system by combining civil service benefits with the general old-age pension insurance. Both variants were compared in different respects. The additional cost of these changes was estimated at a yearly rate of more than 100 million DM. Nothing was changed. See the commission's report (Baden-Baden, 1973), p. 333ff. Where one might least expect it, one finds indications of the same mentality, e. g., in the ideas of Pascal Bruckner and Alain Finkielkraut, *Le nouveau désordre amoureux* (Paris, 1977), on replacing orgasm-oriented sexual techniques by *coitus reservatus* after the Chinese prescription.

[Note](#): 170. Functional equivalents like multiple subordinations (functional organization of work), project organization, teamwork, etc. are repeatedly discussed, proposed, and tested, confirming our thesis that functional orientation increases the consciousness of contingency but does not necessarily lead to structural change.

[Note](#): 171. Ironically, e. g., when applied to concealing love relations.

[Note](#): 172. See Pascal, *Pensées* nos. 311 and 312, éd. de la Pléiade (Paris, 1950), p. 905: "One must have ideas of one's own and judge everything by them, while nevertheless speaking like the people." Those who are half-educated mistrust popular beliefs, but the educated honor them, not because everyone thinks this way but because these are their own thoughts. The obsequious mistrust these thoughts, but true Christians accept them by a different, superior light. The nobility themselves rely on concealed but truer thoughts to prevent the loss of their natural superiority over the common people, but even the nobility must adapt to the existing order despite this insight. See for this Pascal, "Trois discours sur la condition des Grands," (éd. de la Pléiade, pp. 386-92). Note: 173. See Chap. 4, section V.

[Note](#): 174. Thus Jacques Necker, "De l'administration des finances de la France," in *Necker, Oeuvres complètes* (Paris, 1821; rpt. Aalen, 1970), 4: 50--obviously without noticing the paradox.

[Note](#): 175. Though not entirely so. For clarification of the latent conditions of the Enlightenment (including a life of luxury), see Simon- Nicolas-Henri Linguet, *Le Fanatisme des philosophes*

(London-Abbeville, 1764).

[Note:](#) 176. For how this concept changes, see Kurt Röttgers, "Kritik," in *Geschichtliche Grundbegriffe: Historisches Lexikon zur politisch-sozialen Sprache in Deutschland*, vol. 3 (Stuttgart, 1982), pp. 651--75. See also Reinhart Koselleck, *Kritik und Krise: Eine Studie zur Pathogenese der bürgerlichen Welt* (Freiburg, 1959).

[Note:](#) 177. "Modernity is transitory, fleeting, contingent, one half art, the other half eternal, immutable," says Baudelaire in "Le peintre de la vie moderne," in Baudelaire, *Oeuvres complètes*, éd. dela Pléiade (Paris, 1954), pp. 881-922 (p. 892).

[Note:](#) 178. See E. T. A. Hoffmann, "Lebensansichten des Katers Murr," in Hoffmann, *Werke*, pt. 9 (Berlin, n. d.), p. 197.

[Note:](#) 179. For religion see, e. g., Jacques Necker, "De l'importance des opinions religieuses," in Necker, *Oeuvres complètes*, vol. 12 (Paris, 1821), p. 39f--by a politician, by the way, who could not be fast enough; the French Revolution rolled over him. It was held especially against him that his functional analysis of religion could not contribute anything to the truth of religion, which escapes functional analysis. See Peter Villauime, *Über das Verhältnis der Religion zur Moral und zum Staat* (Libau, 1791). But this critic also becomes entangled in the problem of time and function. He believes (p. 112) that, "One must go easy on any existing religion, however absurd, *as long as* one has nothing with which to *replace* it" (emphasis added). For the parallel domain of the advantages in tempo of taste and aesthetic judgment (which excludes self-observation during observation), see the references in Alfred Baeumler, *Das Irrationalitätsproblem in der Ästhetik und Logik des 18. Jahrhunderts* (Halle, 1923; rpt. Darmstadt, 1967).

[Note:](#) 180. Sir Geoffrey Vickers, *The Undirected Society: Essays on the Human Implications of Industrialization in Canada* (Toronto, 1959), p. 75.

[Note:](#) 181. In what follows, we will retain the term "change" [*Änderung*] and will use "social change" [*sozialen Wandel*] only to refer to important structural changes. "Social change" is also defined this way (e. g., "significant alteration of social structures") by Wilbert E. Moore, "Social Change," *International Encyclopedia of the Social Sciences* (New York, 1968) 14:365-75 (p. 366). A universally recognized criterion of importance has yet to be found, and so far there are only proposals that can easily be rejected as inadequate, e. g., "equilibrium" or "domination." For the resulting confusion in the discussion of social change, see Susan C. Randall and Hermann Strasser, "Zur Konzeptualisierung des sozialen Wandels: Probleme der Definition, des empirischen Bezugs und der Erklärung," in Hermann Strasser and Susan C. Randall, eds., *Einführung in die Theorie des sozialen Wandels* (Darmstadt-Neuwied, 1979), pp. 23-50 (p. 24). Guy E. Swanson, *Social Change* (Glenview, Ill., 1971), p. 3, gives this definition: "Change refers to a difference in a structure, the difference occurring over time and being initiated by factors outside that structure."

[Note:](#) 182. The example can be varied in many ways. "I've worked enough," says the capitalist to the astonished labor leader. "Take over my plant, my accounts. All I'm interested in is my pension."

[Note:](#) 183. Maturana introduces this distinction as that of an observer who can choose to describe a system as a simple unity on the basis of the properties of its elements or as a complex unity on the basis of the organization of its elements. See Humberto R. Maturana, "Autopoiesis," in Milan Zeleny, ed., *Autopoiesis: A Theory of Living Organization* (New York, 1981), pp. 21-33 (esp. pp. 24, 31). One suspects that the description of properties is more attractive in the observation of others and the description of relations in self-observation.

[Note:](#) 184. Crisis theories, especially the hopes connected with crises, begin here. See, e. g., Robert A. Nisbet, *The Social Bond: An Introduction to the Study of Society* (New York, 1970), p. 322ff.

[Note:](#) 185. See Philip Selznick, *TVA and the Grass Roots* (Berkeley, 1949); Selznick, *Leadership in Administration: A Sociological Interpretation* (Evanston, Ill. 1957).

[Note:](#) 186. This corresponds to the argument set out in section XII: that only specially problematized expectations concerning behavior are bound to either a normative or a cognitive style of expectation (each excluding the other).

[Note:](#) 187. If one speaks of external and internal adaptations (as does, e. g., Kenneth Berrien, *General and Social Systems* [New Brunswick, N. J., 1968], p. 36ff) the concept coincides in practice with that of structural change--unless one assumes in addition a kind of constructive or destructive (entropic) logic of development that can be deduced from existing structures.

- [Note](#): 188. See, e. g., Fred Emery, *Futures We Are In* (Leiden, 1977), for active adaptation and adaptive planning (p. 67ff, 123ff).
- [Note](#): 189. See also the rather politically inspired reservations of Sir Geoffrey Vickers, "Is Adaptability Enough?" *Behavioral Science* 4 (1959): 219-34; rpt. in Walter Buckley, ed., *Modern Systems Research for the Behavioral Scientist: A Sourcebook* (Chicago, 1968), pp. 460-73.
- [Note](#): 190. Thus it is not enough simply to oppose self-adaptation to environmental adaptation. For then one would not see the problem (which, once again, cannot be the system/environment difference) self-adaptation reacts to.
- [Note](#): 191. For the transfer of this terminology to the social sciences and for important contributions from the perspective of stabilization through positive feedback, see Magoroh Maruyama, "The Second Cybernetics: Deviation-Amplifying Mutual Causal Processes," *General Systems* 8 (1963): 233-41; rpt. in Buckley, ed., pp. 303-13; Walter Buckley, *Sociology and Modern Systems Theory* (Englewood Cliffs, N. J., 1967), p. 58ff. See also Hermann Haken, *Synergetics: An Introduction*, 2d ed. (Berlin, 1978), p. 299ff; Alfred Gierer, "Socioeconomic Inequalities: Effects of Self-Enhancement, Depletion and Redistribution," *Jahrbücher für Nationalökonomie und Statistik* 186 (1981): 309-31; Gierer, "Systems Aspects of Socio-economic Inequalities in Relation to Developmental Strategies," in R. Felix Geyer and Johannes van der Zouwen, eds., *Dependence and Inequality: A Systems Approach to the Problems of Mexico and Other Developing Countries* (Oxford, 1982), pp. 23-34.
- [Note](#): 192. From the Introduction to the 2d ed. of Emile Durkheim, *De la division du travail social* (Paris, 1973).
- [Note](#): 193. See esp. Talcott Parsons, "Comparative Studies and Evolutionary Change," in Ivan Vallier, ed., *Comparative Methods in Sociology: Essays on Trends and Applications* (Berkeley, 1971), pp. 97-139 (p. 100f).
- [Note](#): 194. In one of the few explicit treatments of the theme, Nisbet, p. 322ff, seems to assume this--which leads him to lament the omission of the theme of (unforeseeable) eventfulness in theories of social change.
- [Note](#): 195. Thus one must be permitted to speak of structural changes that do not "occur" but only show up. Perhaps it would be better to reserve the concept of social change for this.
- [Note](#): 196. See also: Chap. 1, section II, item no. 3; Niklas Luhmann, "Geschichte als Prozeß und die Theorie sozio-kultureller Evolution," in Luhmann, *Soziologische Aufklärung*, vol. 3 (Opladen, 1981), pp. 178-97.
- [Note](#): 197. See, for the method and research thus far (with very inadequate references), Robert L. Carneiro, "Scale Analysis, Evolutionary Sequences, and the Ratings of Cultures," in Raoul Naroll and Ronald Cohen, eds., *A Handbook of Method in Cultural Anthropology* (Garden City, N. Y., 1970), pp. 834-71; also, e. g., Robert L. Leik and Merlyn Mathews, "A Scale for Developmental Processes," *American Sociological Review* 33 (1968): 72-75; Theodore D. Graves, Nancy B. Graves, and Michael J. Kobrin, "Historical Inferences from Guttman Scales: The Return of Age-Area Magic?" *Current Anthropology* 10 (1969): 317-38; Joseph P. Farrell, "Guttman Scales and Evolutionary Theory: An Empirical Examination Regarding Differentiation in Education Systems," *Sociology of Education* 42 (1969): 271-83; Herbert Bergmann, "Einige Anwendungsmöglichkeiten der Entwicklungskalierung von Leik und Mathews," *Zeitschrift für Soziologie* 2 (1973): 207-26.
- [Note](#): 198. See, e. g., Talcott Parsons, "Comparative Studies and Evolutionary Change," in Talcott Parsons, *Social Systems and the Evolution of Action Systems* (New York, 1977), pp. 279-320.
- [Note](#): 199. Thus, e. g., Michael Schmid, *Theorie sozialen Wandels* (Opladen, 1982), p. 145ff. See also Mark Granovetter, "The Idea of 'Advancement' in Theories of Social Evolution and Development," *American Journal of Sociology* 85 (1979): 489-515.
- [Note](#): 200. "Teleology" is used here in relation to Aristotelian theory. We merely eliminate the idea that future events or states can affect the present in a way that opposes the direction of time, and we want to emphasize in particular that intensification of the process's selectivity is conditioned by the selectivity of its end. For changes in the history of the idea, see Niklas Luhmann, "Selbstreferenz und Teleologie in gesellschaftstheoretischer Perspektive," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 2 (Frankfurt, 1981), pp. 9-34.
- [Note](#): 201. All arguments for the direction of morphogenetic or evolutionary processes that go beyond this--above all those that work with "criteria of progress" like adaptive upgrading, problem solving capacity, etc.--are contested. Only models that provide a mere phase sequence as "his-

torical law" are theoretically indisputable. See Marion Blute, "Sociocultural Evolutionism: An Untried Theory," *Behavioral Science* 24 (1979): 46-59. The idea of development toward forms and systems with greater complexity remains acceptable, but this means nothing more than greater improbability.

Note: 202. The type of conceptual distinction speaks for completeness. An intensification of selectivity is either reciprocal or not. But for a nonreciprocal intensification of selectivity there may be other unifying perspectives than the accumulation of improbability.

Note: 203. The fact that stop-rules function even when the end can no longer be attained or when it no longer seems desirable in view of changed circumstances or values is a particularly important aspect of teleological processes; it constitutes their sensitivity, their capacity to learn, and makes them both more and less dependent on chance, compared with morphogenetic processes. Because of greater demands, they are more strongly differentiated through the principle of reciprocal selection. This aspect of the genuine rationality of teleological processes has not received adequate attention in the recent discussion, which is influenced by theories of value.

Note: 204. This holds, in general, for processes with positive feedback-- even for events that do not change structure. See, e. g., D. Stanley-Jones, "The Role of Positive Feedback," in John Rose, ed., *Progress of Cybernetics*, vol. 1 (London, 1970), pp. 249-63.

Note: 205. See, e. g., Jeremiah J. O'Connor, *Managing Organizational Innovation* (Homewood, Ill., 1968). By "organizational development" one understands something quite different from what the expression might suggest--namely, an adaptation of personnel to the requirements of the organization that takes time and has been socio-psychologically thought through.

Chapter 9: Contradiction and Conflict

I

"Contradictions" are a common sociological theme. Much is said about them, but what the term means usually remains unclear. Structural functionalism, for example, very quickly abandoned an all too harmonious picture of social systems and began to speak of structural contradictions or contradictory demands on behavior. ¹ But what, precisely, is meant when one speaks of contradiction? Is it a contradiction, for example, when an economic system presupposes a capacity to save as well as to consume, although an individual cannot both spend and save a given sum of money at the same time? ² Is it a contradiction when a ruler is given supreme, sovereign authority but cannot use it arbitrarily? And if the seventeenth century treated this as a contradiction and adjusted its thinking accordingly, was it still a contradiction in the eighteenth century? Are there general criteria to determine whether something is a contradiction or not? Or does this depend entirely on the system that creates contradictions (whatever these may be) to enable structural formation?

The concept of contradiction implies logical precision and therefore deters further research on the matter. Sociology was initially content with this--despite a few exceptions, which sought to probe a bit deeper and to clarify the concept of the negative. ³ But is logic in a position to achieve this assumed precision? And if so, is sociology in a position to accept what it has to offer?

Contradictions are commonly thought of as logical mistakes, as

offenses against the rules of logic, and as something to be avoided. Knowledge must be reformulated until it no longer contains any contradictions. Logic was invented to control this process, was differentiated for this function, and could then be refined as a system of methods for control. This occurred in the working context of "science." Science promoted the idea that reality as it can be known must be assumed to be "free of contradictions." If the world of objects were contradictory in the logical sense, then any random statement and no knowledge about it would be possible. Correspondingly, there are no "problems" in reality. Problems are unclarified relations between knowledge and ignorance, and they can be solved, if at all, only by changing these relations.

One can view this dogma with an observer's eye and ascertain that, if there are objects that contain contradictions, then they are excluded from the domain of possible knowledge. They are noticed neither positively nor negatively. One cannot even find out whether they exist or not. They simply do not appear in the environment of a logically ordered scientific system. When confronted with a world that is full of contradictions, adherents of this dogma usually say that they don't know what one is talking about. For them it is clear that there cannot be oxen who both do and do not have horns, and they are ready to draw the conclusion that this must also hold for husbands. Without giving up their basic position, they may perhaps, in such a case, acknowledge a logic that can handle fuzzy sets, ambiguities, and poorly defined problems. Once again the observer confirms his theory that a system tries to bear the incomprehensible complexity of its environment by its own complication (involution) or by structural elasticity.

Ever since Hegel, one has fundamentally known that the social is excluded from the environment of science by a logic that must postulate objects as free of contradiction. The resulting difficulties have not yet found a clarification that can satisfy everyone. ⁴ Some emphasize that the proposition of contradiction is structurally indispensable and extrapolate from it a "logic of the social sciences." Some accept contradiction in objects but subordinate such contradictions to a higher degree of order via the concept of a "dialectic," in which case the investigator is asked not to do research but to take sides, which in practice means joining in negating. Some begin with the fact that an adequate logic (indeed, a logic that is adequate

for themes like time, self-reference, and sociality) would have to allow multiple values and then invest all their energy in attempting to bring such a logic into the form of a calculus. None of these attempts has achieved a definitive success that would render the others unnecessary. As a result, one experiments with several attempts at once, and no one should be discouraged in advance, given the present state of knowledge, or be discredited by controversies. No one's position is sufficiently developed for this.

We cannot assume that it is possible to eliminate contradictions in the social domain and, in consequence, in the theory of the social domain by purely logical means. If social life does not work in a purely logical way, then a theory of it cannot be formulated as free of logical contradictions. We still do not even know precisely what a contradiction is and what it is good for. Therefore we will first need to clarify, with the help of a part of the theory of social systems that has already been developed, whether and in what sense one can say in general that the social domain contains contradictions.

II

In some brief initial reflections, let us return to the difference between autopoietic reproduction and observation. We know that they do not exclude each other, but are different operations that can be combined. Autopoietic systems are capable of observation; they can observe other systems and themselves. Their autopoiesis is their self-reproduction, whereas their observation orients itself to distinctions and operates with designations. This is how a communicative system, in which communication triggers communication, reproduces itself. Observation plays a role insofar as communication (or another's action) is attributed as action, and as the action of one specific actor rather than another.

The distinction between autopoiesis and (self-)observation is confirmed by the problem that concerns us here. Contradictions have an entirely different function depending on whether one is dealing with autopoietic operations or observations. In the context of autopoietic operations (which must always carry on if observation is to be possible at all), contradictions shape a specific form, which selects connective operations. One reacts to a contradiction

differently from something that is not experienced as a contradiction, *but one reacts*. Even Buridan's ass, placed, as it were, between two equally tempting bales of hay, will survive, even if it notices that it cannot decide, for that is why it decides nevertheless! The situation presents itself altogether differently to an observer. For him, and only for him, contradiction means undecidability. He cannot continue the observation (even if he continues to live) because he cannot furnish the distinction with mutually exclusive designations. Contradiction puts a stop to observation, and this is even more true of observing observation. But precisely this can be sufficient grounds for doing something.

It would be a crass reification to reduce this state of affairs to a distinction between life and science (or something similar). The difference between autopoiesis and observation is a very elementary one, and both occur in all autopoietic systems, even in those that-- like science--specialize in observation and in predictions and explanations that depend on it. Correspondingly, contradiction has a double function in all self-referential systems, namely, to block and to trigger, stopping observation that encounters contradiction and triggering connective operations that cope with contradictions and owe their meaningfulness exactly to this coping. Thus one comes to the conclusion that contradiction is a semantic form that coordinates autopoiesis and observation, mediating both types of operation, and separating and combining them. Contradictions achieve this because switching off operations that connect with observation means simultaneously switching on operations that precisely then are still possible.

This does not return to a "dialectical" function for contradictions because one can replace that function with an evolutionary theoretical perspective. Evolution presupposes self-reproduction and observation. It comes about by deviant self-reproduction. Thus it cannot be an inference from observation. It is not a logical process. It presupposes that observation has broken down (indeed, in a way that the observing system can control) and that it nevertheless goes on. Evolution proceeds by undecidabilities. It uses the opportunities that undecidabilities sort out as opportunities for morphogenesis.

If this initial sketch of the function of contradictions is accurate, then what can be considered to be a contradiction? What meaningful

material is recruited for this function? Does it deal with logical constants or semantic artifacts that can be brought into the form of contradiction when need be to fill this function?

III

What logic calls a "contradiction" is not a matter of opposing interests, such as a seller who wants to get the highest price versus a buyer who wants to pay the lowest. Therefore the opposition between "capital" and "labor" is not a contradiction. Nor is competition a contradiction, for no logician would reject statements like "A desires the same commodity as B." So what is at stake, when all this is excluded, with the thesis of "objective contradiction"?

On closer inspection, contradictions seem to feature a fictionalized, a secondary indeterminacy. For that, what is contradictory is already determinate; otherwise one could not establish a contradiction. Only specific ideas, specific communications can be contradictory, and the contradiction's form seems to serve to put into question the already-achieved determinacy of meaning. A contradiction is an indeterminacy of the system, not an indeterminacy of individual operations, but it deprives these operations of the determinacy that they derive from participating in the system and that, as elements of the system, they can draw from basal self-reference.⁵ What interest can the system have in undercutting the self-referential determination of its elements? And how does this happen?

One can see from the form of contradiction that it deals with tautologies, tautologies with an added negation. A is (not) A. Why is this form produced? All tautologies, even contradictions, are instances of extremely abbreviated, pure self-reference. By this one achieves deliberate connectivity. Every connection that has been or can be determined presupposes the unfolding of a tautology that absorbs additional (and this necessarily means restricting) determinations into itself.⁶ A rose is not a rose--if it ... One can give an ontological version of this as the difference between appearance and reality, or an epistemological version as an instrument for testing reality, but these are more or less risky interpretations. Initially, the form and function of contradiction lie in representing pure self-reference and in the imperative for conditioning

that is based on it. Contradiction thereby transforms itself into a second, operative contradiction: *more* restrictions mean *fewer* possibilities. This is no longer a logical contradiction but a problem, namely, the problem of increasing the capacity of supporting restrictions *and* keeping open possibilities.

If one begins, as in Chapter 2, with the fact that every meaning refers to everything possible, thus to opposing or inconsistent meanings, then contradictions are latent in every experience of meaning. Every meaning is capable of contradiction or of being developed into one. How does this occur and why? To this extent the scientific treatment of meaning must deal with real, objective contradictions--unless it accepts the unrealistic assumption that these possibilities will never be used (in which case it would, however, exclude itself from the domain of meaning because it must consider contradictions in order to exclude them). Contradiction is an aspect of the self-reference of meaning because every meaning includes its own negation as a possibility. ⁷ But why is this diffuse scattering of possibilities condensed into the form of contradiction? What sets this off? Who prefers contradiction? And what freedom in the choice of form still remains open? In other words, what causes a system to block observation (including self-observation) by a contradiction, thus making self-reproduction possible?

With this reformulation, we are asking about contradiction's conditions of possibility or, more precisely, about the conditions under which what is contradictory can be extracted from the open horizon of meaning and synthesized into the unity of a contradiction. How does a unity come about, joining things that contradict each other so that they can appear as a unity, as "a" contradiction? What guides the expectations steering this? Only by such an expectation of unity can distinctions, oppositions, and competing issues combine into a contradiction, and only the contradiction makes what is brought together in it into something contradictory. Thus even here we follow the concept of self-referentiality and autopoiesis: the contradiction produces what constitutes it, namely, what is contradictory--and what's more, out of material that could have been free of contradiction. But what draws it together into a unity? What forces it to appear as a contradiction?

A closer analysis of how systems form unity (including both the unity of the system and that of its elements) leads to the same result.

All unity is the unity of self-reference and other-reference and thus is constituted paradoxically. Following Gregory Bateson, Anthony Wilden, or Yves Barel, one can trace this back to the "digitalization" of a continuum. ⁸ But that does not answer the question of why and when this fact stands out and gets differentiated for observation, self and other, as the unity of a contradiction.

Before following out this question, we must provide a comparable concept of logic. One can understand logic as a system of rules that conditions (in the systems-theoretical sense) the constitution of contradictions. The positive model of logic as staging a conceptual structure free of contradictions would, accordingly, be the negative copy of its function, a necessary by-product, so to speak, on the way toward fulfilling its function of conditioning contradictions. ⁹ The selection and joining together of semantic references into contradictions is then not left to chance but is subject to conditions that systematize and allow a unified treatment. Thus logic is not immediately concerned with eliminating contradictions but with the formal regulations for producing and knowing them. This always demands preliminary work, which selects meaning references and condenses them into contradictions; but only if this preliminary work is standardized in one form can logical conditionings take effect, especially conditioning by the general rule of avoiding contradictions. The form of contradiction follows from the totality of its applications in logic. It does not need to be formulated in a historically invariant way; rather, it conceivably varies with the way in which it is used by society.

Therefore we must draw on the epistemic service rendered by logic without being able to depend on it. The basic question remains how a unity, which according to the conditions of logic can be unambiguously contradictory or noncontradictory, can be constituted. There are different answers to this depending on whether one is dealing with psychic or social systems. Everything further depends on this difference--and this separates us from a conception like that developed in Hegel's *Phenomenology of Spirit*. ¹⁰

In psychic systems unity is operatively formed through consciousness, in social systems, through communication. Only in psychic systems does the unity of contradiction consist in that one is conscious of the contradiction in the impossibility of two contradictory things existing together, as well as able to reflect such

awareness as "mere" consciousness. ¹¹ Consciousness can handle the contradiction by attributing it to itself and then controlling its own relationship to reality, but this remains an operative option. Consciousness is then specialized for the acquisition of knowledge in the classical style. Meanwhile, one is aware of many other possibilities for internalizing contradiction, one of them being "externalizing" contradiction.

The consciousness-related (whether conscious or unconscious) way of dealing with contradiction cannot be transferred to social systems, not even to master/slave relationships, because distinctions, even oppositions, are not contradictions in the conscious contents of different psychic systems. They are not even contradictions if the participants become conscious of them as distinctions or oppositions. They become contradictions when a participating psychic system expects something incompatible in itself--perhaps if a master expects both subservience and respect from his slave. ¹² But even this does not concern a social contradiction, only a psychic contradiction, an inconsistent consciousness.

Social systems exist as communication systems; therefore they create contradictions by communicating rejection. This, too, can come under logic's control. Somehow it must be possible to know whether a "no" that has been communicated contradicts an expectation or merely contours it. To what extent a logic fit for this has been scientifically developed is a historical question. In our context, what is important is the underlying thesis that the contradictions in social systems exist exclusively as communication (though they provoke consciousness more or less). This also means that contradictions are included in the communicative self-reference of social systems, that they should be understood as an aspect of this self-reference and not as an intrusion from the outside.

Communication brings about unity (and with it possible contradiction) by integrating a threefold selection. ¹³ Information, utterance, and understanding (with or without acceptance) are practiced as a unity however different the conscious contents of the participants and their selective horizons might be and remain. Even in the most intense communication, no one is transparent to another, yet communication creates a transparency adequate for connecting action. A social system constitutes the contradictions that hold for it via the unity of communication. Communication's

synthesis makes it visible that two things cannot exist together. Only communication's expectation of unity constitutes a contradiction, by choosing what communication brings together. Contradictions emerge by being communicated.

This can occur openly and provocatively by choosing the communicative form of contradiction. It incorporates the (already existing or expected) counter-expression within itself and contradicts it. Thus contradiction is not just an expression set against itself. One can take an opposing position without being noticed (and a particular refinement in avoiding contradiction may be that one allows it to happen without declaring it to be a contradiction). It becomes a contradiction only if it incorporates the incompatible communication (and not just the rejected meaning!) within itself.

In addition, there are communicative contradictions that do not refer to the communication of another that gets included (into communication) as contradicting but refer to a contradiction in the utterer's communicative intentions. Then the communication does not contradict another communication, but itself. This concerns, not the distinction between alter and ego contained within communication, but a contradiction within alter's own intentions. An example of this is ironic communication. Here the content of the communication is canceled by its form. One means what one says, but not seriously. Such possibilities fan out broadly: one communicates in a way that shows that one's statement is not to be taken literally--for example, by clear exaggeration or overemphatic formality. One invites a friend to visit but does not specify a time, thus making it clear that, for the time being at least, the friend is not invited and cutting off the possibility of the friend asking when to visit, now or later. In general, the communication of intentions, sincerity, and goodwill are full of such contradictions. The more emphatically one communicates the intention of a communication, the more doubt it arouses.

The reason for this can be clarified with the help of our concept of communication. ¹⁴ Whoever utters an intention gives it the status of information about a selective event that could have happened otherwise. At the same time, one shows (usually unintentionally, but necessarily) that one expects and hopes to remove doubt. One makes known one's evaluation of one's partner and instills a doubt that otherwise the partner might never have conceived. Thus

emerges a communication that is, so to speak, rotten with contradiction. On one level, one must defend against misrepresentation, but precisely one's explanations of one's own attitude come more and more into contradiction with what one actually wants others to know one is communicating. One seems to protest too much.

As with contradictions in consciousness, self-reference is the condition for controlling communicative contradictions and the precondition for logical operations to enter in. Only if a contradiction can be constituted self-referentially can one decide whether it ought to occur or not. Only then can the generation of contradictions be conditioned--whether psychically, socially, or by the overarching rules of logic.

Besides a psycho-logic worked out from the viewpoint that psychic systems seek to avoid cognitive inconsistencies,¹⁵ one can also imagine a logic of communication that must take care that the unity of communication does not come into contradiction with itself. Investigation into this in the sixteenth and seventeenth centuries mainly took the form of literature about conversing with and advising princes. Its theme was how to avoid openly contradicting the other and how to achieve the communicative self-discipline that would enable this.¹⁶ It recommended avoiding scorn (at the expense of others),¹⁷ not revealing too strong a commitment (which would deprive others of the possibility of a different opinion),¹⁸ and omitting excessive flattery and praise (which would let one's intentions be known).¹⁹ The literature of passionate love, in particular, is full of statements about paradoxical communication, which says the opposite of what

it seems to say and can then be treated as having been seen through by one or both parties.²⁰ Initially all of this was presented in the form of casuistry, but it was pushed aside by the development of a technical scientific psychology. Only recently has an interest in communicative contradictions re-emerged, and now this theme is explicitly related to a logical problematic.²¹ This research is interested primarily in the consequences of contradiction for psychic systems and in the social problems this triggers. It has resulted in an oft-noted connection with psychiatric research, but it skips over a series of difficult problems that can only be clarified within a logic of communication.

Because these matters are still unclear, it would be premature and sociologically unacceptable to replace the difference between

psychic and social systems with the difference between paradoxical communication, which is psychically burdening, and open communication, which formulates conflict. Therapeutic practices, in particular, favor this prescription. But viewed sociologically, open conflict and psychic destruction are marginal phenomena that do not mutually exclude each other. One can achieve an adequate theory only if one first analyzes the problem of contradictory communication more precisely.

IV

Contradictions articulate self-reference, and thus they are specific forms of self-reference. Their function is to preserve the formal unity of meaningful interconnections, indeed, to make it stand out. They do not strengthen the security of the expectations normally bound up with these interconnections, but rather dissolve it. Contradictions destabilize a system, and they reveal this in the insecurity of expectation. Once two lines of expectation come to light as being incompatible, one does not know which will be fulfilled. One does not know whether one will reach an expected market goal by establishing a specific price or not, whether one will be caught if one drives while intoxicated, whether one's own party will win the election or not--all because contradictory expectations are in play.

One must guard against the widespread error of thinking that destabilization as such is dysfunctional. Instead, complex systems require a high degree of instability to enable on-going reaction to themselves and their environment, and they must continually reproduce this instability--for example, in the form of prices that constantly change, laws that can be questioned and changed, or marriages that can lead to divorce. One cannot assume that everything remains just as it is but must constantly renew the security of one's expectations by scanning everything that happens to acquire information relating to the continuation or change of expectational structures. One almost automatically glances at the prices on gas pumps as one drives by. Equally secure is the insecurity of a government's standing: one reads the newspapers to watch reputations rise and fall, and only one thing is self-evident: that this is not a quantity settled once and for all, independent of events.

One should speak of instability with respect to the *insecurity* of the *connective value* of events. This does not simply concern a lack of stable structures or the insecurity of expectations (of which one could imagine any number) conceived in the abstract. Instead, the concept refers to the system's autopoietic reproduction, and it means that the codes and programs that hold in this reproduction do not determine precisely what happens. As has been emphasized already above, this is, within certain bounds, a requirement of reproduction itself, of the novelty of events, and of the system's temporality. In this connection, contradictions are to be viewed as special mechanisms that amplify insecurity; they aim to make things uncertain, so to speak--whether by analysis of insecurity or by contradictory communication. They articulate in the direction of a relationship of exclusion the contingencies that, as double contingency, underlie the system. The possibilities that are actually considered are pulled in the direction of impossibility, not actuality. This means that reproduction must concern itself with the impossibility of reproduction: the system does not react to one or the other mutually exclusive possibility, but to the relationship of exclusion.

Contradictions are often viewed as promoting movement in a system or even as the driving structure of a dialectical development. But their relationship to time lies deeper; it is always present when contradictions are actualized and finally returns to the temporalization of complexity through constantly vanishing temporal elements. One might think of Romeo and Juliet as an example. They could not remain on the balcony, and therefore a sharp contradiction emerged between the possibilities that were hoped for, desired, realized, and prevented in connection. Contradiction seems to be a form of processing by which one can induce a situation that would end of itself when one wants to enable connections nonetheless. Reproduction is thereby secured, acute sensitivity is provided, and the future is actualized--but in a semantic form that establishes that it is not certain which of the mutually exclusive possibilities will be chosen.

The positioning and functioning of contradictions can be clarified further if one invokes the rigorous concept of autopoiesis. This concept says only that self-reproduction on the basis of unstable elements is necessary if the system is not simply to cease to

exist. Self-reproduction is then a precondition of evolution. But the concept does not give any indications for system structures; it contains no constraints on possible structural formation,²² although, of course, every concrete reproduction presupposes some structural constraint. Contradictions, which break open structures and temporarily take their place, thereby preserve autopoietic reproduction. They make connective action possible, although it is unsure which expectations will hold. In other words, contradictions can be incorporated into a system because this difference between self-reproduction and structure, between action and expectation, exists.

In this, we do not revert to an empty maxim of self-maintenance. Autopoiesis is not simply a new word for existence or life. Because one must bring time into consideration, precise constraints on the conditions of possibility result.²³ A system must not simply maintain "itself," it must maintain its "essential variables" (Ashby). This includes the interdependence of dissolution and reproduction, the capacity for self-observation (for discrimination), and furthermore everything that enables an adequate tempo of continuous reproduction despite constantly vanishing elements. Functionally, this means sufficient structures to guarantee connectivity. In addition, the *particular* structure with all its historically conditioned contingencies is of course also indispensable because it serves as the matrix in which disturbances are recognized and defined.

Because contradictions enable but do not compel the elimination of deviations, they have qualities that promote the development of an *immune system*. An immune system must be compatible with self-reproduction under changing conditions. It is not simply a mechanism for correcting deviations and re-establishing the *status quo ante*; it must manage this function selectively, namely, must be able also to accept useful changes. It does not serve to preserve unconditionally the structures under attack, but also presupposes structures and limits of possibility for its own functioning and especially for recognizing contradictions.

This function already presupposes a learning capacity and cell "memory" on the level of organic life.²⁴ What has happened can bind the system with the help of memory. This directs the system's sensitivity. When something happens again, the system can then

react more forcefully, specifically, and rapidly. In this way more probable (probably repetitive) disturbances are filtered out, and less probable disturbances are isolated as "accidents" for learned adaptation. The process of knowledge is refined without requiring an "analysis" of disturbances and their causes. A total extermination of everything "foreign" can be avoided, and yet essential functions and structures can be protected against a very probable destruction.

This functional context of an immune system makes it possible to explain the function of contradictions in social systems. Contradictions serve to reproduce the system by reproducing necessary instabilities that can, but need not, set the mechanisms of the immune system in operation. But this general function of creating instability does not yet explain the particularly pointed character of contradiction, just as it does not adequately explain why conflicts arise. ²⁵ Like pain, contradiction seems to force, or at least to suggest, a reaction to itself. To connect with (react to) a contradiction, one need not know what contradicts the usual expectations, or try to discover what a contradiction is, or even value what is contradictory in its own right. Contradiction permits *reaction without cognition*. All one needs is the characterization brought about by the fact that something takes on the semantic figure of a contradiction. This is why one can invoke an immune system and coordinate the theory of contradictions with an immunology. Immune systems also operate without cognition, knowledge of the environment, or analysis of disturbing factors; they merely discriminate things as not belonging.

Precisely this abbreviated procedure has always been an annoyance to sociology. Sociology has, for example, promoted endeavors to find out why criminals commit their crimes (even if this is not required for testing the legal status of what they've done), why drop-outs fail, and why protesters protest. It thereby infiltrates cognitive demands into the immune system of society--with the curious inconsistency that it then experiences society as a contradiction to such demands and consequently deals with society without adequately knowing it-- simply on the grounds of this contradiction. A sociological utopia that is incompatible with society emerges through the operation of society's own immune system. Thus sociology becomes a disease of society and society a

disease of sociology--if this incompatibility cannot theoretically be brought under control.

In any event, immune defense cannot be dissolved into cognition, into better knowledge; it can only be refined in the direction of greater complexity, including stricter controls on which semantic situations are to be treated as objective situations. Essentially, as has already been elaborated, insecurities about expectations are knit together in the form of contradiction. As a result, the condensed insecurity becomes something almost secure: something has to happen in order to solve the contradiction. Logically speaking, one could turn to the "excluded third" and evade the contradiction, but the semantic form of contradiction requires that the excluded third remain excluded. It thereby channels connective behavior without fixing it. This may be via a decision, which helps to develop structures because of its rationale, or via a conflict, which fulfills the same function through failure and success. In any event, it seems that concentrated instability is no longer instability, that it is at least a clear signal that triggers attention, a readiness to communicate, and thereby a momentarily increased sensitivity to chance.

If we accept this thesis, it follows that contradictions cannot be unambiguously localized within the system. They cannot be attached to this or that idea; they are not something "bad" (vis-à-vis something "good") that one must sort out. They serve as alarm signals,²⁶ which circulate within the system and can be activated under specific conditions. If one wishes to tie them down to something determinate, then it should be to this function. They serve as an immune system within the system. This requires great mobility, a constant readiness for action, the ability to be activated occasionally, and universal utility. To achieve this, the constitution of their unity must be related to the operations that ensure the system's autopoietic unity: to consciousness or to communication.

One can imagine that an immune system consists of the system's "un-'s," symbols of rejection that are at one's disposal (relatively) freely but whose use can be conditioned: the world of "no's" in relation to the world of "yesses." Normally, one expects one's proposed selections to be accepted; otherwise one would not bother to communicate. Yet this is always accompanied by a possibility of rejection, however minimal. The system does not immunize itself *against the no* but *with the help of the no*; it does not protect

itself *against changes* but *with the help of changes* against rigidifying into repeated, but no longer environmentally adequate, patterns of behavior. The immune system protects not structure but autopoiesis, the system's closed self-reproduction. Or, to put this in terms of an older distinction, it protects through negation against annihilation.

Comparison with the immune systems of organisms leads to a call for an immunological logic, which we cannot pursue further here. The comparison is meant not metaphorically but functionally. Yet it should not be overinterpreted as the famous/infamous organism analogy. ²⁷ The logic of social systems cannot--like an organism's immune system--refer to the stability of a spatial nexus secured by form. The meaning of "autopoiesis" is changed when it is transferred from organic to social systems: here it secures not the continuity of life but the connective capacity of actions. But how, precisely, are we to think of this?

As self-referential articulation, contradiction always presupposes a relationship between structure and element (event). Therefore structures and events cannot be considered in isolation, cannot be tested for their contradictoriness or noncontradictoriness. This rules out theories that maintain there are "structural contradictions" in the sense of structures that exist with a relative degree of temporal permanence, contain contradiction, and lend it, so to speak, permanence and lasting effect. Structural contradictions exist only for observers of systems (including the system's self-observation) because only observers can introduce distinctions and with their help ascertain contradiction. For an observer, a contradiction is relevant as an event in the observer's own system. Without such actualization, contradictions within meaning systems would not possess any reality, namely, any significance or certainly any function of sounding an alarm.

Equally excluded is the idea that contradictory events are impossible, that the world (as creation stabilized logically or otherwise) does not allow them. On the contrary, contradictions are really possible only as events because in temporalized systems there are no bases of reality other than the events produced in the system. ²⁸ Formulated somewhat more loosely, since events immediately disappear, pass away in their very becoming, it makes no difference if they assume the form of a contradiction. They are

destined for destruction anyway, and precisely this constitutes their contribution to the system's self-reproduction.

By excluding both the thesis of purely structural contradiction and the impossibility of contradictory events, one can recognize the meaning and the thrust of the thesis that contradiction articulates self-reference. Contradictions come about only when structures and events cooperate. They presuppose a structural mediation of the self-reference of events. Only by diverting their meaning through something that is structured can events contradict themselves. Neither contradictory opposition nor irony, neither paradox nor the communication of an intention that also communicates doubt about itself, is possible in unstructured relationships. All forms of contradictory communication occur through a meaning that is selected for them, and this selection orients itself to the social system's structural selections.

One can clearly see how contradictions fulfill their function of warning and alarming. *For an instant they destroy the system's total pretension to being ordered, reduced complexity.* For an instant, then, indeterminate complexity is restored, and everything is possible. ²⁹ *But at the same time contradictions possess enough form to guarantee the connectivity of communicative processing via meaning.* The system's reproduction is merely directed into different paths. ³⁰ Forms of meaning appear to be inconsistent, and this causes alarm. But the system's *autopoiesis* is *not interrupted*. It goes on. The honor of being the first to have formulated this goes to Hegel's conception of "dialectic."

Contradictions signal--and this is their function--that contact can be broken off. The social system can stop. Then action would not follow upon action. But the signal itself is phrased in the subjunctive mood and thus is unreal for the societal system as a whole. The signal merely warns, merely flares up, is merely an event--and suggests action in response.

V

In order to clarify the highly abstract and unaccustomed concept of mechanisms of social immunization, we would like to insert here a section tailored to the social system of society. Only a section of the total domain of social immunology will be dealt with. We will

argue that the legal system serves as society's immune system. This does not mean that law can be adequately understood on the basis of this function alone. Essentially, law also creates security for expectations concerning behavior that cannot be taken to be self-evident. But this function of generalizing expectations in the face of risky expectations about behavior seems to be bound up with the immune system of society. The security attained by law (which concerns, not situations that can actually be achieved, but one's own expectations) rests on the fact that one communicates one's own expectations even in contradiction, although in a way opposed to normal communication and having different connective values.

One can see the nexus of law and immune system more clearly if one considers that law is formed *in anticipation of possible conflict*. This focus on conflict extracts from the enormous number of everyday expectations that have been formed those that prove successful when conflict arises. This prospect of proving successful is associated with the normativity of expectations and brought under the schematism of legal and illegal, thus into a complete universe in which there are only two values, which mutually exclude each other. This schematism can generalize and anticipate experiences of conflict and thus bring them into a form in which conflicts on the level of interaction are merely exceptions, even when quite improbable expectations are formed. From this perspective, all earlier legal orders were formed to decide possible conflicts in advance. Only in the modern welfare society does law begin to overtake itself, so to speak: new kinds of situations are introduced as conflict decided in advance, situations that no one would have thought of without law, and the resulting expectations are declared to be law. ³¹

The legal system functions wherever one works with the schema legal/illegal. ³² This schema serves to differentiate a specific kind of acquisition of information; it does not serve, at least not primarily, to find out anything about actions, to explain or to predict them. When the legal treatment of problems was professionalized, the legal system enlisted terms like theory, knowledge, and science. But cognitive efforts serve here only to create the preconditions for decision--those who make them take pride in doing precisely this and no more. As a functionally important characteristic, the legal process itself decides which cognitions it needs, and it can even

make decisions without cognition (e. g., can proscribe denying justice)--just like an immune system. The legal system's cognitions are concerned with their own complications.

In industrialized societies, this schematism of legal/illegal is supplemented by a binary coding of permitted/forbidden. This too serves to increase contradiction and to direct immune events in a precise way: an action can contradict permissions or interdictions --permissions when it seeks to prevent a permitted action, and interdictions when it is performed nonetheless. The contradiction reveals a present disturbance that must be removed. This binary coding increases the immune system's technical precision and facilitates its variability. It helps to separate law from morality, setting law free to steer itself: law can now forbid the permitting or forbidding of something, and vice versa. In this way a further domain of morally neutral modes of behavior comes within the scope of the immune system.

Establishing the schematism legal/illegal or permitted/forbidden does not lead to a better understanding of the essence of action (as the theory of natural law maintains). Instead, it uses a mode of information processing that functions precisely when conflicts arise. Law does not serve to avoid conflicts; compared with the repression of conflict in societies which operate close to the level of interaction among people present, it leads to immensely greater opportunities for conflict.³³ It merely seeks to avoid the violent resolution of conflicts and to make suitable forms of communication available for every conflict. As soon as someone appeals to the law, communicative material is sorted. Texts become relevant, other cases are consulted, the opinions of specific authorities become important. One can go back hundreds, even thousands of years--all from the point of view that information can be acquired from the facts of these cases that is relevant to and consistent for the case of conflict at hand. Law serves to continue communication by other means. It is societally adequate not only when it tackles emerging conflicts but especially when it creates conflicts and can provide adequate complexity of its own to handle them.

It is not the function of law to ensure that as much as possible is treated as legal and as little as possible is treated as illegal. That would be easy: one would only have to permit everything. Nor is it a matter (as natural law thought) of enforcing a naturally given

order against the free and corrupt human will. The difference between legal and illegal cannot be used arbitrarily, however. The problem does not lie in the alternative of recognizing a naturally binding minimal order or an unrestrained arbitrariness. The conditions of using the schematism legal/illegal and the environmental references of the legal system are much more complex than these overly simple theoretical presentations would have one suppose. Law must fulfill the function of an immune system, and it is given the freedom to do this. The legal system is therefore autonomous in the use of its schematism of legal and illegal, which is available only to it. But in using this schematism it must also secure the autopoiesis of society's communication system as much as possible against as many disturbances produced by this system as possible. It must forestall society by producing its own insecurities and instabilities, and thus it is not allowed to go "astray," is not permitted to wander outside the problems that can be expected.

VI

The abstract thesis that postulates an immune system says nothing about which problems in a system it addresses, and even focusing on society and law has not provided an answer. We will now return to the general level of the theory of social systems and ask under what circumstances social systems make use of the immunologic of contradiction. In this form, the question is surely much too general.

Formulated abstractly, it refers to all of history and all kinds of social systems. The logical form of contradiction is relatively simple compared with the inestimable multiplicity of occasions that can activate the potential for contradictory communication. Therefore we will limit ourselves to a few perspectives, among which one can assume historical interdependencies.

One can begin with the fact that an increase in communicative possibilities also increases the probability of conflict. Language creates the possibility of negating and concealing: the possibility of lying, deception, and the misleading use of symbols. Means of dissemination like writing and printing switch off the repression of conflict typical in interaction systems. Moreover, the differentiation and specification of symbolically generalized media of communication increases the possibility of demanding acceptance so

greatly that rejection would be probable if the medium itself did not find countermeasures. The resulting probability of the improbable takes shape as the differentiation of media-specific motives and regulations of conflict. The economic institutions of property and money justify rejecting the expectation that something will be given for nothing--and money does this in a particularly sophisticated way because everyone can do everything with it, thus no one can justify a special claim to my money except on a legal basis. The exercise of power is analogous. The politization of power centralizes the decision of conflicts, and it thereby makes conflict with those who decide conflicts hopeless, save by recourse to law. ³⁴ With love, the problem comes to a head because law cannot apply: the code requires that one admits the other entirely and without negation, so that any conflict symbolizes an end to love. With truth it is just the opposite: every communication depends on criticism, thus on rejection and conflict, because here the code bases validity on universal acceptance (or at least is symbolized thus). Otherwise scientists could congregate only to pay homage to what is already known. Every addition to knowledge implies criticism. Thus the problem is made paradoxical, as with love, but in reverse: the rule that truth must be universally accepted forces *all* communication on the operative level into the form of contradiction. And here law as a balancing mechanism is switched off because the problem has been turned into a paradox.

These different forms of providing special motives and regulations of conflict can exist together only if there is adequate system differentiation. Scientific controversies ought not to lead to economic setbacks, and one's standing within the system of property and money ought not to improve one's prospects in political conflict. The examples show that such thresholds do not switch off all interference; in particular, they do not function very reliably on the level of individual cases and conflictual interactive behavior. Yet this need not trigger collective effects on the level of the differentiated systems of society. A lot of interference will weaken the functional capacity of the function systems (in our example, the tempo and scope of scientific progress or the democratization of politics), but it will not be able to trigger a transition to another form of societal differentiation.

In addition to this form of enabling the probability of the

improbable, there seem to be general forms of increasing the immune system's sensitivity that must be activated if societal communication is to become more complex and to preserve this complexity. The use of conflicts in communication leads to expectable, that is, structural, insecurities. A society that constructs greater complexity must therefore find forms for creating and tolerating structural insecurity. It must guarantee its own autopoiesis over and beyond its own structures, and this requires not least a greater inclusion of the temporal dimension in the creation and working out of contradictions. ³⁵

Time multiplies contradictions. But at the same time it mitigates and dissolves them. On the one hand, when one brings broader temporal horizons into consideration, more intentions contradict one another. On the other, a lot can occur in succession that could not occur all at once. Thus time clearly has a contradictory relationship with contradictions: ³⁶ it both increases and decreases them. Therefore by varying temporal horizons one can regulate what appears and disappears as a contradiction. If one looks more closely, one can see that contradictions increase when one considers the future from the perspective of the present: one must save money to build reserves for eventualities or for important goals; this is contradicted by wishes that one would like to satisfy in the present. The *present future* multiplies contradictions. *Future presents*, by contrast, open up the possibility of deferring something and doing it later. One temporal perspective increases pressure; the other relieves it or at least reduces the tension. Even the present future seems to lead to supra-teleological maxims that offer considerable potential for contradiction, such as: *memento mori*, confess every sin, save money, always be industrious, and, more recently, fear catastrophes. The future presents motivated goal-directed planning instead, namely, an arrangement of sequences with the greatest potential for satisfying what one values. In one case, one orients oneself to positive or negative Utopias, in the other, the orientation is more technological. ³⁷

These two possibilities of reflexive temporal modalization are not given as alternatives that can be chosen separately. They mutually imply each other in the unity of time. The purely technological perspective on future presents and on working out contradictions in succession is itself a Utopia. Conversely, every Utopian view of

the future appeals to action, whose effects and side effects refer to future presents. Yet one can separate both perspectives analytically. In this way, one can figure out how these orientations and with them the creation of contradictions as alarm signals correlate with other structural characteristics of social systems.

As is typical for questions that have been developed theoretically, no applicable empirical knowledge is available. Therefore, we will concisely sketch a model to indicate some ways of concretizing what we mean.

One could suppose that when a specific type of differentiation in the social system ages, it creates insecurity with reference to the future, and that operates to multiply contradictions. The order the differentiation achieves comes to be taken for granted, and its defects and dysfunctions to stand out more and more with greater experience.³⁸ This is true of the transitional period between the Middle Ages and the modern era, when the course of time was generally experienced as a decline, and it may be true of our time, which must bear the brunt of functional differentiation's negative consequences. Such situations force the future into the present, so that one cannot help actualizing the *horizon* of the future altogether independently of the concretely foreseeable course of events. In this sense, our future is the destruction of the possibility of life on this planet--regardless of whether this future will in fact ever become the present. It provokes continual contradiction. And this contradiction cannot be technologically allayed by reference to foreseeable future presents because it is constituted in a different temporal modality--not for future presents but for the present future.

The opposite picture must also employ both temporal modalizations, but in a different constellation. It is more likely in eras that have launched a new principle of system differentiation. One can already see results and extend them conceptually into the future, as in Europe about 1660. Contradictions then become problems that one can gradually solve. Time then multiplies not contradictions but problems. There are many more difficulties because one decomposes the old necessities of life according to a technique of regarding them as problems, but such a dissolution then exhibits many new possibilities of recombination. The future presents supposed by this justify a positive depiction of the present future.³⁹ Insecurity is comprehended in calculations of risks, becomes worth

the wager, and can be assured. In principle, an "open future" seems to hold out the prospect of continuing successful development, which will become quasi-automatic as soon as the ruins of the previous order (here, corporate structures, particular loyalties, functionless inequalities, and domination) are first removed. This is where Galtung's optimistic concept of the theory of contradiction finds its place: ⁴⁰ what is positive is experienced as still capable of augmentation; what is indifferent is conceived as positive because it does not introduce disorder; and what is negative is accepted as temporarily unavoidable. *Utilitas filia temporis*, one might say. And morality need only prohibit what is sufficiently certain to have harmful effects.

Around the middle of the eighteenth century, it became self-evident that the value of an action is decided by the future, which is to say by the present future, or utility. This came as a liberation from adverse prohibitions, traditional restrictions, that is, from a ballast that could be explained only by history. Actions were believed to be good "by nature." What motivated action--amour propre or interest--was understood as nature and could be morally qualified only by referring to its consequences, be they good or bad. Correspondingly, reward and punishment lost their direct reference to action and thereby their justice; they were justified only in that they changed a person (specific prevention) or persons (general prevention). ⁴¹ From the mouth of Enlightenment thinkers, this sounded quite optimistic. But doesn't it define the nature of humanity and its actions in a contradictory way: as good and bad? And doesn't it amount to the need for a permanent decision of this contradiction in situations where only the future subsequently clarifies what might have been the case?

Materialists, moralists, utilitarians, and Rousseauists in turn called this nature good. They based their optimism on perfectibility. But this solution rests on an obvious theoretical mistake. "Good" is discussed on two different theoretical levels: within the disjunction of good/bad and on the meta-level of nature. Within this semantics one can for a while evade the insight that finally what is at issue is amplifying contradiction and increasing the demands on calculations for decision and answerability for effects.

Future presents count only when they are present, of course. Until then, they serve only to extrapolate a present future. Since

the nineteenth-century one has gradually come to see the effects of functional differentiation on present presents, initially as the effects of the differentiation of the economy, especially in industrialization. One imagined one could deal with this by a dialectic and a further revolution. In the meantime, one had to deal with the consequences of the differentiation of the political system (democratization, the welfare state) and the consequences of the differentiation of the education system (delayed adulthood, new inequalities, demotivation). Added to this were the problems of controlling the technological possibilities that came about as a consequence of the differentiation of the scientific system. ⁴² Is it again true that *Veritas filia temporis*?

In any event, there is sufficient structural incentive to revert to resolving problems back into contradictions and taking this as a cause for alarm. The future--now with a semantics of catastrophe instead of a semantics of decline--serves to mobilize and to communicate contradictions against the present. If contradictions more or less necessarily change relationships, could catastrophic reactions to the danger of catastrophes have been foreseen, and might this premise stem from the arsenal of a dialectics that was proclaimed as law? In truth, the relations between contradiction and structural change are much more complicated and must be clarified by further research. ⁴³

To render the future present or to make successive occurrences simultaneously relevant, one must effect a translation. What is temporal must be translated into what is factual. One can find an important guiding image for this in the *calculation of costs*. The concept of costs designates a specific form of contradiction--something that one does not want but intentionally brings about nonetheless. In this, costs have a warning function that approaches an immune system. They are also like an immune system in that they cannot function ad hoc, but presuppose systematization. In other words, they depend on externalization to discriminate costs that should be considered internally.

The calculation of costs reveals--and "undoes"--the negative aspects of actions because once the costs have been calculated, one acts only if the advantages appear to outweigh the disadvantages. The more costs that can be included, and the more the calculation can be extended--for example, to temporal and psychic costs, or

even (as in Pascal's famous calculation) to endangering the salvation of one's soul ⁴⁴ --the more sensitive to contradiction the action becomes. Then one only needs maxims for decision, such as that the costs must at least be covered or that among comparable actions one should choose the most cost-effective--and already many actions that could be chosen are excluded from the domain of possibilities. They are presented as mere possibilities, produced as antibodies, so to speak, to ward off risks, to tie up whatever is negative.

In this regard, certain historical tendencies stand out, indicating that since the early modern period, and especially since the eighteenth century, endeavors to secure a social immunology have intensified. From time to time, it has almost seemed as though the integration of society could be adequately secured through the calculation of costs: if only all people would take into account, as costs, the burdens their actions impose on themselves and others, then only socially compatible action would take place. ⁴⁵ (Today one calls this "liberalism.") But according to the theory presented here, this overestimates the function of society's immune system.

Like the temporal and fact dimensions, the social dimension can multiply contradictions and thus help to constitute the social immune system. This occurs with the help of a semantics of *competition*. And it is no accident that--as with utility, risk, and probability --here we touch upon a theme whose career runs parallel to the development of modern society.

One can speak of competition when one system's goals can be attained only at the expense of another system's goals. Competitive situations can arise between psychic and/or social systems. They always become visible when a system can tell from its goals that to realize them would rob another system of its chances or at least reduce its hope of attaining its goals. The concept articulates the social dimension of the meaning of goals. It does not presuppose that the competing systems interact or participate in a common social system except through society in general. This can be the case--for example, with students in a classroom--but it is not a necessary conceptual feature. The concept requires a theory that can distinguish between the social dimension and social systems. ⁴⁶ Competition is not a special type of social system; it is a special type of social experience (in the extreme case, that of a single system!).

Not everything that refers to the social dimension and calls

attention to the different actions and experiences of others automatically enters into competition. Different possibilities appear only under the mutually perceived condition of a need for unity. Competitive situations emerge most clearly under conditions of scarcity, thus in the economy. Here unity is, if one may say so, available in a decentralized form: every commodity can be obtained only at the expense of another. In the political system the premise that the exercise of power is unitary over a specific domain was pushed forward by the development of the modern state, and the allowance of competition for this power in a more than actual, namely, an institutional, sense is an artificial product of political constitutions. Competition in the "intellectual" domain is especially precarious--the theme of Karl Mannheim's famous address.⁴⁷ Mannheim relates competition to "the public interpretation of being" without giving reasons why being allows only one public interpretation.⁴⁸ As one can see today, this too is a historical question.⁴⁹ "Pluralism," in the meantime, has been legitimated, together with such related phenomena as the comparison and discussion of theories, and the intellectual climate has correspondingly become less competitive. Everyone works on his theory and finds recognition, if at all, without having to experience the different views of others as a contradiction or even as a challenge.

The semantics of competition is convincing only if there are occasions to confirm it. For social structures, this requires an adequate differentiation of competitive situations, which can be attained only if competition can be adequately differentiated from exchange and cooperation.⁵⁰ The persons with whom one competes should not be identical with the persons with whom one cooperates, nor with the persons with whom one exchanges. The corresponding social models must be held apart and actualized separately.⁵¹ The societal domains that thereby come into consideration were especially significant for the successful emergence of modern society, above all, for a market-oriented economy and, on its recommendation, as it were, for science and politics. In each of these cases, competition is only an additional orientation, not the sole basis for fulfilling a function. The economy, in particular, increased not only economic competition but also exchange and cooperatively organized production. What does one expect from the fact that *competition also* plays a role?

The traditional endorsement of competition typically referred to the attitudes or motives of individual action. Competition removes security and stimulates initiative, motivation to perform, and sensitivity to opportunities. It was viewed as a means of stimulation, as the compulsion to overcome inertia insofar as one believes that it all depends on the individual. But disappointment in this principle has long since been formulated: competition obstructs communication and cooperation (i. e., the preconditions of adequate differentiation cannot be produced), and it curtails progress and adaptation. The result is trench warfare without any movement. ⁵²

To transfer this discussion to the concept of a social immunology presented here, one must first revise the assumption that competition or noncompetition is a structural principle of societally pre-eminent significance, perhaps the principle that distinguishes capitalist from socialist economies. ⁵³ This does not concern a system-forming structure because competition does not require communication between the competitors. It can generate systems only if it becomes conflict. Competition simply reinforces the perception of contradiction in every position shaped by it in that a person experiences the interpretations and intentions of others as provoking his own and assumes that others do the same. This presupposes a semantics of unity as a vehicle for joining together what is different into competition. The semantics of unity comes into view only if the function of amplifying contradiction requires it. The true unity is that of the system's autopoietic reproduction and its immunization against the probability of cessation. Competition does not have to occur; even autopoiesis does not have to occur. But an immune system can at least develop forms in which the system's *unity* continues as *self-reproduction*, even if the future and competitors, utility and consensus *remain communicatively unattainable*.

Ordering concepts that were important in the eighteenth and nineteenth centuries--utility, costs, and competition--are today often vilified in hindsight as the expression of an exaggerated, individualistic liberalism. They can be relativized as overestimating the economic aspects of societal life. Yet they served to expand society's immune system and to extend it from law to the economy (or to social relations that can be analogously constructed). This

development shows that an increase in the societal system's complexity also has consequences for society's immune system: sensitivity to perturbation must correspondingly increase. If these forms of building sensitivity to perturbation into individual action are criticized today, then one must ask the critics how they will provide adequate immunization. One can only suppose that a boundless, even if unadmitted, trust in bureaucracy lies behind. But bureaucracy is well known to be a system with very little sensitivity to perturbation.

VII

As we have said, contradictions are syntheses constituted within the system, combining semantic features under the perspective of incompatibility. The synthesis of contradictions cannot, of course, occur randomly, but it is also not rigidly determined by an ontology. It is connected with other constitutive performances in the system. Space is constituted, for example, by the assumption that two things cannot occupy the same place at the same time. ⁵⁴ Once it is set in motion, logic, too, conditions the constitution of contradictions and reveals that they are not arbitrary. But space and logic synthesize contradictions only to avoid them. They are special mechanisms for negating contradictions. Social systems, however, need contradictions for their immune systems, for the continuation of their self-reproduction under difficult circumstances. Therefore the question is: *Does logic* (including the logic of space) *produce enough contradictions*? Or, formulated differently, can social systems get by with logical contradictions when what is important is for them to be alarmed?

This problem, too, is solved by forming structure. It takes shape as a contradiction between expectations. They can be logically contradictory if they concern properties or modes of behavior that are not possible with regard to the same object at the same time. The number of contradictions that can be at once made visible and solved just by looking at them can be multiplied if one includes the temporal dimension. ⁵⁵ We have said that time both increases and decreases contradictions. This is useful. One refers back to the present incompatibilities that emerge over the course of time. For instance, even if one cannot be in London and in Paris at

the same time, one can do so in succession. But if I go to London first, this establishes a period of time that I cannot be in Paris. Therefore the plan to go to London and to Paris becomes a contradiction in the present that can be solved only by enlisting more time. But if time is scarce, then its potential for solving contradictions is diminished and its potential for increasing contradictions is enhanced. If I go to Paris only after I go to London, then I must face the problem that I am in Paris when I should already have returned. Thus I must abandon one or the other travel plan and decide instead of solving the contradiction.

Ever since the eighteenth century such problems of space/time contradiction have been increased as well as lessened: increased by enhanced expectations about travel and diminished by acceleration --in the eighteenth century by the improvement of roads and carriages, in the nineteenth century by the railroad, in the twentieth century by flight, and in the twenty-first century presumably by replacing travel with telecommunication. But the scarcity of time has many other consequences. Above all, labor time and free time become scarce when a fixed boundary--a requirement of organization! --is drawn between them. Differentiation substitutes two limited and therefore scarce quantities of time for the endless temporal horizon bounded only by an uncertain (and always possible) death. Labor time is scarce even if it is endlessly extended by drudgery, boredom, or looking at the clock every few minutes. Free time is scarce if one does not know what to do with it. The scarcity rests on the zero-sum game brought about by differentiation. It is dictated to the individual by system differentiation and thus enhances sensitivity to contradictions in daily life.

Since scarcity is not based on temporal pressure but on drawing temporal boundaries, it is compatible with very different distributions of responsibility. It is experienced by management differently than by labor, by teachers differently than by students. Contradictions along the lines of the master/slave schema result, even if one carefully avoids any impression of "domination," namely, there is a hectic bustle above coupled with boredom below and accompanied by a correspondingly contradictory doubling of contingency. Since artificial temporal boundaries, measurements of time, deadlines, and clocks belong to the givens of daily life, they are no longer perceived as arbitrary. The contradictions are, in a somewhat old-fashioned

way, attributed to persons or groups of persons who behave differently than one expected, given one's own situation of lacking time.

In addition to the increase in contradiction that results from drawing temporal boundaries, time works to increase contradictions by making it possible to refer the future back to the present and experience it as a contradiction, even though it is not yet actual. This occurs mainly in causal analysis. Through causalities one can already see how specific actions or their omission open or preclude future possibilities. In this way the domination of the actual situation over the present is reduced. One must forgo things, defer satisfaction, save money, acquire qualifications, although the present offers much more attractive possibilities. But if one remembers how the eighteenth century--from Richardson to Rousseau-- inflated sensibility, with all its ensuing entanglements and burdens for the individual, then one has an example of how the social dimension, too, can be used to increase contradictory demands-- *ménages à trois* and the like.

Curiously enough, the temporal increase of contradictions has always been regarded as rational. In the classical tradition, *prudentia*, in precisely this sense of reference to time, was a sufficient characteristic of rational substance, distinguishing human beings from animals. Ever since the second half of the seventeenth century, such views have been reinforced, above all by adding the calculation of probability and risk, which broadened the domain of causalities believed to be valid with adequate security, as well as by universalizing legitimation by useful effects--a view previously reserved for the lower strata of society. The future became the horizon of conflicting consequences of action. Even side-effects, which occur outside of intended effects, should be included, if possible, into the calculation; because moral responsibility is claimed even for them. Responsibility is no longer to be accepted only for "directing intentions"; it must include the entire future in the perspective of an "ethics of responsibility." ⁵⁶

One can at least call the increase of contradictions functional, if not rational, when one considers their function as an alarm in society's immune system. But this immediately leads to the question (and only after it has been answered can we speak of rationality): What happens after the alarm has sounded? Alarm need

not mean *à l'arme*, but then what does it mean? Rational decision-making techniques are known to peter out very quickly when they come up against contradictions in value. Even substitutes for the logical elimination of contradictions--hermeneutic clarification of meanings or the discourse of justification--do not help much if they are available to anyone who espouses one position in opposition to another, for example, for or against atomic energy. If one is forced to accept a need for so many contradictions because this is the only way in which our society (meaning the totality of social systems) can warn itself about its own effects, then sociological analysis should be called upon to clarify what one can do with these contradictions, or how and under what conditions they probably are processed. This leads us to the problems of conflict theory.

VIII

For the sociology of the first decades of this century, the omnipresence of conflict in society was self-evident. There is no lack of evidence for this. ⁵⁷ The Social Darwinism of that period conferred plausibility on such indications without activating much conceptual work or research. ⁵⁸ Davis and Barnes's textbook, dedicated to the pioneers of American sociology, offers only a psychological explanation for what was called "the universality of conflict." ⁵⁹ Ever since, the neglect of this theme has been deplored, and this can only mean that theoretical and empirical efforts have not advanced. Today, there is considerable evidence that conflict theory itself has come into conflict with other theoretical efforts and has thereby obstructed its own development. We would like to propose a new beginning--not as an alternative to, but on the basis of, systems theory. ⁶⁰

We will therefore speak of conflict when a communication is contradicted, or when a contradiction is communicated. A conflict is the operative autonomization of a contradiction through communication. Thus a conflict exists when expectations are communicated and the nonacceptance of the communication is communicated in return. The expectation does not need to refer to the behavior of the person who does the rejecting; it can also concern third parties or describe a state of affairs in which the person to whom it is told does not believe--*insofar as he says it*.

The concept of conflict is thereby related to a precise and empirically comprehensible communicative occurrence: to a communicated "no" that answers the previous communication. "Will you lend me your car?"--"No." "The capitalists exploit us,"--"I do not believe in capitalists." "The Odeon is showing a good film,"-- "hmmm--I don't know ...". This includes every kind of expectational expression insofar as one can tell merely by the reaction that the communication has been understood, and any lessening of the rejection falls into the domain of our concept insofar as one can recognize that it concerns rejection. Thus conflict requires *two* communications that contradict each other; the unity of the meaning form of contradiction synthesizes two communications that are themselves social syntheses of their own three selections,⁶¹ and for a while the conflict takes over autopoiesis, the continuation of communication.

In principle, reducing conflicts to a failure of communication misses the target (as if communication were something "good" that could break down). Communication is the autopoietic process of social systems, which continues over and beyond cooperative or antagonistic episodes, so long as it carries on. Conflicts serve to continue communication by using one of the possibilities that communication holds open, by saying no. The concept of conflict is thereby clearly distinguished from a merely supposed, merely observed opposition. A general contradictory situation, an opposition of interests, or reciprocal damage (one auto rams into another) is not yet a conflict.⁶² Despite this, our concept is built into the basic concepts of sociological theory: it concerns a special (ever-possible) realization of *double contingency*, *communication*, and finally a *social system of a special kind*.

Conflicts are social systems, indeed, social systems formed out of occasions that are given in other systems but that do not assume the status of subsystems and instead exist parasitically. The occasion that triggers them and the catalyst of their own order is a negative version of double contingency: I will not do what you want if you do not do what I want. The double negative has two sides: on the one hand, as negation it leaves what positively happens completely open; on the other, it acquires self-reference and thus a curious precision through the doubling of possibilities: ego sees (at first in limited instances and then in general) that what hurts

alter benefits ego because ego assumes that alter sees that what hurts ego benefits alter. The same holds for alter. On *both* sides there is *double* contingency. ⁶³ This interpretive model engages expectations in reference to an alter ego: ego assumes that alter (as alter ego) already employs the conflict model (with whatever care, concealment, or limitation) and draws consequences for himself from this. Alter observes this and draws the opposite consequences. Therefore a conflict can arise almost without any objective. Even a vague expectation of an expectation's acceptance to be answered with the vaguest no will suffice. Such an occurrence suggests, and the more clearly it is formulated the more forceful this becomes, that one should react to the no by accepting it as a no, whether by attempts to remotivate or, finally, by sheer sanction, following the schema of whatever hurts you helps me.

Thus conflicts are social systems that work precisely according to the model of double contingency, and they are highly integrated social systems because there is a tendency to bring all action into the context of an opposition within the perspective of opposition. ⁶⁴ Once one enters into a conflict, there are almost no constraints on the system's undertow toward integration--except those of the environment, civilized behavior, or law, to which we will return. Contrary to what is often assumed (but more often assumed than justified), opposition is often an integrative factor of the first order and is problematic precisely because of this. It draws together actions, however heterogeneous their content may be, by regarding them from the perspective of double contingency and includes them in the system: *everyone* can actualize *all* possibilities that disadvantage others, and the more this happens the more plausible it becomes. The system attains too great an interdependence: one word leads to another; every activity must and can be answered by another one. The destructive power of conflict does not lie in itself, still less in the damage to reputation, potential for action, affluence, or life that it inflicts on participants; it lies in a relationship with the system in which the conflict found an occasion and outlet--perhaps in a relationship with a neighbor, in a marriage or family, in a political party, at work, in international relations, and so forth. To this extent the metaphor of the parasitical existence of conflict is accurate; but the parasitism is typically not designed for symbiosis but tends to draw the host system into conflict to the extent that all attention and all resources are claimed for the conflict.

Yet conflicts attain what one often fails to attain by appeals to loyalty, significantly binding interpenetration ⁶⁵ and structure. This holds not only for solidarity within conflicting parties but also, and especially, for opposition itself. Anyone who loses an enemy feels a curious vacuum, a loss of long-accustomed motives to action. Such a person lacks opportunities to combine various occasions into a history, because conflict has failed as a line of identification relatively free of time. ⁶⁶ In the domain of social systems, there are few other possibilities for pushing so far the unity of generalization and obligation to act while still giving internal motives such a strong share in it.

Only when systems theory gave up defining systems through a high or even complete interdependence ⁶⁷ could one conceptually analyze in an objective way which problems are connected with excessive interdependency. Conflict is the paradigmatic example for such an analysis. Highly interdependent systems are inevitably inconsiderate of their environment because the way in which they use material and information is fixed in advance, and they must transfer a high degree of internal elasticity to their elements (events, actions) if they want to guarantee structurally that more or less everything connects with everything and that every event can affect all the others. For conflicts this means: structurally, a strict reduction to two-party opposition (or, for more than two participants, tendencies to the reduction to two parties for forming coalitions) and, on the level of action, openness to almost any possibility of disadvantage, coercion, and harm, insofar as this fits the pattern of conflict and does not too greatly contradict its own interests.

Both of these characterizations--a strict structural reduction to a two-party opposition and a high degree of openness to recruiting elements for the system's self-reproduction--will serve us, in the following section, to discuss points of departure for conflict regulation. But first we must complete our characterization of conflict as a special kind of social system. One of the most important aspects of conflicts is their high degree of randomness, the almost baseless quality of their beginnings, and correspondingly their extreme frequency. Conflicts form daily. They emerge everywhere and are trivialities quickly resolved. A "conflict theory" triggering structural causes within the concept of conflict or allowing "class conflicts" or "conflicts of domination" as the only conflicts in the true sense loses sight of this phenomenon of the frequency and meaninglessness

of these occurrences (including situations in the theory that in no way lead to actual disputes). Instead, we would like to emphasize the possibility of asking under what conditions some of the many conflicts do not immediately pass away, are not absorbed on the level of short-term interactions, but achieve far-reaching consequences, long duration, and large-scale societal effects, and under what conditions, in particular, do conflicts stimulate or recruit, create and aggregate further conflicts into a common front? Conflicts too are subject--although we do not call this "conflict solving"--to a natural tendency to entropy, to attrition, to dissolution in view of other interests or demands. One becomes bored, stops struggling, and departs. Time goes by, and one moves on to other themes. The past conflict is then encapsulated, becomes a hardened nodule that one can no longer touch but that does not really hinder circulation in other ways. If this or the complete avoidance of further contacts is the normal course that conflicts take, what then predestines them, on occasion, to a greater societal career?

Anticipating the following chapter, we would answer this question by referring to the difference between interaction and society: interaction understood as a social system that emerges among those who are present to one another and society as the totality of all social communications that can be expected. If in interactional conflicts (which, it should be noted, are always also societal conflicts) signs of a societal relevance transcending the interaction appear, the probability that the conflict will spread, deepen, and perpetuate itself is greater. Thus one may detect a reference to politics among the themes of the conflict and with it an indication of possible support from outsiders. Morality, above all law, also works to promote conflict by clearly indicating that one's position lies on the side of right and by subjecting the opposing side to public rejection or even legal sanction. Scientific proof also encourages and supports conflict. Physicians can risk conflict (and their lobbies are among the most powerful in politics) because they know how sickness can be healed and can tell their opponents it will be their own funeral. If no one can compel the sharing of wealth, then capital helps to increase societal conflicts.

One of the great achievements of so-called capitalist society is to equip those who possess capital with the capacity to reject, and thus with the capacity

for conflict with a politics that is still technically sovereign and has autonomous control over political means.

None of this means that interaction is responsible for small conflicts, society for large ones. Such a micro/macro division would fail to recognize that interaction systems are reproduced in society and only there. The structural selection of significant conflicts is caused by the *difference* between interaction systems and society--a difference that shows that societal conflict in interaction not only is significant for the interaction system but also possesses a connective capacity for social relationships outside the boundaries of present interaction. Thus the boundary separating interaction systems from the rest of society mediates the symptoms that permit one to tell whether an internal conflict possesses an external capacity for making connections or not, and above all whether morality and law serve to operationalize such a symptomatic.

Wherever law and morality are unable to do this, special organizations emerge, which see their task as selecting out and revaluing individual conflicts as societally significant. Labor unions often more or less fulfill this function. The semantics of "discrimination" has also assumed this function of revaluing conflicts: a homosexual is fired; someone who opposes the constitution is not admitted into public service; a wife leaves her marriage; a black cannot find work--there are organizations and terminologies ready to give the conflict a general significance. Such cases, moreover, show that the law no longer suffices for sensitization to unusual behavior and even exposes those who act or argue according to the law to counter-pressures. These are indicators of changes in society's immune system.

Contradictions and alarming events are reconditioned, sensitivities shifted, the readiness to say no increased or diminished, and one could not go wrong in supposing that such changes indicate a structural change in society itself.

IX

From the perspective of systems theory, we ask, not for a "solution" or even a "good ending" to conflict, but rather to what degree conflict can be *conditioned*. Even those who have theorized conflict adhere to the dream of a conflict-free society, although they assert the contrary. In part, they assume that conflicts mobilize the forces

that can resolve them; in part, they seek ways to regulate conflict in the least damaging, most "peaceful" way. These are more or less political programs: reducing violence and increasing consensus in maintaining order. As political programs they have their own right (including the right to scientific support). Within the framework of a theory that does not recommend itself as a nice, cooperative one but that is interested in the normalization of the improbable,⁶⁸ we must pose a different, more encompassing question, whose goal is not the "solution of conflict" but rather a by-product of the reproduction of conflict, indeed, a by-product one might judge quite skeptically.

As a point of departure we can use the following premises from systems theory:

1. Many immunizing events in the form of communicated refusals are at one's disposal. But as individual events they have no far-reaching significance; to form an immune system, they must be systematized, that is, combined and reciprocally amplified. This occurs by conditioning their use.
2. All system complexity is constructed by conditioning, that is, by establishing conditions under which connections between elements are produced or not (or, for scientific analysis, can be observed, can be expected with good reason, or are "valid").⁶⁹
3. Conflicts are operationalized contradictions that have become communication. They enable the conditioning of immunizing events. They draw attention to problems and thus allow adequate sensitivity to the future as early as possible, while temporally extending the synthesis of contradictions.
4. As social systems, conflicts are autopoietic, self-reproducing unities. Once they are established, one can expect them to continue rather than to end. Their end cannot ensue from autopoiesis, but only from the system's environment--as when one party in the conflict kills the other, who then cannot continue the social system of conflict.⁷⁰

Taken together and coordinated, these four premises enable one to pose a further problem. This asks how conditioning within conflict systems and the function of contradictions in providing mobile alarm signals and directing attention to problems are connected. In practical terms, is the conditioning of conflicts used as a means of maintaining an immune system, and how does this occur?

To start with, beginning a conflict--that is, having the gumption

to reject meaningful demands--is connected in a highly probable, although not strictly obligatory, way with the chances of reproducing the conflict. One will not say "no" if there are no prospects for holding to it. If this is so, then the conditions for reproducing a conflict, for consolidating it as a system, are the real key to the problem. A society must offer many as yet unused opportunities for conflict if it wants to reproduce its immune system, and because the system must be capable of motivating itself in a mobile and ad hoc way, this occurs not by prescribing beginning a conflict but by conditioning the reproductive prospects of conflicts that are always beginning, for whatever reason. ⁷¹ Therefore the systematization of immune events cannot be explained on the level of individual interactive conflict systems. It is possible only as the *societal aggregation of many conflicts*. ⁷²

If one imagines conflict as a system, two different forms of conditioning, which simultaneously increase the system's internal complexity and make behavior difficult, present themselves. The first is the prohibition of specific means; the second amounts to increasing insecurity within the system.

Restricting the means, for example, prohibiting the use of physical force, is essentially motivated by the intention of guarding against damage. However, it also has the function of complicating, refining, and perpetuating conflict systems. When physical force is allowed, conflicts are either not risked at all or, when they break out, are decided relatively quickly and simply. The same thing, although in a weaker form, holds for extortion. Only by repressing such possibilities (i. e., centering them in the political system) can there be adequate freedom for conflictual behavior. Of course, countless considerations still work to select who risks a conflict with whom and why, and of course this selection works in harmony with hierarchical and organizational structures. ⁷³ Today this is often judged negatively, and not without reason. Hierarchy takes the place of physical force in channeling chances of conflict, and the initiation of conflict is correspondingly discouraged. Only superiors make rejections; only they are free to say no because *no conflict follows* when they do. ⁷⁴ The theme of conflict and with it society's immune system, are nevertheless much more broadly based than would be possible by direct access to physical force.

Increasing insecurity occurs by including third parties in the conflict

system--third parties who at first are impartial, that is, have not allied themselves beforehand with one of the parties or taken one "side" but who in the further course of the conflict take positions and can favor one or the other side. At first, this disintegrates the conflict system. ⁷⁵ The social regression that lay in reduction to a two-party relation is withdrawn, and the possibility of winning the third party over to one's own side is added. The instability of the initial situation, of pure contradiction, is partially reproduced, but in a different way. The simple inverse relationship of utility and harm is modified by the question: Under what conditions could one win over the third party? One expects nothing but disadvantage from one's opponent, that is certain, but the third party can contribute to the conflict system and gain influence by leaving unclear for a while what conditions will determine the decision. Reintroducing insecurity concerning expectations into the conflict provides the system with special possibilities for forming structure, new contingencies, and new chances to make selections. And, once there are spectators, one takes a softer line and maneuvers so as not to drive the third party into the arms of one's opponent. Finally, one can use the third party's behavior, especially if it has moral or legal value, as an occasion to relent or to withdraw from the system without seeming weak. Given all this, the participation of third parties has become an important form of regulating conflict.

We cannot pursue these reflections further in detail. In sum, regulating means and increasing insecurity are two different, complementary possibilities for placing additional conditions on conflict systems. Initiating conflicts, saying no in the process of communication, rejecting demands, and proposing innovations that will probably be rejected are thereby made easier. At least the very high threshold of conflict that would hold if things immediately came to overt conflict is lowered. This is to the advantage of society's immune system. More contradictions can be communicated in correspondence with the increasing complexity of the societal system. When they will appear remains structurally open, yet how they will be handled will be apparent in and determined by the situation.

Here too one can apply the general formula that more complex systems must develop their structures toward a greater capacity for being constrained. This also holds for the mechanism that we have

called the immune system: for forms of meaning that enable autopoietic reproduction despite the absence of agreement. Here the extreme mobility of "no"--which is logically as potent as "yes"-- is exploited and domesticated at once. Rejection is always logically, and to a great extent factually, possible. But this need not mean that one does not know what one is doing when one refuses or that one cannot anticipate the consequences.

X

Rejection is normally a trivial event; conflict, a minuscule system that emerges and passes away on the level of interaction without significant societal consequences. ⁷⁶ Even biographically portentous events--one declares one's love but is rejected, one applies over and over again for a particular job but is never hired--seep into social systems almost without a trace. This obviously creates an enormous overflow, an enormous redundancy for the immune system, so that there is no lack of possibilities for formulating truly important contradictions and connecting consequential conflicts onto them. But how are these chosen, what is important?

In attempting to answer this question, one must distinguish a traditional and a modern procedure. One could also speak of relatively stable and relatively unstable domains of conflict. The principal means of selecting promising no's and conflicts worth the risk has perhaps always been the law--or, more accurately, the enforcement of economical and political positions, of property and power, by law. Whoever owns property or power can afford conflict, can reject demands and press others into hopeless positions within a conflict. This capacity for conflict extends the power of their immediate position. They also enjoy a surplus value of property and power provided by the cooperation of credit and the effect of intimidation. One likes being around them. They can choose and thus attain more than the possession of economic goods or the control of negative sanctions immediately make possible. That was how the model of all domination, the domination of the household, could be exercised. Far into language this effect of controlling conflicts guides communication, and far into morality, for if one must constantly show someone respect, one ends up believing it oneself. The master has "quality."

Essentially, stratified societies can be understood via this mechanism,

which does not clearly differentiate between the economy, politics, law, language, and morality. Here the immune system protects not concrete structures but perhaps the concentration of the potential for change at the top. The collapse of the master of the household in the transition from the Middle Ages to the modern period removed the decisive prop for this order and forced a transformation in political and economic systems.⁷⁷ Ever since, the individual has been protected *as an individual* in its capacity for conflict.⁷⁸ This does not guarantee that individual dispositions toward conflict are by "nature" capable of being regulated by the structure of the societal system. The semantics of law shifted from nature to freedom. Precautions for the immune system were more strictly detached from structure, abstracted, destabilized, and in their use left to rather short-term and ad hoc stimulation--as though with higher civilization the societal body would have to be prepared for more afflictions.

A second form of selecting significant conflicts is more difficult to discern because it operates more independently of official structures. If one looks back very far, one can find certain predecessors for it in religious movements of Hellenism and the late Middle Ages, but only since the second half of the eighteenth century can one find it acknowledged as a normal phenomenon in the self-observation of the societal system. Sociology's standard collective term for this is "social movement." But the concept of movement does not reveal much theoretically.⁷⁹ Therefore one must work out an understanding of it via different concepts.

On the level of general systems theory (and with concepts that, e. g., would also serve to analyze chemical conditions of life in macromolecules), for very complex systems one can ascertain an interconnection among three variables: (1) the *loosening of internal bindings*,⁸⁰ (2) the *specification of contributions* that are enlisted for interpenetration, and (3) the creation of effects by randomly beginning and then self-amplifying *effect cumulation*. Applied to the societal system, this means that if society becomes more complex it increasingly creates and reacts to effects that are not steered by established structures of expectation but emerge freely and of themselves, as it were. Correspondingly, it is very likely that such production will be classified as deviant and /or innovative because only thus can it establish a relationship with existing structures.

But that does not explain how these phenomena emerge or how they function.

A brief explanation must suffice here. "The loosening of internal bindings" in social systems cannot, of course, mean that human beings become independent of the social conditions of life. The opposite is more likely. But their mode of living is less strictly fixed by internally binding social type-casting. The bindings that one accepts can be chosen more or less autonomously, and that is always kept in mind. The term "binding" is to be taken quite precisely. It means something that gives duration to relatively chance events (formerly birth, today one's own choice) and is retained as a premise of one's behavior.

The individual person at once participates more in social adjustment, is thereby more consciously engaged, and becomes more unreliable, more capable of withdrawal. Ascriptive statuses are replaced by acquired ones, and the qualities that enable performances are replaced by performances that presuppose qualities. This opens up opportunities for a more rigorous specification of individual contributions and thereby the chance for greater complexity in the societal system. In this sense Parsons presented modernity as the recorelation of "pattern variables." This corresponds to how sociology's view of history has officially been written. But natural bindings cannot be superseded exclusively or entirely by chosen and specified necessities. They require a second, globally effective successor. This resides in the accumulation of effects. Unexpected aggregations emerge, which, beyond specified thresholds, trigger their own effects: mood swings, changes in what one calls collective mentality, and possibly social movements capable of recruiting action.

One of the most striking features of these accumulations of effects is their sudden appearance and their equally rapid disappearance under slogans that are persuasive at the time. This fluctuation does not seem to interfere with the value for orientation of ideas that "are in" at any given time. The "temporary society" ⁸¹ obviously needs only temporary securities. But individuals live longer than whatever persuades them at any given moment. They commit themselves to (or against) something--only to find out later that the consensus for it has crumbled away, has become shallow, and no longer stimulates anyone to action. Then they find

themselves identified with something that won't do any more. The very and visibly individual reference of such engagement and its absence of support from the permanent structures of the societal system intensifies the problem and precludes solutions, which could be presented as individual and highly personal, of the problem of one's immersion in the tides of events and their directional changes. One cannot get the better of such a fate through reflection. It is structurally allocated, just like alienation, organizational membership, and disillusionment of every kind. But it is perhaps harder to bear because one cannot fit it into one's own life in the form of resentment.

The creation of effects by the unintentional accumulation of effects is an unsettling phenomenon of modern society that is difficult to grasp and to classify. At first it was interpreted as a cunning of reason, but no one was really convinced of the rationality of cunning. Labeling it as irrational was obviously an embarrassment, a mere reflex reaction to the custom of believing that the main structures of modern society were rational. One fared no better with the concept of mass society. However, one can move ahead if one follows ideas that society uses in daily contexts to observe and describe such phenomena when they have attained a certain prominence and a self-reference of their own. Society's self-observation distinguishes such phenomena with concepts like "movement" or "process" and thereby sets them apart from other occurrences. This description can then be reintroduced within what is described and augment the phenomenon by identification and self-reference: one participates in a revolutionary movement, a nationalist movement, a women's movement, a youth movement, an emancipatory movement, a religious revival--left, right, red, black, green, or whatever--and this is clearly more than, above all, more significant than, the mere accumulation of effects on the basis of a coincidence of key events, identical interpretations, resistance, public incitement, meetings, conventions, and so forth.

"Movement" is a category that of itself invites reflexive use. What then moves the movement? Not its beginning, its arché! It moves-- itself. But this remains at first an empty formula, at best a statement reserved for the movement of thought. ⁸² Only if a theory of movement is rich enough no longer to need initial or concomitant causes can one meaningfully speak of "social movements" and intend by this a self-activating process.

The semantics of "political movements" and "social movements" ⁸³ exemplifies how theory becomes part of the domain that it describes and how it assumes a function within it. This distinguishes social movements of the industrial period from the religious movements of Hellenism and the late Middle Ages (which also presuppose a loosening of bindings, specialization, and the accumulation of effects). Only modern social movements describe themselves using the concept of movement or a theory of the movement. Statements specifying the pre-eminence of practice over theory, of action over thought, of true (revolutionary) deeds were formulated and introduced into movements as theory, thereby acquiring an obligatory content. A theory of the movement makes it possible to distinguish the context of action that describes itself in this way from mere unrest, upheaval, and random violent episodes. Yet the theory is incapable of scientifically comprehending the phenomena precisely when they have become part of daily consciousness. ⁸⁴ Theories oriented to the concept of a movement oscillate between ideas concerning a movement of the whole of society, movements espousing a cause, and a concept concerning occasions and goals that is open to chance. In fact, taken by itself the concept achieves no more than what the movement itself does with it.

Only re-entry of the description into what it describes and the self-observation thereby organized makes possible what Otthein Rammstedt has called the "teleologizing of crisis." ⁸⁵ A movement's capacity to discriminate is accentuated and increased by a goal. The accident of emergence becomes the risk of success. At the same time the goal serves as an alibi, as the basis of the movement's inability to cease, as a symbol of its own autopoiesis. Fixing on a goal tends to radicalize the movement in its course, which never reaches the goal.

Radicalism is not a condition of emergence but of continuation. ⁸⁶ Even if the end state toward which one strives is not empirically defined (and this may be precisely the stimulus), it can still help to identify resistance and opponents in the present, to assemble readiness for conflict, and to provide direction for common action. As a movement the occurrence has lateral support; by being directed to a goal, it can determine what can connect onto this goal and what must be abandoned. Furthermore, self-description as a movement makes it possible to read earlier events as history and to use this to increase meaning, be that as success or as failure. ⁸⁷ All

this together makes possible self-referential systems of a special type that, equipped with greater capacity for contradiction and conflict, can assume functions within society's immune system.

Thus what holds for all autopoietic systems also holds here: observation (operative distinction) is only possible on the level of elements and only so that the observer is provided with a description that at once accomplishes the self-reference of the elements and thereby reveals that they belong to the system and not to the environment. Even self-observation is bound to this precondition. The idea of a "movement" is only a pale formal concept. But it is necessary to extract and consolidate the material of the immune system that emerges in the context of the loosening of bindings, specification, and the accumulation of effects. The prescription takes hold only if this leads to action because only then do observable elements, such as actions, ascribe themselves to the movement. But through a closer identification as a specific social movement it quickly becomes possible for this movement to observe itself, and this increases the movement's selectivity by enabling it to react to itself, to grow, to organize itself, and to accelerate construction and decline. ⁸⁸ Even this circumstance operates selectively on the mass of possible contradictions and conflicts. It supplements the increase of the potential for conflict given by law with procedures that are less structurally dependent and operate more ad hoc, by self-organization.

Both these forms--aggregative selection and an increase in contradiction and conflict--clearly show how the immune system functions. As a mechanism of the societal system, it presupposes the closure of this system's communicative self-reference. Its system reference is the unity of this totality. The empty tautology of the form of contradiction copies society's autopoiesis: whatever is communication is also society, and whatever finds connection as communication also preserves society. But at the same time it never is concretely a matter of preserving society as such. As long as human beings exist, society exists, too. The problem is rather (and this is why the discussion belongs in the general theory of social systems) to reproduce enough social systems, and enough different kinds of them, to correspond to the complexity of a specific developmental stage of society. Normally this occurs according to prescription, that is, on the basis of structures of expectation.

The immune system secures autopoiesis when this normal way is blocked.

The immune system disposes over the use of "no," of communicative rejection. It operates *without communication with the environment*. Because society is a communicatively closed system and cannot communicate with the environment, it finds no one there to answer. If someone did answer, that person would then be included in society. "No's" are and remain communicative events; if they are not possible as such and if they are not in a position to refer to other societal communication via their own basal self-reference, they do not occur.

They react to perturbations--not with reference to the environment but within the circuit of communication itself--and given the danger of not being able to continue communicating, they tend to abandon structures and to rescue communication's self-reproduction. This may, but need not, result in a better adaptation of the societal system to its environment. In the long run, only evolution can tell.

The increasing complexity of society means the increased and more functionally specific use of all possibilities. It is not very damaging if on the level of interaction contacts are broken off, Christmas greetings are not answered, marriages fail, and firms go out of business. But this indifference is bound to an approximate equilibrium of ceasing and beginning anew.⁸⁹ And the devices of structural reproduction are more strictly specified. They thereby become more susceptible to perturbation and more quickly obsolete. Both ways of reacting to greater complexity have their own conditions and problems. By themselves they do not seem to be sufficient. Society's immune system must correspondingly compensate. It does not reside in a merely negative copy of structures or in a "critical" consciousness regarding what is at hand. It resides in its own, peculiar forms of continuing communication--in forms that, for example, vary so much through struggle and victory that normalizations are again possible.

Within the framework of the selective formation of contradiction and conflict, the increase in positions for rejection that are provided by law and the articulation of unrest, criticism, and protest in the form of social movements have acquired complementary significance. They have been played off against each other in standard presentations of social history, namely, as the politico-economic

complex of modern capitalism and as the totality of the social movements stimulated by it. It would be more productive theoretically if one were to distinguish the structure of expectations from society's immune system. One could then see that modern society, in comparison with all historical predecessors, has destabilized its structures and considerably enhanced its potential for saying no. It may then be of less importance whether "no" is articulated from positions of legal strength or in the context of social movements. At present one tries to reconcile both of these in the form of "civil disobedience." In every case one must ask how, starting from here, the necessary "yes" to society can be regained.

-- nts --

Notes

- [Note](#): 1. Individual case studies have repeatedly suggested such formulations. See, e. g.: Francis X. Sutton et al., *The American Business Creed* (Cambridge, Mass., 1956), esp. p. 263ff; Robert K. Merton, "Priorities in Scientific Discovery: A Chapter in the Sociology of Science," *American Sociological Review* 22 (1957): 635-59; Burton R. Clark, *The Open Door College: A Case Study* (New York, 1960). For basic formulations (often unjustly directed *against* structural functionalism) see, e. g., Gideon Sjöberg, "Contradictory Functional Requirements and Social Systems," *Journal of Conflict Resolution* 4 (1960): 198-208; Alvin L. Bertrand, "The Stress/Strain Element of Social Systems: A Micro Theory of Conflict and Change," *Social Forces* 42 (1963): 1-9. Parsons has assumed a special position here. He believed that an *analytical* theory must be able to *resolve functional contradictions completely into structural differentiations* (as he explicitly said in a conversation on April 21, 1961). It is mainly this interpretation that has evoked so much misplaced criticism.
- [Note](#): 2. If this were a contradiction, then sociology could show how the economy tends to conceal its contradictions when it suggests to consumers that they can "save" money by buying bargains. But is this a contradiction? And is it a structural contradiction?
- [Note](#): 3. Gideon Sjöberg and Leonard D. Cain, "Negative Values, Counter-system Models, and the Analysis of Social Systems," in Herman Turk and Richard L. Simpson, eds., *Institutions and Social Exchange: The Sociologies of Talcott Parsons and George C. Homans* (Indianapolis, 1967), pp. 212-29, is worthy of attention, as are: Anthony Wilden, *System and Structure: Essays in Communication and Exchange*, 2d ed. (London, 1980); Jon Elster, *Logic and Society: Contradictions and Possible Worlds* (New York, 1978); Yves Barel, *Le Paradoxe et le système: Essai sur le fantastique social* (Grenoble, 1979).
- [Note](#): 4. The so-called "positivism dispute" led to no agreement about the problem, not even to a survey of the ways of solving it that had already been discussed. Thus, e. g., Gotthard Günther's suggestion that one should work toward a logic with multiple values was not considered. At the time, Helmut Schelsky was the only one in German sociology aware of its significance.
- [Note](#): 5. We presuppose a basal self-reference and that the elements are events. See Chap. 8, section III and Chap. 11, section III.
- [Note](#): 6. In systems theory, this refers to the general concept of conditioning (Chap. 1, section II, item no. 5); in the theory of structure, to the definition of structures or expectations as constraints (Chap. 7, section V). The "guidance" of this process of unfolding by conditioning must, of course, follow the initial meaning. In this sense, it presupposes "relevance," if one could define the concept functionally. Relevance secures the connectivity of conditionings; it is, so to speak, connectivity's phenomenological counterpart.
- [Note](#): 7. See Niklas Luhmann, "Über die Funktion der Negation in sinnkonstituierenden Systemen," in Luhmann, *Soziologische Aufklärung*, vol. 3 (Opladen, 1981), pp. 35-49.
- [Note](#): 8. See Barel, pp. 79f, 74f.
- [Note](#): 9. Research on the sociology of logic can benefit from W. Baldamus, "Zur Soziologie der formalen Logik," in Nico Stehr and Volker Meja, eds., *Wissenssoziologie*, special issue of *Kölner Zeitschrift für Soziologie und Sozialpsychologie* (Opladen, 1981), pp. 464-77. The presupposition is that the need for contradictions varies with societal changes and that classical logic no longer sufficed after the system of modern society became prevalent around 1800.
- [Note](#): 10. The intention of going beyond Hegel and separating "mental" and "social" contradictions is also pursued by Jon Elster, *Logic and Society: Contradictions and Possible Worlds* (New York, 1978). But Elster's investigations get bogged down because they lack an adequate theory of the social, which must be developed first. Even philosophers who work with Hegel are usually not prepared to restrict consciousness rigorously to the domain where it can empirically be found, namely, to psychic systems, and therefore they cannot clearly articulate the difference that is important for us.
- [Note](#): 11. And also whatever logic proposes as conditions of impossibility! --conditions that do not have to be consciously grasped at the same time.
- [Note](#): 12. Even then it is still a historical question whether there exists a logic that tells the master this is a contradiction. After the French Revolution such a logic became possible through a semantic situation that permitted one to stylize service and a recognition of freedom on the servant's side

as incompatible.

[Note](#): 13. See the more detailed discussion in Chap. 4, section II. [Note](#): 14. See again Chap. 4, section II.

[Note](#): 15. See, namely, Leon Festinger, *A Theory of Cognitive Dissonance* (Evanston, Ill., 1957), for more extensive research.

[Note](#): 16. See, e. g.: Pierre Charron, "De la sagesse," II, chap. 9, §16, from Charron, *Toutes les Oeuvres de Pierre Charron* (Paris, 1635; rpt. Geneva, 1970); Claude Buffier, *Traité de la société civile: et du moyen de se rendre heureux, en contribuant au bonheur des personnes avec qui l'on vit* (Paris, 1726), 2:91ff. For a newer treatment, see George A. Theodorson, "The Function of Hostility in Small Groups," *Journal of Social Psychology* 56 (1962): 57-66. [Note](#): 17. See, e. g., Nicolas Faret, *L'Honnête Homme, ou l'art de plaire à la Cour* (Paris, 1630; rpt. Paris, 1925), p. 81ff; Christian Thomasius, *Kurtzer Entwurff der politischen Klugheit* (Frankfurt, 1710; rpt. Frankfurt, 1971), P. 133f.

[Note](#): 18. Charron, §9.

[Note](#): 19. C. G. Bessel, *Schmiede deß Politischen Glücks* (Frankfurt, 1673), p. 55ff; Buffier, p. 188ff.

[Note](#): 20. As literary forms of this theme, see the *Lettres portugaises* of Guilleragues (1669) or Claude Crébillon, fils, *Lettres de la Marquise de M. au Comte de R.* (1732; Paris, 1970).

[Note](#): 21. Thus esp. Gregory Bateson, *Steps to an Ecology of the Mind* (San Francisco, 1972). See also Wilden.

[Note](#): 22. In the relevant literature this is expressed by the distinction between "organization" and "structure." See, e. g., Humberto R. Maturana, "Autopoiesis," in Milan Zeleny, ed., *Autopoiesis: A Theory of Living Organization* (New York, 1981), pp. 21-33 (p. 24).

[Note](#): 23. See Chap. 1, section III.

[Note](#): 24. See, e. g., Edwin L. Cooper, "L'Évolution de l'immunité," *La Recherche* 103 (1979): 824-33 (p. 824).

[Note](#): 25. My remarks in "Konflikt und Recht," in Luhmann, *Ausdifferenzierung des Rechts: Beiträge zur Rechtssoziologie und Rechtstheorie* (Frankfurt, 1981), pp. 92-112, are in need of supplementation.

[Note](#): 26. A similar formulation, but only as an unanalyzed metaphor, is found in Johan Galtung, "Funktionalismus auf neue Art," in Galtung, *Methodologie und Ideologie, Aufsätze zur Methodologie* (Frankfurt, 1978), pp. 177-216 (p. 201).

[Note](#): 27. See the Introduction, above.

[Note](#): 28. It may not be necessary to emphasize again that this presupposes an environment of the system.

[Note](#): 29. Of course, this is why logicians want to exclude contradictions, since they know that the world cannot exist as pure arbitrariness.

[Note](#): 30. This is why it makes sense to distinguish between structural stability and reproduction. Advocates of autopoiesis distinguish between "structure" and (circular) "organization" in a similar way. See above, n. 22. "Organization" is the form of the system's reproductive unity; it is the system *as unity*. Its cessation would mean the system's destruction. The structural forms that make up a specific system type or that channel reproduction into a specific type must be distinguished from this; e. g., an observer can consider them more or less important, in contrast to autopoietic organization itself, and conceptualize them more or less abstractly.

[Note](#): 31. This is where the debate on social engineering, the concern with consequences, the increasing scope of the law, etc., enter in. See also Niklas Luhmann, "Die Einheit des Rechts," *Rechtstheorie* 14 (1983): pp. 129-54.

[Note](#): 32. Perhaps one need not emphasize that the schema legal/illegal does not indicate a system boundary. If it did, all legal action would belong within the legal system and no legal action could occur in the environment, and vice versa for illegal action.

[Note](#): 33. See Niklas Luhmann, "Konflikt und Recht."

[Note](#): 34. From this perspective, a "state founded on law" means that those who hold power may exercise their power only to enforce legally justified decisions, *not to preserve or regenerate power itself*.

[Note](#): 35. This leaves untouched, e. g., the logic of primitive societies--an extensive discussion that would have to be reopened on the premises developed here. That "primitives" can think as logically as we can is generally accepted today--with suspicious unanimity, as if to prohibit a European arrogance that denied colonial peoples the capacity to think properly. But European rit-

uals of self-purification are hardly a suitable point from which to begin to clarify the structures of primitive thought. Before one can return to the hypothesis of a "pre-logical" thinking in primitive societies (in connection with Lucien Lévy-Bruhl, *Le Mentalité primitive* [Paris, 1922]), one would first have to clarify the social function of logic.

- [Note](#): 36. And this independently (?) of the question of whether time itself is a contradiction--a question that has no social relevance as such.
- [Note](#): 37. See Niklas Luhmann, "The Future Cannot Begin," in Luhmann, *The Differentiation of Society*, trans. Stephen Holmes and Charles Larmore (New York, 1982), pp. 271-88.
- [Note](#): 38. Galtung, p. 210f, outlines a corresponding, but much more abstract conceptual model. The figure of the "spiral of silence" introduced by Elisabeth Noelle-Neumann might also fit in here. See: Noelle-Neumann, "Die Schweigespirale: Über die Entstehung der öffentlichen Meinung," in Noelle-Neumann, *Öffentlichkeit als Bedrohung: Beiträge zur empirischen Kommunikationsforschung* (Freiburg, 1977), pp. 169-203; Noelle-Neumann, *Die Schweigespirale: Öffentliche Meinung, unsere soziale Haut* (Munich, 1980).
- [Note](#): 39. One can see in this the career of the semantics of concepts for sequence, such as reproduction, evolution, development, and progress, which begins around the middle of the eighteenth century but whose "collective singular" (a term of Reinhart Koselleck--Trans.) at the same time prevents one from seeing the future in the sequence of future presents.
- [Note](#): 40. Galtung, p. 212f. Galtung incorrectly attributes the phenomenon of "revolution" both factually and historically. It is part of the positive, not the negative, treatment of contradictions. It is not a "disclosure of a society's basic political conflict" (p. 210) that ultimately leads to revolution; instead, one rides along a wave of "the most enticing hopes" (as one German observer of the French Revolution writes) and increasing economic prosperity into situations that provide opportunities to remove the supposed obstacles to progress.
- [Note](#): 41. A brief, randomly chosen example suffices to prove this. In Charles Duclos, *Considérations sur les moeurs de ce siècle* (1751; Lausanne, 1970), p. 198f, one reads: "One could imagine from these writings on morality that one begins by supposing that man is made up of nothing but misery and corruption, and that he is not capable of doing anything praiseworthy. This system is as false as it is dangerous. Men are equally capable of good and evil. They can be corrected because they are capable of being perverted; otherwise, why punish, why reward, why instruct them?" Immediately thereafter, one reads: "Men are, one says, full of self-love and devoted to their interests. Let's begin with this. These dispositions are not evil in themselves; they become good or evil by the effects that they produce."
- [Note](#): 42. For the last-mentioned, least common viewpoints, see: Talcott Parsons and Gerald M. Platt, "Age, Social Structure, and Socialization in Higher Education," *Sociology of Education* 43 (1970): 1-37; Niklas Luhmann, "Gesellschaftsstrukturelle Bedingungen und Folgeprobleme des naturwissenschaftlich-technischen Fortschritts," in Reinhard Löw et al., eds., *Fortschritt ohne Maß? Eine Ortsbestimmung der wissenschaftlich-technischen Zivilisation* (Munich, 1981), pp. 113-31.
- [Note](#): 43. Galtung, "Functionalismus auf neue Art," and Elster, *Logic and Society*, retreat here, Galtung as a result of insight into the large number of contradictions and their complex interconnections, which preclude a linear process of dialectical development, Elster as a result of including the intervening variables consciousness and communication.
- [Note](#): 44. For a modern version, see Hansjörg Lehner, Georg Meran, and Joachim Möller, *De statu corruptions: Entscheidungslogische Einübungen in die Höhere Amoralität* (Konstanz, 1980).
- [Note](#): 45. Even today, some interpretations come close to this. See, e. g., Abraham A. Moles and Elisabeth Rohmer, *Théorie des actes: Vers une écologie des actions* (Tournai, 1977), p. 43ff, esp. p. 57.
- [Note](#): 46. See Chap. 3, section I.
- [Note](#): 47. "Die Bedeutung der Konkurrenz im Gebiete des Geistigen," *Verhandlungen des Sechsten Deutschen Soziologentages vom 17.-19. September 1928* (Tübingen, 1929), pp. 35-83, rpt. in Volker Meja and Nico Stehr, *Der Streit um die Wissenssoziologie* (Frankfurt, 1982), 1: 325-70.
- [Note](#): 48. The sociology of knowledge that subsequently developed did not refer to this; apparently, it also silently revoked science's claim to give a unified, open, public interpretation of being. It formulates competition only in the *claim to originality* (set in operation by first publication), and this claim can be decentralized and diminished at will with the prevailing theme of re-

search. See, e. g.: Robert K. Merton, "Priorities in Scientific Discovery: A Chapter in the Sociology of Science," *American Sociological Review* 22 (1957): 635-59; Randall Collins, "Competition and Social Control in Science," *Sociology of Education* 41 (1968): 123-40; Warren O. Hagstrom, "Competition in Science," *American Sociological Review* 39 (1974): 1 - 18. The danger of holding back communication, was viewed as a problem (dysfunction), but not, by contrast, that of diminishing themes of research.

- [Note](#): 49. Following Mannheim's analysis, one could perhaps add pluralization as a fifth type to consensus, monopolization, atomization, and concentration. But even then one would not have a clear concept of the unity that forces one to interpret others as competitors.
- [Note](#): 50. This appears especially in research on small groups. From among the extensive literature, see, e. g.: Edward Gross, "Social Integration and the Control of Competition," *American Journal of Sociology* 67 (1961): 270-- 77; L. Keith Miller and Robert L. Hamblin, "Interdependence, Differential Rewarding, and Productivity," *American Sociological Review* 28 (1963): 768-78; Nicholas B. Cottrell, "Means-Interdependence, Prior Acquaintance, and Emotional Tension During Cooperation and Subsequent Competition," *Human Relations* 16 (1963): 249-62; James W. Julian and Franklyn A. Perry, "Cooperation Contrasted with Intra-Group and Inter-Group Competition," *Sociometry* 30 (1967): 79-90.
- [Note](#): 51. This brings into question every social theory that attempts to manage with only one of these models--whether cooperation, exchange, or competition.
- [Note](#): 52. For a political example, see: Theodor Lowi, "Toward Functionalism in Political Science: The Case of Innovation in Party Systems," *American Political Science Review* 57 (1963): 570-83; James D. Barber, *The Lawmakers: Recruitment and Adaption to Legislative Life* (New Haven, 1965). The sociology of science views this skeptically today. See, e. g., Daniel Sullivan, "Competition in Bio- Medical Science: Extent, Structure and Consequences," *Sociology of Education* 48 (1975): 223-41.
- [Note](#): 53. Which of these economic systems is most ruled by competition is, empirically, an open question. One need only consider the hoarding of scarce means and the informal system of procurement in socialist economies to see how--when the process of production is necessarily decentralized --scarcity forces "contradictions" into the form of anticipatory competition. On the whole, one gets the impression that the immune system of these economic systems is worked out in a temporally oriented way on the official level, but in a socially oriented way on the unofficial level. On the level of planning, what is important is the future-oriented maximization of utility; on the level of a plant's behavior, it is securing one's own "standing" in relation to other plants. The "political" pressure of what is "official" intensifies this difference and establishes it as incommunicable. See Michael Masuch, "Die sowjetische Entscheidungsweise: Ein Beitrag zur Theorie des realen Sozialismus," *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 33 (1981): 642-67.
- [Note](#): 54. The relationship of social systems to the constitution of space should be clarified more precisely with regard to contradiction. On the one hand, social systems always encounter the real aversion of other systems in the spatial auto-poiesis of their life (just as they encounter the irreversibility of time). On the other, they conceive of space as the avoidance of contradictions organized as spatial positions. The treatment of contradiction can be analyzed in connection with this--e. g., as sharp boundaries that place everything on one side or the other with nothing on both sides at once, or as the distance between endpoints that orders everything as "closer" or "further" in relation to each and thereby establishes the reciprocal exclusivity of units of measurement. (See the distinction between "cuts" and "scales" in C. K. Ogden, *Opposition*, [1932; rpt. Bloomington, Ind., 1967], p. 58ff.) Above all, space seems to be the basic model for the development of logic. One learns about space from logic. Just as it is impossible to build a house where a house already stands, it must also be impossible to conceive of one house with the exact same properties of another. To the degree that logic expands in nonspatial relationships, the degree of freedom and control in fixing contradictions grows.
- [Note](#): 55. See section VI, above, for time as a multiplier of contradictions.
- [Note](#): 56. For tendencies of this kind, viewed from the Weberian and Parsonsonian perspectives, see Wolfgang Schluchter, *Die Entwicklung des okzidentalen Rationalismus: Eine Analyse von Max Webers Gesellschaftsgeschichte* (Tübingen, 1979). Here is where proposals to return to Weber via Parsons make sense. More than Parsons, Weber understood modern rationality's potential for increasing conflict; Weber's committed impressionism lacked only a convincing theory.

Only an adequate theoretical analysis that can awaken doubts about whether and how this technique of rendering contradictions present deserves the title of "rationality."

[Note:](#) 57. Several references can be found in Lewis A. Coser, *Theorie sozialer Konflikte* (Neuwied, 1965; rpt. 1972), p. 13ff.

[Note:](#) 58. "All activity is a clash of atoms or of thoughts, and the scientific man does not need to waste his time in disputing with those who look for the elimination of strife from human affairs," Franklin H. Giddings, *The Principles of Sociology* (New York, 1896), p. 100; unfortunately, this eliminates any efforts at conceptual precision as a "waste of time."

[Note:](#) 59. Jerome Davis and Harry Elmer Barnes, *An Introduction to Sociology* (1927; 2d ed., Boston, 1931), p. 440. [Note:](#) 60. See Niklas Luhmann, "Konflikt und Recht."

[Note:](#) 61. This relies on the concept of communication introduced in Chap. 4.

[Note:](#) 62. Many conceptual determinations are regrettably vague in this respect. Some randomly chosen examples are: "all structurally created oppositions between norms and expectations, institutions and groups" (Ralf Dahrendorf, *Gesellschaft und Freiheit: Zur soziologischen Analyse der Gegenwart* [Munich, 1961], p. 125); "A conflict exists whenever incompatible activities occur" (Morton Deutsch, *Resolution of Conflict: Constructive and Destructive Processes* [New Haven, 1973], p. 10); "the opposition of interests and the resulting conflicts and struggles between individuals and groups, especially between societal strata and classes" (*Lexikon zur Soziologie*, 2d ed. [Opladen, 1978], p. 410). Such definitions are characterized by the effort to consolidate in one concept structural conditions of conflict (and thus "possible" conflicts) as well as conflicts on the level of behavior. We believe that this is misled. Precisely when one wants to investigate the structural triggering of conflicts (the leitmotiv of such conceptual formations), one must undertake to define the concept empirically and independently. Such conceptual formations could become a subject for discussion if they were consciously based on the intention to form a concept without differences, that is, a concept that excluded nothing. Such a sociology would instate the concept of conflict where one finds the concept of meaning in our theory; it would simply say (which we, of course, also say) that every meaning implies possible oppositions in its social references. One could think of a vacation at the beach: she gets a tan, he seeks the shade.

[Note:](#) 63. See Chap. 3, section II.

[Note:](#) 64. The thesis that conflicts are (too) rigorously integrated social systems should not be confused with another, common in classical sociology, namely, that *positive social relations* can emerge as a result of conflict. See, in connection with Simmel, Lewis A. Coser, *Theorie sozialer Konflikte* (Neuwied, 1965; rpt. 1972), esp. p. 142ff.

[Note:](#) 65. We resort to the concept introduced in Chap. 6, section IV.

[Note:](#) 66. For organizational conflicts, see Andrew M. Pettigrew, *The Politics of Organizational Decision-Making* (London, 1973), esp. p. 76ff.

[Note:](#) 67. Thus, e. g., Lawrence J. Henderson, *Pareto's General Sociology* (Cambridge, Mass., 1935), p. 11ff, for physic systems, p. 15ff for social systems. The turn is due, above all, to Ashby's informationo-cybernetic analyses and his more precise consideration of problems of complexity and time. See also: James D. Thompson, *Organizations in Action: Social Sciences Bases of Administrative Theory* (New York, 1967), esp. p. 52ff; Robert B. Glassman, "Persistence and Loose Coupling in Living Systems," *Behavioral Science* 18 (1973): 83-98.

[Note:](#) 68. See Chap. 3, section III.

[Note:](#) 69. The concept of "conditioning" was introduced and clarified in Chap. 1, section II item no. 5.

[Note:](#) 70. Conflicts have been able to protect themselves against this "natural" form of ending: above all, in the form of family feuds, in which the killing of one family member is refunctionalized within the reproduction of the social system of conflict as grounds for continuing the conflict.

[Note:](#) 71. This has been attempted--but not with very convincing results. Perhaps the most impressive example can be found in the domain of the semantics of "honor." In aristocratic societies, an offense against honor counted as an adequate reason for conflict, with duels as the typical form for carrying this out. The *beginnings* of conflict could be regulated in detail by the concept of honor, and offenses against it could also be provoked in this way, whereas one could not, generally, condition the *course* of conflict by ritualization. Thus the beginning conflict deliberately depended on the semantic content of honor, but the course of the system did not. One knows that with the increasing crisis of the aristocracy in the sixteenth century the semantics of honor became inflated (see, e. g., Lawrence Stone, *The Crisis of the Aristocracy 1558-1641* (Oxford,

1965), and that incipient conflicts were exposed to change and provocation without taking on the form of an immune system (as if to protect the civilizing power of behavior). This example proves, on the contrary, what we maintain in the text, namely, that with increasing societal complexity the immune system of conflicts cannot also be developed (as may at first seem likely) through the proliferation and greater detail of beginnings of conflict, but only by a more open conditioning of the reproduction of the conflict, which, in turn, then reacts on the threshold where conflicts begin.

- [Note](#): 72. A corresponding reorientation of immune research for organisms is proposed by N. M. Vaz and F. J. Varela, "Self and Non- sense: An Organism-centered Approach to Immunology," *Medical Hypotheses* 4 (1978): 231-67.
- [Note](#): 73. With considerable regional differences. See Volkmar Gessner, *Recht und Konflikt: Eine soziologische Untersuchung privatrechtlicher Konflikte in Mexico* (Tübingen, 1976).
- [Note](#): 74. For the problems resulting from inadequate elasticity and readiness to innovate, see Albert O. Hirschmann, *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations and States* (Cambridge, Mass., 1970).
- [Note](#): 75. See also Niklas Luhmann, "Konflikt und Recht," p. 107ff.
- [Note](#): 76. For the perspective of the historian, see Peter Laslett, *The World We Have Lost*, 2d ed. (London, 1971), p. 159ff (p. 169): conflicts are a typical form of social interaction, but only in exceptional cases an occasion for social change.
- [Note](#): 77. A very concrete and, from this viewpoint, especially relevant presentation is Mervyn James, *Family, Lineage, and Civil Society: A Study of Society, Politics, and Mentality in the Durham Region 1500-1640* (Oxford, 1974). See esp. p. 174ff for new educational possibilities, new religious options, the disappearance of unquestioning obedience, and possibilities of following other religious and political leaders than those on which one "naturally" depends.
- [Note](#): 78. This is formulated by the semantics of "subjective rights." See Niklas Luhmann, "Subjektive Rechte: Zum Umbau des Rechtsbewußtseins für die moderne Gesellschaft," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 2 (Frankfurt, 1981), pp. 45-104.
- [Note](#): 79. "The term 'social movement' ... is being used to denote a wide variety of collective attempts to bring about a change in certain social institutions or to create an entirely new order," Rudolph Heberle, "Types and Functions of Social Movements," in *International Encyclopedia of the Social Sciences* (New York, 1968), 14: 438-44 (p. 438f). The question of how the characteristics "movement" and "change" (or conflict, contradiction, innovation) come together has not been asked. In modern society, this seems to be handled as something self-evident, which is secured by semantic association. We will return to this theoretical shortcoming below.
- [Note](#): 80. We mean bindings on the level of interpenetrating systems: thus for living cells, chemical bindings; for social systems, psychic bindings.
- [Note](#): 81. In the sense of Warren G. Bennis and Philip E. Slater, *The Temporary Society* (New York, 1968).
- [Note](#): 82. Attempts to avoid this empty formula have determined the tradition of the concept of motion and, in effect, produced precisely what they wished to avoid. The theory of "impetus," in particular, with more than a thousand years of embarrassment in looking for a cause of perpetual motion, is located here. See Michael Wolff, *Geschichte der Impetustheorie: Untersuchungen zum Ursprung der klassischen Mechanik* (Frankfurt, 1978).
- [Note](#): 83. For the history of the term and concept, see: Jürgen Frese, "Bewegung, politische," in *Historisches Wörterbuch der Philosophie*, vol. 1 (Basel, 1971), pp. 880-82; Otthein Rammstedt, *Soziale Bewegung* (Frankfurt, 1978), p. 27ff.
- [Note](#): 84. This is where Karl Popper's well-known critique, *The Poverty of Historicism* (London, 1971), begins. It fails, however, because it takes a comparison with the physical concept of motion as its point of departure and therefore misses the true phenomenon of a theory's entry into the reality that it describes.
- [Note](#): 85. Otthein Rammstedt, *Soziale Bewegung* (Frankfurt, 1978), p. 146ff. Moreover, the concept first appears in the example of a late- medieval movement (which already presupposes the printing press), in Otthein Rammstedt, *Sekte und soziale Bewegung: Soziologische Analyse der Täufer in Münster (1534/35)* (Cologne, 1966), p. 48ff.
- [Note](#): 86. See John A. Vazquez, "A Learning Theory of the American Anti-Vietnam War Movement," *Journal of Peace Research* 13 (1976): 299-314.
- [Note](#): 87. Once a religious or political movement has been constituted and made capable of self-

observation, it can easily make a defeat seem to be the opposite.

[Note:](#) 88. See the idea of a "surplus value" obtained recursive selection in Neil J. Smelser, *Theory of Collective Behavior* (New York, 1963).

[Note:](#) 89. In terms of biography, here one can find structural grounds for the isolation of older human beings. For them, this is more a matter of ceasing than of beginning anew.

-- [405] --

Chapter 10: Society and Interaction

I

This chapter deals with a specific type of difference that permeates all social systems. Formally, this concerns a distinction between two different types of system formation: societal systems and interaction systems. ¹ Thus it involves decomposing the concept of social systems into different possibilities of realizing their features and to the difference between them.

Symbolic interactionism presents the relationship between interaction and society in an entirely different way, and it might be useful to begin by referring to this difference. For representatives of symbolic interactionism, society, as distinct from interaction, exists as individuals (or as individuals in interaction). But the individuals are constituted only in the interaction, and thus are psychically internalized social artifacts. ² This finally displaces what we will treat as distinct forms of constituting social systems back into psychic systems, ascribing such forms to the difference between personal and social identity. Only because individuals know how to handle this difference can society emerge beyond interaction. But this conceptual formation remains socio-psychological and is not suitable for comprehending the highly complex problems of the societal system, which cannot be ascribed to individuals or to their interaction.

Therefore we will continue to exclude the system reference of psychic systems from the analysis of social systems and understand the difference between society and interaction as that between two

kinds of social system. ³ On more concrete levels of theoretical development, one should separate societal theory and interaction theory as applications of the general theory of social systems. This would require an extensive elaboration of each, something we cannot go into here. Yet this distinction is also relevant for the general theory of social systems, not just because there have been attempts to develop this theory from the concept of society or the concept of interaction--attempts that must be discussed critically and rejected. Instead, the distinction between society and interaction contains a difference that is significant *as a difference* in all social relationships: every society has a relationship to interaction that is problematic *for it*, even when it enables action that is societal yet free from interaction, such as reading and writing. And every interaction has a relationship to society that is problematic *for it* because as interaction it cannot attain self-sufficiency in the sense of complete closure in the circuit of communication. Therefore every social system is determined by the non-identity of society and interaction. That societal systems are not interaction systems and cannot be conceived simply as the sum of the interaction systems that occur is one side of this thesis; the other is that, although interaction systems always presuppose society and could not begin or end without it, they are not societal systems.

It is important at the beginning to make clear that the difference between society and interaction does not collapse into the difference between system and environment, either for the societal system or for interaction systems. Society is not something like an environment (not even a social environment) of interaction systems because interaction is already a social occurrence. Nor do interactions belong to the environment of the societal system, even if they use and activate the entire environment--above all the psychic and bodily capacities of human beings--more than does the societal system as a whole. That the two distinctions system/environment and society/interaction do not coincide places a considerable burden on a general theory of social systems. Its presentation is therefore unavoidably complicated. One cannot simplify it without doing damage to the relationships.

One can capture an important aspect of the relationship between society and interaction--namely, the temporal aspect--with the concept *episode*. ⁴ Interactions are episodes of societal process.

They are possible only on the basis of the certainty that societal communication has been going on before the episode begins, so that one can presuppose sediments of earlier communication; and they are possible only because one knows that societal communication will still be possible after the episode concludes. The beginning and end of an interaction are merely caesuras in society's autopoiesis. They serve to achieve structures that cannot be made congruent with society and yet equip it with complexity by building in differences. Thus interaction brings about society by being relieved of the pressure of having to be society. Only via this difference can society acquire complexity and interaction acquire its qualified improbability. And only through it is the evolution of improbable complexity possible.

The tradition prepared the way for the desired distinction between society and interaction by distinguishing complex and simple societies (*societates*). Simple societies, such as husband/wife, master/servant, parent/child, are composed of only two persons. They cannot be broken down further without destroying the participants' social quality of life. The opposing concept was isolation, which an individual can accept only for periods of time. Complex societies (e. g., households or political societies) are composed of simple societies and can therefore easily be broken down or modified. Simple societies are unstable because they cannot be modified, but only destroyed, above all through death. That is what sets limits to their getting more intimate. Complex societies are stable precisely because they can be broken down; they acquire permanence because their composition can change. They outlast the death of individuals. Theirs is the level on which adaptation to changing circumstances, the history of salvation, political history, and the rise and fall of ages and empires is possible. Theirs is the level on which the meaning of history is fulfilled as the history of the human *species*.

This distinction between simple and complex societies passed away in the eighteenth century with the Old-European semantics. What has been called society since is, in every case, a highly complex system. The concept of society has been reserved for the conceptual successor to what had been the special case of *societas civilis*. The initial attempt to characterize this subsequent terrain through the difference between state and society (i. e., the functional

primacy of politics versus that of the economy) can be viewed as a failure. It did not succeed in formulating the unity of this difference.⁵ This led to a need to recover the Old-European format for solving the problem, which required one to formulate the concept of society analogously to the concept of the world: as containing itself and all other social systems.

But even interaction systems can no longer be characterized as simple societies that cannot be broken down. At present, systems with two members are regarded as special cases with a rather marginal significance in societies and interaction nexes.⁶ The structure of interaction cannot be adequately characterized by the number of participating persons, although it requires limitations on size. The reasons for these theoretical changes are that the basal elements have been located deeper and temporalized. Theory takes off from this, from the increasing capability for analysis and recombination produced by sociology. The following considerations, therefore, do not adhere to the distinction between simple and complex societies but begin in a new way from the theory of self-referential system formation.

II

Sociology must have a concept for the unity of the totality of what is social--whether one calls this (depending on theoretical preferences) the totality of social relations, processes, actions, or communications. We will use the concept of society for this purpose. Accordingly, society is the all-encompassing social system that includes everything that is social and therefore does not admit a social environment. If something social emerges, if new kinds of communicative partners or themes appear, society grows along with them. They enrich society. They cannot be externalized or treated as an environment, for everything that is communication is society.⁷ Society is the only social system in which this special state of affairs occurs. It has far-reaching consequences and makes corresponding demands on the theory of society.

Given such a situation, the unity of the societal system cannot be anything but this self-referential closure. Society is the autopoietic social system par excellence. Society carries on communication, and whatever carries on communication is society. Society

constitutes the elemental units (communications) out of which it is composed, and whatever is constituted in this way is society, is an aspect of the constitutive process itself. There is no escaping this consequence in this system; even negation-is, as the last chapter showed, included and serves, if not to preserve structures, then at least to preserve autopoietic reproduction. Therefore one can describe society as a self-substitutive order, ⁸ since everything to be changed or replaced *about it* has to be done *within it*.

By including analyses from the preceding chapters, we can demonstrate how every meaning reference that articulates the social dimension of meaning leads into society (even if the meaning is experienced as referring to society's environment). The differentiation of the social dimension (in contrast to the fact or temporal dimensions) is only one aspect of the differentiation of the societal system itself. Similarly, everything that is expected or experienced as communication incorporates the active or passive participants within society. Their behavior is thereby presupposed to be capable of conforming to societal expectations, regardless of what is presupposed as its natural occasions and psychic motivation. The social dimension refers to a mutual experience that can report on itself in communication, and both signify nothing more than the recursive self-reproduction of society. This holds even and especially when *the opposite is formulated in society*. A God who experiences everything and is accessible through communication but who does not belong to society is a singular exception that exactly copies the recursive totality of the societal system itself, a duplication that makes it possible to experience the world in a religious way. Society thereby contradicts itself and can be sure that self-reference is not meaningless and that in the beginning there is difference, not identity.

Perhaps the most important consequence of this state of affairs concerns the relationship between system and environment. For such a system there are *no environmental contacts on the level of its own functioning*. Just as an organism does not live outside its own skin, or a psychic system operatively extend its consciousness into the world, or an eye create neural contact with what it sees, so a society cannot communicate with its environment. It is completely and without exception a closed system. This distinguishes it from all other social systems, in particular from interaction systems, which

include communicative relations with their environment, welcome what is new, utter decisions, and so on.

Initially this closure must be formulated as an inability. But the system's unique performative strength resides in renouncing the extension of its own mode of operation into the environment. The eye only sees the environment, but does not operate within it; that is why it can see it. ⁹ Society can only communicate about the environment, and that is why it can do so. If it could communicate with the environment, it would lose the distance necessary to enable communicating about it.

Obviously--despite and indeed thanks to its self-closure--society remains a system in an environment. It is a system with boundaries. These boundaries are constituted by society itself. They separate communication from all noncommunicative events and states of affairs, and thus cannot be fixed as territories or groups of persons. Insofar as this principle of self-constituting boundaries becomes clear, society differentiates itself. Its boundaries are independent of natural features like ancestry, mountains, or seas, and as a result of evolution, there is finally only one society: the world society, ¹⁰ which includes all communication and thereby acquires completely unambiguous boundaries.

A social system of this type does not foster the illusion that communication is self-sufficient. The tripartite structure of communication already prevents this. One communicates *about* something, and only as an exception does one communicate about communication. Thus external stimulation is constantly present as information; if communication were to forget this, it would remind itself. It can only be reproduced as information-processing action and experience. Thus the closure of recursive communicative relationships does not liberate the system from the environment. It is and remains dependent on sensors that convey environment. These sensors are human beings in the full sense of their interpenetration: as psychic and as bodily systems. This is why autopoietic, self-referentially closed systems depend on interpenetration. In other words, interpenetration is the condition of possibility for self-referentially closed autopoiesis. It enables the emergence of autopoietic systems by opening up environmental contacts on other levels of reality. Interpenetration makes it possible to keep functional levels of operative information processing

separate and yet to combine them, and thus to realize systems that are open and closed to their environment at once. And this combination seems to have opened the possibility of stabilizing the difference in relative degree of complexity between system and environment with greater complexity on both sides.

This is the autarchy that Aristotle celebrated as the triumph of the formation of the city, the *politeia*. Ever since, the concept has remained a problem because obviously relations exist between a city and other cities, peoples, and empires, and these relations also include economic and political dependencies. Autarchy could only be related to the conditions of a morally determined human life, and the city was conceived as the perfect place for the human being to actualize his humanity. In the course of changing societal conditions, functional primacies increasingly assumed the place from which the autonomy of this best and most beautiful society, the *koinonía politiké*, was asserted. Political independence, bestowal of religious meaning, and economic welfare were successively brought into the picture, but none of these semantics of self-thematization was ever able to catch up with the promise of autarchy, let alone redeem it. ¹¹

One can operate with a semantics of a theory of society only within society, can use it only to steer the societal process of self-observation and self-description, and can do so only more or less completely, more or less adequately, more or less in the shadow of a tradition. The lifeworld that society establishes and differentiates for itself can never fully be grasped. Observation is always distinguishing, and must therefore presuppose the unity of difference as the world and the possibility of other distinctions as contingency. But it is possible, and this is what our characterization of society attempts, to formulate this as a statement about society. And precisely this quality of self-referential closure provides all operation with affiliation, self-reference, and selectivity, and through them the societal system distinguishes itself from interaction systems.

The concept of self-referential closure answers to a problem that, following I. V. Blauberger, one could call a systems-theoretical paradox. ¹² According to this opinion, a system's meaning can only be clarified by reference to an encompassing system, while comprehending this second system requires understanding its internal differentiation. Accordingly, one could no longer view society as a

system (or as a system only insofar as all social systems finally must be analyzed in reference to it). Societal analysis would then be left to dialectical materialism. ¹³ Instead, we prefer to understand society as a system for which an encompassing system does not exist on an operationally equivalent level, so that not comprehension from outside, but only self-observation, self-description, and self-clarification in the course of its own operations are possible.

III

Interaction systems can be bounded with relative precision. As in all systems, the boundaries are adequately defined if problems with the boundary line or with using the distinction between inside and outside can be handled by the system's own operative possibilities. The question of whether something is communication or not does this for society. It can be clarified through communication. Similarly, interaction systems have adequately determinate, or at least determinable, boundaries. They include everything that can be treated as *present* and are able, if need be, to decide who, among those who happen to be present, is to be treated as present and who not.

The boundary criterion of presence reveals the special significance of perceptual processes for constituting interaction systems. Perception is a less demanding form of acquiring information than communication. It makes possible information that does not depend on being selected and communicated as such. This provides a certain security against some sources of error, in particular against deception and psychically conditioned distortion. Evolutionarily, perception is the primary and most widespread mode of information, and only in a few cases is it condensed into communication. Perception is primarily a psychic acquisition of information, but it becomes a social phenomenon, that is, an articulation of double contingency, when one can perceive that one is perceived. In social situations ego can see that alter sees, and can perhaps also see what alter sees. Explicit communication can link onto this reflexive perceiving, thereby supplementing, clarifying, and delimiting, and it builds itself into this reflexive perceptual nexus because of course it depends on perception and on the perception of perception.

Compared with explicit communication attributed as action, reflexive perceiving has specific advantages. Interaction "capitalizes" on these advantages in a certain way and places them at the disposal of society. Above all, perception achieves:

1. great complexity in absorbing information with limited analytical precision--thus a far-reaching but only "approximate" mode of intelligibility, which can never be communicated;
2. an approximate simultaneity and rapidity in information processing, whereas communication depends on a sequential mode of information processing;
3. slight accountability and capacity for being negated, thus great security about the commonality of an item of information (however diffuse) that one possesses;
4. a capacity for modalizing communication through parallel processes of weakening, strengthening, and contrary utterance on a level of (intended or unintended) "indirect" communication, where the high risk of explicit action can be avoided; this is important as a level for guiding play and earnest, making sexual advances, working out changes in theme or an end to contact, and control via tact and civility. 14—

Equally important, interaction systems are not used up in providing for such perceptual possibilities but are forced by reflexive perceiving to allow communication to go on. If alter perceives that alter is perceived and that this perception of being perceived is perceived, alter must assume that alter's behavior is interpreted as communication—whether this suits alter or not, and this forces alter to control the behavior as communication. Even the communication of not wanting to communicate is communication; generally it requires institutional permission if, in the presence of others, one examines one's fingernails, looks out the window, or hides behind a newspaper. In practice, one *cannot not communicate* in an interaction system; ¹⁵ one must withdraw if one wants to avoid communication. ¹⁶

Despite reflexive self-regulation, interaction systems remain highly susceptible to disturbance on the level of perception. What stands out for perception has potential social relevance, can break into ongoing communication, disturb it, or stop it. The perception of perception does not suffice to prevent this; it only sorts events according to the criterion of whether others also perceive them

(which gives them increased significance) or not. Above all, it gives the bodies of the participants a strategic significance for distributing relevance and occasions for communication. One can hardly overlook sudden nosebleeds as easily as stains on a tabletop. With increasing demands on socially reflexive sensitivity in interaction systems--that is, as they were differentiated in the course of socio-cultural evolution--bodily discipline also increased ¹⁷ as did, formerly, the inclination to fainting spells as a "nicer" way of sending clear signals in situations where the continuation of communication became too difficult. Interaction disciplined in this way is even more susceptible to planned disturbances, which find information about possibilities of attack in the system's defense structure. ¹⁸

What always happens in interaction systems, despite their sensitivity to selection and disturbance, is a double process of perception and communication in which burdens and problems lie partially in one and partially in the other process and are constantly redistributed depending on how the situation is interpreted and where the course of the system's history directs the participants' attention. Here too it is true that social systems come about only through communication. The way in which communication among persons who are present to one another is enforced by interaction keeps accessible a kind of "internal environment" through which one can pursue, feed, and correct communication. Perception and communication can then reciprocally relieve the pressure on each other within the constraints of their own performative possibilities. Thereby an intensification of communication is possible within interaction systems for which there is no equivalent outside of interaction.

Such a rapid and concrete combination of perception and communication can be accomplished only within a narrow range. It is limited to the boundaries of what can be perceived. But this does not suffice, because not everything that can be perceived is therefore socially relevant. That one expects a communication serves as an additional principle of selection; one scans what can be perceived for what could enter into on-going communication or be significant for it. In other words, one uses the social dimension of perceptible meaning as a selector, and this leads to more narrowly determining the system's boundaries. In this sense, presence is the constitutive and boundary- forming principle of interaction systems,

and presence means that people's being together there ¹⁹ guides the selection of perceptions and marks out prospects for social relevance.

This shows that social systems are autopoietic systems that select themselves and their boundaries. Such autonomy is indispensable for gaining distance, even in concrete, daily situations, and situationally dependent systems--which can be attacked in terms of everything that can be perceived--must reserve for themselves the ability to decide, with the help of those who are present, who and what will count as being present. How else could one make conversation in a restaurant, agree to meet in a theater lobby, produce a TV broadcast, wait in line for the bus, or even go for a ride in the car? The greater the technical influences on situations, as should be clear from the examples, the more compelling, but also the more autonomous!, the determination of social relevance. On closer inspection, the autopoietic requirement that communication continue forces structures to form, so that one is faced with a difference between autopoiesis and structure. Structures must form, because communication must be separated from mere perception, and this requires temporal, factual, and social constraints: the relevant events must be placed in a sequence; they must be structured by factual themes; and not all those who are present to one another may speak at the same time, but only, as a rule, one after the other. ²⁰ When such structures are formed, centered interdependencies emerge. ²¹ Interdependencies can be centered in the social dimensions, and then guidance comes from leaders or similarly privileged speakers. ²² It can have its center of gravity in the temporal dimension, which finalizes the system. In each case, the interdependencies existing in the system are thereby reconstructed. In the place of the (impossible) interdependence of every element with every other one (or even many with many others), one finds the interdependence of all (or at least many) elements from a selected point of reference in which the system best represents its unity within itself.

Through centering, above all through the rule that only one person can speak at a time, while the others listen or at least wait their turn, a distinctive superfluity of possibilities emerges that, following McCulloch, one can call the "redundancy of potential command." ²³ The structural elasticity of interaction systems rests

on this redundancy, that is, on the possibility of selecting what becomes the common center of attention and what remains unnoticed. The selection requires self-referential operations made easier by the fact that what is actually the common center of attention is perceived and can hardly be disputed.

Regardless of how well it is centered, structure distributes chances for communication (not chances for perception!) among the participants. ²⁴ But the conditions for establishing order specific to interaction come into force by constraints on the capacity for information processing. Information must be processed in sequence, which takes time and then collides with the participants' other commitments. To remedy the situation, one can break off contact and meet again later. Or one can plan this in advance: for instance, a Bible circle meets every week at a specific time in a specific place. But this already presupposes agreements that can no longer be guaranteed by the means available within interaction systems, as well as motives whose regeneration within interaction is, as is well known, difficult over long periods of time.

Interaction's great dependence on time finally leaves it little freedom of choice concerning forms of differentiation. Interactions have little possibility of forming simultaneously operating subsystems. They arrange themselves temporally into episodes. For societal systems the opposite is true. Their scope requires nothing short of differentiation into subsystems, while they lack the concrete grounds of the general rearrangement necessary to form and, above all, to change, episodes. If society wanted to form episodes, it would have to resort to interaction systems and design sequences of interaction, while forgoing the total societal relevance of this division. These distinctions within internal system differentiation illuminate the meaning of the differentiation of society and interaction: it enables synchronous and diachronous differentiation to mesh.

IV

Society and interaction are different kinds of social systems. Society guarantees the meaningfully self-referential closure of communicative events, thus the capacity to begin, end, and form connections of the communications in each interaction. In interaction

systems the hydraulics of interpenetration is activated. The push and pull of presence works on those who are present to one another and induces them to subject their freedom to constraints. Therefore society is not possible without interaction nor interaction without society, but the two types of system do not merge. Instead, they are indispensable for each other in their difference.

This difference obviously served the evolution of meaningful social systems, which worked their way up alongside it. ²⁵ Based simultaneously on perception and communication, interaction will historically have been possible relatively free of presuppositions, occasional, natural, and dependent on its situation. One could almost speak of a presocietal requirement for the emergence of society. But only if interaction understands itself as a societal episode can it create the particular difference and particular surplus value through which it contributes to the emergence of society. It then creates and regenerates meaning that is capable of exclusion and that extends beyond the boundaries of interaction into space and time, to relevant objects and themes. Under primitive conditions, one would assume a societal reality that is very like interaction that does not yet have the effect of giving form to interactions but is constantly revised as they take place. ²⁶ The meaning dimensions (temporal, factual, and social) are still scarcely differentiated, and therefore cannot enable wide-ranging interpretation. Persons have only a minimal autopoietic consciousness of themselves, limited to the relationship with their own organism. Of course, they know that their hunger is not another person's hunger, but they do not distinguish themselves from how they are known by others. All social forms are found casually. They remain bound to concrete localization, and must be present in order to have an effect. There are discernible (and foreseeably discernible) conditionings, for instance, reciprocity, for without conditioning there would be no social system, but they do not extend far beyond the actual social situation and are not perceived as rules.

One must assume that despite these constraints (with which we can hardly empathize any longer), communication--indeed, communication in the full sense of a unity of information, utterance, and understanding, constantly controlled by understanding-- would still be possible. The communication that is incessantly stimulated forms islands of comprehensibility in a sea of meaningfully

indicated possibilities, and these islands, as culture in the broadest sense, facilitate the initiation and ending of interaction. Cultural forms, later above all the communication media of writing and printing, cease to be fixed specifically to interaction and thus enable interaction and precisely thereby enable meaning-specific differentiation within society. However this difference may have developed, for the entire known history of humanity, society and interaction have not been reducible to one another because one would then have to forfeit either comprehensiveness or presence, that is, the defining feature of the other system. This is not merely a matter of distinction and corresponding classification. The nonidentity of society and interaction is experienced and operates as a difference. As the first section above has shown, we are not dealing with a boundary phenomenon, that is, one system's being able to ignore another. One cannot dismantle the societal system into interaction systems or join together interaction systems to make the societal system; that is what the difference prevents. The difference is a constitutive aspect in constructing societal and interaction systems. It cannot be neutralized by reduction or generalization, nor weakened by externalization to a mere categorical distinction. Interaction would be impossible if it was not different from society, and society would be impossible if it was not different from interaction. We will show this in more detail.

We will begin with interaction systems. Interaction presupposes an anonymously constituted society on all three dimensions of meaning, not just as another social system, but as the basis of interaction's own particularity.

Viewed from the temporal dimension, interaction could not begin or end if it could not be conceived as an episode, as a continuation of societal life together in the context of furthering societal reproduction. The structures of expectation needed for rapid reproduction, for immediate connective action, cannot be developed with the necessary variety in ongoing interaction. That is true not only, and not even primarily, because there are problems of security concerning expectations and problems of settling a program of different types that outline possible themes of interaction. Above all, it is important that society have in store a wealth of possibilities that a beginning interaction can constrain. ²⁷ Interaction

can acquire its own distinct profile only as different from what is societally possible; only thus can it begin to owe something to itself. In "delicate" beginnings--in love relations, in deviant or criminal behavior, where trust must be given--one sees the problem of constructing commitments emerge: Who will make the first move and thereby give the other the freedom to accept it or not, thus the freedom to condition the system? ²⁸ There is a need for societal givens so that the participants can interpret interactions as societal episodes and can separate themselves from them. The ending of an interaction need not be interpreted as the destruction of its meaning (otherwise, given that this end can be foreseen, one would not enter into the interaction at all), nor can an interaction usurp societal existence, so that nothing transcends the interaction any longer (otherwise one could not expect the participants to end it). ²⁹

In terms of the social dimension, society produces an arrangement of freedoms and commitments for interaction that interaction could not find in itself. Outside the interaction system, every participant is subject to other kinds of expectations, and everyone agrees that this is how things are. These external commitments, if they are transparent within the interaction, lead to the self-control of individual participants, for each is expected to `maintain role consistency. ³⁰ Thus the societal environment is brought to bear in interaction systems as a complex of the participants' other obligations --a simplified *system-internal* presentation of the *difference between system and environment*. Given their other commitments and role obligations, the participants are in a certain way different persons elsewhere because their personal identity is connected there with other histories and other expectations. This gives the individual human being a basis for understanding oneself as an individual and as a point of reference for managing one's own person and roles. ³¹ For interaction systems this is the basic condition of participants' freedom and thus the basic condition of double contingency. The *difference* between society and interaction *transforms commitment into freedom*. In interaction every participant can demand consideration for the fact that one has further obligations to fulfill and can thereby gain distance. ³² Thus one can avoid the intense pressure of the situation, the close scrutiny. This is perhaps not a disadvantage for interaction, but again, as in the temporal dimension, a condition

for developing its autonomous laws on the basis of double contingency. To this extent the recursiveness of the societal system is the "hyper-cycle" (*Eigen*) that enables the interaction system to constitute its contingencies and thus its self-selection.

If interaction systems constitute themselves in the temporal and social dimensions via a difference from society and thus from their own sociality, then one should also expect consequences for the fact dimension of the meaning processed at any given time. These consequences reveal themselves in the themes of communicative interaction. In interaction, themes are chosen concretely, yet time contingently. Their contingency presents their sociality--in part as a reference to the interaction's environment and the participants' other possibilities, in part as keeping present other possibilities for processing the interaction. This concerns not only the general and unusable contingency of meaning and the world, not only that everything could always be otherwise. Instead, this contingency is sufficiently concretized because interaction goes on in society. Interaction selects from among determinate or determinable possibilities in situations that offer only limited variations. Should one wait to serve dinner until the last guest has arrived? How long should one wait? Should one use the social institution of the aperitif, especially created for this, to string out the time and reduce risk? Does one know in advance who has to make excuses to whom? Maybe everyone to everyone else? When is the right time to bring up the subject of waiting with those who are still waiting, to say who has not yet arrived, to introduce the reasons for the situation into the situation? And how strongly would this then limit the possibilities for using the time that remains open? A continuation of interaction is possible only if these questions provide adequate structure, if many other possibilities--doing exercises together, watching TV, the guests' departure--are sufficiently remote and if, above all, the stifling pressure of having to do something but not knowing what is excluded.

Articulated contingency enables interaction to guide itself. Such contingency creates a collective short-term memory as a resource for later eventualities (we have waited rather a long time) and an explanation for resulting problems (the guest speaker mistakenly started before the soup, and so it's somewhat cold). Interaction could never reach the tempo of connective action or would remain

limited to the simplest matters if not for the articulated contingency that the difference between society and interaction constantly reproduces. The autonomy of the interaction system can become so restricted by this that its course becomes stale and uninteresting,³³ and almost the only possibility left is to make mistakes. The opposite case, a contingency that is too open, a baseless and programless being together (only because there is no reason for being elsewhere), is equally problematic. In such borderline cases one can see how and why interaction depends on a difference from society. Interaction must provide for its own eventfulness, must be able to temporalize and surprise itself; but it can do this only if adequate structural givens equip it for rapid, nonstop processing and for the self-selection of its own structure and history.

By noticing that the societal environment is brought to bear in interaction systems and how, one can derive hypotheses about how structural changes in society affect interaction systems. If the societal environment becomes more complex, then this affects *the other roles* in interaction that every participant must expect and demand consideration for. The more complex the environment, the more heterogeneous these other roles and the more sweeping and incomprehensible the absolution for them that must be given within the system. The extent to which participants are disciplined by consideration of their visible other roles also diminishes. In traditional societal systems, participants could clearly see these other obligations. One could not, for example, simply fabricate them. Essentially, interaction occurred in the home or, if outside the home, within the same stratum of society. With the transition to modern society, this order dissolved. That weakened the possibility of enlisting interactions as a source of societal solidarity, for one's experiences with others in interaction are broken by the concessions that one must grant for behavior elsewhere. The idea of "partnership" in marriage seems to register this by reducing commitment to loyalty and to trust in loyalty in the face of uncontrollable expectations concerning external behavior.³⁴

Given stronger differentiation of the societal system and interaction systems, forms of interaction that exhibit great indifference to the consequences for nonparticipants prove to be successful. This holds especially for exchange and conflict. In principle, exchange disregards how, under the condition of scarcity, those who

do *not* participate in the exchange except the fact that they do not receive the goods or services exchanged. At most, this comes about indirectly, when partners in the exchange may look around for other possibilities of exchange under better conditions. The same holds, *mutatis mutandis*, for conflict. In the heat of conflict the participants take little note of others-- unless they want to win them over as partners in a coalition. Because of these indifferences, exchange and conflict lend themselves so well to the societal conditions that emerge with a stronger differentiation of the societal system and interaction systems. It is no accident that the bourgeois society of the nineteenth century understood itself primarily as the regulation of exchange and conflict, as economy and state, and it gave freer reign to exchange relations and conflict than any previous society. ³⁵

V

The analysis beginning from interaction systems can be repeated and rounded off by reversing the perspective and beginning from the societal system. Its difference from individual interactions provides it with the capacity for abstraction. Societal communication is to a great extent (but not exclusively) carried out as interaction. Thus it would be false to think of a system/environment difference here or to assume that society is composed of abstract operations and interaction of concrete ones (communications, actions). Society includes interaction. The difference between them is not a distinction between kinds of actions, societal versus interactional. Instead, it structures the undifferentiated ³⁶ domain of elemental operations, adding a capacity for abstraction that could not develop through interaction alone. Abstraction then becomes to a large degree relevant for interaction in interaction, though because it stems from the societal nature of interaction and not from interaction itself, it cannot be disposed over locally within an interaction. We have already come across the semantic correlate of this inability to dispose over something that is still quite relevant in the concept of nature or moral ideas. ³⁷

Essentially, society owes much of its own system's ordering to this difference. Without making any claims to completeness, one can show this with several examples.

1. Society carries out its own system differentiation, that is, forms subsystems, without this difference necessarily being supported by distinctions between interactions. Societal differentiation develops from above, so to speak, not from below, by drawing new system/environment relevances into the societal system and not by seeking and sorting out suitable interactions. Interactions among the aristocracy and among peasants or interactions in the economy and in politics may distinguish themselves as interactions and be classified accordingly by observers. But this is due to the intervention of abstraction in concrete execution and is not the basis of differentiation.
2. Only society can "finally" have negation at its disposal and establish an immune system that enables communication to continue despite negation. ³⁸ Conflict would immediately transform individual interactions into conflicts. Therefore only for society do communicated "no's" have the meaning of immune events, and their use, their encouragement, requires a certain lack of consideration for the interaction system's fate. Viewed from the perspective of motives, something higher must be at stake (e. g., honor or responsibility) if one wants to engage in rejection.
3. Only society enables identification of expectational nexuses (persons, roles, programs, values), ³⁹ which can be used in individual interactions but extend beyond them in their meaning references. The extent to which these different expectational collages are differentiated and the resulting forms of interdependence are given societally. The coherence of the synthesis must have a meaning extending beyond interaction in order to be convincing within interaction. In order to be a person, one must be able to pretend that one must be the same person elsewhere.

Evolution, meaning a change of structures by variation, selection, and restabilization, is possible only on the level of the societal system and its subsystems. Interaction systems can contribute to societal evolution or not; they contribute if they initiate the formation of structures that prove successful in the societal system. Without the enormous field of experiment that interactions provide and without the societal negligibility of the cessation of most interactions, societal evolution would be impossible, and to this extent society itself depends on a difference between society and interaction.

4. Thus the totality of interactions forms a kind of basal anarchy, forms, via interaction's *eigen*-stability and via the pressure for it to cease, the playing chips for societal evolution. Demanding forms of societal differentiation build on this by selection. They could not emerge if society could not rely on interaction's considerable capacity for ordering itself, and they do not presuppose that every individual interaction system can be assigned to one and only one of the primary societal subsystems.

These five examples suggest a further step. The difference between the societal system and interaction systems is clearly itself a historical development. It presupposes itself in a rudimentary form and can then augment itself as difference. The horizon of meaningful action and experience always extends beyond those who are present to one another. No society arises as a single interaction system. But primitive societies are formed in a way very close to interaction. Their abstractions remain slight, their boundaries, insofar as they are not set by the scope of the perceptions and movements of the participants, unclear. Their subsystems can only be formed in a segmentary fashion and only in the form of concentrated interactions (families, residential communities, settlements); their immune system is largely absorbed with preserving life, avoiding demographic extinction; their expectational models remain bound to personal acquaintance; and their evolution seldom leads to morphogenetically far-reaching structural changes, with any that do arise having little prospect of permanence.

Not until the abstractions attributable to society begin to take hold and interaction systems with greater degrees of freedom (a stronger accentuation on double contingency and their own temporalization) can be formed does the takeoff of further evolution become probable. When cities formed, the difference between transitory interaction and society became visible to the participants, and households and along with them segmentary differentiation receded to secondary importance.⁴⁰ Stronger accentuation of this difference between the societal system and interaction systems surely cannot be understood in terms of reciprocal independence; it increases reciprocal dependence and reciprocal independence at once because it enables both kinds of system formation to follow more strongly their own laws. This circle of problems was already discussed in antiquity via the example of "friendship." As a

model of intensifying interaction, friendship is, on the one hand, one (if not *the*) principle of perfection for society, yet on the other, as was usually illustrated by the friendship of the Gracchi [Tiberius and Gaius Sempronius Gracchus were two tribunes of the people who in the second century B. C. tested the Roman Senate on agrarian reform and thereby triggered civil war], it is a system formation that is dangerous for society and sometimes operates against it.

In the transition to the modern period, such differences become more emphatic. The domain of interaction that had retained societal relevance--interaction in the upper stratum of society--was religiously and politically neutralized and transferred to cultivated social reflexivity. ⁴¹ Initially the theory of society remained conceptually bound to the idea of interaction. It was still sociality that combined human beings into society: "There were peoples ... whose strong urge to have sociability *under laws*, through which a people becomes a lasting commonwealth," as it was termed in 1799. ⁴²

In the French Revolution, however, the difference between interactive and societal occurrences became spectacularly apparent. The course of events could no longer be controlled by interaction-- and all of Europe looked on. The logic of interaction did not prevent the Terror, it helped carry it out. Even the embarrassment of the revolutionary festivals and their societal ideology portraying interaction made more than clear this wouldn't work any more. Thus the all-encompassing terminology of *societates* had to be abandoned. More than any previous society, modern society separates its system formation from possibilities for interaction. In addition, it also forgoes assigning interactions to one or another of the societal subsystems. ⁴³ It thereby allows a great deal of activity that is occasional, societally functionless, "everyday," and without unambiguous localization ⁴⁴ and that must be experienced as more or less trivial because it can no longer be connected with the societal semantics developed through reflection on the functions and symbolically generalized communication media of science, the economy, politics, intimacy, art, and so forth. ⁴⁵ Contemporary "political economy" forgoes directives for individual behavior in interaction --even in its own domain of exchange and production. ⁴⁶

Stratified societal systems of the old world were rather insensitive to motives. Therefore they could afford a clear discrepancy

between morality and reality; rank almost automatically, so to speak, conveyed the appearance of morality. All this increasingly lost its validity for the transitional society of the seventeenth and eighteenth centuries, and it holds even less for modern, functionally differentiated society. Interactions guided by motives then must either be standardized, for example, by organization, or be left to reflexive negotiation, agreement, and the "negotiation of identities"--yet suspicion about motives spreads nonetheless. This, too, leads to a clearer separation of societal and interactional system formations.

Given the more extensive differentiation of society and interaction, one must reckon with an uncoupling of interactional nexuses. The other interactional nexuses in which the participants of a given interaction are involved at the same time become less relevant. Temporal arrangements still integrate their obligations formally, but the guarantee of an encompassing ethos is eliminated. Less and less can one count on solving societally relevant problems by interaction: for example, by using people's physical presence to gain a consensus or to prevent uncontrollable activities. To imagine one could solve or even attenuate problems in the intercoordination of different societal function systems (science and politics, the economy and education, science and religion) by bringing the participants into discussion with each other would be pure illusion. Thus a gap emerges between the interaction sequences individuals live through, which are accessible and understandable to them, and the complexity of the societal system, which they cannot grasp, and whose consequences cannot be influenced, let alone controlled. This holds not only for the interaction of "normal people" but in principle for every interaction, even those of leaders of the "new corporatism." ⁴⁷

VI

The preceding remarks may have left the impression that all societal action occurs as interaction. To correct this, we will introduce a new conceptual distinction, which corresponds to the distinction between the social dimension and the social system. Action is *social* action whenever the social dimension is considered in determining its meaning, whenever one takes into consideration what others

would think of it. But action is *societal* action only if it is intended and/or experienced as communication, because this is how it helps to carry out the social system of society.

Some social action is free of interaction. Human beings can act without the presence of others and can give their action a meaning that for them (or for a possible observer) refers to society. One could think of transitions from one interaction to others not immediately connected: acts of bodily hygiene that others do not observe, waiting alone in a waiting room, being alone in one's room in the evening, reading, writing, taking a walk alone, and so on. Solitary actions are always social actions if the determination of their meaning bears reference to society. One speeds up or slows down one's action in the transition from one interaction to another. One uses one's solitude to let go or for actions that one would never perform in the presence of others. One prepares for interaction. We can leave open the question of whether there is ever purely "private" behavior, entirely free of society yet still assuming the form of action, not least because this is a question of conceptual formation and depends on how distant the reference to society can be for one still to classify an action as social. In any event, the important matter is that the actor, not societal limitations that could be set by an observer, determines meaning.

Solitary action was uncommon and inconsequential in all older societies--simply because the house and other living spaces offered few possibilities for seclusion.⁴⁸ In the course of evolution, there emerged a domain that prepared the way for solitary, interaction-free, but still societal behavior and that has had far-reaching societal and semantic repercussions: the domain of reading and writing. The invention of writing gave solitary social action the chance to be societal action, to be communication. One could then contribute to the reproduction of society even if no one else was present.

We have already referred (Chap. 4, section VII) to the immense significance of the extension of communication brought about by writing and printing. Here we are concerned only with a part of this question, though an important one, because it affects the difference between society and interaction. Writing and printing make it possible to withdraw from interaction systems and nevertheless to communicate with far-reaching societal consequences. By deciding to use the communicative form of writing, one can reach more

addressees over longer periods of time, but this decision suggests that one withdraw from interaction, if it does not force one to do so. The differentiation of this mode of communication from interactional nexuses has more than quantitative significance: it enables a mode of working that could not be attained within interaction and thereby an augmentation of the difference between society and interaction to which the societal system and interaction systems can orient themselves. Yet it forces one to compensate for the absence of partners and objects of communication with a standardized, disciplined use of language and to clarify through language much that would otherwise have been evident in the situation. ⁴⁹

Perhaps the subtlest analyses of this state of affairs have been carried out, not in sociology, but in the example of seduction by letters in the epistolary novel. The letter, with the help of a lap desk, enables one to differentiate love relations in contrast to domestic interaction. The love relation can be kept a secret, and this is already seductive. It can be enjoyed in anticipation or later in reflection, at times that are free of all interaction, whether domestic or amorous. ⁵⁰ The letter is, as it were, the symbolic object that guarantees permanence (as re-readability) in a matter that theory and experience show cannot endure. Eighteenth-century novels add to this the essential insight that the seduction succeeds through the letter, indeed because the woman reads and answers it alone-- in solitude, left to her own imagination. The arsenal of bodily presence--glances, gestures, sighs, and rhetoric--is abandoned, and the letter leads the woman to seduce herself because, left alone to read and write, she is defenseless against her own imagination. ⁵¹ After the stylized art of seduction, the *art d'aimer* and *Galanterie*, had been made known, formulated, printed, and made available for imitation, one resorted to isolation to attain or to reinforce social effects. The printed epistolary novel then left this, as the authentically private, to imitation at the discretion of readers. ⁵²

Furthermore, writing (and especially printing) enabled ways of proceeding that one could collect under the title of a technique of the *fait accompli*. In writing one commits oneself beforehand to standpoints and opinions that one could not possibly initiate or sustain in interaction. Had no theses been nailed to the church door, there would have been no Reformation; were there no price tags, there would be no friction-free sales. ⁵³ In following interactions,

one can refer to what has been written, talk about it, and use it as support, especially if one is aiming to provoke conflict.

In this connection, it might be worthwhile to take a look at the career of a semantics (already apparent in the sixteenth century) of "natural" behavior in contrast to stiff, formal, and forced behavior that proclaimed itself as the application of rules. Today, this has gained acceptance to such a degree that one scarcely notices it. Informality, if not formlessness, has become a social norm, against which etiquette books are then written, to trade on snob appeal. "Naturalness" or "informality" does not mean dispensing with self-presentation. Instead, this expresses that consciously and under express self-control, indeed on the basis of social norms, one behaves alone in the same way one does in interaction. Under the appearance of casualness, of nonchalance, of the "carefully careless," a behavioral foundation is guaranteed in interaction that is not due to the interaction and cannot be varied within it--in a way analogous to writing, an anthropological fait accompli, as it were. The principle that behavior will not be influenced by the presence of others held in moral casuistry as evidence of genuineness,⁵⁴ and true friendships were measured by the criterion of whether one could behave in the presence of one's friend as unconstrainedly as when alone.⁵⁵ The counterpoint of solitary behavior became the norm and guarantee of social behavior in interaction, but this is, of course, only possible because one has formulated solitary behavior as always already moral, that is, as having reference to society.

In these changes in social semantics, one can recognize a reaction to the increasing complexity and factual diversification of the societal framework of interaction, also a need for greater fluency and speed in the exchange of interactions in which one participates and a need for a more rapidly available guarantee of security that is independent of previous knowledge. What is particularly striking is that interaction-free social behavior is largely enlisted for this. Interactions must be embedded, as it were, in the sand of countless ephemeral individual actions. Reading, writing, and watching the clock are typical actions that by their nature occur in an interactionally neutral way, indeed in an interactionally disturbing way, and are best performed alone or unobserved.

Because actions of this type acquire significance, the difference between society and interaction becomes more pronounced. At no

other time has it been less possible to view the societal system as composed of interactions and to consider adequate theories that conceive society as "commerce," exchange, dance, contract, chain, theater, or discourse. The societal system and interaction systems remain dependent on the difference between society and interaction. The interaction-free domain of societal action that has emerged and, with this century's technology of mass communication, has been extended from writing to sound and pictures, separates even further interactional processing and societal evolution. The immense complexity of society can only be retained if the societal system is more strictly structured as societal system and if interaction systems are more strictly structured as interaction systems: the societal system as a closed, self-referential communicative nexus, and interaction systems as the processing of contingency on the basis of presence.

VII

If one accepts the concept of societal system proposed here, society today is clearly a world society. The gap between interaction and society has become unbridgeably wide and deep (which forces a high degree of abstraction upon the theory of social systems). Society, although largely existing as interaction, has become inaccessible to interaction. No interaction, however highly placed the participants may be, can claim to be representative of society. Consequently, there is no longer a "good society." The spheres of experience accessible in interaction no longer provide the socially necessary knowledge; if anything, they systematically lead one astray. The fields of interaction that can be assembled and aggregated from any given perspective at best direct attention to function systems, or perhaps to regional delimitations (nations), but not to the encompassing system of societal communication.

This situation raises the question of whether the *self-description of the world society* is possible. ⁵⁶ Since approximately 1794, Europeans have known that concepts close to interaction, like the old concept of *societas*, are no longer adequate. ⁵⁷ One of the many side effects of the French Revolution was to impose the difference between interaction and society, between intention and occurrence, on every description of societal events. Here lies the hidden basis of many

semantic transformations that seek to grasp social phenomena and re-introduce them into societal communication.

One can think, for example, of the new (and immediately observed as new) fashion of using abstract ideas to replace concepts having concrete reference to what could individually be experienced.⁵⁸ Koselleck speaks of "collective singulars." As a result, regaining the concrete, advancing from the abstract to the concrete, became a program. Romanticism tried to underpin ideas of reason with a metaphysics of life. The restorations of monarchy concerned themselves with re-establishing social securities and barriers, which were now called institutions. Marx reconstructed society, in his early writings, at least, as the unity of economic and political relationships. He could count on a new meaning of "dialectics" after Kant freed the concept from its classical context, which was close to interaction.⁵⁹ Viewed from the perspective of interaction and experience, dialectics was no longer the art of discussion beginning with contrary opinions, but rather dealt with contradictions that at first glance seemed incomprehensible dead ends of direct, everyday thinking, but that could be theoretically reconstructed when one noticed that contradictions become independent of concrete operations, and how. A "dialectical" theory of society in this sense becomes an expectation that needs political underpinnings to support itself. Not least, one thinks of the concept of value and the emphasis on value that took effect in the second half of the nineteenth century--accompanied by, among other things, a tendency to oppose sociology, which was emerging at the same time, a sociology due to the same initial condition of an unbridgeable difference between interaction and society.⁶⁰

Our guiding question was: does what has been semantically combined in this way work as an everyday, operative self-description of society? The answer is likely to be skeptical, if not unambiguously "no." Today there is surely no shortage of verbal gestures directed toward the whole, but their outcome is a diffusion that seems to be conditioned by negative connotations: emancipation (e-mancipation; letting out of one's hands), crisis, uncontrollability. Lyotard has characterized the postmodern as the end of all "metanarratives," as "incredulity toward metanarratives."⁶¹ (This is a better formula than the end of ideology because ideologies belong to the same syndrome and are already an answer of sorts.)

Slogans take the place of descriptions. They produce results only if they can sum up widely felt experiences. It would be false to set this down to bottomless abstraction because then one could not explain the slogans' appeal. They take over the functional position of the societal system's self-description. Perhaps one can go so far as to claim that the world society could not exist as a unity without self- description, although, of course, it cannot be planned, made up, or improved according to a self-description. If the encompassing communication system is differentiated and distinguished from all others, this fact stimulates a need for self-descriptions, though such descriptions cannot determine operations and therefore tend toward the negative because negativity is the most general form in which meaning is available.

In particular, today the formula "the loss of meaning" incorporates what can be experienced into the self-description of society. But meaning is still an unavoidable form of experience and action. Without meaning, society and every social system would simply cease to exist. This formula does not adequately indicate what it means, but exaggerates in order to pronounce society guilty. In fact, no interaction is any longer in a position to secure the meaning of society for its participants with the persuasiveness of presence. This is the experience that activates and seeks to misuse--the formula "the loss of meaning." This formula corresponds to nothing more than the normal historical differentiation of the societal system and interaction systems. There are no grounds for reacting to it with cultural pessimism.

Sociology can view this scenario as the setting for its own appearance. ⁶² There is no lack of sociological "resonance." But sociology should not overlook that its own theory at the outset set the scene. It too operates as a self-referential system. If, as the reflexive science of the societal system, it claims to supply or at least to control that system's self-descriptions, it must develop an appropriate conceptuality for this, and it must be able to comprehend and account for the consequences of a prevailing negative mode of self- description.

VIII

In summary, one can say that *possibilities of selection are established* by the difference between society and interaction.

Interaction systems can and must continually be abandoned and begun anew. This makes necessary an overarching semantics, a culture, which guides the process toward what is probable and has proven reliable. By providing this, society works selectively on what occurs as interaction without, of course, entirely excluding what is contradictory and deviant. Societal selection does not determine. It attracts with what is easy and agreeable, and that can lie in deviating from the model officially offered. It offers interaction *si eis placet* (if it pleases), and if models catch on as a result, precisely that makes deviation attractive, interesting, and profitable. The power of selection lies not in a causal mechanism and not in design or the control of complexity; it emerges out of the fact that selection is an *in itself improbable model of ordering that nevertheless functions probably, but only under conditions.*

Society, however, is a result of interactions. It is not an authority set up independently of what it selects. It is no God. To a certain degree, it is the ecosystem of interactions, which changes itself insofar as it channels opportunities for interaction. It achieves what interaction alone never could--making what is increasingly improbable probable--but it does so (with the increasingly important exceptions that we have outlined) only through interaction. One can emphasize that society selects interactions, interactions select society, and both proceed in the sense of the Darwinian concept of selection, namely, without an author. But selection is not simply selection of the appropriate system by the environment or, on the system's side, not simply the system's adaptation to the environment. ⁶³ On the level of social systems, it is a *self conditioning selection*, and the *selection of selection is set in motion by the difference between society and interaction.*

The difference between society and interaction is thus a condition of possibility for sociocultural evolution. This does not imply an evolution of living systems or even an evolution that leads by a reproductive isolation of populations to the differentiation of genres and species. In contrast to organic evolution, sociocultural evolution does not depend on the succession of generations. It does not need to wait until new, perhaps mutated, organisms form. An enormous increase in speed results. New kinds of ideas for interaction can be put into action at any time (although older participants in interaction are often not ready to accept them). One could think of refined conversation, quasi-scientific conferences, meditation

and jogging, sit-ins that extend to the occupation of entire sections of cities by squatters. Other levels of evolution cannot keep pace, except perhaps viruses, bacteria, or the simplest insects. Sociocultural evolution simplifies, accelerates, and works in a highly selectively way on the evolution that is still possible. Thus the selection of selection extends far beyond the level of social systems and forces on social systems an ecological problematic that they are, at least initially, powerless to solve.

Despite all these differences between organic and sociocultural evolution (which, being difference, have the indicated problematic effects [on ecology, for instance]), sociocultural evolution is evolution in the strict sense, namely, the construction of highly improbable, unplanned complexity. It presupposes the differentiation of autopoietic systems that have resulted from evolution. The unity of autopoiesis is nothing more than its on-going self-renewal. Every situation allows possibilities for connection more or less room to play. In social systems, this always and only concerns communication (or in self-observation, action) that can be connected on. The ability to connect on is secured by the self-reference of the elements and by structures of expectation. Within this superfluity of possibilities exist distinct probabilities that are fixed within the meaning horizon of the moment and can be observed as probabilities. ⁶⁴ This room for play can, if it is structured by distinct probabilities, be understood as a potential for evolution at the same time. Now and again, improbabilities will probably show up, if the number of possibilities and the time span of the observation ⁶⁵ are great enough. It then appears as if the system now and again gets into extreme positions, which no one (neither itself nor an external observer) would consider probable and which therefore trigger far-reaching consequences. One might suppose that this is how atoms came about, thus that matter itself is due to its own evolutionary improbability.

In the domain of social systems, it is easier to occupy relatively improbable positions because risks are spread over interaction systems. Interaction systems must come to an end, and thus one can use them for experimentation. One might imagine that exchange, sending messages by courier, tabooing sexuality among close relatives, and many other elementary figures with a high institutional degree of connective value were initially introduced as interaction

and subsequently proved successful in society. Initially only the autopoiesis of interaction, not that of society, was in play. A risky innovation may allow no further action, but then only the interaction, not society, comes to an end. One simply changes the present setting and begins new interactions. An innovation can be tried out within an interaction system--as, supposedly, open criticism of the monarchy and clergy in eighteenth-century Masonic lodges. ⁶⁶ The stability of the improbable in interaction is an indispensable precondition of its introduction into evolution (just as mutations must be stable at the cellular level). Here an initial sorting occurs. It supplies the first evidence of possibility. Selection as an evolutionary achievement presupposes that situationally specific features of the original interaction systems are not enlisted and that, once introduced, innovation is persuasive elsewhere.

Once this basic model of sociocultural evolution is accepted, more can easily be delineated within it. One can derive hypotheses concerning the acceleration of evolution. Relatively interaction-free communicative possibilities contribute to acceleration because this activates a potential for innovation transposed to interaction. This occurs through the mechanisms of writing and printing. Furthermore, enhancement of the difference between interaction systems and the societal system contributes to acceleration in that the autopoiesis of society becomes less dependent on "important" interactions. ⁶⁷ It is easy to see that these hypotheses are not selected without consideration for factually obvious accelerations in sociocultural evolution.

In the context of this theory of evolution and with corresponding enrichment from the concepts of selection and adaptation, one comes to a new evaluation of the (initially technical) findings of interaction-free societal communication, and further, to a new evaluation of forms of societal complexity (e. g., of a system differentiation, which can no longer be endangered by interaction). As can easily be seen, a greater distance from interaction forces a different kind of culture--a "higher" culture (one originally thought), which still functions even if it must stimulate both interactional and interaction-free communication. But in addition the question arises: What does this mean for the selection of selection? At present, the literature doesn't even give the first idea of how to follow up this question. One looks in vain to writing on the "mass

media." If one begins with the assumption that interaction systems are especially responsible for interpenetration and that their true contribution lies in testing the limits of interpenetration, one could expect an increasing activation of innovations that no longer correspond to interpenetration--and that these innovations function nonetheless. It is no accident that many variants on the theme of alienation emerge. Besides, it is to be expected that the conditioned probability of improbable communications is renewed by this and very quickly reaches the boundaries of what is still ecologically tolerable. Evolution seems to amount to conditions that no longer accord with the human and natural environment of the societal systems, that is, they presuppose a high and constant influence of society on its environment for the adaptation of the environment to society. In the next chapter we will seek a concept of rationality geared to this.

-- nts --

Notes

- [Note](#): 1. We leave out of consideration here a third mode of forming social systems, which cannot be reduced either to society or to interaction, namely, *organizations*, because it is not as universally relevant as a *difference*. In other words, in all social relations, under all circumstances a difference between society and interaction is unavoidable, but not all societies are acquainted with organized social systems. We therefore exclude organizations, but only from treatment on the level of a general theory of social systems. On the next level, that of concretizing the theory, one would perhaps need to distinguish between societal systems, organizational systems, and interaction systems and develop separate theories for each type because these three separate ways of forming systems (i. e., dealing with doubling contingency) cannot be reduced to one another.
- [Note](#): 2. See Joel M. Charon, *Symbolic Interactionism: An Introduction, an Interpretation, an Integration* (Englewood Cliffs, N. J., 1979), p. 150ff. Similar, but with a somewhat different concept of society, is Charles K. Warriner, *The Emergence of Society* (Homewood, Ill., 1970).
- [Note](#): 3. See the schema in the Introduction.
- [Note](#): 4. For precisely parallel reasons, we have spoken of (linguistic, programmatic, and goal-directed) "episodes" in discussing the autopoiesis of consciousness. See Chap. 7, section V.
- [Note](#): 5. Hegel's solution via a double concept of the state reveals the problem's structure, but terminologically it is unfortunate and could form a tradition only by misunderstanding and one-sided interpretation.
- [Note](#): 6. For an interpretation that goes beyond Simmel, see Philip E. Slater, "On Social Regression," *American Sociological Review* 28 (1963): 339-64.
- [Note](#): 7. Later we will argue that it can be otherwise on the level of the self-descriptions used in society.
- [Note](#): 8. Concerning this formulation, see also Niklas Luhmann, "Identitätsgebrauch in selbstsubstitutiven Ordnungen," in Luhmann, *Soziologische Aufklärung*, vol. 3 (Opladen, 1981), pp. 198-227.
- [Note](#): 9. This formulation presents a very complex state of affairs in a very simplified way. In actuality "the eye" does not see; the brain does with the eye's help. [Note](#): 10. See esp. Niklas Luhmann, "Die Weltgesellschaft," in Luhmann, *Soziologische Aufklärung*, vol. 2 (Opladen, 1975), pp. 51-71; Luhmann, "World Society as a Social System," in Felix Geyer and Johannes van der Zouwen, eds., *Dependence and Equality: A Systems Approach to the Problems of Mexico and Other Developing Countries* (Oxford, 1982), pp. 295-306.
- [Note](#): 11. See also Niklas Luhmann, "Selbst-Thematisierungen des Gesellschaftssystems," in Luhmann, *Soziologische Aufklärung* 2: 72- 102.
- [Note](#): 12. See I. V. Blauberger, V. N. Sadovsky, and E. G. Yudin, *Systems Theory: Philosophical and Methodological Problems* (Moscow, 1977). As a predecessor, one would have to mention Pascal. See *Pensées* no. 84, *L'Oeuvre de Pascal*, éd. de la Pléiade (Paris, 1950), pp. 840-47 (p. 845). (This is no. 72 in the edition by Brunschwig.) See also Friedrich D. E. Schleiermacher, *Hermeneutik und Kritik*, ed. Manfred Frank (Frankfurt, 1977), pp. 95, 187f.
- [Note](#): 13. For Blauberger et al., the paradoxes of systems theory are merely paradoxes in its analytical instruments, whereas for the theory presented here, I believe in a deeper relation to Marxian theory, they must be treated as real, concrete paradoxes in the theory's domain of research.
- [Note](#): 14. See, e. g., the analyses of Claude Buffier, *Traité de la société civile, et du moyen de se rendre heureux, en contribuant au bonheur des personnes avec qui l'on vit* (Paris, 1726), p. 123ff: it would be very impolite to say that one is bored with another's company, and therefore it is part of politeness to keep an eye out to see whether the other is getting bored. In other words, politeness is reflexive in that it avoids exploiting another person's politeness, and this requires bringing in the level of perception.
- [Note](#): 15. See the well-known analyses of Paul Watzlawick, Janet H. Beavin, and Don D. Jackson, *Pragmatics of Human Communication: A Study of Interactional Patterns, Pathologies, and Paradoxes* (New York, 1967), which follow out the consequences of this inevitability.
- [Note](#): 16. Not only is ending interaction (or removing oneself from it) a (difficult) problem, but one must also consider the forms suggested by interactions that can be used to avoid interactions: one meets someone one knows and greets him--in order to get by him.
- [Note](#): 17. The best known presentation of this is Norbert Elias, *Über den Prozeß der Zivilisation: Sozio-*

genetische undpsycho-genetische Untersuchungen, 2d ed. (Bern, 1969).

- [Note](#): 18. The in part quite imaginative perturbations of interaction in universities all owe their possibility to the fact that thematically concentrated interaction shows such a highly selective discipline. They always occur by forcing perceptions that cannot be integrated. Several examples from my own experience include the bodily presence of people who do not belong, messages written on blackboards, noise (also in the form of talking, which is in itself meaningful), turning off lights and drawing curtains, knocking over beer glasses, bumping into other people, and ostentatiously bringing babies or wheeling cripples into meeting rooms.
- [Note](#): 19. "Persons" here in the strong sense of socially identified collages of expectations. See Chap. 8, section XI.
- [Note](#): 20. Goffman uses the concept of "encounters" in the sense of "focused gatherings" for this. See Erving Goffman, *Encounters: Two Studies in the Sociology of Interaction* (Indianapolis, 1961). We see this less as one type of interaction system among others than as a requirement of increasing performance for system formation. Without focusing and without selecting structures, systems can form only in a very rudimentary, quite transitory sense--as something that one must deal with, from time to time, as an annoyance.
- [Note](#): 21. "Relations poolantes" is what Jean-Louis Le Moigne, *La Théorie du système général: Théorie de la Modélisation* (Paris, 1977), p. 91, calls them in his best Franglais.
- [Note](#): 22. One could also think of the experience of discussion groups, university seminars, and similar systems, where a few do most of the talking while the rest listen--a quasi-natural development that can be corrected, if at all, only by leadership.
- [Note](#): 23. See Gordon Pask, "The Meaning of Cybernetics in the Behavioural Sciences," in J. Rose, ed., *Progress in Cybernetics*, vol. 1 (London, 1970), pp. 15-44 (esp. the section "The Cybernetics of Behaviour and Cognition: Extending the Meaning of 'Goal,'" p. 32ff).
- [Note](#): 24. See also the concept of "interaction-opportunity-structure" in George J. McCalland J. L. Simmons, *Identities and Interactions* (New York, 1966), p. 36ff, which derives from research in juvenile delinquency and is formed in the opposite way: opportunity becomes structure when situations are adequately structured for it, as, e. g., when reacting to opportunities makes the structure of behavior in some juvenile subcultures.
- [Note](#): 25. Quite similarly Warriner, esp. p. 123ff, on socio-anthropological and Meadian foundations.
- [Note](#): 26. *Ibid.*, p. 134, provides the following characterization: "These are primitive societies in three important ways: (1) they are particularistic, bounded by and limited to the particular actors, events, and situations in which the society emerged; (2) they are a-historical in the sense that the past is always revised in the present and does not exist for the actors as an autonomous fact; (3) they are indifferentiated, as social forms have not yet emerged out of the interactional process."
- [Note](#): 27. For the openness of initial situations, see the remarks in McCall and Simmons, p. 182.
- [Note](#): 28. See, e. g., Albert K. Cohen, *Delinquent Boys* (New York, 1955), p. 60f, as representative of a number of similar observations.
- [Note](#): 29. For a case study of situations in which the making and ending of contact is facilitated, see Sherri Cavan, *Liquor License: An Ethnography of Bar Behavior* (Chicago, 1966).
- [Note](#): 30. This viewpoint has been developed especially by Siegfried F. Nadel. It serves in simpler societies to relieve the official apparatus of norms and sanctions. See Siegfried F. Nadel, "Social Control and Self-Regulation," *Social Forces* 31 (1953): 265-73; Nadel, *The Theory of Social Structure* (Glencoe, Ill., 1957).
- [Note](#): 31. This is one of the perspectives with which sociology has explained the historical genesis of individuality. See, e. g.: Emile Durkheim, *De la division du travail social* (Paris, 1973), p. 336ff; Hans Gerth and C. Wright Mills, *Character and Social Structure: The Psychology of Social Institutions* (New York, 1953), p. 100ff.
- [Note](#): 32. Of course, a more precise analysis would quickly show that the possibilities of using commitments to excuse oneself are distributed very unequally: persons with higher status enjoy more of these possibilities than those with lower status; working wives more than nonworking wives, etc. But basically there is perhaps no one who is limited to one and only one interaction context.
- [Note](#): 33. A well-known problem of court ceremonials. One is tempted to view this as the reason why, in about 1700, secular morality switched from sin to error and why its sanction changed from the loss of salvation to ridiculousness.

[Note:](#) 34. See Andrea Leupold, "Liebe und Partnerschaft: Formen der Codierung von Ehen," *Zeitschrift für Soziologie* 12 (1938): 297-327.

[Note:](#) 35. In exchange relations, this already emerges from the inclusion of the ownership of land and labor in the system of money-mediated exchange. For conflict, the same hypothesis would have to be examined via an increase in legal disputes. See, e. g., James Willard Hurst, *Law and the Conditions of Freedom in the Nineteenth-Century United States* (Madison, Wis., 1956); Christian Wollschläger, "Zivilprozessstatistik und Wirtschaftswachstum im Rheinland von 1822-1915," in Klaus Luig and Detlef Liebs, eds., *Das Profil des Juristen in der europäischen Tradition: Symposium aus Anlaß des 70. Geburtstages von Franz Wieacker* (Ebelsbach, 1980), pp. 371-97.

[Note:](#) 36. We should perhaps explain that "undifferentiated" refers here only to the difference between society and interaction. Of course, there are other kinds of differentiation, e. g., the formation of societal subsystems.

[Note:](#) 37. See Chap. 6, section VII. [Note:](#) 38. See Chap. 9.

[Note:](#) 39. See Chap. 8, section XI.

[Note:](#) 40. For corresponding changes in the semantics see, for the classical case, Peter Spahn, "Oikos und Polis: Beobachtungen zum Prozeß der Polisbildung bei Hesiod, Solon und Aischylos," *Historische Zeitschrift* 231 (1980): 529-64.

[Note:](#) 41. See Niklas Luhmann, "Interaktion in Oberschichten: Zur Transformation ihrer Semantik im 17. und 18. Jahrhundert," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), pp. 72-161; and for theoretical reflection Niklas Luhmann, "Wie ist soziale Ordnung möglich?" in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 2 (Frankfurt, 1981), pp. 195-285.

[Note:](#) 42. Immanuel Kant, *Kritik der Urteilskraft*, 3d ed. (1799), p. 262; ed. Karl Vorländer (Leipzig, 1902), p. 227; English translation from Immanuel Kant, *Critique of Judgment*, trans. Werner S. Pluhar (Indianapolis, 1987), p. 231.

[Note:](#) 43. Stratified societies also had to compromise here, but their compromise had a clear form: interactions had to relate either to a specific social stratum or to a household. The "whole family" was the place to satisfy needs required for interaction between members of different social strata.

[Note:](#) 44. See Georg Simmel, *Grundfragen der Soziologie (Individuum und Gesellschaft)* (Berlin, 1917), p. 13. Society could not be assembled only out of large formations like states, corporations, and classes if there were not a multiplicity of ephemeral reciprocal effects among them.

[Note:](#) 45. One need not follow Tenbruck in interpreting this development as the "trivialization" of science. See Friedrich H. Tenbruck, "Wissenschaft als Trivialisierungsprozeß," in Nico Stehr and Rene König, eds., *Wissenschaftssoziologie: Studien und Materialien*, special ed. 18 of the *Kölner Zeitschrift für Soziologie und Sozialpsychologie* (Opladen, 1975), pp. 19-47. The problem of triviality is a problem of the "interface" between society and interaction. But neither research nor great love, neither the capitalist economy nor politics is trivial. The impression of triviality does not appear within the highly cultivated function domains but wherever activities lose their connection with these domains.

[Note:](#) 46. See, e. g., Thomas Hodgskin, *Popular Political Economy* (London, 1827; rpt. New York, 1966), p. 38f.

[Note:](#) 47. One should warn against accepting this too quickly. The text does not assert that interaction loses societal relevance. On the contrary, developments of the highest consequence (though they solve no problems) are initiated in individual interactions. Modern society is generally more indifferent to interaction, but at the same time, in certain respects it is more sensitive than premodern societies. This is because relevant interaction is no longer concentrated in the upper strata and has made room for this relationship of amplifying relevance as well as irrelevance.

[Note:](#) 48. This holds, as has often been emphasized, well into the modern era. For transitional situations, discussed mostly in terms of their ability to establish intimate interaction, see: Lawrence Stone, *The Family, Sex and Marriage in England 1500-1800* (London, 1977), esp. p. 253ff; Howard Gadlin, "Private Lives and Public Order: A Critical View of the History of Intimate Relations in the United States," in George Levinger and Harold L. Rausch, eds., *Close Relationships: Perspectives on the Meaning of Intimacy* (Amherst, 1977), pp. 33-72.

[Note:](#) 49. Michael Giesecke, "'Volkssprache' und 'Verschriftlichung des Lebens' im Spätmittelalter--am Beispiel der Genese der gedruckten Fachprosa in Deutschland," in Hans Ulrich Gumbrecht,

ed., *Literatur in der Gesellschaft des Spätmittelalters* (Heidelberg, 1980), pp. 39-70, demonstrates how, after the introduction of printing, this becomes a very consciously performed process of change.

[Note](#): 50. To cite only one of innumerable examples: Jean Regnault de Segrais, *Les Nouvelles Françaises, ou les divertissements de la Princesse Aurélie* (Paris, 1657), vol. 1, esp. p. 93ff.

[Note](#): 51. Perhaps the subtlest presentation of this process is Claude Crébillon, fils, *Lettres de la Marquise de M. au Comte de R.* (1732; Paris, 1970). See also Laurent Versini, *Laclos et la tradition: Essai sur les sources et la technique des Liaisons Dangereuses* (Paris, 1968), esp. p. 160ff.

[Note](#): 52. One of the best analyses of this interconnection among privacy, intensification of feeling, and the broadening of emotional effect is Ian Watt, *The Rise of the Novel: Studies in Defoe, Richardson and Fielding* (London, 1957), esp. p. 186ff.

[Note](#): 53. When I attempted once to negotiate the price of a piece of chocolate with a saleslady, I found that instead of arguing she repeatedly pointed to the price tag, on which the price was clearly written.

[Note](#): 54. As in the teachings and maxims of La Rochefoucauld.

[Note](#): 55. See, e. g., Christian Thomasius, *Kurtzer Entwurff der politischen Klugheit* (Frankfurt, 1710; rpt. Frankfurt, 1971), p. 155f. This criterion of friendship is even more remarkable since it implicitly goes against the tradition that required and praised a proof of friendship in situations outside those of daily life. Now what matters is a daily capacity to handle problems that arise in society and burden interaction.

[Note](#): 56. This question is also raised by Peter Heintz, *Die Weltgesellschaft im Spiegel von Ereignissen* (Diessenhofen, Switzerland, 1982), who answers it by presenting a "code" for empirical research developed in Zürich.

[Note](#): 57. As part of the continuing research on this, see Hans Ulrich Gumbrecht, "'Ce sentiment de douloureux plaisir, qu'on recherche, quoiqu'on s'en plaigne': Skizze einer Funktionsgeschichte des Theaters in Paris zwischen Thermidor 1794 und Brumaire 1799," *Romanistische Zeitschrift für Literaturgeschichte* (1979), pp. 353-73; Gumbrecht, "Skizze einer Literaturgeschichte der Französischen Revolution," in Jürgen von Stackelberg, ed., *Europäische Aufklärung*, vol. 3 (Wiesbaden, 1980), pp. 269-328.

[Note](#): 58. For a contemporary commentary, see Alexandre Vinet, "Individuality, Individualisme," *Semeur*, April 13, 1836, in Vinet, *Philosophie morale et sociale*, vol. 1 (Lausanne, 1913), pp. 319-35.

[Note](#): 59. As in the remarks on "transcendental dialectics" in the *Critique of Pure Reason*, B 349ff.

[Note](#): 60. Recently, Nietzsche's opting against, and his importance for, sociology have been discussed as symptomatic of this situation. See: Eugène Fleischmann, "De Weber à Nietzsche," *Europäisches Archiv für Soziologie* 5 (1964): 190-238; Horst Baier, "Die Gesellschaft-- ein langer Schatten des toten Gottes: Friedrich Nietzsche und die Entstehung der Soziologie aus dem Geist der decadence," *Nietzsche Studien* 10/11 (1981-82); Klaus Lichtblau, "Das Pathos der Distanz: Präliminarien zur Nietzsche-Rezeption bei Georg Simmel," ms., Zentrum für Interdisziplinäre Forschung (Bielefeld, 1982).

[Note](#): 61. Jean-François Lyotard, *La Condition postmoderne: Rapport sur le savoir* (Paris, 1979), p. 7f. (English trans. *The Postmodern Condition: A Report on Knowledge*, trans. Geoff Bennington and Brian Massumi [Minneapolis, 1984], p. xxiv.)

[Note](#): 62. Thus Heintz, *Die Weltgesellschaft im Spiegel von Ereignissen*.

[Note](#): 63. For corresponding modifications in the Darwinian concept, see also Edgar Morin, *La Méthode*, vol. 2 (Paris, 1980), p. 47ff.

[Note](#): 64. Our language here is itself a language of observation; it is on the level of the observation of observations. The performance of autopoiesis is always an actual course, which occurs in one specific way and not otherwise. One can speak of probabilities (and connectivity) only in relation to an observer's processing of information, whereby this observing can itself be reintroduced into the autopoietic process and then in part determine it--either by choosing what is probable or by avoiding this and focusing on innovation, risk, and improbability.

[Note](#): 65. Observation related here to the standpoint that lets one see the probability of what is improbable.

[Note](#): 66. This case and its significance in preparing the way for the French Revolution are still argued about. But one can well imagine how much the specific staging of interaction and the cult of

secrecy have promoted "incidental" innovations, precisely because these did not really concern the meaning and goal of being together.

[Note](#): 67. See Niklas Luhmann, "Interaktion in Oberschichten."

-- [437] --

Chapter 11: Self-Reference and Rationality

I

As a result of the twofold paradigm shift with which we opened our investigations, the figure of self-reference has moved to center stage in systems theory. What meaning there might be in designating as systems forms or objects that exhibit no self-reference is something that, in investigating social systems, we can leave open. ¹ This also holds for the question in epistemology (or theory of meaning) of whether forms or objects that exhibit no self-reference can be observed at all, or whether one always already assumes in the act of observation that what is observed refers to itself, attempts to be and to remain identical to itself and to distinguish itself from its environment. Questions of this kind lie outside our field of investigation. Social systems are undoubtedly self-referential objects. One can observe and describe them as systems only if one takes into account that they refer to themselves in every operation. ²

Outside of systems theory, social scientific statements of these facts remain ambivalent. On the one hand, following an eminent tradition, one reserves self-reference for the consciousness of "subjects" (not for objects!) and interprets subjects as self-individualizing individuals. Accordingly, self-reference occurs exclusively in the domain of consciousness. ³ This would mean that observation can only take place by using consciousness and would face objects in which one cannot always assume consciousness. The difference between subject and object thereby would become the

premise of all further information processing. On the other, in the domain of the social sciences--not just accidentally but systematically, not just occasionally but constantly--one runs up against states of affairs that cannot be unambiguously classified according to this difference. The social cannot be entirely reduced to individual consciousness. It neither enters completely into consciousness, nor can it be interpreted as the adding up of the conscious contents of different individuals, nor is it the reduction of the contents of consciousness to the domain of consensus. The experience of the social, and even more so its practical activation in nexuses of social meaning, always begins from this nonreducibility. Because of this one can, for example, deceive or fear being deceived, hold back information, communicate in an intentionally ambiguous way, or generally know the meaning of ignorance. This is how temporal difference in different persons' states of information is relevant and how communication is possible. The experience of the nonreducibility of the social helps constitute the social. It is nothing more than the experience of the self-reference of the social.

Of course, the insight that psychic systems are also self-referential systems is maintained. As Chapter 7 showed, they process their self-reference in the form of consciousness. Psychologists encounter such facts, for example, in critiquing the stimulus/response schema or the concept of independent variables. ⁴ The more precisely these investigations refer to their own type of system, the less possible it becomes to derive direct consequences from them for the self-reference of social systems. ⁵

If one accepts this, then one has already rejected the premise that consciousness is the subject of the world. The duplication of empirical/transcendental facts of consciousness becomes superfluous. If one wishes to retain a "subject" terminology, one can still say: a consciousness is the subject of the world, alongside which there are other kinds of subjects, above all social systems. Or that psychic and social systems are the subjects of the world. Or that meaningful self-reference is the subject of the world. Or that the world is a correlate of meaning. In every case, such assertions burst open the clear Cartesian difference between subject and object. It is superfluous to try to understand the concept of the subject from the viewpoint of this difference; the difference, so to speak, subjectivizes itself. The self-referential subject and the self-referential object

are conceived isomorphically--just like reason and the thing-in-itself for Kant. And isn't the concept of self-reference, then, all that is needed? ⁶ This switch, of course, leads to purely linguistic difficulties that have accompanied and encumbered our analyses so far. Not only the philosophy of consciousness but also language deals with subjects. All verbs presuppose that to whom or to what they refer is or can be known, and self-reference, which truncates the search for the who or the what (it's snowing, it pays, it's fitting) can unfortunately be formulated only in exceptional cases. Many verbs whose use we can neither avoid nor want to avoid refer, according to ordinary understanding, to a conscious carrier for the operation, for example, the operation of observing, describing, knowing, explaining, acting, distinguishing, and attributing. Ordinary, everyday understanding, however, has no theoretical grounding. ⁷ For specific theoretical reasons, we must eliminate the conscious premise of the (linguistic) reference of such verbs to a subject. In this text they must be read as referring to a support that can be described as a self-referential system but that is not necessarily a psychic system, that is, does not necessarily carry out its operations in the form of consciousness. This emerges from the distinction between psychic and social systems. ⁸

The concept of a self-referential system is more difficult to introduce but less subject to misuse than the concept of the subject. Above all, it does not presuppose focusing on *the* subject (or at least a kind of subject). Thus it is more suitable to the centerless world picture of contemporary science. But we must establish clearly the meaning of this concept and thereby its boundaries of application --not least of all to prevent, if possible, a spilling over of the subject terminology. This clarification leads to distinguishing several types of self-reference, which can occur in social systems successively. A more precise presentation in the main part of this chapter will prepare an approach to the theme of rationality.

II

The concept of "reference" should be defined in a way that moves it closer to the concept of observation. With it, we would like to designate an operation composed of the elements distinction and

indication (in Spencer Brown's sense). This concerns the indication of something within the context of a (likewise operatively introduced) distinction from something else. Referring becomes observing when the distinction is used to acquire information about what is indicated (which generally requires distinctions that are understood more narrowly). Normally referring is accompanied by an interest in observation and thus by an interest in acquiring information. Nevertheless, we would like to keep the terms observation and interest or motive separate to maintain the possibility of using concepts like system reference and self reference without implying the possibility of or interests in observation.

The concepts of reference and observation, including self-reference and self-observation, are introduced with respect to the operative handling of a distinction. They imply that this distinction is posited as a difference. This positing operates as a presupposition in the system's operations, and nothing more is usually required than working with that presupposition. One wants to make some tea. The water is not yet on. Thus one must wait. The differences between tea/another drink, putting the water on/not putting the water on, having to wait/being able to drink structure the situation without it being necessary or even helpful to thematize the unity of the difference used at any one time. We need a concept for the special case of orientation to the *unity of the difference*, which we will call *distance*. In other words, systems gain distance from information (and possibly from themselves) if they make the distinctions that they use as differences accessible to themselves as a unity. The concept should make it possible to formulate connections between the differentiation of social systems and gaining distance.

If one wants to thematize the unity of a difference, one must determine both sides of the distinction. It would be pointless to confront something determinate with something entirely indeterminate, and therefore nobody does it. Introducing the unity of a difference into the process of acquiring and processing information thus requires introducing limitation as a condition of the productivity of operations.

Perhaps the simplest procedure uses classification: one distinguishes one illness from other illnesses because one can accept an indeterminable counter-concept to health, which cannot be resolved into different types of health. ⁹ With the help of this technique, one can deal with differences as unities, can decide

whether one is dealing with health/illness or with something else. When this is possible, one can form difference-specific social systems -- for example, systems that concern themselves with illness.

This classificatory procedure is not the only one possible. There are functional equivalents. Among the most demanding forms are binary schematisms within which every determination must be acquired by negating its opposite: truth, for example, by negating falsehood (and not by intuition or tradition!). Unlike classification, such schematisms effect no secure exclusions. They produce their material themselves. They postulate that from their specific angle of vision everything takes on one or the other value. Therefore they require function systems that are closed specifically with respect to them, function systems that scan the entire world for information according to their own schematism and that can afford indifference to all other schematisms.

While classifications not only can but must be handled in rapid succession because they are so concrete, binary schematisms provide a basis for differentiating social systems that are correspondingly specialized. Thus a social system for handling patients is not differentiated on the basis of a distinction between different illnesses. It becomes possible only when the difference between illness and health is used as the occasion to hold a specific system responsible and at the same time to concede this system indifference in other respects.

If the handling of difference becomes more and more ambitious in this sense--and obviously this is a characteristic of modern society-- the distance from the phenomena, from the sources of information, and from communication partners, also increases. The sociology of professional occupations addresses this, but it has a more general significance. It distances practically all function systems from differences practiced in the lifeworld (which does not exclude reciprocities). Thus an artist who speculates about a composition sees other differences in "nature" than do those in the lifeworld. Thus economic theory is needed (or else it would not be a useful theory) to keep a cool head with respect to the difference between rich and poor, which is of burning interest for anyone who considers himself. And thus science uses the distinction between true and false to produce a knowledge that science itself may not be able to survive.

Some people would like to mount a simplistic attack here using ethics. Hegel's concept of the state is no better. Nor is Marx's hope for a revolution. In societal reality, one just does not see any prospect for achieving such central fusions into an ultimate unity of difference, from which no distance would be possible any more, so that everyone would be in perfect agreement as a result of a common meaning. At best the question can be whether it is possible to make function systems reflect as a unity the difference between system and environment that they practice, namely, gain distance from themselves. We will return to this in section X under the heading of rationality.

III

To extend the argument, we must first clarify reference relationships within systems. Reference and observation are, one should recall, operations that indicate something within the framework of a distinction. Accordingly, "system reference" is an operation that, with the help of the distinction between system and environment, indicates a system. The concept of system (as we use the term in our investigations) always stands for a real state of affairs. Thus by "system" we never mean a purely analytical system, a mere conceptual construction, a bare model. ¹⁰ For such instances, we use the concept "system reference." In other words, we replace the widespread but unclear distinction in the concept of system between concrete and analytic systems with the distinction between system and system reference. But one must also note that the concept of reference (as well as the concept of observation) is taken more broadly than the concept of analysis and that it in no way should be limited to a scientific operation, that is, it indicates any orientation to a system (including self-reference).

Even "self-reference" is reference in the strict sense, indication according to a distinction. The distinctiveness of this concept lies in that the operation of reference is included in what it indicates. It indicates something to which it belongs. This is no tautology. The operation of reference does not indicate itself as an operation. ¹¹ Always guided by a distinction, it indicates something with which it identifies. This identification, and thereby the attribution of self-reference to a self, can assume different forms depending on which

distinction determines the self. One can distinguish three forms of self-reference, which we will separate terminologically to prevent misunderstandings and confusion.

13. We will speak of *basal self-reference* when the basic distinction is between *element* and *relation*. In basal self-reference, the self that refers itself is also an element, for example, an event or, in social systems, a communication. Basal self-reference is the minimal form of self-reference, without which autopoietic reproduction of temporalized systems would be impossible. We showed this above in the discussion of Whitehead's concept of event. ¹² Basal self-reference is a constitutive requirement for forming self-referential systems, but it is not a system reference, since the indicated self is intended as an element, not as a system, and since the guiding distinction is element/relation and not system/environment. This of course does not deny that the concept of element presupposes a system and vice versa. But that does not negate the distinction between different forms of self reference; it merely grounds the expectation that they correlate to each other.

14. We will speak of *reflexivity* (processual self-reference) when the basic distinction is between *before* and *after*. Here the self that refers itself is not an aspect of the distinction but a *process* constituted by it. A process emerges with the help of the before/after difference if the additional condition of an increase in selectivity is fulfilled. Thus communication as a rule is process, namely, is determined in its elemental events by the expectation of a reaction and the reaction to an expectation. One can speak of reflexivity whenever a process functions as a self to which the operation of reference belonging to it refers. Thus within the course of a communicative process one can communicate about that communicative process. Thus reflexivity takes advantage of a unifying formation that combines a multitude of elements (often a countless number) within which the self-reference includes itself. Above all, this means that the self-referential operation must comply with the characteristics of belonging to a specific process, must be communication in a communicative process (communication about communication), observation in a process of observation (the observation of observation), and an application of power in a process of applying power (the application of power to the powerful). In this sense reflexivity increases and intensifies the features that typify process.

15. We will speak of *reflection* when the basic distinction is between system and environment. Only in reflection does self-reference exhibit the characteristics of system reference; only here do the two conceptual domains overlap. The self is the system to which the self-referential operation attributes itself. It is an operation by which the system indicates itself in contrast to its environment. This occurs, for example, in all forms of self-presentation that assume the environment does not immediately accept the system in the way it would like itself to be understood.

These three forms of self-reference are based on a common basic idea. Self-reference correlates to the pressure of the world's complexity. Nowhere in the world can its complexity be adequately depicted, worked out, or controlled, because this would immediately increase its complexity. Instead, self-reference forms, and it can then be respecified to deal with complexity. Thus the complexity of the world neither repeats itself nor is reflected within systems. ¹³ There is no depiction of the "environment" within them. The environment is the system's *ground*, and a ground is always *without form*. The system can only produce differences within the system (such as on/off for thermostats, true/false for logic) that react to differences in the environment and thereby create information for the system. To use this procedure and to convert it into operations, the system must be able to constrain its self-reference, which is open to all states of the world; it must be able to detautologize them.

Systems formed and unified by basal self-reference (autopoietic systems) are always *closed systems*. But this concept acquires a new meaning in comparison with earlier systems theory. It no longer indicates systems that exist (almost) without environments, that is, that can determine themselves (almost) completely. Instead, it means that such systems create everything that they use as an element and thereby use recursively the elements that are already constituted in the system. How is this to be understood for meaning systems, especially social systems?

"We find the answer to this question in the system's "disclosure" through linguistic coding, which means for us the doubling of expressive possibilities by a yes/no difference. Thereby the system also creates a negative version of meaning for itself, to which nothing in the environment corresponds and which the system can

control only by self-computation. This coding structures all system operations, regardless of content, as a choice between yes and no. Any choice implies the negation of its counter possibility. This presupposition is a necessary consequence of the code. But it can still be conditioned by a choice between yes and no. Thus it is open and closed at the same time.

The closure of a meaning system can thus be understood as the *control of its own possibilities for negation* while producing *its own elements*. Every transition implies a no (however indeterminate) and can be conditioned by conditioning its use. Such control leads to a recursive calculation of calculation, and reality for such a system is nothing more than the ongoing reproduction that occurs in this way-- because it succeeds, if it succeeds (which includes errors, mistakes, and their correction). ¹⁴

This general concept also applies to social systems. Here too closure can be conditioned as (and only as) the control of the system's own possibilities for negation while producing its own elements, that is, the next communications. In accordance with double contingency, the possibility of negation is doubled here, however, appearing as double *négation virtuelle*, ¹⁵ and the aspect of control is accordingly complicated: it not only refers to what ego wants to attain or prevent but also to the possibility that this might fail if alter does not understand or rejects (whatever alter might want to attain or prevent thereby as alter ego). Communication is correspondingly coded as a (positively or negatively interpreted) proposal of meaning, which can be understood or not understood, accepted or rejected. The control of this doubling and especially this negativity of not understanding or rejecting unfolds recursively and thus already determines the selection of the proposal-- whether the proposal aims at agreement or conflict. ¹⁶ Thus a knowledge of how to estimate what can be understood emerges. This knowledge controls each communication and represents the world socially (although this is not adequately described as "language"), and in connection with it there emerges a culturally coded use of symbolically generalized media of communication. It becomes clear, then, that it is necessary to widen the temporal basis of communication, that is, to equip experience with temporal horizons, if closed self-reference is to be handled. This enables one to estimate prospects for agreement and readiness for acceptance.

A social system constructs its reality by calculating its calculation in the process of communication, what's more, in a communication about communication that tests whether communication has come about through understanding or not. The possibility of communicating about communication resides in and always accompanies communication, regardless of whether one resorts to it or not. ¹⁷ There is reason to tune in to rejection and to react to it only if this possibility of communication about communication gets used, or is broken off-- for example, by argumentation or threats. Communication is the social system's only guarantee of reality-- not because it reflects the world as it really is or describes it correctly (which would presuppose access to independent criteria or the God of Descartes), but because it can be conditioned by the form of its closure and thereby subject itself to the test of proving its success. ¹⁸

An important consequence of these considerations is that the self-reference needed for autopoiesis is only an *accompanying self-reference*. Pure self-reference in the sense of "relating only and exclusively to itself" is impossible. If it came about, any accident whatsoever would de-tautologize it. ¹⁹ One could even say that if it came about, all accidents would be redundant and functionally equivalent with regard to the determination of what is indeterminate. ²⁰

In fact, self-reference comes about only as one aspect of reference, among others. Self-reference is an aspect of the operative behavior of elements, processes, and systems; it does not make up their totality. The self, whether an element, process, or system, never consists only in pure self-reference, no more than self-reference indicates only itself as self-reference. The self transcends self-reference to include it within itself. Thus the full meaning of an action is not exhausted in its being reflected in and confirmed by the actions that follow from it, though these remain constitutive aspects of that meaning. A man offers a woman his seat on a crowded bus: part of the meaning of this action, part of its being a correct and successful action, is being rewarded and confirmed by the woman's taking the seat. (One can check this by imagining a deviant course of events: the woman does not accept the seat but puts her handbag in it!) The appropriate, expected consecutive action also belongs to the meaning of the action; finally, the woman can now sit down. Self-referential, autopoietic reproduction would

not be possible without an anticipatory recursivity. Closure of the circle alone would not suffice, but additional meaning must be incorporated to enable the transition from event to event, from action to action. This is why self-reference requires indication and distinction: in our example, the self-intending of the action in relation to another, being an element and a being an element in a relation.

This somewhat pedantic analysis should be performed with precision because it demonstrates that the theory of self-referential systems sublates the difference between closed and open systems, and how. ²¹ Self-reference produces recursive, circular closure, but closure does not serve as an end in itself, not even as the sole mechanism of preservation or as a principle of security. Instead, it is the condition of possibility for openness. All openness is based on closure, ²² and this is possible because self-referential operations do not absorb the full meaning, do not totalize but merely accompany; because they do not conclude, do not lead to an end, do not fulfill a telos, but rather open out.

To this extent empirical systems always already make provisions for what gives logicians trouble: the "unfolding" of pure tautologies into more complex self-referential systems that are richer in content. ²³ The "self" or self-reference is never the totality of a closed system, and it is never the referring itself. It is always merely an aspect of the constitutive nexus of open systems that carries its autopoiesis: elements, processes and the system itself. What entitles us to speak of (partial or accompanying) self-reference here is that this concerns the conditions of possibility for autopoietic self-production.

A serious discussion of the relationship of functionalistic systems theory to the tradition of transcendental theory and dialectics could begin here. The point of departure for all these theoretical variants lies in the theorem of accompanying self-reference, for no one would dispute this. Thus the issue revolves around different accounts of simultaneous reference to self and to something else. One ends up with transcendentalism when this problem is interpreted as the distinctiveness of consciousness and therefore (!) consciousness is declared to be the "subject." ²⁴ One ends up with dialectics when, given the synchronization of referring to self and to something other, one focuses on the underlying unity (thus,

finally, on the identity of identity and difference and not on the difference between them). Dialectics can, but need not, be combined with transcendental theory. We consider transcendental theory to be a false absolutizing of merely one system reference (but at the same time a good model for theories of self-reference) and dialectics too risky in assuming an identity (though transitions and connections in theory always still must begin from difference). These distancings from the most important theories that are available in this domain of problems lead to functionalistic systems theory. It maintains that self-referential systems acquire information with the help of the difference between referring to self and to something other (in short, with the help of accompanying self-reference), and that this information makes possible their self-production.

IV

We presented the basal self-reference of social systems while discussing the concept of action within the context of event versus structure, and need not repeat the material here. Yet we need to reconsider two viewpoints to indicate the constraints it imposes on all system formation.

Typical features of system formation emerge from the requirement of basal self-reference. Reproduction within closed autopoietic systems requires a minimum "similarity" in the elements. Only living systems can be reproduced by life, and only communicative systems by communication. It is not possible to connect chemical events "autopoietically" onto conscious events or vice versa, although causal relations between them can, of course, exist. It is therefore important to distinguish basal self-reference from causality. The construction of reality as the emergence of distinct types of systems follows only from self-reference, not from causality. The compulsion to adhere to a certain type is nothing more than the limitation under which an element, such as a communication, must operate if it is to refer back to itself through something else. In a chemical experiment, there is, of course, also feedback from the experience of the actor who performs the experiment, but this is based on a conscious model of the actor that provides for the conditioned reproduction of actions or a communicative system

that coordinates the actions of many persons. There is no system that can produce a self-referential relationship of double contingency between chemical and communicative events.

A further explanation is important because it goes against prevailing ideas. In fully temporalized systems that use events as elements, there can be *no causal circularity* on the level of the elements. Theories that give foundational significance to such circularity, for example, theories of cybernetic regulation, overlook the elements' temporal "nullity."²⁵ Events disappear as they emerge: they are no longer available to react in the following instant. Causal reaction presupposes forms (or *forming* a *nexus* of events) with a higher degree of order, which make further events possible.²⁶ Events present the irreversibility of time within systems. In order to achieve reversibility, one must form structures.

This is an insight of far-reaching significance. It implies, among other things, that feedback control-loop cybernetics cannot be a foundational science. The obvious advantages of circular causality for ordering must first be worked out without being able to rely on any foundations that already exist. There is no causal performance of basal self-reference in meaning systems.

There seems to be a profound interconnection between the irreversibility of time and the genesis of meaning as a form of information processing.²⁷ On the level of its elements, a system can open itself to the irreversibility of time only if it can solve the problems of basal self-reference that arise with other means than causal ones, that is, if it can do without causal circularity on the level of its elements. By basing itself on its elements, the system copies the irreversibility of time within itself, constituting itself in its elements as related to time. That is possible only if recursive relations that enable reciprocal adjustment of elemental events can be established nonetheless. On the level of organic systems, this appears to have been prepared for by "directive correlations."²⁸ The genesis of meaning makes possible an elegant solution to the problem. The future and the past are given in the present as horizons, and individual events can then be oriented to remembrance or foresight, above all to the foresight of remembrance, thus circularly. This is possible, of course, only if an adequately dense net of natural "directive correlations" safeguards against too-frequent disappointment. Then meaning can emerge and form a temporal

dimension, within which basal self-reference can be delineated. And then the temporal duration of elemental events can be as short as one might wish. The result is that familiar element form, action.

The evolutionary achievement of meaning and the possibility of meaningful action are thus grounded in the irreversibility of time, which constitutes the form of their basal self-reference. This is how systems switch over to fully temporalized complexity. If a sense for meaning were ever to be lost, it would immediately be reproduced, because a noncausal basal recursivity is not possible otherwise.

V

We must concern ourselves in a little more detail with processual self-reference, thus with the reflexivity of the processes in social systems. The point of departure lies in the type of the form of social processes, thus in communication. Of course, psychic systems also possess reflexive, self-directed processes, for example, thinking about thinking or enjoying enjoyment. ²⁹ But in analyzing social systems one must begin with the facts that all processes are communicative processes and that reflexivity must be acquired as communication about communication.

This is a consequence of the conditions for constituting processes. Processes emerge by intensifying selection, that is, by temporally constraining the degree of freedom the elements possess. This requires that elements belong to the same type. Mere sequences of events (fire, jumping out of a window, breaking a leg, being taken to the hospital) are not processes, and they cannot become reflexive. Such an interconnection of occurrences can be anticipated and taken into account as a whole (for example, the question of whose insurance must bear the cost can become relevant), but it cannot apply to itself, cannot become reflexive. The basic form of all processual reflexivity is always the selection of selection. Therefore reflexivity can emerge only on the basis of a self-selective structure of processes that intensifies the selection of selection.

When processes are formed, an event that has occurred at any given moment loses its explanatory value but gains a predictive value. The event occurs in a process only if it comes about thanks

to the selectivity of earlier and later events. "The causation of events ... must be sought for not mainly in prior events but in the processes of which they are manifestations." ³⁰ Therefore an observer can detect movements, follow melodies, and figure out what is going to be said. When adequately heightened, the process works as a premonition because the individual elements are too improbable to appear in isolation. In this sense, the unity of the process acquires causal significance for itself. Its unity, composed of the connection between improbable selections, uses this improbability to confirm it as probability. The high improbability of every determinate conscious content and the high improbability of every communication, given the temporal instability of such items, forces them, in actuality, to be constituted as features of a process. Thus an aspect of self-observation is built into the process, at least initially; the unity of the process appears within itself once again and can increase its internal improbability, namely, the improbability of its individual events.

Such a re-entry into complexity of the unity of what is complex is a more or less evident characteristic of all processes. Otherwise it would not bring about an intensification of their selectivity. We would like to speak of processual self-reference or reflexivity only when this re- entry into the process is articulated using the process's means. ³¹ The boundaries should not be drawn sharply. But the process must have available individual events or processes that undertake to re-introduce the process into the process and are differentiated for this function. Thus at least passing references to communication must be communicated ("If I understand you correctly, you mean"), with which one can speak of communication about communication. This insertion can, of course, extend to an intermediate process of its own, a process that intervenes in the process. The concept of reflexivity allows us to grasp the differentiation of the function that gives the unity of the process value within the process, which we will designate the application of the process to itself. ³²

Above all, the differentiation of reflexive mechanisms permits the process to control its own nonoccurrence. ³³ One can now communicate about why something has not been said. One can recognize lies, enjoy pain, spend money or not spend it, prove one's love by hatred and jealousy, decide or not decide, avoid the

exercise of power on the basis of power. Reflexive processes can be used as processes that change structure, and their development imposes itself if a great need for controlled structural change exists. Of course, a counter-instance can be included in a process only in accordance with its own type of event. When this is possible, the process acquires a greater degree of freedom, a greater range of application, and a better capacity to adapt.

A sociological analysis that begins with this might be especially interested in the question of whether and under which special conditions reflexive relationships of this kind are capable of being *normalized* and *augmented*. Does communication about communication occur with equal frequency in all societal formations and domains, or, as might be expected, does its occurrence correlate with the improbability and the innovative value of communicative themes and contributions? How much of the burden that is imposed by communication about communication can a communicative process handle, and do these limits vary with society and societal domain? How are transitions from the reflexive level to the normal level handled communicatively? Are there techniques of interception that one can use successfully to prevent communication from becoming reflexive (i. e., unanswerable)? And what effect does frequent communication about communication have on the manner and the clarity with which participants experience themselves as persons?

— Let us single out one of these problems in more detail. One can understand *rituals* as intercepting all attempts at reflexive communication.³⁴ Communication is rigidified as a fixed course, and its rigidity takes the place of any question concerning why this is so.³⁵ The elements of the process and their order of succession are unalterably fixed; words are treated like things; the present is what counts; and it cannot be corrected either with respect to the future or by accumulated past experience. The risk in using symbols is kept to a minimum. Rituals are like the unquestioned self-evidence of everyday assumptions, which similarly exclude reflexivity.³⁶ But they fulfill this function in tenuous situations, where this is no longer self-evident and where interests, doubt, or anxieties must be minimized; they set up artificial means for problematic situations. Offenses against ritual do not appear as something remarkable, a personal caprice, or a joke, but as a dangerous mistake, and instead of switching over to reflexivity, one suppresses the mistake.

A similar effect of interception is attained without the stringency of ritual by giving communication a ceremonial form that emphasizes itself. In Greek history the rhythmic form of tradition-bearing communication seems to have fulfilled such a function. ³⁷ Such bound forms served to persuade and to exclude doubt or further inquiry; an equivalent function may have been initially fulfilled by fixing things in writing.

Even when social life is permeated with self-evidences, ritualizations, and elegant poetic formulations, one must always reckon with communication about communication. The concomitant advantages and problems multiply when one raises the additional question of whether and under what special conditions reflexive relationships *can be specialized*. They would then have to regulate not only communication pure and simple but also special kinds of communicative processes. There are clear examples of this, above all in the domain of functionally specified communication and especially, but not exclusively, in the function domains that have brought forward symbolically generalized media of communication. Thus in love, communication has become thoroughly reflexive: that one communicates about love and how (bodily behavior is very much a part) is also a proof of love, and there is no possible proof outside of this self-reference. Another example is the education of the educator. The educational process has become reflexive because only educated educators can carry it out; "born educators" (fathers and mothers) can no longer satisfy the demands. Relations of exchange are a further case. As soon as money plays a role, exchange relations become reflexive. In the form of money one exchanges the possibility of exchange. In exchanging money, one communicates about exchange processes, whether one wants to or not, and not just in general (by mentioning them!) but precisely and in conformity with the process in that one exchanges them. For jurists, ever since the decision of cases and the effects of precedents have been distinguished and both must be decided at once (only a decision of a case is a precedent), there has been a similar obligation to reflexivity framed very precisely by the typology of a practice called the application of the law. Not least, one must think of power relations. Power is reflexive to the extent that it is applied to power, that is, concentrates precisely and exactly on directing others' means of power. This can occur from above but also, and much more subtly, from below. The same holds generally for influence. ³⁸

Even in this simple collection of instances, it becomes clear that the examples are not distributed randomly. They became frequent in the early modern period, and it seems that in becoming reflexive particular processes used and amplified the differentiation of corresponding function domains. Apparently, system formations that lent the specification of the process a necessary normality and reiterability, yet a complexity of its own, which increased the corresponding processes' contingency and need for guidance and security, had to be added. ³⁹ This explains how transition to a primarily functional differentiation considerably diversifies the palette of reflexive processes and how this change triggered countless transformations in the semantics of Old Europe.

If one could work out a theory of reflexive communication that corresponds to the instructions sketched above, it would show that the interception of attempts at reflexivity conforms to itself. As religion is relieved of ritual, this leads to the problem of certainty of belief, which must be judged according to criteria that lead to the bifurcation of the Christian religion. This was followed by an intensified emphasis on the natural sciences; humanity is (one notices the reflexivity) promised a natural access, a natural (cognitive and productive) relationship to nature. Certainty is based on individual experiences of certainty or simply on individual experience, and self-evidence in common sense is viewed as a special type of truth, at times even as the criterion of truth pure and simple. ⁴⁰ One begins with a given state of things and of knowledge, then problematizes -- this is a constraint!--from the perspective of accumulation and improvement.

Seeing is something one can do anytime; seeing better is something one can do only with glasses, telescopes, and microscopes.

This brief excursus into history ought to clarify how a formulation in terms of communications theory can form macro- as well as micro- sociological hypotheses, how it can be applied not only to interaction systems but also to societal systems. Reflexivity is a very general principle of differentiation and intensification. It enables processes to guide and control themselves. It presupposes, however, the functional specification of processes and develops only if and insofar as evolution has provided adequate grounds for this. ⁴¹ Societies that have considerable reflexivity at their disposal then bind easy and consequential perturbability to a formidable

capacity to recuperate. The money system is perhaps the most impressive example of this.

VI

By establishing a self-referential circle in the form of double contingency, every social system is forced to select its own possibilities. It thereby opens itself to conditioning. Out of this can be produced a need to select these conditionings for itself and not leave the choice entirely to chance. This higher layer of control is attained by social systems' orienting themselves to themselves--to themselves as different from their environments. We have called this form of self-reference reflection.

We describe as reflection a case in which system reference and self-reference coincide. A system orients its own operations to its own unity. As guiding difference, not the before/after of processes, but the difference between system and environment comes into consideration. Only within this difference is it possible to indicate either the system or the environment and thereby to thematize as a unity the complexity that is indicated as system or environment. In other words, reflection requires introducing the difference between system and environment into the system. When this occurs from the viewpoint of the unity of this difference, we will speak of rationality. Thus rationality can be attained only through reflection, but not all reflection is rational. I will return to this in section X, below.

Like reflexivity, reflection develops on the basis of the normal operative behavior of social systems. And like reflexivity, it is not a general characteristic of all social systems but a special performance that is possible only under specific conditions. Interaction systems normally manage without reflection on their unity. Two reasons, basically, bring them to reflection: (1) if they must be treated as a system, that is, must mark individual actions as binding the system, and (2) if they break off contact between those who are present to each other and arrange for them to meet again, that is, if they must maintain their identity over latent phases. Unless special circumstances arise that can be controlled only through reflection, the constitutive principle of presence, with its immediate value for orientation, suffices and stands in for the unity of the system within the system.

Since communication, the conversion of double contingency into operations, and the constitution of action all produce system attribution, one must begin with the fact that all social systems have at their disposal a rudimentary procedure for *self-observation*.⁴² Every communication declares, whether consciously or not, thematically or not, that it belongs to a system. This says only that if there is a question, the possibilities of assigning the communication to a system have already been constrained. This is one of the necessary meaning implications of every communication. In the chapter on communication and action we have shown that communication brings itself into the (reductive) form of attributable action to enable self-observation within the communicative process, a reaction addressed by communications to communication.⁴³ In this rudimentary sense, self-observation accompanies all social systems--to what extent and with whose awareness is another question--and it possesses reality only as communication.

This rudimentary self-observation of the system on the level of its operations becomes *self-description* if it produces semantic artifacts to which further communication can refer and with which the system's unity is indicated. A clear differentiation of observation and description (and thus self-observation and self-description) comes about with the invention of writing. A description can be performed orally, but this presupposes a textual model developed on the basis of writing, in particular, long, disciplined texts whose understanding is largely independent of the situation. When in the context of such self-descriptions the participants speak of "we" or give their connection a name that can be spoken of in other contexts,⁴⁴ this has entirely different consequences than when a self-observation is merely reproduced or an impression of presence is, so to speak, collectivized. Typically, self-descriptions create a meta-unification, an overestimation of coherence in observing the system, and in this respect they can mislead external observers. Self-observation and self-description leave open (if one accepts this terminology) which differences help to make information processing possible. This may be handled by assigning an individual occurrence to a whole that confers meaning (hermeneutic difference), by the difference between what is determinate and what is not, or by "this-and-something else."

By contrast, *reflection* is a narrower, more demanding instance,

though formally it also falls within the concepts of self-observation and self-description. Here the guiding difference is explicitly a semantics that can represent the relationship between system and environment within the system. This requires that the communication of reflexion be differentiated within the system to at least some degree, for otherwise it would not be clear that this concerns a distinction practiced within the system, which gives a meaning to the difference between system and environment that is not automatically valid for the environment. To this extent self-descriptions in the form of "asymmetrical counterconcepts" ⁴⁵ are not truly formulas of reflection.

Neither Greek/barbarian nor *corpus Christi/ corpus diaboli* suffices; one must take into consideration that pagans are not pagans for themselves.

A system that can reproduce itself must be able to observe and describe itself. Recent discussions of this theme have been triggered by investigations of self-reproducing automata. The initial question was whether the construction of self-reproducing automata would run into a logical contradiction or an infinite regress, namely, the requirement that the automaton contain a complete description of itself within itself. John von Neumann, in particular, has looked for ways to get around this problem. ⁴⁷ However that may be, for social systems (and perhaps for all systems that use events as elements) the question can only be in what direction a simplifying self-description or reflection guides reproduction. Deviant self-reproduction is unavoidable--such is life. But self-descriptions are selectively simplified and thus fix themselves contingently within a certain range of other possibilities, and this fixing may influence the system's development. If such connections could be revealed, they would be of great interest to the theory of society, perhaps, for example, for the question of what self-descriptions accompanied the modernization of Europe and where they may be leading, in ways that could perhaps be avoided.

Part of what is distinctive about the semantics of modern Europe is that system reflection of this kind has been constructed and has assumed the form of theory. One can speak of *theories* of reflection if the system's identity is not only indicated in distinction to the environment (so that one knows what is meant) but also conceptually worked out so that comparisons and relations can enter. Since the seventeenth century, theories of the state have

oriented themselves to the problem that the highest political authority is superior to all power in its territory and must be able to decide every conflict, yet must be restrained from arbitrary use. The result is the theory of the modern constitutional state, which functionalizes its individual parts, such as separation of powers, democratic representation, or protection of basic rights, in terms of this problem. ⁴⁸ In the scientific system, epistemologies, and later theories of science, emerge that must explain how identity in the difference between knowledge and object is possible at all--whether as the self-conditioning of transcendental consciousness, as a dialectical process, or as a pragmatics open to confirmation. Beginning in the second half of the eighteenth century, the educational system also encountered problems of reflection concerning, for example, the difference between perfection and usefulness as educational goals or the problem of how one can bring about freedom. ⁴⁹ For the legal system, the important question was how one can ground the contingent validity of positive law as necessary after the disappearance of natural law; around 1800, one spoke of the philosophy of positive law (Feuerbach), today one speaks of the "theory of law." ⁵⁰ In the economic system, ever since the Physiocrats and Adam Smith, system-specific theories of reflection derived from analyses of exchange, production, and/or distribution have superseded the old literature about counseling princes. Even in the domain of intimate relations, concepts for the system unity of love and marriage began to develop in the eighteenth century on the basis of older notions of *amour passion*; external disturbances subsided, and one was ready to accept that love is responsible for all the happiness and unhappiness it experiences. ⁵¹

It is no accident that this group of examples has accumulated in such a short period of historical time. It appears, like the reflexivity of functionally important processes, to be connected with the intensified differentiation of societal function systems. This differentiation sublates Old Europe's cosmically hierarchical consciousness of order, which was oriented to by the primacy of politics and/or religion. Obviously, the considerable autonomy of function systems blocks the reflection of the societal system, though none of them can represent society adequately. Every statement of fact on this level becomes "ideological," and only in the temporal dimension can relatively convincing formulations succeed--whether with the

help of a belief in progress, concepts of modernity, evolution theories, or, increasingly, fear of catastrophes. Self-thematizations of this kind are always determined by temporal differences--whether by difference from an entirely different kind of past (traditional versus modern society) or difference from an entirely different kind of future, postcatastrophic, so to speak, if not postworldly. Theories of reflection in the true sense--those related to the difference between system and environment--do not become apparent in the total societal system. And this makes it difficult, as we shall see, to formulate the rationality of this society and its shortcomings.

Whatever degree of refinement is achieved in intensified self-observation, self-description, reflection, or theories of reflection, they remain an instrumentalization of self-related operations, of self-related information processing. In the concept of self-observation, we do *not* present a *privileged access* to knowledge. This would presuppose an underlying state of affairs and standard for comparison by which one (who?) could ascertain that introspection is better than external observation. The peculiarity of self-observation has different grounds: the "self" of self-reference must *treat itself as impossible of exchange*. In self-observation, it must identify with what it observes. The Cartesian tradition emphasized the special advantages of this position, showing that the self occupies a privileged position, that it has a special access to itself, and that this results in epistemological advantages that are not accessible to anyone else. But the flip side is that in self-observation the self is condemned to exclusivity. Only it can observe itself. There is no possibility of guaranteeing that others have corresponding views. It cannot fortify itself with the heady wine of consensus, but remains alone. Thus it combines greatest certainty and greatest uncertainty.

This condition is preserved in every increase in processes of reflection (otherwise they would not be what they are). No conceptual articulation, no theorizing, no inclusion of empirical knowledge changes this. It is a matter of a self-referentially closed process that necessarily lacks the qualities of external observation that could qualify and neutralize any standpoint. The qualities of functionally specific theories of reflection, in addition to those specific to societal theories, must be understood from this perspective. Despite the "scientific" appearance for which theories of evolution

and modernization, national historiography, pedagogy, legal theory, scientific theory, political theory, economic theory, and so on strive, if such a body of thought is enlisted as a theory of reflection and used to enable the self-observation of a corresponding system, a typical exaggeration comes into play. More certainty than can scientifically be justified and more uncertainty than is scientifically necessary emerges. Since the nineteenth century, this effect has been discussed under the title of susceptibility to ideology, and in sociology it has led to the rejection of societal theory or even of sociology pure and simple. ⁵² The concept of ideology, however, does not advance the analysis; it only serves to expose unjustified scientific claims. The critical attitude, too, remains unproductive because it implies improvements in a direction that would lead outside the circle of reflection. But reflection must always unfold the circle, enrich it, provide it with qualities of meaning that give it better chances (chances more suitable to complexity) for the accompanying self-observation of more complex systems.

VII

In all the forms that we have considered, self-reference has never assumed the character of a tautology or of a complete duplication of whatever functions as the self at any time. Thus it concerns neither the principle of identity $A = A$ nor a total referring in the sense of a complete rendition of what is meant within what is meant. Such forms could not provide what the system's autopoietic operations depend on: information. Instead, an empirically oriented analysis of self-referential systems reveals that the system's unity, which ultimately consists in carrying out autopoietic reproduction, is reintroduced into the system in the form of "accompanying" self-reference. This requires an operation that we have, on occasion, already designated self-simplification. To appear as the system's unity within the system, complexity must be reduced and then meaningfully re-generalized. The semantics devised for this is not the whole, but refers to the whole as a unity, makes it available to all operations as an always-accompanying cord of reference. The system operates always, but not only, in contact with itself. It functions as an open and a closed system at once.

I would like to illustrate this idea, which is unusual even within

the literature of systems theory, with some points about three function systems of modern society. In choosing examples I have been guided by the intention of clarifying the sociological fruitfulness of the concept of self-referential systems.

Self-referential autonomy on the level of individual societal subsystems was first established in the seventeenth and eighteenth centuries. Previously, the religious positioning of the world occupied this functional site. Perhaps one can say that the reference to God intended in all experience and action functioned as the secret self-reference of the societal system. One said, perhaps, that without God's help no work could succeed. Societal as well as moral demands were fixed thereby. But the religious semantics was not formulated as society's self-reference; it was (and still is) formulated as other-reference, as transcendence.

With the societal system's switch from stratificatory to functional differentiation, it became necessary to replace the accompanying other-reference with an accompanying self-reference because the new type of differentiation burst open the hierarchical world order and made function systems autonomous. In the *economic system* of modern society, the accompanying self-reference was realized through the use of money as communication. The quantification of money makes it divisible at will--not infinitely divisible but divisible as one might like in adapting to each need for division. In this way money became universally useful, however compactly economic goods might be given.

Money can express any economic operation, even indivisible objects, for which one otherwise might have trouble finding a suitable counterpart in exchange. Money is the *dividuum* par excellence, which can adapt to every individuality. The modern economic system has its unity in money. It is monetarized through and through. This means that all operations that are economically relevant, and only operations that are economically relevant, refer to money. They are based on prices, including the price of money itself. ⁵³ The elemental autopoietic process, the ultimate communication that composes the system, the one that cannot be broken down any further, is payment. Taken by themselves, payments are nothing more than the enabling of further payments. But communications that are not payments, for example, investment decisions or decisions about interest rates, can

also refer to payments. Greater amounts of payments can be aggregated and brought into the form of a unity that can be used globally-- perhaps in the form of a stock of capital, a budget, or a balance. Such expressions of unity can also be formulated for the economy. In practice, however, the unity of self-referential reproduction does not acquire significance in this form but in the form of changes in the value of money, whether inflation or deflation. This is so because the elemental operation of paying (which also requires that payments be received) must constantly be motivated if the system is not to cease to exist from one moment to the next. This provides a meaningful possibility for distinguishing prices from the value of money. Whereas prices are expectational programs, the value of money regulates the system's autopoietic reproduction.

On the basis of payments, the economy is a closed self-referential system. The metaphor of "circulation" has always been used for this, a kind of euphemism for processes that in reality can be downright labyrinthine. But this only designates half its operational meaning.

Payments always require a counter movement, transferring goods, services, or other monetary variables. In this regard, the economy's operation ultimately refers to the environment: to things, activities and needs. A fully monetarized economy is an excellent example of a system that is simultaneously open and closed. Finally, the *interconnection of the conditions for closure and openness* brings about the *differentiation of the economy* because the *unavoidable coupling* of self- and other-referential meaning references in *all* economic operations requires special structural conditions for which there is nothing corresponding in the system's environment. ⁵⁴

In the case of the *function system of politics* there is no exact isomorphy but perhaps exact functional equivalents. There is no exact isomorphy because the communication medium of power does not possess the same technical precision or highly integrative capacity as money. The use of power is not *eo ipso* a political phenomenon. Therefore the system's unity in this system must be introduced via an additional self-description in order to provide a point of reference for the self-referential processing of information. This function is fulfilled by the concept of the *state*.

Despite a discussion that has lasted for more than two centuries, the concept of the state remains unclear. The reason for this may lie

in that a conceptual apparatus with direct (whether empirical or "mental") objective reference has always been sought, although it rendered too much complexity and too much heterogeneity when applied to issues important for that concept (especially national peoples, national territory, state authority).⁵⁵ The typical product was (if for the time being one excludes Kant and especially Hegel) theories of the state without a concept of the state.

The systems-theoretical concept worked out here enables one to reformulate the problem using the distinction between the system and its self-description. One thereby shifts the conceptual questions that have been unsuccessfully discussed to what seems to be the way things actually are: then one can say that the state is the self-description of the political system. It is a semantic artifact that makes it possible to concentrate the self-reference of the political system, to make it independent of any assessment of the concrete distribution of power, and to turn this artifact--just like money-- into the accompanying meaning reference of all operations that claim to function as elements in the political system. The state is constituted as a legally responsible, a juristic unit of classification, so that sovereign and fiscal measures make up the nucleus of all political operations, yet there is still the possibility of a politics, juristically "from without" but politically from within the system, that endeavors to implement state activities or to prevent them. Orientation to the state enables the closure of self-reference-- which the medium of money secures in the economy--and couples it with matters to be decided, interests, and structural changes in the political system's environment. Thus here too self- and other-reference are processed simultaneously, so that order is continually reproduced on the basis of order and disorder.

As a final example, let us take the *educational system*. Here, too, the external differentiation of a function system leads to a simultaneous processing of self- and other-reference and this is also true, in principle, of every operation that is attributed to the system as education. The educational system is even less able than the political system to fulfill these conditions through a symbolically generalized medium of communication. There is no medium specialized for education because education wants not only to be successful communication but to change people. Here circular self-reference emerges in that in learning something one learns to learn as well.

When pupils are made to learn, they also learn the capacities necessary for learning. They do not just learn how to learn, but a reflexive reference to abilities to learn. In the same sense, or so one hopes, teaching could be turned into a method, so that it as well can learn in its practice from mistakes and improve itself.

By 1800 this aspect of the process's accompanying self-reference had been captured, in the ideational formation of neo-humanistic pedagogy, in the concept of *Bildung*. *Bildung* was conceived as a methodology for developing skills, and learning how to learn was an essential component. This reflexivity allowed the idea that the learning process equipped the individual for the "world," that is, for everything that he wanted to appropriate and enjoy by learning. What *Bildung* was initially supposed to be, namely, an "inner form" (which still differed according to social strata), now became an individualized correlate of the world. ⁵⁶

If one takes *Bildung* as the program of self-description coordinated with the educational system, that clarifies why this formula, like the concept of the state, lends itself to exaggeration and hypostatization. Because a reduction of complexity in the empirical system, that is, self-simplification, forms the point of departure and because this concerns self-observation/self-description/reflection without the possibility of changing what carries it, the formula becomes a stylized affectation--unconcerned with the defeats it experiences daily within organizations. And one could almost suppose that the euphoria that greeted "the state" and *Bildung* when they appeared in theory and practice around 1800 could be explained by the fact that these formulas could not technically solve the problem of the simultaneous processing and constant reproduction of self- and other-reference as smoothly as money could.

If one looks back on the semantic careers of self-descriptive concepts like "capital," "state," and *Bildung*, it becomes apparent that, especially in the German academic tradition, attempts were repeatedly undertaken, not to come to terms with difference, but to integrate it in the name of a holistic formula. In Germany, the concept of the state accomplished this, so long as national state unity had not yet been achieved. It offered a point around which illusory generalizations could crystallize because it did not produce experiences that could contradict them. The idea of a "cultural state," advanced by Humboldt, VoB, Fichte, Adam Müller, and

others, sought to encompass the state and *Bildung*. Friedrich List's theory of a nationally ordered economy formulated the idea of the state as an encompassing unity of politics and the economy in a precisely analogous way. Both concepts could acquire clearer contours in their external boundaries than in internal articulation. The cultural state was opposed to the French Revolution, to its unity of ideological abstraction and political terror; ⁵⁷ the commercial state was posited in opposition to a "micro-economic" British liberalism, which started from individual needs. ⁵⁸ What sounded good in polemic proved in reality, however, to be mistaken academic speculation. Functional differentiation had set in and could no longer be comprehended in any totalizing idea. Only formulas related to function could actually operate as self-descriptions, that is, could actually be fed into the system and its ongoing communication.

As a result, one could no longer establish a position from which the whole, whether it was called the state or society, could be observed correctly. We have already shown ⁵⁹ that neither in the natural nor in the subjective sense is there a self-evidently correct position of observation. In other words, system references are contingent; they must be selected. Therefore it might be the task of an observation to offer what position an observer must take in order to see what is described. The self-descriptions of modern function systems that we have discussed are initially binding only for self-observation. Whether and how far external observers also use them in asking, for instance, whether an increase in prices or a decline in education indicates political success or failure is another question, and it might be of practical significance to realize that to accept such relevances would involve crossing system boundaries.

Even for the forms of self-description that are used to provide for accompanying self-reference, there is still the question of where the societal system and its functional systems is guided by them. Today one sees that there are principles of deviation amplification contained in the triad of capital, state, and education and their accumulation leads to serious problems. One cannot dismiss this any longer as a body of bourgeois ideology in the hope of dealing with it by expropriation. One must be more open to the drama that such self-descriptions admit into society, and perhaps their relativization can provide a point of departure for their controlled use.

That contingencies and even possible distinctions among individual function systems should be considered here shows, moreover, that the connection between the differentiation of a function system and the coupling of operative self- and other-references does not occur by itself as a kind of systemic logic. Its realization requires highly selective conditions, which can in part be found in the kind of medium and in part in a more or less artificial supplemental semantics. The solutions that have heretofore been found for this problem reveal considerable regional distinctions.⁶⁰ Thus the theory presented here can only maintain that differentiation cannot be carried very far if it does not succeed in solving this problem in one way or another.

VIII

Every type of self-reference encounters the problem of breaking out of a merely tautological circle, as we have already mentioned in passing. Mere reference from a self back to itself must be enriched with additional meaning. The circle that implies itself and nothing further recruits, so to speak, such supplemental meaning. It is an extreme case of the unity of closure and openness--an extreme case that, when it occurs, immediately changes itself and brings itself into the form of accompanying self-reference. In other words, self-referential systems are compelled to cut back surplus internal needs for information and to specify in which respects they can react with sensitivity to the environment and where they can afford indifference.

This basic idea can be worked out further with the help of the concept "asymmetrization" and its derivatives (externalization, finalization, ideologization, hierarchization, punctuation, etc.). All clarify the form in which additional meaning is recruited and the tautology of pure self-reference is interrupted. Here we are moving in the neighborhood of a theory of types. Given the perspective we have chosen, however, this always concerns a system-internal process and not just the ways in which an external observer orders his ideas.

"Asymmetrization" serves us as a basic concept. It implies that a system, to make its operations possible, chooses points of reference that are no longer put in question within these operations but must

be accepted as given. Although such postulation has the function of breaking off interdependencies and enabling connective operations, the system excludes (at least temporarily or for the operations in question) the possibility of using this function to seek alternatives.

Asymmetry is treated, not as an aspect of autopoiesis, but as given allopoietically (that is, as brought forward externally). One can justify this either in principle or in practice: either is an example of how even if one "saw through" the function, indeed was conscious of its fictiveness, this would not change the fact that such a procedure is required.

There are many possibilities for asymmetrization and, correspondingly, many types of semantics that lend it cover and connectivity. Choice of the forms of asymmetry and their semantics varies with societal evolution, and this also holds for the question of how far the corresponding ideas tolerate or are corroded by an accompanying communication of their function.

The irreversibility of time opens up important possibilities. Time's irreversibility does not in itself imply that one must accept what exists, but it can be read in this way. One can refer to the facticity of what exists and to the difficulties of changing it and can exaggerate this argument through the myth of a special historical legitimation. Correspondingly, the proscription of *venire contra factum proprium* (to run against the very fact) holds as one of the most important rules of interaction (and law).

Likewise, finalization refers to the temporal dimension. Here the system chooses its operations depending on the prospect of future states--whether to attain or to avoid them. Not the invariability of the past but the insecurity of the future provides asymmetry here. Precisely because "what will be" is not yet certain, one can order a multitude of present operations according to a future perspective. The future's uncertainty becomes a certainty that one must do something in the present to reach--but this conclusion functions only when one assumes asymmetry and cuts off the possibility that one could set other goals.

The fact dimension also offers privileged asymmetries. They are connected to the difference between system and environment or, in a somewhat more elaborated form, to the distinction between environmental variables that can and cannot be controlled. The system uses its dependence on the environment to order internal

processes and ignores the fact that different kinds of structures would involve different kinds of environmental dependencies.

In the social dimension, for a long time ideas about hierarchy fulfilled a corresponding function. One began with the fact that some persons are of better "quality" than others and that they take precedence. This assumption corresponded to a stratified structure of society and has disappeared with it. But one cannot infer from this that asymmetries no longer exist in the social dimension. Hierarchies have been carried over to the domain of formally organized social systems and re-established there as hierarchies of authority. Above all, recently an entirely new kind of asymmetrization has developed: the recognition of the "individual" as the final decision maker in all matters that concern oneself in one's private sphere: one's opinions, interests, claims, and pleasures are often the last word, from which all connective behavior must depart. ⁶¹

Simpler societal systems manage such asymmetries naively. They assume, perhaps using the concept of nature, an order of things that provides them in advance with such points of reference. They see in this no contingencies, no options that could also occur otherwise. The functionally necessary asymmetries are hidden by unquestionably accepted self-evidences, and if someone harbors doubts, that person can scarcely be included in communication. Anyone who attempted to do so would be reproached with "error." The transformation of traditional society into modern society dissolved these self-evidences. Then the inference from the idea to the person who uses it became a universal figure of suspicion. This does not mean that asymmetries could be dissolved and self-references operate without elaboration. Instead, the problem now is solved by *ideologizing* on a higher level of reflexivity: one renders the function of asymmetrizations transparent and justifies them by their function. ⁶² This corresponds to a trend that science and the economy in particular have promoted: to dissolve all elements and final securities and to trust its load-bearing capacity to recombination. The concept of function replaces the concept of substance, as Ernst Cassirer has shown. ⁶³ Both of the figures that have guided the logico-empirical sciences, deduction and causality, then lose their position as basic concepts; they become concepts that an observer uses to locate distinctions. ⁶⁴ A self-referential system must be able to observe itself to be able to asymmetricize itself, because this

requires, in whatever shape, the initiation of a distinction in reference to itself.

All this may serve as a backdrop for a return to the premise that communication is rendered asymmetrical as action. Social systems are communication systems, but, via selective syntheses of communication, they construct an interpretation "of" communication as action and thereby describe themselves as action systems.⁶⁵ This primary self-description is the precondition for everything else, for example, the inclusion of noncommunicative action in social systems and the temporalization of reference to the environment in the schema before- action/after-action. The general temporal/fact/ social conditions of asymmetrization are also conditions for self-description as an action system. Since these conditions vary historically, as has been indicated, one must assume that the understanding of action varies historically depending on evolutionary changes in societal structures. The proposal of a "physical" understanding of action depending on a mechanical asymmetry is surely a clue that this is how things are. The seventeenth and eighteenth centuries used it to react to changing societal circumstances.

IX

Taking into account the self-reference of all social systems has far-reaching consequences for a theory of planning. This concerns, not envisioning in advance an action and its consequences, but system planning. Such planning fixes specific future aspects of a system and tries to actualize them. Even this is still too general a concept, which impinges on very different domains of problems. The question that interests us is whether a *social* system can plan *itself*, and which problems one must reckon with if this is attempted.

All planning is notoriously inadequate. It does not achieve its goals, or at least not to the extent that it would like, and it triggers side-effects it did not foresee. This is nothing new. The real problem of the self-planning of social systems is that the planning in a system

that plans itself is observed. Like everything that happens within a system, planning can only be one process among others. If the system were only planning, then there would be no planning because there would be nothing left over to plan. Therefore the system always has free the capacity to observe its planning, and

since planning discriminates, it is likely that this capacity will be used. All planning produces persons who are affected--either because it is not to their advantage or because not all their wishes are fulfilled. Those affected will want to know, and they will want to use the free capacities of communication in the system to experience and if possible to change what is planned. Therefore, in planning the system reacts not only to the conditions that are attained, to the success or failure of the planning, but also to the planning itself. When it plans, it produces implementation and resistance at once.

This becomes even clearer when one considers that planning can only establish the premises of future behavior, not the behavior itself, which at the time of the planning has not yet occurred. Thus a reaction to being planned has time to prepare itself. Besides, as system planning, planning must orient itself in some way to the system's complexity. It must make a model of the system by which it can direct itself, thus introducing a simplified version of the system's complexity into the system. ⁶⁶ This second complexity, this simplified second version of the system's complexity, emerges through planning. Planning makes it visible, and since no system can provide itself with a complete self-description, it is always possible to refer to aspects that have not been considered: interests that have been passed over, possible effects that have not been considered, risks falsely assessed, and other priorities and hierarchies of value set aside.

Political theory has increasingly concerned itself with this problem since observers of the French Revolution called attention to the terrible effects of planning under simplified premises. ⁶⁷ As a result, conservative critics demanded consideration of societal and political relationships. ⁶⁸ Liberal theory sought a solution in the reciprocal reference of public opinion, parliamentary discussion, and binding decisions. ⁶⁹ Today one tends to view planning and the creation of consensus as different demands on politics and as geared to managing complexity and achieving legitimation, respectively. ⁷⁰ Then the creation of consensus suddenly inserts itself into the perspective of planning, and one must face a multi-dimensional planning problem. Precisely then there is a further political reaction.

This chain of experiences with formulations of experiences only confirms what one could emphasize in the context of a general

theory of social systems: planning is a specific way of producing a self-description of the system. ⁷¹ In planning, this self-description is oriented toward the future. This always opens up the possibility of behaving differently from what a planned determination anticipates, namely, not wishing for something that is foreseen and that many count on precisely because they count on it, getting around it, boycotting it, or even profiting from the fact that one behaves atypically. One can conceive of planning as an "extension of choice," ⁷² but one must keep in mind the growth in complexity that this causes, as well as that an "extension of choice" applies not only to those for whom the planners provide, but also to those who are affected by the planning.

We term *hypercomplex* a system that is oriented to its own complexity and seeks to grasp it as complexity, because the attempt-- since it occurs within the system and must be established as self-description --produces more than itself. It also creates new kinds of possibilities for unforeseen reactions. System planning necessarily produces hypercomplexity. Planning that experiences this will attempt to include it in its planning: that is, will plan itself and its effects together. Thus budget planning creates exaggerated reports of needs, and the one who is planning can take this into consideration. But what holds for a reflexive planning of planning holds for planning pure and simple: it can be observed, and therefore it leads to possibilities of reacting to its own observation of planning, but not in ways that were originally planned.

Since the difference between planning and observing planning cannot be eliminated--however much planners would like an "invisible hand"--there can be no point of equilibrium in the system for this difference or for the tensions it creates. Every attempt at a balance exposes itself to observation. Anyone who would like to step forward as the system's spokesman and representative must do so within the system, because otherwise he cannot connect onto the system communication and its self-referential circulation. To this extent double contingency holds.

In hypercomplex systems, the presentation of the system within the system can be experienced as contingent. It must forgo the unquestioned and criterionless security of self-description insofar as a different kind of future is envisioned. Self-observation leads as planning to self-description and thereby itself becomes observable.

One must therefore give up all fixed foundations, for they must be worked out at any given time as adequate consensus, and consensus is also subject to the law that it must be observable.

Does this mean that rationality is no longer possible? Or does it only mean that one must think differently about rationality than heretofore?

X

One cannot deduce rationality from self-reference. Self-reference is a condition for increase, for increasing the capability to be constrained, and for constructing order by reducing complexity. At times this idea has, in the form of a natural self-esteem, a self-grounding reason, or a will to power, that is, in anthropological packaging, replaced the principle of rationality. Today this can be seen as a specifically European gesture that tried to compensate for an ongoing, parallel disintegration of the semantics of rationality. Given the problematic consequences of the desire for increase, one might want to leave open a conclusive judgment about rationality.

The requisite separation of self-reference from the judgment of rationality has its own tradition. As a type, it was initially related to the connection between self-esteem and morality that originated in the eighteenth century. It requires the interposition of a temporal aspect. Self-esteem is naturally good, but it has a positive or negative moral quality depending on its consequences.⁷³ This leads to the conclusion that self-reference can be rational or irrational (or more or less rational) depending on where it is practiced, and to what effect. No matter how one determines the concept of rationality, this breaks with the Old-European tradition that held the world to be perfect and assumed rationality to be continuous with the world. Since the seventeenth century, the continuum of rationality (which, of course, included corruption, sin, faults, errors, etc.) has in different ways been snapped. First and foremost, Descartes made rationality subjective; since the nineteenth century, different distinctions have been increasingly used to binarize rationality, that is, to discontinue discontinuities. One shifted the judgment of rationality, for example, from principles to the historical process, where it then was described as progress. One schematized according

to rational versus irrational. One shifted what was essential to a region rationality could not reach: to matter, to clothing, to the amorality of the will to power. Or one thought of rationality only as rationality of action, as an island in a surging sea of irrationality, and then destroyed this rationality by more closely analyzing the decision process. Or one cared less about rationality than about the damage that it caused, the heterogeneity of aims or the bad consequences of good actions. All this resulted in the present-day conviction that what is actual is not rational in itself but must be brought to rationality (which leads one to doubt whether this process of rationalization can be rational).

In an overview, these transformations of the semantics of rationality appear as a breakdown. It seems to be part of the peculiar ambivalence of societal self-reflection that modern society to a certain extent believes that it is rational and then destroys the semantics that results. What remains is a formal peculiarity that one finds in the concept of rationality and perhaps nowhere else: the concept of rationality must be subsumed autologically, must be formed rationally, whereas the concept of heat, for instance, need not be hot nor the concept of energy be formed or managed energetically, and so on. Is this anomaly remarkable? It has at least survived. Is rationality accordingly a concept for the self-reference of the concept? And does this offer any chance of reformulating the idea that needed to be changed in the transformation from stratificatory to functional differentiation and has not yet found an appropriate form for contemporary society?

These questions must be treated elsewhere. Skipping over them, we will ask: If this is so, what would its consequences be for the theory of self-referential systems formulated here?

The self-reference of the concept of difference is the unity of difference. Not only are social systems capable of communicating about their environment, they can also use their difference from the environment (e. g., the idea of their boundaries or the special characteristics of how their elements are constituted) in internal communication. In other words, they are in a position to reintroduce the system/environment difference within the system and, with its help, to carry out as information processes of self-observation, self-description, and reflection. But this alone does not earn the title of rationality. Self-reference alone, as we have said, is not yet rational.

Rationality pertains only if the concept of difference is used self-referentially, that is, only *if the unity of the difference is reflected*. The claim of rationality says that orientation to differences must be checked for their conceptual self-reference and that conclusions must be drawn from this.⁷⁴ This means that systems determine themselves through their difference from the environment, and this difference must in itself bestow operative significance, informational value, and connective value. Viewed from the history of theory, this idea and the resulting concept of rationality are a consequence of the paradigm change presented in the Introduction, namely, carrying system/environment theory into the theory of self-referential systems.

By treating the concept of the; environment with precision, we can clarify the problem of rationality. The environment is not to be understood as an encompassing system (although for many systems, encompassing systems can be given; for example, encompassing societies largely prestructure the conditions of rationality for interactions). The environment is a world horizon that corresponds to the system's internal horizon. Therefore a system's rationality cannot be clarified by referring to a superordinate, encompassing system.⁷⁵ This would only lead to Pascal's famous paradox: the rationality of the encompassing system can only be seen if one takes into consideration that system's parts. We reduce this paradox to the pure form of self-reference and view rationality as the reentry of a difference within what is different, as the inclusion of an open system/environment difference within a system that determines itself by this very difference.

From this perspective, the problem of planning (section IX) also appears in a new light. The planner will never be in complete agreement with observers about the value ranking of goals, probable effects, acceptable risks, and so on. The mere fact that the planner must establish plans and subject them to observation creates an unfavorable position. Under such circumstances neither rational action nor rational values offers a chance for a common rationality. Nevertheless, one can imagine a kind of convergence if planner and observer both use the system/environment difference as a schema for acquiring information. This does not remedy divergences in value and conflicts of interest, but rationality can be enlisted for one's own position if one takes into account that the

system to be planned must re-internalize its relationship to the environment.

Translated into the language of causality, this idea decrees that a system must control its effects on the environment by checking their repercussions upon itself if it wants to behave rationally. A system that controls its environment in the end controls itself. ⁷⁶ To be sure, the environment absorbs innumerable effects without re-including the system that caused them within the causal nexus. Without this absorption it would make little sense for the system to distinguish system and environment. This shows that reflection on the unity of difference need not annul the advantages of difference; it must include them and use them in the form of a selection of selections. There are more or less problematical points from which to aspire to rationality, depending on system capacities. Only modern society creates, without exception, difficult conditions of rationality for such aspirations. This may also explain why it is only in modern society that the semantics of rationality is tried more and more and finally dissolves.

This can be shown more clearly if one returns to the thesis presented in Chapter 10: that in the course of societal evolution the difference between interaction systems and societal systems has become more pronounced. This differentiation makes both types of systems more effective and thereby more problematical in their rationality, with the result that claims to rationality are transferred more or less to organized social systems, which occupy a highly selective intermediate position that can be more easily controlled.

Interaction systems have no harsh, self-endangering repercussions on their natural environment. They endanger themselves more by influencing the psychic capacity of their participants to continue or break off the interaction. They focus their rationality on this sector of their environment. When personal interaction became increasingly detached from the structural constraints on society, issues of regulation shifted to questions of the agreeableness, amiability, and imperturbability of the interaction in relation to its participants. In the seventeenth and eighteenth centuries, this took form as a theory of sociable conversation. ⁷⁷ Psychological sophistication thereby became both the condition for this form of rationality and the grounds on which it dissolved again. It could not endure real insight into the abyss of the psychic, its main

environmental domain. ⁷⁸ When today one speaks of "communicative understanding" in the sense of a principle of rationality, one consciously brackets out psychic questions, ⁷⁹ thus positing premises that begin by sacrificing the problem of rationality in the sense intended here.

The point of departure for rationality attained in the system of modern society and its environment is entirely different. Here a readiness to continue is no problem because all communication reproduces society. One cannot escape society. By contrast, the question of how the effects of society on its environment react back upon society becomes more important. The functional differentiation of society achieves an enormous intensification. The media of some function systems, especially scientific truth and money, corrode all natural (spontaneous) physical, chemical, organic, and human relationships, interrupt existing interdependencies, and thereby unleash causalities that cannot be controlled by the potential for planning and recombination of the corresponding systems. The support society received from an environment that was always balanced by evolution has become more and more endangered. This is especially so because recombinations (new products, new combinations of actions in organizations) do not aim at reproducing disrupted environmental stabilities but at acquiring new combinatory possibilities. In addition, classroom education shapes the cognitions and motivations of many (and the most important) people over many significant years of their lives, greatly deforming society's environment without anticipating or planning how this might affect society. The fact that curricula are geared more or less to performance at work provides no protection against the consequences. And the self-description of the education system as a system of cultivation contains nothing that could even grasp this problem. Just like the sectors of production and the organization of material and human artifacts, education strives only for specific recombinations, while neglecting causalities unleashed by the processes of dissolution needed for such recombinations (e. g., the specific pressures produced by the interaction system within the classroom). ⁸⁰ Interdependencies and interruptions of interdependence that grow up naturally are thereby dissolved and only partially recombined. This reacts back on society. "The disorganization of nature poses the problem of the organization of society." ⁸¹

Societal rationality henceforth requires that the environmental

problems triggered by society, insofar as they in turn affect society, be depicted in the societal system, that is, be brought into the societal process of communication. This can occur in particular function systems to some degree--as when doctors begin to perceive the illnesses that they themselves have caused. More typically, however, one function system burdens other function systems via their environment. Above all, there is no societal subsystem for perceiving environmental interdependencies. Such a subsystem cannot come about by functional differentiation because it would mean that society would occur a second time within itself. Modern society's principle of differentiation makes the question of rationality more urgent--and at the same time insoluble. Any retreat to a traditional semantics of rationality would fail in the face of this situation. As a result, many demand that politics assume total responsibility; others simply want to drop out. Both are impossible. Perhaps the only possibility is to formulate the problem with the requisite clarity, to improve functionally specific orientation to the environment, and to provide society's internal burdens and displacements of problems with more transparency and controllability.

Problems of this kind cannot be discussed fully in the limited compass this book provides; indeed, we cannot even scratch their surface. They must be left to an analysis of society. They have been introduced here only to clarify what it would mean if modern society were to raise the question of its rationality. Our outline of the problem of rationality does not assert that society must solve problems of this kind in order to survive. Evolution is all that is needed for survival. Even the over-used concept of crisis is inadequate. It suggests the temporal urgency of deep-lying structural changes, which cannot be grounded solely on the obvious shortcomings of rationality. The concept of rationality merely formulates the most demanding perspective on the system's self-reflection. It does not signify a norm, a value, or an idea that confronts real systems. (That would presuppose someone who says that it is rational to be guided by this.) It merely indicates the keystone of the logic of self-referential systems. If one introduces it into the system as a point of reference for self-observation, this makes it truly ambivalent: it then serves as a viewpoint for critiquing all selections and as a measure of its own improbability.

Notes

- [Note](#): 1. A general systems theory would have to make a decision here, and there are authors who are not afraid to define objects by self-reference pure and simple. Ranulph Glanville, "A Cybernetic Development of Epistemology and Observation, Applied to Objects in Space and Time (as seen in Architecture)," thesis, Brunel University, Uxbridge, England, 1975, is an example.
- [Note](#): 2. We do not deny that one can observe and describe social objects differently; the entire tradition has done so. Here this means (in connection with a corresponding distinction in I. V. Blauberger, V. N. Sadovsky, and E. G. Yudin, *Systems Theory: Philosophical and Methodological Problems* [Moscow, 1977], p. 119f): one can observe and describe them *as systems*, and thus take account of their own complexity, only if one assumes their self-reference.
- [Note](#): 3. If, however, one begins with the pure concept of self-reference, then the state of present knowledge imposes a biological (if not a physical) concept of the subject. For a biological conceptualization of the subject, see Edgar Morin, *La Methode*, vol. 2 (Paris, 1980), esp. p. 162ff.
- [Note](#): 4. See, e. g., J. Smedslund, "Meanings, Implications and Universals: Towards a Psychology of Man," *Scandinavian Journal of Psychology* 10 (1969): 1-15.
- [Note](#): 5. Here, once again, the mediating concept is interpenetration.
- [Note](#): 6. In a less fundamental sense--and without referring to the conceptualization of self-reference--a "paradigm switch" from Descartes to systems theory is also discussed by Jean-Louis Le Moigne, *La Théorie du système général: Théorie de la modélisation* (Paris, 1977). Similarly, Edgar Morin, *La Méthode*, vol. 1 (Paris, 1977), explicitly, e. g., on p. 23.
- [Note](#): 7. It is important to reiterate this because mere linguistic customs are repeatedly presented as factual knowledge--as when one must repeatedly hear and read that "really" only individual persons (individuals, subjects) can act. See, e. g. (in the presence of Parsons, who knew better), Wolfgang Schluchter, "Gesellschaft und Kultur: Überlegungen zu einer Theorie institutioneller Differenzierung," in Schluchter, ed., *Verhalten, Handeln und System: Talcott Parsons' Beitrag zur Entwicklung der Sozialwissenschaften* (Frankfurt, 1980), pp. 106-49 (p. 119f).
- [Note](#): 8. Redirecting the normal background understanding can help here, but other linguistic problems are more difficult to solve. Especially burdensome is that the operative meaning often cannot be made clear as a substantive. One could, of course, switch from "distinction" to "to distinguish," but there is no possible plural of "to distinguish"--a wholly nonsensical restriction! Before linguists and men of letters complain about jargon, the use of foreign words, and incomprehensibility, they ought first to clear up this baseless unevenness in possibilities for linguistic expression.
- [Note](#): 9. For this example, see Charles O. Frake, "The Diagnosis of Disease among the Subanon of Mindanao," *American Anthropologist* 63 (1961): 113-32.
- [Note](#): 10. That is, however, a widespread, even dominant linguistic usage. Characteristically, texts that are indebted to this linguistic usage are not consistent but repeatedly speak of concrete "systems," i. e., of real objects as "systems." Among others, see: Talcott Parsons, *Zur Theorie sozialer Systeme*, ed. Stefan Jensen (Opladen, 1976); Morin, vol. 1; Blauberger et al.
- [Note](#): 11. We can admit that the tautological form of self-reference--as the self-reference of self-reference--also falls under this concept without that affecting the argument.
- [Note](#): 12. See Chap. 8, section III.
- [Note](#): 13. For a critique of such traditional ideas, see Richard Rorty, *Philosophy and the Mirror of Nature* (Princeton, 1979).
- [Note](#): 14. See for this, esp. for the refutation of possible "solipsistic" consequences, Heinz von Foerster, "On Constructing a Reality," in Wolfgang F. E. Preiser, ed., *Environmental Design Research*, vol. 2 (Stroudsburg, Pa., 1973), pp. 35-46.
- [Note](#): 15. A formulation of Paul Valéry, "Animalités," in Valéry, *Oeuvres*, éd. de la Pléiade, vol. 1 (Paris, 1957), p. 402.
- [Note](#): 16. *Both* are possible because understanding and acceptance (or incomprehension and rejection) can be distinguished. There can be no doubt that this is possible in principle. But one could, and this would be an empirical investigation with great theoretical relevance, investigate the circumstances under which a social system tends to muddle this distinction and treat rejection as incomprehension.
- [Note](#): 17. See Chap. 4, section II.
- [Note](#): 18. In the notation von Foerster and Morin adopt, this would be: in social systems, is

- [Note](#): 19. See the corresponding reflections on "self-organization" in W. Ross Ashby, "Principles of the Self-Organization System," in Walter Buckley, ed., *Modern Systems Research for the Behavioral Scientist* (Chicago, 1968), pp. 108-18 (p. 114).
- [Note](#): 20. See also Henri Atlan, "Du bruit comme principe d'auto-organisation," *Communications* 18 (1972): 21-36. [Note](#): 21. In the Introduction, we called this a paradigm switch in systems theory.
- [Note](#): 22. In a splendid analysis of this connection, Morin, 1: 201, says that "openness is based on closure."
- [Note](#): 23. For this "unfolding" as breaking open the pure identity of self-referential objects, see, in connection with Tarski, Lars Löfgren, "Unfoldment of Self-reference in Logic and in Computer Science," *Proceedings of the 5th Scandinavian Logic Symposium*, ed. Finn V. Jensen, Brian H. Mayoh, and Karen K. Møller (Aalborg, 1979), pp. 205-29. The best-known solution introduced by logicians is a distinction between levels or types with reference to which statements are situated. [Note](#): 24. Alfred Locker, "On the Ontological Foundations of the Theory of Systems," in William Gray and Nicholas D. Rizzo, eds., *Unity Through Diversity: A Festschrift for Ludwig von Bertalanffy* (New York, 1973), 1:537-71 (p. 548), says that "in fulfilling transcendental synthesis the (conscious) subject exerts two kinds of activities, namely to refer to the object by intentionality and to refer to the mind by reflexivity."
- [Note](#): 25. See, e. g.: Morin, 1: 257ff; Werner Loh, *Kombinatorische Systemtheorie: Evolution, Geschichte und logisch-mathematischer Grundlagenstreit* (Frankfurt, 1980), esp. p. 3ff, as the rejection of purely formal, nonempirical interpretations of the cybernetic feedback loop; Arvid Aulin, *The Cybernetic Laws of Social Progress: Towards a Critical Social Philosophy and a Criticism of Marxism* (Oxford, 1982), p. 51ff.
- [Note](#): 26. For a formulation in the language of the theory of causality, see Robert M. Maclver, *Social Causation* (Boston, 1942), p. 129f: "We look for the causation of events outside of the events but for the causation of processes inside of the processes." This clearly shows the difficulties that result when one poses the alternative of interpreting causes either as previous events or as a comprehensive connection that cannot be localized temporally. In the first case, causal explanation does not say much; in the second, it is quickly overburdened and reacts with imprecision.
- [Note](#): 27. See Chap. 1, section III and Chap. 2, section VI.
- [Note](#): 28. This concept has central importance for Gerd Sommerhoff, *Analytical Biology* (London, 1950); see p. 54ff. See also Sommerhoff, *Logic of the Living Brain* (London, 1974), p. 73ff.
- [Note](#): 29. That one becomes aware of psychic self-references of this type and uses them in theoretical formulations, i. e., communicates about them, is, of course, itself a social phenomenon to be handled within the context of an evolutionary historical semantics. The striking intensification of interest in such figures in the seventeenth and eighteenth centuries is clearly connected with the transformation of society toward functional differentiation and with the resulting reformulation of personal individuality.
- [Note](#): 30. Maclver, p. 129.
- [Note](#): 31. An earlier publication on this theme failed to make this distinction: Niklas Luhmann, "Reflexive Mechanismen," in Luhmann, *Soziologische Aufklärung*, vol. 1 (Opladen, 1970), pp. 92-112.
- [Note](#): 32. For conscious processes, here is a point of departure for clarifying what might be meant by the "unconscious" (in contrast to what is not conscious). One could then speak of the unconscious whenever consciousness enables itself only in the form of a process, but not as differentiated reflexivity. Here too the form of the process of consciousness as a unity enters the process in the form of a process, not in the sense of a conscious event or a specific subprocess. Consciousness operates with consciousness, but is not conscious of this and thus does not establish an internal reference point for critical steering and self-control.
- [Note](#): 33. "Ethnomethodology," which begins with this problem, goes a step further. For it, even cutting off reflexivity, "taking for granted," is an instance of reflexivity. Being reflexive must then become reflexive so that it can also include nonreflexivity and thereby attain totality. See Beng-Huat Chua, "On the Commitments of Ethnomethodology," *Sociological Inquiry* 44 (1974): 241-56. The result is a genuine radicality--and the tediousness of ethnomethodology's always reflexively non-reflexive presentations. This tedium is reflected when ethnomethodologists comment that this total reflexivity is uninteresting insofar as daily practice is concerned. See also Rolf Eickelpasch, "Das ethnomethodologische Programm einer `radikalen' Soziologie,"

Zeitschrift für Soziologie 11 (1982): 7-27.

- [Note](#): 34. The argument that rituals present a code for a limited communication without alternatives has become common. See: Mary Douglas, *Natural Symbols: Explorations in Cosmology* (London, 1970); Roy A. Rappaport, "The Sacred in Human Evolution," *Annual Review of Ecology and Systematics* 2 (1971): 23-44; Rappaport, "Ritual, Sanctity and Cybernetics," *American Anthropologist* 73 (1971): 59-76; Maurice Bloch, "Symbols, Song, Dance and Features of Articulation: Is Religion an Extreme Form of Traditional Authority?," *Europäisches Archiv für Soziologie* 15 (1974): 55-81. Reference to customary meanings is simply cut off, as is reflexivity.
- [Note](#): 35. This corresponds, in reverse, to the observation above that the improbability of an event provokes a search for the meaning of the process in which it occurs.
- [Note](#): 36. See Harold Garfinkel, "Studies of the Routine Grounds of Everyday Activities," *Social Problems* 11 (1964): 225-50; also in Garfinkel, *Studies in Ethnomethodology* (Englewood Cliffs, N. J., 1967), pp. 35-75. See above, n. 33.
- [Note](#): 37. See Eric A. Havelock, *Preface to Plato* (Cambridge, Mass., 1963). See also Rudolf Kassel, "Dichtkunst und Versifikation bei den Griechen," *Vorträge der Rheinisch-Westfälischen Akademie der Wissenschaften* G250 (Opladen, 1981).
- [Note](#): 38. In the court system of absolute states, one called this influence on the influence of those who held power *crédit* and compared it with the possibilities, which are still called "credit," of using the financial resources of others. See Charles Duclos, *Considérations sur les moeurs de ce siècle* (1751; Lausanne, 1970), p. 269ff.
- [Note](#): 39. For love, given the transitory nature of such system formations, literary models had to be added, moreover (though by the seventeenth century one had already seen through that).
- [Note](#): 40. I have in mind Scottish moral philosophy (a survey of which can be found in S. A. Grave, *The Scottish Philosophy of Common Sense* [Oxford, 1960]), and also parallel French writings, esp. Claude Buffier, *Traité des premières vérités et de la source de nos jugements* (Paris, 1724).
- [Note](#): 41. For function as a principle of evolutionary selection, see Chap. 8, section VII.
- [Note](#): 42. Yet the *self*-observation of *social* systems can only be a communicative occurrence; the psycho-conscious observation of social systems by their participants is observation of others.
- [Note](#): 43. See Chap. 4, section VIII.
- [Note](#): 44. One could characterize such naming as the de-indexicalizing of self-description to indicate that the primary self-descriptions are produced relative to situations and systems--only for immediate use, so to speak.
- [Note](#): 45. See Reinhart Koselleck, "Zur historisch-politischen Semantik asymmetrischer Gegenbegriffe," in Koselleck, *Vergangene Zukunft: Zur Semantik geschichtlicher Zeiten* (Frankfurt, 1979), pp. 211-59.
- [Note](#): 46. A semantic transformation that took Europe centuries. For its beginnings, see Volker Rittner, *Kulturkontakte und soziales Lernen im Mittelalter* (Cologne, 1973).
- [Note](#): 47. See John von Neumann, *Theory of Self-Reproducing Automata*, ed. A. W. Burks (Urbana, Ill., 1967).
- [Note](#): 48. See: Niklas Luhmann, "Politische Verfassungen im Kontext des Gesellschaftssystems," *Der Staat* 12 (1973): 1-22, 165-82; Luhmann, *Politische Theorie im Wohlfahrtsstaat* (Munich, 1981). (English trans. *Political Theory in the Welfare State*, trans. J. Bednarz [Berlin, 1990].)
- [Note](#): 49. See Niklas Luhmann and Karl Eberhard Schorr, *Reflexionsprobleme im Erziehungssystem* (Stuttgart, 1979).
- [Note](#): 50. See Niklas Luhmann, "Selbstreflexion des Rechtssystems: Rechtstheorie in gesellschaftstheoretischer Perspektive," in Luhmann, *Ausdifferenzierung des Rechts: Beiträge zur Rechtstheorie und Rechtssoziologie* (Frankfurt, 1981), pp. 419-50. See also Raffaele de Giorgi, *Scienza del diritto e legittimazione: Critica dell'epistemologia giuridica tedesca da Kelsen a Luhmann* (Bari, 1979).
- [Note](#): 51. See Niklas Luhmann, *Liebe als Passion: Zur Codierung von Intimität* (Frankfurt, 1982). (English trans. *Love as Passion: The Codification of Intimacy*, trans. Jeremy Gaines and Doris L. Jones [Cambridge, Mass., 1986].)
- [Note](#): 52. See, e. g.: Leopold von Wiese, *System der allgemeinen Soziologie*, 2d ed. (Munich, 1933), esp. p. 44ff; Friedrich H. Tenbruck, "Emile Durkheim oder die Geburt der Gesellschaft aus dem Geist der Soziologie," *Zeitschrift für Soziologie* 10 (1981): 333-50; and, of special consequence, Helmut Schelsky, *Die Arbeit tun die anderen: Klassenkampf und Priesterherrschaft der Intellektuellen* (Opladen, 1975).

[Note](#): 53. See also Niklas Luhmann, "Das sind Preise," *Soziale Welt* (1983): 153-70.

[Note](#): 54. I say "nothing corresponding" quite consciously. One cannot overlook that functioning of this other probably depends on specific legal and political precautions.

[Note](#): 55. Modern "theories of the state" continue to present this trinitarian definition--a national people, national territory, and national sovereignty --but they do not clarify how the unity of such heterogeneous things is to be conceived. See, e. g., Reinhold Zippelius, *Allgemeine Staatslehre*, 3d ed. (Munich, 1971), p. 33ff; Martin Kriele, *Einführung in die Staatslehre: Die geschichtlichen Legitimitätsgrundlagen des demokratischen Verfassungsstaates* (Reinbek, 1975), p. 84ff. General discussions of different possibilities for forming a concept of the state fill the textbooks, but do not contribute anything concrete on this matter.

[Note](#): 56. See the brief references in Luhmann and Schorr, pp. 74ff, 85, 134ff.

[Note](#): 57. See the explicit treatment in Christian Daniel VoB, Versuch über die Erziehung für den Staat, als Bedürfnis unsrer Zeit, zur Beförderung des Bürgerwohls und der Regenten-Sicherheit (Halle, 1799).

[Note](#): 58. See esp. Friedrich List, *Das Nationale System der Politischen Ökonomie* (1841), in List, *Schriften/Reden/Briefe*, vol. 6 (Berlin, 1930).

[Note](#): 59. Chap. 5, section I.

[Note](#): 60. See, e. g.: Kenneth H. F. Dyson, *The State Tradition in Western Europe: A Study of an Idea and Institution* (Oxford, 1980); Jürgen Schriewer, "Pädagogik--ein deutsches Syndrom? Universitäre Erziehungswissenschaft im deutsch-französischen Vergleich," *Zeitschrift für Pädagogik* 29 (1983): 359-89.

[Note](#): 61. The experience of evidence, interest, and *plaisir* were the concepts with which, in the seventeenth century, one began to develop this semantics of claim and refusal, and it is symptomatic that (by contrast, e. g., to *honneur, bienséance, amour, gloire*) they no longer referred to social stratification.

[Note](#): 62. For a corresponding concept of ideology, see Niklas Luhmann, "Wahrheit und Ideologic," in Luhmann, *Soziologische Aufklärung*, vol. 1, 4th ed (Opladen, 1974), pp. 54-65.

[Note](#): 63. Ernst Cassirer, *Substanzbegriff und Funktionsbegriff* (Berlin, 1910). (English trans. *Substance and Function, and Einstein's Theory of Relativity* [New York, 1953].)

[Note](#): 64. Thus Heinz von Foerster, "Cybernetics of Cybernetics," in Klaus Krippendorff, ed., *Communication and Control in Society* (New York, 1979), PP. 5-8.

[Note](#): 65. See Chap. 4, section VIII. Our speaking of "self-description" there in anticipation of relationships of self-reference is further justified here. [Note](#): 66. See Roger S. Conant and W. Ross Ashby, "Every Good Regulator of a System Must Be a Model of That System," *International Journal of System Science* 1 (1970): 89-97.

[Note](#): 67. Especially renowned for its literary qualities is Edmund Burke, *Reflections on the Revolution in France* (London, 1929). See also Ernst Brandes, *Über einige bisherige Folgen derfranzösischen Revolution in Rücksicht auf Deutschland* (Hannover, 1792).

[Note](#): 68. Burke, in view of the great complexity of societal relationships ("the objects of society are of the greatest possible complexity," p. 59), saw the specific difficulty of all planning in that one cannot simply introduce innovations but *must relate them* to what is already in place ("at once to preserve and to reform," p. 164) because one cannot change everything all at once.

[Note](#): 69. In retrospect, see Carl Schmitt, *Die geistesgeschichtliche Lage des heutigen Parlamentarismus*, 2d ed. (Munich, 1926).

[Note](#): 70. See, for this and for the question of reciprocal relations, Fritz W. Scharpf, "Planung als politischer Prozeß," *Die Verwaltung* 4 (171): 1-30.

[Note](#): 71. Today one sees this, somewhat more modestly, as the true meaning of planning: "Planning in organizations has many virtues, but a plan can often be more effective as an interpretation of past decisions than as a program for future ones. It can be used as a part of the efforts of the organization to develop a new consistent theory of itself that incorporates the mix of recent actions into a moderately comprehensive structure of goals" (James G. March and Johan P. Olsen, *Ambiguity and Choice in Organizations* [Bergen, 1976], p. 80). See also William K. Hall, "Strategic Planning Models: Are Top Managers Really Finding Them Useful?," *Journal of Business Policy* 3 (1973): 33-42.

[Note](#): 72. Thus F. E. Emery and E. L. Trist, *Towards a Social Ecology: Contextual Appreciation of the Future in the Present* (London, 1973), p. 8ff.

[Note](#): 73. Rousseau's is the most famous case, but in his time this was a widespread insight, one that

came into general discussion with the generalization of the search for utility, and thus with the collapse of a specific aristocratic morality.

[Note:](#) 74. The reader may be struck by a similarity to dialectical figures. Therefore we should remark that our mode of argumentation neither uses a concept of movement nor makes transitions in the form of negation, entirely disregarding the question whether transitions (at least in Hegel's theory) do not each imply the entire theory. Here rationality (and likewise the reflexivities of capital, state, and education, which we dealt with in section VII) is not conceived as the teleology of a dialectical process, but as an improbability provoked by self-reference.

[Note:](#) 75. Systems theoreticians often argue under this assumption--as, e. g., when Russell L. Ackoff, *Redesigning the Future: A Systems Approach to Societal Problems* (New York, 1974), p. 54ff, speaks of "environmentalization" as a "process of putting into a systems mind its relationship to the whole of which it is a part." See also George J. Klir, *An Approach to General Systems Theory* (New York, 1969), p. 47ff. Critical of this idea that rationality can be obtained by reference to a supersystem is Alessandro Pizzorno, "L'Incomplétude des systèmes," *Connexions* 9 (1974): 33-64; 10 (1974): 5-26.

[Note:](#) 76. See Anthony Wilden, *System and Structure: Essay in Communication and Exchange* (London, 1972), p. 207: "The system which disposes of its environment disposes of itself." For the problems that emerge from this for classical systems theory, see Eric Trist, "The Environment and System-Response Capability," *Futures* 12 (1980): 113-27.

[Note:](#) 77. See the additional references in: Christoph Strosetzki, *Konversation: Ein Kapitel gesellschaftlicher und literarischer Pragmatik im Frankreich des 18. Jahrhunderts* (Frankfurt, 1978); Niklas Luhmann, "Interaktion in Oberschichten: Zur Transformation ihrer Semantik im 17. und 18. Jahrhundert," in Luhmann, *Gesellschaftsstruktur und Semantik*, vol. 1 (Frankfurt, 1980), pp. 72-161.

[Note:](#) 78. An exception can be conceded to the literature on love, whose resignation concerning the question of controlling rationality therefore states a most convincing example.

[Note:](#) 79. For the most extensive survey at present, see Jürgen Habermas, *Theorie des kommunikativen Handelns*, 2 vols. (Frankfurt, 1981).

[Note:](#) 80. The theme of the "secret curriculum" has revealed the latency of structural effects, but so far it has led to overly optimistic estimates of harmony with the structures of modern society. See esp. Robert Dreeben, *On What Is Learned in School* (Reading, Mass., 1968). Complaints about stress in school, the fascination with a grading system, the strictness of comparisons, and, above all, the delay to graduation are symptoms that are hard to overlook. And in any event, the effects and how they are triggered stand in marked contrast with everything educators seek to attain or prevent.

[Note:](#) 81. Morin, 2: 92.

Chapter 12: Consequences for Epistemology

I

When working within the scientific system, one presupposes, with reason, a description of admissible operations, an epistemology. Like every other system, this one must be able to determine its elements (here, the acquisition of knowledge) and attribute them to itself. Since the eighteenth century at the latest, this task has been viewed as concerning a special theory of reflection, a theory of the system within the system. No other authority, not even philosophy, can tell science under what conditions meaning is to be treated as knowledge or as the acquisition of knowledge. Science is autonomous in this regard--autonomous vis-à-vis the world and even more so vis-à-vis society. It makes its own laws, not randomly (as has increasingly been feared), but in observance of all the factual knowledge and all the constraints that one must take into consideration if one seeks to put together a self-description.

Specialists in the theory of science still come forward as claiming to lay down the laws for science. But one can take comfort in the fact that they are elected and can be recalled if an adequately broad consensus against them develops. Taken at any given moment, the relationship between the theory of science and science appears asymmetrical, but this is because one observes only a short segment. The consequences of the fact that one must develop a theory of science before one can deal with its subject matter are, in general, rejected. And in view of the history of science, the theory of science is a belated product of science-in-operation. Theories of

reflection are not just theories that reflect self-reference as the system's identity; they are also an aspect of self-referential autopoiesis. They themselves practice what they describe.

If one takes a look at recent developments in epistemology, one sees above all a turn away from attempts to establish foundations in transcendental theory and a return to *natural epistemologies*.¹ This leads to considerable changes in the way epistemological and methodological questions have customarily been raised.² Indeed, one independently begins to see that self-reference is not a peculiarity of consciousness but comes about in the world of experience.³ It is no surprise for a naturalized epistemology to come up against its own self-reference. Precisely because it understands itself as a science of natural processes, it has already admitted this, and precisely this distinguishes it, as *post-transcendental*, from *pre-transcendental* epistemologies, which appealed to common sense, associative habit, or the certainty of ideas as the basis of knowledge.

None of this explains how knowledge that has been placed back into the world fulfills its task, nor how *theory* of knowledge can control whether it fulfills its task or not. As the scientific system's theory of reflection, epistemology primarily concerns the relationship between knowledge and object, that is, knowledge's reference to reality. Pure self-reference in this case would mean: the real is what knowledge indicates as real. This answer is and remains unsatisfactory. One need not avoid the circle, but can interrupt it by introducing conditioning. This is the function of reasons. These, however, merely transform the vicious circle into an infinite regress, because now one must ask for the reasons behind the reasons. The infinite regress is thereby fitted out with hopes of approximating ever more closely to reality, which are finally anchored in functioning complexity. If one in turn justifies the reasons and keeps every step of this process open to critique and ready for revision, it becomes more improbable that such an edifice could have been constructed without reference to reality. The circularity is not eliminated. It is used, unfolded, de-tautologized. Without this fundamental self-reference all knowledge would collapse. Only with its help can an environmentally sensitive structure be erected that can acquire information from what science calls reality (objects, etc.).

In the eighteenth century, when these facts first emerged, the

epistemological semantics of the time refused to accept them. Quite understandably! They were too new. After the extremely risk-laden rejection of the religious and metaphysico-cosmological institution of knowledge, one could not immediately take the next step and let go of any idea whatsoever of an ultimately certain external foundation. One came as close as possible to this step by projecting into consciousness whatever assumes the function of an external foundation. To do so, one must conceive of consciousness as "transcendental," extending beyond what is empirical, as the "subject" of the world. Then the self-reference of consciousness, called the subject, could be enlisted both as the source of knowledge and as the source of knowledge about the conditions of knowledge. It became possible to imagine a level of verifiable conditions that could no longer be changed on the level of the process of knowledge, and at the same time everyone who wanted to participate in knowledge was expected to experience these conditions in themselves as irrefutable certainties.

This was an ingenious, highly successful, and odd compromise between admitting and rejecting self-reference. To imagine an a priori having the function of post-rationalization means accepting contradiction right from the start. The tradition has preserved, exploited, and repeatedly revitalized this idea. In fact, if one takes seriously the problem that it poses, it cannot be overcome. But its plausibility has inexorably waned. Hardly anyone today really still thinks in this way. Anyone who advocates the transcendental position --and one can do this, of course, when writing books or speaking at conferences--justifies this historically with theoretical knowledge, with Kant.

Science and the premises typical within research have changed radically since Newton. The accumulation of knowledge is enormous, and the world has been enormously expanded, on both macroscopic and microscopic scales. Above all, the rejection of all final elements and all historically invariant regularities has triggered a change of mentality, which seems on the point of pervading the theory of science. One must concede that atoms and even subatomic elements are highly complex systems, which emerge thanks to extremely improbable accidents. Concepts like emergence, self-reference, and entropy/negentropy thereby acquire a position of prime importance, which theories of science must

honor, because they concern the genesis both of systems and of the possibility of observation. In consequence, one takes discrimination (in the sense of the operative introduction and handling of a difference) to be the basic process, and regards interaction and observation as variants of this basic process, if one does not identify them with it.

A second line of development has similar effects. Universalistic theories characteristically recur within the domain of their objects --even if only as one phenomenon among others. That physicists conduct physics (together with the conditions and boundaries on which this depends) is also a physical process. ⁴ Even the physical world has emerged "in order to see itself," ⁵ as physicists acknowledge. It would not be difficult, and would be even more convincing, to draw the consequences of this for chemical, biological, psychic, and social processes. As a result, all the asymmetries that underlie experience and action are fictionalized as self-referential circles--as artificially smoothed lines, so to speak, which for practical reasons are treated as finite. This is true of deduction as well as causality. But smoothing, asymmetrizing, externalizing, and, if one may say so, apriorizing are self-referential processes, however camouflaged (so that this does not come out!) as statements about nature or consciousness. All "regulative ideas" remain projections; they are valid only "as if" they were valid, which is necessarily an emergency solution.

What holds for the physical world and physicists holds even more, and with greater intensity of connection, for communication. A theory of communication is nothing more than an instruction for communication, and as an instruction it must be capable of being communicated. It must watch out for itself, or at least be circumspect: it cannot assert anything about its object that it is not prepared to accept as a statement about itself.

In this way "epistemological learning," including the development of a theory of science, becomes a self-referential process. All research appears as permeated by self-references suggested by its very domain. Anyone who develops theories about "the" self develops theories about "his" self. ⁶ Anyone who discovers that observer and actor use different principles of attribution ⁷ should not be surprised to notice a desire to support this knowledge with his own observation of others' action. If one knows that all judgments

are based on previously established categorizations, that is, rest on pre-judgments, then research into prejudice must recognize itself as research about itself. It occurs, together with its own pre-judgments (or prejudices?), within the domain of its own objects, and it can and must test on itself the boundaries between normal prejudices and those that should be criticized (clarified, corrected). Anyone who puts the ideologies of others down to interests and social status must particularize his theory, or apply it to himself. ⁸ Historicism is itself a historical concept, and this holds even for the evasive concept of *posthistoire*. Systems research is itself a system; it cannot formulate its basic concept so that it would not itself come under that concept. ⁹ The same consequence ensues from a theory of symbolically generalized media of communication; if it wanted to bracket out truth (for the sake of its own truth), it would have to enact a legal exemption for itself that would legitimate a contradiction of the basic conceptual account, for its conceptual characteristics apply to itself. The theory of evolution is itself a product of evolution, action theory could not develop without action, and so on.

Traditional epistemologies consider circles of this sort as grounds for suspicion that statements are false, if not gratuitous. The opposite is true. They force themselves upon us. One cannot avoid them. One can sharpen them as a paradox and leave it at that. ¹⁰ But one can also build them into the theory of science, for they contain precise instructions for self-control. Theories must, as a minimal requirement, always be formulated so that their object is subject to comparison. If they themselves appear among their objects, they subject themselves to comparison. As their own objects, they must continue to function under the pressure of comparison. Whatever is attained for system, self, communication, and media of communication must also prove its worth in the theory, however unpleasant (e. g., relativizing) the result of the self-comparison may turn out to be.

The recurrence of theory within its own field of objects tends to diminish its size and significance. Compared with the sun or atoms, physicists are not particularly important to the world. Truth is only one of many media of communication, Sigmund Freud's theory of sublimation only one of many attempts at sublimation. Theory sees itself and other things as in a mirror, and

this may provide an occasion to revise its self-estimation. Its concept of itself becomes dependent on multitudinous experiences of objects that are being processed at the same time. Constraints are thereby intensified and the naiveté of external projections mediated. And the more the dissolutions and recombinations of modern science gain acceptance, the more strongly these constraints constrain themselves.

II

By contrast to traditional epistemological presuppositions, we could summarize by registering two new phenomena. The first extends the concept of self-reference to final elements of any sort; the second is the insight that research with the goal of developing a universalistic theory implies research into itself, so that research cannot separate itself from its object. The epistemologies currently on the market can be tested from both of these points of view: Which theoretical proposals can satisfy these conditions?

The theory of autopoietic systems can do so--but only if it is no longer restricted to living systems and extends to psychic and social systems. It formulates the loss for all systems of any substantial common world grounded in final elements via the thesis that unity of any sort, including the unity of elements, can only be produced autopoietically. There is no other possibility of seeing unity in plurality, of synthesizing a multiplicity, of reducing complexity to unity and thereby regulating connections. This excludes the introduction of processes that cannot be checked--on the level of "reasons" as well as on the level of "elements." Autopoiesis is a recursive, therefore symmetrical, and therefore nonhierarchical occurrence. ¹¹ All regulation is itself regulated; all controls are themselves controlled. Nothing can be reproduced in a closed system if it does not satisfy these conditions. One can, of course, use asymmetries, relationships of reason and consequence, causalities, teleologies, relationships of element and aggregate, the distinction between dependent and independent variables, and the like, but this always rests on screening off possibilities that are available to the system. Knowledge is a nonhierarchical quality that emerges out of a recursive covering inside the system. ¹²

One particularly important consequence is that assuming a recursively

closed system that itself produces all the units it uses excludes a direct observation of unity from outside. All observation depends on inferring unity, and to do so it must orient itself to differences in order to determine what something is in distinction to something else. All observation uses a schema of difference. (This defines the concept.) Thus the unity of difference is defined by the observer, not by his object. The observer too is an autopoietic system, for how else could he arrive at this unity? He can use differences that are not available to the object--perhaps conscious/ unconscious for psychic systems or manifest/latent for social systems. In this sense, he can enlighten, but the enlightenment works only if it uses a schema of difference that the one to be enlightened can accept.

Schemata of difference always contain an aspect of contingency, and this distinguishes them from the system's immanent necessity of autopoiesis. The other side of the difference, the "with respect to what" of the distinction, must be selected and is also otherwise possible. One must leave the choice of a schema of observation to the observer's autopoietic system. When measured by the standard expectation of classical epistemology that "intersubjectively compels certainty," this produces an aspect of insecurity, relativity, indeed arbitrariness. If this is true, how can one guarantee that observation maintains contact with reality when it claims to be knowledge, even scientific knowledge?

A first step toward an answer is to focus on social rather than psychic systems. ¹³ Social systems can be psychologically deconditioned to a greater or lesser extent. Their communication can be uncoupled from the special conditions of self-continuation for individual consciousnesses and be made independent insofar as substitute motives (e. g., reputation) can successfully be instated. Moreover, it can be subjected to its own conditionings, perhaps in the form of "theories" and "methods." ¹⁴ Modern science's principle for selecting such conditionings seems to lie in the acquisition of *new* knowledge. All of this initiated a spectacular development of knowledge whose empirical basis no one, at least in our society, will deny.

Of course, this does not answer the decisive question of traditional epistemology and creates no substitute for the substantial common grounds that metaphysics presupposed as the being of

being. Even the social systems of society and of science are only self-conditioning autopoietic systems of a special kind. They observe and describe their own performance, and this does not sublimate the relativity, in principle, of all observation and description to a system, in that autopoiesis requires systems. Questions of final justification can only be answered within the self-referential theories of self-referential systems. The answer may lie in the logic of universalistic theories that forces them to test on themselves everything they determine about their object.

With these considerations, the concept of the self-referential system takes on a central importance for epistemology also. This is not merely a matter of asking whether systems theory in general is a scientific theory and how, if that is answered in the affirmative, the theory of science must change its self-understanding. ¹⁵ One can no longer start out within such bounds after systems theory has incorporated the explosive of self-reference and passed it on to the theory of science as the core of the concept of system. The consequences go far beyond merely adapting the concept of a theory to obviously successful innovations. The concept of self-referential systems can and must subsume science and one's own research. This requires taking leave of ontological metaphysics and apriority.

Systems with built-in reflection are forced to forgo absolutes. ¹⁶ And if science discovers this fact in the domain of its objects, the fact holds irrefutably for science, too.

Moreover, the theory of self-referential systems interprets the phenomenon of self-encounter that we have just outlined. It rests on differentiating knowledge and object and marks the point of re-identification in the domain of its objects. Above all, logic and the theory of self-reference can now learn from systems research. The search for solutions to the tautological structures of self-reference is an old one. The theory of types is one attempt at a solution that has from time to time been thrust upon the empirical sciences. One agrees that harmful and nonharmful forms of self-reference, namely, those that lead to paradox and those that do not, should be distinguished. ¹⁷ In an analysis of empirical systems, one encounters the phenomenon of coupled, structurally attached, necessarily accompanying self-reference, for which the triad of capital, state, and *Bildung* provide sociologically relevant examples. This shows that and how self-reference can be built into a conditional and increasing

nexus of closure and openness. The discovery forces a theory of science to ask: Does science do it the same way? And if not, why not? And anyway, how else?

However one answers this question for the scientific system, the fact that as a self-referential system it concerns itself with self-referential objects has far-reaching consequences. Science's relationship to its object is, for its part, a relationship of double contingency. The object can be investigated only if one sets in motion its self-reference or uses its own dynamic. ¹⁸ Any transparency that is attained is a transparency of interaction with the object and the interpretations needed for this. ¹⁹ Double contingency (of self-referential systems) forces the emergence of a new level of reality, as we have abundantly shown for relations among human beings. ²⁰

Knowledge of self-referential systems *is an emergent reality* that cannot be reduced to features already present in the object or in the subject (which does not exclude systems from observing and categorizing their environment with analytical schemata they have made themselves, e. g., counting the motorcycles on the Isle of Man). This insight bursts open epistemology's subject/object schema without disputing (indeed, while presupposing) the possibility of pre-given characteristics and projections onto the environment that are relative to the system. It is not a question of renewing any theory of how reality is constituted or of repeating the thesis that one can know only what one can bring forth. We merely draw the consequence for epistemology of the insight that double contingency, when it becomes a problem for self-referential systems, works auto-catalytically, that is, reorganizes "material" that already exists on an emergent level of reality. On this emergent level the world is viewed in a new way, although there remain specific uncertainties and therefore specific techniques for reducing uncertainties by interaction with the object, namely, by stimulating self-referential processing.

In presenting this development from transcendental to natural epistemologies and their grounds, we did not have to refer specifically to sociology. Its situation is not in principle different from that of the other sciences. The cutting line does not run between natural sciences and *Geisteswissenschaften*, but between theories with a claim to universality (which involve themselves in self-referential processes as a result) and more limited research theories,

which concern thematically bounded sections of the world. More than other specialized sciences, in which epistemological questions and epistemic circles have emerged only recently out of specific research, ²¹ sociology can look back on a specialist tradition of its own. It has been aware of the "ideological" component of societal theories for a hundred years. That the sociology of knowledge, in thematizing truth, is based on circular structures is a problem whose discussion has fizzled out only for lack of any new ideas. ²² That research methods involve the researcher in relations with his object, thereby implying presuppositions and impeding objectivity, belongs to sociology's store of specialist experience and has stimulated countless methodological considerations. Most recently, sociology has profited from the historicizing turn in theories of science and can show that theoretical developments over time are not without influence from the conditions of society, of organizations, and of everyday interaction. All this was formerly experienced as a burden or a problematic fact and was not presented as findings about reality, as verification of a theory that precisely predicted it. Fashionable concepts imported from philosophy, earlier the "social a priori," now the "lifeworld," merely serve as ultimate formulas that occupy the place in which such a theory should be formulated. One can expect a change in sociology only if one cultivates general, universalistic theoretical accounts. A social epistemology can emerge only as a by-product of such a theoretical development.

Of course, the theory of self-referential social systems does not claim to be the only possible theory or even the one that offers the most security, but it has a special affinity for this task. This is the central position it gives to the concept of self-reference. It is much easier for a theory that interprets its objects as self-referential systems to present its own self-reference. This is to be expected when the theory recognizes itself in the field of its objects as one among many others. Theoretically guided research (including that guided by a theory of self-referential systems) can be nothing other than a self-referential social system, what's more, one among many, a subsystem of a subsystem of a subsystem of society, thus, one of very limited societal scope. If the theory of self-referential social systems functions in general, then it probably functions in this case too. The more elaborated the general theory, the more productive

the restrictions for the theory of science that can be derived from it. The theory of science will be able to make use, above all, of the general insight that its self-reference is sensitive to chance and conditions itself in order to create structured complexity, with the result that the system can combine a high degree of indifference regarding its environment with specific sensitivities.

Self-reference and other-reference are uniquely combined here, in harmony with the theoretical concept we espouse. This is a case of accompanying self-reference--one among many. On the one hand, theory must reckon with appearing as one of its own objects. This self-reference is structurally necessary if one claims universal validity. On the other, this self-reference emerges only if the concept of a theory is "unfolded" in the logical sense, if it applies to other objects, if it includes other-references, and thus if it processes self-reference and other-references together. The concept of reentry (Spencer Brown) or, as we would prefer to say, the reappearance of a difference within the domain of its objects, is both a simple experience that one has every day in working with theories that make universalistic claims and a form of what is to be expected from the theory: a structurally conditioned, necessary coupling of self-referential and other-referential references in all of the system's operations. Broad-minded theoreticians of science might see therein verification of a hypothesis belonging to the theory of knowledge.

Complicated conceptual relationships of this kind may intimidate sociologists. At the end of our reflections, we cannot under-take a book

23 within a book to convert the program for a theory of science hinted at here into a thoroughly plausible statement. Our concluding remarks merely mark the spot to which such investigations could connect, and they should preclude the objection that one must clarify the logical and epistemological problems of a basis for research before one can begin research, must "show the flag" on setting out, thus allying oneself with an existing position in the theory of science, which then bestows clarity upon the premises of one's own proceeding. We have proceeded in the opposite fashion and can now encourage the owl of Minerva to stop hooting in the corner and begin its flight into the night. We have instruments to watch over it, and we know that its journey is a reconnaissance of modern society.

Notes

- [Note](#): 1. A term used by Willard van Orman Quine, "Epistemology Naturalized," in Quine, *Ontological Relativity and Other Essays* (New York, 1969), pp. 69-90. This turn can be amply proven.
- [Note](#): 2. This can be seen particularly well in Donald T. Campbell, "Natural Selection as an Epistemological Model," in Raoul Naroll and Ronald Cohen, eds., *A Handbook of Method in Cultural Anthropology* (Garden City, N. Y., 1970), pp. 51-85. An example is the weight given to the methodological principle of "convergent confirmation" and thereby to functional equivalence. See Chap. 1, n. 118.
- [Note](#): 3. Roger E. Cavallo, *The Role of Systems Methodology in Social Science Research* (Boston, 1979), p. 20, calls it "basically experiential." Quine, pp. 751", 83f, clearly emphasizes the connection between the "naturalization" of epistemology and the acceptance of circularity, but he fails to see that reality is also structured circularly, independently of knowledge.
- [Note](#): 4. Therefore conventional theory of science in the natural sciences does not reckon with the epistemological problems of global theories. See C. A. Hooker, "On Global Theories," *Philosophy of Science* 42 (1979): 162-79.
- [Note](#): 5. Physicists and logicians! The quotation comes from George Spencer Brown, *Laws of Form*, 2d ed. (New York, 1972), p. 105. Heinz von Foerster has repeatedly referred to the epistemological consequences. See, e. g., von Foerster, "Notes pour une épistémologie des objets vivantes," in Edgar Morin and Massimo Piatelli-Palmarini, eds., *L'Unité de l'homme* (Paris, 1974), pp. 401-17; von Foerster, "Kybernetik einer Erkenntnistheorie," in Wolf D. Keidel, Wolfgang Händler, and Manfred Spreng, eds., *Kybernetik und Bionik, Berichtswerk über den 5. Kongreß der Deutschen Gesellschaft für Kybernetik, Nürnberg 1973* (Munich, 1974), pp. 27-46; von Foerster, "The Curious Behavior of Complex Systems: Lessons from Biology," in Harold A. Linstone and W. H. Clive Simmonds, eds., *Futures Research: New Directions* (Reading, Mass., 1977), pp. 104-13. This theme also runs through Gerhard Roth and Helmut Schwegler, eds., *Selforganizing Systems: An Interdisciplinary Approach* (Frankfurt, 1981).
- [Note](#): 6. See Ray Holland, *Self in Social Context* (New York, 1977).
- [Note](#): 7. See Edward E. Jones and Richard E. Nisbett, "The Actor and the Observer: Divergent Perceptions of the Causes of Behavior," in Edward E. Jones et al., *Attribution: Perceiving the Causes of Behavior* (Morristown, N. J., 1971), pp. 79-94.
- [Note](#): 8. One can admire Karl Mannheim's evasive formula for intellectuals: free-floating intelligence (which says, think of *oneself* as free of commitments).
- [Note](#): 9. This is where Jürgen Habermas has objected to systems theory's claim to universality. See his contribution in Jürgen Habermas and Niklas Luhmann, *Theorie der Gesellschaft oder Sozialtechnologie: Was leistet die Systemforschung?* (Frankfurt, 1971), p. 142ff, esp. p. 221ff.
- [Note](#): 10. As when a theory of science entirely focused on problem solving says that "unsolved problems generally count as genuine problems only when they are no longer unsolved" (Larry Laudan, *Progress and Its Problems: Toward a Theory of Scientific Growth* [Berkeley, 1977], p. 18).
- [Note](#): 11. A comparison with the corresponding theory of organic systems is instructive. See Gerhard Roth, "Biological Systems Theory and the Problem of Reductionism," in Gerhard Roth and Helmut Schwegler, eds., *Self-Organizing Systems: An Interdisciplinary Approach* (Frankfurt, 1981), pp. 106-20. For consequences for the theory of evolution, see also Roth, "Conditions of Evolution and Adaption in Organisms as Autopoietic Systems," in D. Mossakowski and G. Roth, eds., *Environmental Adaption and Evolution* (Stuttgart, 1982), pp. 37-48 (p. 40f).
- [Note](#): 12. For contemporary systems theory, this does not amount to a secure consistency or to the complete interdependence of all knowledge.
- [Note](#): 13. This is already sufficient to separate us from transcendental theories, whose technique was to uncover transcendently valid epistemic certainties in the consciousnesses of psychic systems—whether in the form of rules or in the form of unmediated "phenomenological" certainties about objects of thought.
- [Note](#): 14. For more on this and the evolutionary context of such conditionings, see Niklas Luhmann, "Die Ausdifferenzierung von Erkenntnisgewinn: Zur Genese von Wissenschaft," in Nico Stehr and Volker Meja, eds., *Wissenssoziologie*, special ed. 22 of the *Kölner Zeitschrift für Soziologie und Sozialpsychologie* (Opladen, 1981), pp. 101-39.
- [Note](#): 15. This problem is treated by Mario Bunge, "The GST Challenge to the Classical Philosophy of

Science," *International Journal of General Systems* 4 (1977): 29-37.

[Note](#): 16. The development of systems theory can be viewed as an answer to this discovery--at least according to Alessandro Pizzorno, "L'Incomplétude des systèmes," *Connexions* 9 (1974): 33-64; 10 (1974): 5-26 (p. 60f).

[Note](#): 17. See, among others, C. P. Wormell, "On the Paradoxes of Self-Reference," *Mind* 67 (1958): 267-71.

[Note](#): 18. This holds, of course, only when scientific interest is directed toward the self-referential constitution of the object. Besides this, of course, there are other, traditional methods of classification and measurement, which abstract from self-reference and substitute the analytic frame of reference of their own observation. This is precisely the sense in which Gordon Pask distinguishes (in a terminologically unfortunate way) between "specialized observers" and "natural historians." Only the latter recognize self-reference and therefore involve themselves in "conversation" with their object. See Pask, "The Natural History of Networks," in Marshall C. Yovits and Scott Cameron, eds., *Self-Organizing Systems* (Oxford, 1960), pp. 232-60.

[Note](#): 19. As also Pask, p. 234: "A natural historian cannot say anything precise about the way that elephants (or other systems) work. He makes comments only about his interaction." See also Ranulph Glanville, "The Form of Cybernetics: Whitening the Black Box," in *General Systems Research: A Science, a Methodology, a Technology* (Louisville, Ky., 1979), pp. 35-42.

[Note](#): 20. See Chap. 3.

[Note](#): 21. For biology, see: Peter M. Hejl, Wolfram K. Köck, and Gerhard Roth, eds., *Wahrnehmung und Kommunikation* (Frankfurt, 1978); Francisco J. Varela, *Principles of Biological Autonomy* (New York, 1979); Rupert Riedel, *Biologie der Erkenntnis: Die stammesgeschichtlichen Grundlagen der Vernunft*, 3d ed. (Berlin, 1981); Humberto R. Maturana, *Erkennen: Die Organisation und Verkörperung von Wirklichkeit* (Brunswick, 1982). This literature shows that epistemological entanglements are more forceful, far-reaching, and "interesting" when the initial theory itself is more rigorous. Only then, e. g., do logical problems of self-referential relationships become relevant. Sociology faces a similar experience.

[Note](#): 22. A useful survey of German contributions to this discussion is Volker Meja and Nico Stehr, eds., *Der Streit um die Wissenssoziologie*, 2 vols. (Frankfurt, 1982).

[Note](#): 23. For problems in the differentiation of science and for the differentiation of theory and method, see esp. Niklas Luhmann, "Die Ausdifferenzierung von Erkenntnisgewinn: Zur Genese von Wissenschaft." [Since the original German publication of *Social Systems*, the author has published the proposed book as *Die Wissenschaft der Gesellschaft* (Frankfurt, 1990)--Trans.]

Index

In this index an "f" after a number indicates a separate reference on the next page, and an "ff" indicates separate references on the next two pages. A continuous discussion over two or more pages is indicated by a span of page numbers, e. g., 57-59. *Passim* is used for a cluster of references in close but not consecutive sequence.

- Abstraction, 2-3
- Acceptance/rejection, 112, 147-48, 159, 173, 231, 445-46
- Accident, 324, 333
- Action, 84, 112-14, 118, 165-71, 203, 216, 446-47, 469; theory of, 137, 469; semantics of, 168; types of, 171; collective, 198-201, 455; and observation, 227, 300-303, 342-43
- Actuality/possibility, 65-66
- Adaptation, 31, 118, 349
- Alienation, 88, 436
- Alter ego, *see* Ego / alter ego Alternatives, 339
- Altruism, *see* Egoism/altruism Ambiguity, 308
- Amplification, 190
- Analogy, 14, 212
- Annihilation, 62, 372
- Anomie, 72
- Art, 342
- Assumptions, 110, 307
- Asymmetrization, 38, 43, 71, 125-26, 165, 169, 192, 203, 466-67, 481
- Attribution, 165-66, 216, 224-26; internal/external, 84
- Autarky, 411 Autobiography, 519ff5 Autocatalysis, 120-21, 190
- Autonomy, 144, 183, 186, 204, 218, 415, 478
- Autopoiesis, 22, 34-36, 48, 55, 66, 118, 162, 166, 169, 175, 189, 218-21, 286, 347-48, 359-60, 362, 368-69, 394, 408-9, 415, 434, 444, 448, 460, 483-85; of consciousness, 146, 218-21, 262-67
- Beginning interaction, 418. *See also* Interaction, system of Behaviorism, 59
- Being, 99-101, 322, 484. *See also* Ontology
- Bildung, 259, 463-65 Binding, 156, 221-23, 391, 398-99; collective, 200; moral, 237-38
- Black boxes, 109-10, 201
- Body, 197-98, 211; human, 244-51, 414
- Boredom, 386
- Boundaries, systemic, 17, 28-30, 126-27, 193, 217, 409-10, 412; meaning-constituted, 61-62, 194-97; function of, 197; positions of, 205
- Bureaucracy, 351. *See also* Decisions; Organizations
- Capital, 392, 464, 465
- Career, 317 Carnival, 584ff165
- Catastrophes, 378, 381, 459
- Causality, 10, 19, 40-41, 53, 184, 387, 448-49, 468, 475, 481. *See also* Structural causality
- Center/periphery, 190
- Certainty, 454

- Chance, 116, 120, 132, 172, 183, 291, 293, 324, 355, 370f, 446
- Change, 42, 67, 88, 344-56; conditioning of, 329
- Circularity, 117, 129, 192, 449. *See also* Double contingency; Tautology Cites, formation of, 424
- Civil religion, 123
- Claims, 269-71, 468
- Classification, 440-41
- Closure, self-referential, 9
- Coding, 142-43, 444-45
- Cognitive expectation, 321-25
- Collective action, 198-201, 455
- Collective singular, 431
- Commitment, 324, 419
- Common sense, 454, 479
- Communication, 38-39, 85-86, 98-99, 137-75, 216, 364-67, 388-89, 445-46, 469; symbolically generalized media of, 149, 161-63, 195, 249, 376-77, 453, 463; indirect, 150-51, 413; process of, 154-55; of contradiction, 364-66, 388-89; paradoxical, 366-67, 413. *See also* Language
- Community, 518r53. *See also* Gemeinschaft Comparison, theoretical, 3; functional, 54-55 Compensation, for inferior complexity, 183-85 Competition, 382-84
- Complexity, xlviii-xlix, 23-28, 57, 60-61, 214, 231, 318-19, 444, 463; transparency of, xlvii, 109-10; structured, 24, 97, 132, 219-20, 279, 282-83, 373; reduction of, 1, 25, 26-27, 68, 166, 171, 181, 192, 298, 337, 472; requisite variety of, 25, 182, 327; determinate/indeterminate, 27, 219-20, 279, 282; temporalization of, 46-52, 63, 167, 216, 286, 345, 368, 450; and system differentiation, 190-94
- Conditioning, 23, 61, 120, 133-34, 200, 214, 218, 236, 323, 362f, 393-94, 417, 445, 455
- Conditions, programming of, 203, 317
- Conditions of possibility, 23; of action, 103-4; of social order, 115-17; of double contingency, 215-16; of abstraction, 291; of contradiction, 362-63. *See also* Conditioning
- Conflict, 135, 148f, 193, 227, 235, 307, 319, 330-31, 333, 357-404, 421-23
- Conformity and deviance, 190, 229-30, 241, 294, 322, 348
- Connectivity, 36, 83, 96, 119, 169, 189, 215, 285, 289, 308, 369, 393, 434, 590r6. *See also* Entropy; Referential structures
- Conscious/unconscious, 247, 484, 609r32
- Consciousness, 34, 36, 64, 88, 98-99, 174, 217, 221, 262-65, 336, 437-39
- Consensus, 91, 172, 231-32, 236, 470, 472; and dissent, 75-76, 81, 126
- Constancy, 284; and change, 44
- Constant/variable, 85, 346
- Constraints, 23, 32, 97, 110, 148, 189, 283, 292, 319, 369. *See also* Conditioning; Selection
- Contingency, 25, 52, 56-57, 106, 280, 287, 296; mastering of, 339, 342. *See also* Double contingency Contracts, 124-25, 212. *See also* Social contract
- Contradiction, 95, 132, 357-58; communication of, 364-66, 388-89
- Control, 36, 143, 445
- Cooperation, 383
- Copying (*homme-copie*), 271, 315
- Cosmology, 72
- Costs, calculation of, 381
- Counterstructure/counterculture, 583r163
- Coupling, 222
- Creatio continua* (continuous creation), 115
- Credit, 610r38
- Crisis, 431, 477
- Criticism, 339-40, 342, 403
- Cultural state, 464-65
- Culture, 104, 124, 163, 418, 433, 436
- Dance, 248

- Death, 250, 276-77, 311, 407
- Decentering, 70
- Decisionism, *xlviii*
- Decisions, 294-98, 308
- Deduction, 468, 481
- Dependence/independence, 183f, 204, 214, 218, 424
- De-tautologization, 75, 118, 132, 444, 446, 466
- Deviance, *see* Conformity and deviance
- Dialectics, 280, 358, 360, 368, 373, 381, 431, 448, 613*n*74
- Difference, *li*, 10, 32, 40, 52, 63, 65-66, 70, 74-75, 112, 177, 209, 232, 242-43, 264-65, 291-92, 323f, 440, 473
- Differentiation, 30, 49, 62, 152, 183, 187-94, 204, 306; of functional orientation, 53; of meaning, 87; of acceptance/rejection, 112, 147-48, 159, 173; of information/utterance, 140-46 *passim*, 149, 151-53, 162; of communication, 144, 152, 154-55; of temporal dimension, 185-86, 310-13; functional, 190, 193, 240, 303, 312, 340-41, 377, 379, 381, 454, 458, 460-66, 476-77, 609*n*29; internal, 191-93; of fulfillment/disappointment, 268, 273, 293, 320; of observers' roles, 301-2; of levels of abstraction, 318; of cognitive and normative expectations, 320-25; of competition, 383; of social interaction, 405-7; of reflexivity, 451, 454. *See also* System differentiation
- Diffusion theory, 346
- Digitalization, 363
- Disappointment, 320-22, 332-34. *See also* Fulfillment/disappointment Discouragement, threshold of, 159
- Discrimination, 393
- Disintegration, 282. *See also* Dissolution Disorder, *see* Order/disorder Dissimulation, 144, 151
- Dissolution, 164, 179, 282; and reproduction, 48-49; and recombination, 91, 114, 379, 408, 468, 476
- Distance, 440
- Distinction, 66, 167, 440
- Divination, 311
- Domination, 6, 17-18, 198, 271, 340, 397
- Double contingency, 103-36, 189, 215-16, 226, 246, 286, 303, 368, 389-90, 412, 419-20, 445, 456, 471, 486. *See also* Contingency
- Dynamics, 44, 345-46
- Ecology, 31, 219
- Economics, theory of, 239, 458; system of, 381, 383, 461-62; and politics, 465
- Education, 244, 253-54, 259, 453, 463-65, 476. *See also* Learning; Socialization
- Educational system, 206-7, 244, 381, 458, 463-65
- Ego / alter ego, 80-81, 85-86, 106f 130, 141, 303, 389-90
- Egoism/altruism, 224. *See also* Self-advantage
- Element, 11, 21, 23, 130, 144, 179, 192, 195, 215, 480; and relation, 20-23, 282-85, 443, 447. *See also* Event; Self-reference
- Emergence, 22-23, 110f, 115, 141, 304-5, 448, 481
- Emotions, 269-70, 274-75
- Endlessness, internal, 129, 256. *See also* Horizons
- Enlightenment, sociological, 339, 484 *Ennui*, 565*n*21. *See also* Boredom
- Entropy, 49, 68, 148, 159, 264, 285, 349
- Environment, 9, 17, 176-77, 181-82, 444, 474; internal, 18, 189-93, 414; differentiation of, 187-94; turbulent, 349. *See also* System/ environment
- Episode, 268, 270, 273, 406-7, 416, 418
- Epistemology, 13, 35, 57-58, 178, 280-81, 458, 478-88. *See also* Science
- Equilibrium, 201
- Equivalents, functional, 53f
- Eternity, 311
- Ethics, 236, 238, 252
- Ethnomethodology, 609-101*n*33
- Etiquette, 429

Evaluation, 97
 Event, 47, 67, 215, 287-88, 345, 352-53, 372-73, 449-50; and permanence, 54-55, 78
 Evolution, 4, 25f 59, 69, 87, 98, 119, 121, 133, 149, 157-60, 173-74, 182, 216, 251, 300, 303, 306, 309-10, 346, 354-55, 360, 423-24, 433-36, 477, 531n23; of meaning, 69; of language, 151
 Evolutionary achievements, 69, 203
 Exchange, 149, 383, 422
 Excluded third, 83, 209, 230, 371
 Exclusion, 220
 Expectations, 96-97, 111, 133, 143, 267-69, 288-89, 292-94, 303-7; complementarity of, 304-5; certainty of, 310-13
 Experience, 84-85, 113-14
 Expression, 145-46
 Fact dimension, 74, 76-77, 86, 312, 381, 420, 467
 Family, 351, 352-53
 Feeling, 223, 273. *See also* Emotions
 Finalization, 467. *See also* Teleology
 Forgetting, 329
 Form, 76
 Formal/informal, 190
 Freedom, 213f, 314, 398, 419; concessions of, 109, 112
 Free time, 386
 Friendship, 225, 228, 237, 251f, 424-25, 429, 518n53
 Fulfillment/disappointment, 268, 273, 293, 320. *See also* Claims; Expectations
 Function, 299-303, 338-40, 454, 467
 Functional analysis, 52-58, 176, 300, 326, 343
 Future, 91, 378-81, 467. *See also* Past/present/future
 Gemeinschaft, 220
 Generalization, 93-96, 157, 235-36, 326-31; and respecification, 14
 General theory, 14-15
 Generic concepts, 14-15
 Genius, 267
 Gesture, 245-47
 Goal-oriented programs, 203-4, 317
 God, 409, 461
 Grounds, 222, 291, 444, 479, 483
 Guiding difference, 4, 32, 69
 Hermeneutics, 72
 Heroes and villains, 258, 267
 Hierarchy, 19, 190-91, 200, 205, 298-99, 337-40, 395, 468
 History, 79, 124
Homme universel, 267
 Honor, 597n71
 Horizons, 17, 69, 76-77, 207, 231
 Human being, 40, 64, 80, 88, 166, 193, 210-13, 258, 342
 Humanism, 80, 210-13
 Hypercomplexity, 471
 Hypotheses, scientific, 323
 Idea, regulative, 481
 Idealization, 6
 Identity, 65, 75, 94, 184, 275-76; social, 260, 266, 405; and expectation, 313-14
 Ideology, 259, 319, 431, 458, 460, 468-69
 Illusion, 341
 Immune system, psychic, 274; social, 369-77, 423
 Improbability, of normality, 114-15, 395
 Inability, 333
 Incommunicability, 150-51, 228, 343
 Independence, *see* Dependence/independence
 Indeterminacy, 109, 121, 361. *See also* Uncertainty; Undecidability
 Indications, 66, 145, 167, 440. *See also* Signs
 Individuality, 88, 210, 221, 225-26, 231, 255-56, 266-67, 314, 319, 419, 468, 549n21
 Informality, 429
 Information, 40, 67-69, 139-41, 184, 410
 Inhibition, 304, 352
 Input/output, 201-3

Insecurity, 307-10, 368, 378, 502-3;
 amplification of, 306, 309-10, 319-
 20, 395-96

Instability, 118, 367

Integration, social, 235

Intelligence, 111 Intention, 76, 130, 150-
 51, 166, 365

Interaction, system of, 158, 193, 334,
 392-93, 412-22, 455, 475

Interdependency, 284, 390-92; interrup-
 tion of, 38, 476; centering of, 415

Interest, 166, 612*r*61

Interpenetration, 39, 52, 104, 213-18,
 261, 272, 275, 324, 391, 410, 417,
 436; interhuman, 223-29

Intersubjectivity, 81, 146, 208

Intimacy, 224-29, 234. *See also* Love
 Irony, 365, 583*r*160. *See also* Wit

Irreversibility/reversibility, 42-43, 47, 78-
 79, 124, 169, 223, 305, 345, 449-
 50, 467

Irritability, 50, 172

Knowledge, 293, 322, 328-31; sociology
 of, 330, 487

Labeling, 322

Labor time, 386

Language, 94, 150-52, 160-61, 163, 272-
 73, 376-77, 445. *See also* Signs

Latency, 14, 56-57, 294, 334-40, 484

Law, 331, 333, 392, 398, 453; positive,
 323; and legal system, 374, 458;
 schematism of, 374-76; theory of,
 458

Learning, 111, 320-21, 328-29, 463-64

Legitimation, 201, 470

Liberalism, 382, 384, 470

Life, 211, 218-19, 263

Life-world, 70, 411

Limitation, 264-66, 440. *See also* Entro-
 py; Structure Logic, 95, 100, 209,
 357-59, 363, 385

Love, 224-27, 237, 239, 250, 337, 428,
 453, 458, 570-71*r*67

Luck, 253, 333

Magical practices, 333

Marriage, 239, 543*r*46

Master/slave relationship, 364, 386

Meaning, 37-38, 51, 59-102, 140, 219,
 362, 450; and meaning-constituted
 boundaries, 61-62, 194-97; evolu-
 tion of, 69; dimensions of, 75; de-
 termination of, 83; differentiation
 of, 89; self-reference, 89-92; loss
 of, 267, 432

Meaninglessness, 62, 72-73

Means/end schema, 204

Media, 160-62. *See also* Communication
 Membership, 196-97

Memory, in, 369, 514*r*20 Merit, 269-70

Metaphor, 153

Metaphysics, 99-101 Mirroring as meta-
 phor, 107 Modality, 320

Money, 270, 350, 377, 453, 461-62

Morality, 82, 156-57, 211, 233-40, 253,
 341, 375, 392, 397-98, 426, 472

Moral law, 236, 238

Morphogenesis, 119, 351, 352, 355-56

Motion, 51, 63, 79, 513*r*11

Motivation, 166

Multiple constitution, 38-39, 110, 135,
 246. *See also* Double contingency
 Music, playing of, 248

Natural law, 211, 230, 344, 375

Nature, 80, 100, 211, 238, 312, 330, 380,
 398, 454, 468

Necessity, 291. *See also* Contingency
 Needs, 462, 525*r*14

Negation, 62, 362, 371-72, 389, 403,
 409, 423, 445

Negativity, 121, 431-32

Negotiation, 125, 196, 222, 425

Nervous system, 262

Neuroses, 241

Neutrality, ethical, 102

Noise, 105, 142, 171

Normality, improbability of, 114-15, 394

Norms, 230, 292f, 320, 321-26

Novelty, 288

- Observation, 9, 36-37, 73, 177-78, 265-66, 285, 300-303, 335, 359, 43 4, 437-40, 481, 484; and action, 227, 300-301, 342
- Observers, roles of, 301-2 Office, 316.
See also Role
- Ontology, 101, 148-49, 177. *See also* Metaphysics; Thing schema
- Operations, 49, 83, 184, 232, 262, 439, 442
- Order/disorder, 83, 214
- Organism, 2, 244-45, 369, 372; as analogy, 3, 212, 372
- Organizations, 2, 196, 205-6, 351, 395, 468, 600*n*1; formal/informal, 338, 540-41*n*31, 543*n*49
- Paradigm, 4-5, 474, 607*n*6
- Paradox, 33, 95, 150-51, 153, 225-26, 229, 363, 377, 411, 474, 482
- Particular, 258
- Partnership, 421-22 Past/present/future, 75, 78-79, 186, 287, 310
- Payments, 461-62
- Peace, 332
- Penetration, 213. *See also* Interpenetration Perception, social, 152, 412-15
- Perfection, 71, 472
- Permanence, 54-55, 78
- Permissive attitude, 231, 319, 334
- Person, 85, 108, 111, 130, 235, 315-17, 419, 423
- Personalization, of social systems, 108
Phenomenology, 60, 82, 106, 145-47, 263, 560*n*32
- Philosophy, 101, 160. *See also* Metaphysics; Ontology; Transcendental philosophy Physics, 481
- Planning, 469-72, 474-75
- Pleasure, 468
- Pluralism, xlvi, 383
- Polis, 252, 424
- Politics, 201, 311, 377, 381, 393f, 462
- Possibility, *see* Actuality/possibility Predication, 322
- Prediction, of behavior, 121 Preferences, 295
- Presence, 78, 412, 414. *See also* Interaction, system of
- Present, 78-79, 186, 263, 287, 293, 310-11. *See also* Past/present/future Prices, 50. *See also* Money
- Printing, 162, 187, 302, 329, 342, 376, 428
- Probability, calculation of, 387, 606*n*64.
See also Improbability Problems, formulation of, 15, 53f, 114-17, 358; interdependency of, 160
- Process, 44-45, 286, 345, 349, 353-56, 443, 450. *See also* Communication
- Production, 20
- Programs, 157, 203-4, 317-19, 423
- Progress, 124, 322, 459, 472, 588*n*201
Prudentia, 46, 80, 312, 387
- Psychic systems, 59, 97-98, 108-9, 146, 194, 217, 221, 255-57, 315, 335, 363-64, 435. *See also* Consciousness
- Psychotherapy, 242, 336, 367, 583*n*161
Public opinion, 341
- Purpose, 50, 264
- Radicalism, 401
- Rationality, 171, 388, 455, 472-76; of decisions, 297; continuum of, 472
- Reading, 302, 428
- Realism, analytical, 280
- Reality, 178, 445f, 479. *See also* Fact dimension; Thing schema Reason, 92, 342
- Reasonableness, 145
- Reciprocity, 134; of perspectives, 107
- Recruitment, 196
- Reductionism, 27, 256
- Redundancy, 60, 172-74, 184, 285, 299, 397, 415-16
- Re-entry, 167, 401, 451, 488
- Reference, 439-40. *See also* Self-reference Referential structures, 60
- Reflection, 184, 275, 344, 443-44, 455-57, 459; theories of, 206, 236, 238, 457

- Reflexivity, 443, 450-54; social, 90; of assuming, 110; of communication, 143, 152-53; of expectations, 303-4; of perception, 412; of education, 453; of exchange, 453; of love, 453; of power, 453; of learning, 464; of planning, 471
- Reification, 72, 575*r*94. *See also* Alienation; Thing schema Rejection, *see* Acceptance/rejection
- Relation, *see under* Element Relevance, 590*r*6
- Religion, 123, 237, 311, 343, 454, 461, 480
- Repetition, 36, 273
- Representation, 5-6
- Reproduction, 34-36, 48-49, 169, 189; deviant, 348. *See also* Autopoiesis; Production *Res corporals/incorporates*, 64, 250-51, 254, 575*r*94. *See also* Thing schema Resources, 184
- Responsibility, 387
- Restlessness, immanent, 307-10, 368, 378, 502-3 Revolution, 593*r*40
- Rhetoric, 161, 162, 247
- Rhythm, 248, 453
- Ridiculousness, 237
- Risk, 25, 184, 269, 308, 324, 327, 379. *See also* Insecurity; Trust/distrust
- Ritual, 185, 200, 311, 452
- Role, 286, 292, 315-19, 419, 421, 423
Rules, of construction, 169
- Scarcity, 383, 421-22. *See also* Time pressure
- Schemas and schematization, 83-86, 229-34, 236, 374-75, 441
- Science, theory of, *xlvii*, 290-91, 458, 478, 480; system of, 55-56, 102, 358, 468 Security, 307-10. *See also* Insecurity
- Segmentation, 190, 424
- Selection, 20*f*, 32, 118, 120-21, 134-35, 140, 190-91, 215, 432-33; pressure to, 25, 42, 60, 134-35, 184; intensification of, 44-45, 450-51; of structures, 44-45, 283
- Self-abstraction, 2-3, 422, 424
- Self-advantage, 112
- Self-analysis, functional, 55-56
- Self-description/self-observation, 9, 28, 35, 36-37, 69, 165-70, 178, 180, 266, 270, 272, 278, 285, 301, 400-402, 430-32, 456, 459, 462, 465, 519-20*r*66
- Self-destabilization, 50, 218, 367
- Self-determination, 41, 82-83, 103, 130-34, 167, 219-20
- Self-esteem, 472
- Self-organization, 8-9
- Self-presentation, 56, 156, 429, 444
- Self-realization, 259, 270
- Self-reference, 13, 32-41, 130, 216, 218, 361, 366*f*, 409, 437-77, 480; of theories, *xlvii*-*xlvi*, 13; of meaning, 61, 88-89; of time, 90;
- basal, 130, 144, 264, 290, 361, 443, 448-50; of communication, 143-44, 155; and differentiation, 191-92; and individuality, 257, 261-62; of scientific knowledge, 291; of actions, 295; of social movements, 400-401; accompanying, 446, 460*f*, 488. *See also* Autopoiesis; Circularity; Tautology
- Self-reproduction, *see* Autopoiesis
- Self-simplification, 19, 57, 86, 137, 170, 196, 276, 460, 464
- Self-socialization, 241
- Self-substitution, 409
- Semantics, 163, 282
- Semiology, 146-47
- Sensitivity, 172, 194, 204, 369, 378
- Signs, 71, 94, 146, 160. *See also* Indications
- Silence, 152, 273, 341. *See also* Latency
- Simultaneity, 185-86
- Sincerity, 315, 365. *See also* Incommunicability
- Situations, 166, 168
- Sociability, 155*f*, 195, 237, 334, 341, 425, 476
- Social contract, 198, 211-12, 326

- Social differentiation, 192-93 Social dimension, 80-82, 106, 112, 306, 311, 382-83, 409, 414, 419, 426, 438, 468
- Socialization, 104, 205-7, 240-44, 253-54
- Social movements, 398-401
- Social semantics, 81, 425
- Society, theory of, 4, 411-12, 430-32, 487-88; modern, 100-101, 192, 404, 425-26, 430-32, 441, 468, 473, 476; archaic, 417, 424
- Sociology, xlv-xlvi, xlix, 10-11, 123-24, 198, 259-60, 370, 408, 486-88; as observation, 335
- Solidarity, 421
- Solitude, 407, 427f
- Space, 385
- Speed, 45-46, 119, 343
- Sports, 248-49
- Stability, dynamic, 49-51, 345
- State, the, 383, 457-58, 462-63, 464f
- Strategy, 577n110
- Stratification, 193, 258-59, 269-70, 314-334: 395, 397-98, 421, 425, 468. *See also* Hierarchy
- Structural causality, 40-41, 478
- Structural flexibility, 349
- Structuralism, 202, 278-82
- Structure, 32, 36, 44-45, 183f, 220, 278-356, 369. 372, 415
- Subject, 28, 71-72, 74, 80, 100, 170, 178, 216, 233-34
- Sublimation, 109
- Supertheory, 4-5. *See also* Universality
Suspicion, 150, 162
- Symbiotic mechanisms, 249
- Symbols, 306; and symbolic generalizations, 92-97; and shared symbolic systems, 104, 124; and symbolic interactionism, 108, 405
- System boundaries, 17, 28-30, 126-27, 193, 217, 409-10, 412
- System complexity, 21, 217
- System differentiation, 7, 18-19, 189-94, 416, 423
- System/environment, 6-8, 13, 16-20, 25-26, 43, 49-50, 61-62, 68, 73, 102, 126, 136, 144-45, 170, 176-209, 212-13, 349, 409-10, 419, 455, 467, 474-75; open/closed, 7ff, 29, 37, 62, 219, 264-66, 410, 444, 446f, 462-63, 466, 486; self-referential, 8-10, 13-14, 33-35, 37-41, 349-50. *See also* Adaptation; Input/output
- System reference, 136, 177, 256, 442-43, 455, 465
- Systems, relations between, 112, 181-82
- Systems theory, general, 1-11, 13f; analytical, 13, 21, 30, 180, 280, 442; functionalistic, 55, 447-48
- Tact, 56, 305, 413
- Taste, 267, 273, 343, 557n8
- Tautology, 13, 361, 442, 460
- Technology, 378 Teleology, 125, 291, 302, 355-56. *See also* Finalization; Purpose
- Temporal dimension, 77-80, 89-90, 310, 418, 467
- Temporalization, 46-52, 63, 167, 216, 256, 345, 368, 450
- Territoriality, 194-95, 410
- Terrorism, 340
- Themes, 76, 195-96; and contributions, 155-57, 163, 292
- Theory, xlv-lii, 291-92, 329, 484; self-reference of, xlvii-xlviii; universalistic, xlvii-xlviii, 15-16, 481, 488
- Thing schema, 64, 72, 77, 139, 254, 257
- Third party, 396
- Thought, 99
- Time, 41-52, 185-87, 308-9, 310-13, 378-82, 449-50; aggregation of, 46; measurement of, 78, 185, 309; semantics of, 79-80, 89-90, 186-87, 311; self-reference of, 89-90. *See also* Past/present/future; Temporal dimension
- Time binding, 91, 222, 527n37
- Time pressure, 186, 196, 386
- Totalization, 181
- Transaction, 149

Transcendence, 97, 461
 Transcendental philosophy, 101, 145-47, 258, 263-64, 280, 438, 447-48, 479, 547*n*9, 616*n*13. *See also* Consciousness; Subject
 Transmission, 139-40, 165
 Transmission as metaphor, 139-40, 165, 537*n*71
 Transparency, *xlvi*, 110, 486
 Trust/distrust, 127-29
 Truth, 58, 91, 161, 377
 Twofold descriptions, 77
 Types, 82, 94, 96; hierarchy of, 95, 466, 608*n*23
 Uncertainty, 110, 184, 288; absorption of, 110 Unconscious, *see* Conscious/unconscious Undecidability (for observers), 360 Understanding, 73, 88, 141, 143, 158, 265
 Unity, 33, 298*f*, 303, 338-39, 362, 440, 451, 483-84. *See also* Autopoiesis
 Universal, 6, 258-59, 267
 Universality, *xlvi*-*xlvi*iii, 15, 481, 487; of theory, *xlvi*-*xlvi*iii, 15-16, 481, 488; of meaning, 63, 72, 75*f*, 80
 Unknowable, the, 123
 Utilitarianism, 380, 525*n*15
 Utopia, 378
 Utterance, 139, 151-53, 164-65
 Validity, 15, 44 Values, 161, 306, 317-19, 423, 431; and value consensus, 105, 123
 Variety, 312; requisite, 25, 182
 Violence, 395 Whenever, level of, 45 Whole/part, 5-8
 Wisdom, 301
 Wit, 153, 583*n*160
 Work, 187, 239. *See also* Labor time
 World, 69-71, 106, 113, 207-9, 224; semantics of, 70, 208; structures of, 282
 World society, 410, 430
 Writing, 87, 160, 302, 329, 376, 427-29, 456
 Youth, 248

Library of Congress Cataloging-in-Publication Data Luhmann, Niklas.

[Soziale Systeme. English]

Social systems / Niklas Luhmann; translated by John Bednarz, Jr., with Dirk Baecker ; foreword by Eva M. Knodt.

p. cm.--(Writing science) Includes index.

ISBN 0-8047-1993-4 (cl.): ISBN 0-8047-2625-6 (pb.)

Social systems. 2. Autopoiesis. I. Title. II. Series. HM131.L81913 1995

303.48'33--dc20

94-46175

CIP REV

This book is printed on acid-free paper.

Retrieved May 2020 from

https://uberty.org/wp-content/uploads/2015/08/Niklas_Luhmann_Social_Systems.pdf

Produced in collaboration with the University of Chicago.

Send mail to Editor@AlexanderSt.com with questions or comments about this web site.

Copyright © 2010 Alexander Street Press, L.L.C. All rights reserved.

Terms of use

PhiloLogic Software, Copyright © 2010 The University of Chicago.