

Observing Re-entries

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I.

Let me begin with a *captatio malevolentiae*. I enjoy the idea that the title of my lecture will not be understandable to you. And even if you know, by chance, the meaning of the words you will not immediately see their relation to the topic of this meeting: limits to rationality.

However, both notions, observing and re-entry, can be defined with sufficient rigor and with reference to ongoing research.¹ They do not present weak and unanalyzable generalizations. The problem is that their definitions refer to a paradoxical foundation.

Observing can be defined as an operation using a distinction for indicating one side of the distinction and not the other. This obviously is a self-implicating concept because the distinction between distinction and indication itself is a distinction. It implies observing the observer. It is a second order concept with the advantage---the tradition would say: disadvantage---of an infinite regress. Or circularity. Or of founding itself on the circularity of a self-reproducing system. But then, who is the observer, that is, the observing system? The observer excludes itself from what it observes. If it distinguishes an object it presupposes another side of this distinction, an unmarked space, and the observing system itself is part of this unmarked space. The observing cannot be observed--except by another observing operation. All observing needs this blind spot of self-exclusion. And this is also true if you go, following Heinz von Foerster² to the level of second order observation. If we turn to the notion of *re-entry*³ we will have the same problem. A distinction re-enters itself if it is copied into itself. It then reappears as part of its own space, as part of what it distinguishes. It is the same and not the same distinction, depending on the observing system that identifies or

distinguishes the two levels of the re-entry. But this situation of choice forces the observing system (like the general in Clausewitz's war) to distinguish itself by self-reference. This means that it has to make a distinction regarding itself between self-reference and external reference. But this again leads to the question of how to observe the observing system in making this distinction.⁴

To warm up a little after this cold introduction I would like to give a classical example. In his *Politics* Aristotle says: "One has to observe the natural according to its natural condition and not according to its corrupted conditions."⁵ So, nature re-enters itself as the distinction between the natural and the unnatural. A tradition which lasted more than two thousand years has dissolved this paradox by introducing a *normative* notion of nature into a non-normative notion of nature.⁶ Fire will burn anyway but a nobleman does not necessarily behave like a nobleman. He has to be concerned about his nature.

Moreover, the antique theory of architecture and sculpture teaches that the distinction of form and deformation (distortion) has to re-enter the form to produce a perfect appearance.⁷

And another example: The old tradition of political thought presupposes the distinction between *oikos* and *polis*, between the economic concerns of the household and the political concerns of the city or the realm. This distinction also re-enters itself. Even a long time after the pernicious invention of taxes it was seen as a political obligation of the political man to support himself economically by his own household.⁸ And the whole matter of education in a noble house⁹ is at the same time a political obligation, including preventing wives from sneezing during pregnancy because this might disturb and corrupt the natural development of the baby. The same logical structure defines the old European notion of order. As created by God, order is a good thing. Without order the world could not exist. But within this order the distinction of good and bad reappears. God, says Augustine, does not particularly like bad things, *but he cares for the distinction*.¹⁰

The same form of copying distinctions into themselves appears in modern thought, although in very different semantical contexts. To give one example: If the legal system of modern society proclaims freedom (excluding external constraints) and equality (excluding inequality) as principles, fundamental rights or values, it founds itself not on a fundamental norm but on a paradox. For then, *any* legal norm contradicts the principles, limits freedom, creates inequality. But this would amount to an indeterminable state of the system. Therefore, the distinctions re-enter themselves. Freedom excluding constraints becomes constrained freedom,¹¹ equality excluding inequality becomes controlled and justified inequality. The law is the sum total of deviations from its

principles. Freedom and equality remain principles, rights or values, because this terminology hides the fundamental paradox; but its latent function is to fix the system at a level of universal contingency of all structures and operations. The law is contingent deviation from the law.

11.

Ever since Wittgenstein it has become fashionable to ask how the world can observe itself.¹³ This requires an observing system reproducing boundaries, severing itself from its environment. The observing system has to have (and to reproduce) the capacity to observe itself and its environment; i.e., to distinguish self-reference and external reference. Observing requires (for an observer observing observing) a re-entry of the distinction of system and environment into the system. It rests on a foundation that can be observed as a paradox only. It requires in addition the capacity to draw further distinctions for indicating objects (symbols, concepts) as distinct from other parts of the world. And this again, if in turn observed, is based on the paradox of the sameness of the distinct. Observing, then, has to be observed as a merger of two paradoxes, as the multi-mega-paradox. Therefore, self-reference and having objects is in reality the same evolutionary universal; or in the language of Husserl: consciousness consists of intending phenomena.

These considerations lead to post-transcendental conclusions (and I say "post-transcendental" to indicate the theoretical level of reflection). They suggest that observation (cognition *and* action) is founded on observable conditions. Any attempt to observe them is systematically discouraged by paradoxical results. The world can observe itself by withdrawing into the observable. Its unity cannot be distinguished except as the unmarked space required by any observation. It can observe itself by partly hiding itself.¹⁴ Hence, available structures of cognition and action cannot be logically derived from reason or principle. They require an unfolding of the paradox by ("necessarily contingent") identities. It is this latent function which provides the context for looking at the old European tradition in more general terms. My point is that the traditional notion of rationality had always presupposed a re-entry of a distinction into itself (into the distinguished space) and that it always has been necessary to veil and to conceal the paradox involved in this operation.

The humanistic tradition made the distinction between reason and will as that of different human capacities. This distinction prepared the way for two different forms of a re-entry of the primary distinction between being and non-being into itself, i.e., into the being.

In the special case of a human being equipped with reason and language the being could reason and talk about being and non-being-or as I would prefer to say: could observe itself. It could use Being and Nothingness as words and, with a further re-entry, distinguish between true and false statements regarding beings and non-beings. This remains strictly binary thinking under the control of a binary logic. It requires what has been called *kanon* or *kriterion* or *regula* that would guide the decision whether or not statements (re-entered beings) correspond to the original distinction of being and non-being. The re-entered distinction served as a "frame" for "dialectical" reasoning, and the frame of the frame was validated (nowadays one might say: constituted or even constructed) by the frame *within* the frame.

We find a similar, an exactly corresponding structure indeed, if we switch from reason to will or from cognition to action. Now, the problem is not identity but difference. But if difference, which difference?

Action, according to our understanding, seeks to produce a difference from what otherwise would be the case. It introduces this difference into the world and therefore needs motives and social legitimation. According to *our* Understanding! The old-European tradition had a completely different notion of action. Action was conceived as embedded in nature (and this includes social order). It was one of the natural processes seeking its own end and ending in the perfect state of nature, or failing to reach this state. Action was therefore a case of re-entry of the natural distinction of perfection and corruption into nature; and the human being was thought to be able to reflect this difference, to observe its own nature accordingly. Goals were objects of cognition (or error), *quia ex se patet quod optatur*, as one might say. There was no need for motives and no need for legitimation. The actor had to produce the re-entry of nature by knowing what nature demands and how nature can fail, can miss its own ends.

This bifurcation of two re-entries, coping with identity and difference respectively, was organized by the distinction of cognition and action or, in terms of human potentials, reason and will. In addition we find bridging mechanisms; e.g., the demand that reason should control passions that otherwise would have a corrupting influence on ends. One problem however remains: the unity of the difference of reason and will. This problem would have a theological solution. In God there is no such difference because His knowledge is action and His action cannot deviate from His knowledge. If humans are created as images of the unity of God they have their own unity in this origin and destiny although in their present state they have no immediate access to the *visio Dei* (except in a metaphorical way¹⁵). Again, the solution to the problem, the unfolding of the original paradox is given by an appropriate distinction. And appropriate means: appropriate for the time being.

111.

Without sharing a past we would not be able to communicate. Negating the relevance of the past and operating without commitment to binding traditions belongs to the central tenets of the modern idea of rationality. But this imperative of denying tradition has itself become a tradition leaving us with the question whether this tradition of denial remains the essence of a self-justifying rationality-and if so, why?¹⁶ There may be an inherent blindness in this tradition of pastless rationality. If so, could we replace this blind spot with a different one? And the different one may be the blind spot required by the paradox of a re-entry of a distinction into itself.

Furthermore, the distinction between rationality and tradition may re-enter itself. Rationality then presupposes a reconstruction of its own past so that it can continue and discontinue its own tradition, being same and different at the same time. For tradition is no longer a self-confirming process of handing over what remains true under changing circumstances. Rather, it is a range of possibilities available for self-authenticating choice.

Part of this task could be fulfilled by a sociological reconstruction of the plausibility conditions of frames within frames or distinctions that re-enter themselves. The societies of our tradition had to build their own identity on a scheme of differentiation implying inequality, be it the inequality of city life and country life (citizens and farmers, center and periphery), or the inequality of social rank; i.e., the distinction between noblemen and commoners. This order required (in spite of admitted mobility for demographic or other reasons) a description that insisted on natural positions or fixed places. Knowing your nature would then mean: knowing where and in which family (and therefore: for what) you are born. The impact of this tradition remained strong even in early modern times when political society had become the state, and the state a regional unit including cities and country. And it survived the redefinition of aristocracy as a political institution, founded in civil law and not in natural law. Since nature was imperfect anyway there could be errors of birth which the king could recognize and correct by ennoblement. But on the whole the order required (see Moliere) you to know your natural place and to stay there. It was difficult enough for a sinner to live up to the requirements of place and profession.

This world we have lost, and we lost it because the societal system changed its structural frame, its mode of differentiation. The primary mode of societal differentiation switched from center/periphery or rank

differentiation to functional differentiation. Now functional systems are the same and different at the same time; the same because they follow the same imperative of functional autonomy and operational closure, and different because they serve different functions. This order makes it impossible to distribute persons or families on fixed positions in social systems. It cannot localize people in one and only one of the functional systems, excluding them from access to others, forcing them to be an economic person but not a legal one or a sick person but not a political one. This change uproots the whole semantic tradition and thereby the conditions of plausibility for all devices unfolding paradoxes by substituting more convincing identities; i.e., distinctions. It is no accident that we find, at the beginning of this transitional period and at its end, in the late Renaissance of the 16th century and nowadays as well, a fascination with paradoxes, with shocking forms defying all standard rationalizations, with a deconstruction of styles of arts and modes of behavior.

¹⁷ Rabelais' *Gargantua and Pantagruel* is a paradigm of post-modern art.

Denying the binding force of one's past presupposes, of course, that you know it. A radical denial may simply mean a more radical reconstruction and thereby a deeper commitment to the past, albeit a commitment to its negation. We find this already in the romantic movement (and particularly in its fascination with writing, symbolizing the presence of the absent) and more so in the rejection of tonality or generally in the avant-garde trying not only to vary past styles by contradictions, but to dismantle (and thereby reveal) all expectations regarding art as remnants of a past.¹⁸ Even then communication remains possible within a selected group of artists and connoisseurs who, by living from a common past, are able to understand its negation.

IV.

The modern society has not yet found a convincing form to describe itself which comes close, in any way, to the achievements of its tradition. Its self-descriptions have been dubbed "ideologies" and this means that they are contingent artifacts, selections out of several possibilities or even partisan views. This has the important advantage of transforming latencies in contingencies; i.e., latent structures, motives and interests into manifest choices of observers, who then in turn can be observed themselves. Given this general climate of suspicion intellectuals prefer incongruent perspectives¹⁹—as if incongruity could save their own observations. But then, the mode of observation itself precludes unanimity. And justification by reference to an object. Instead of that

we realize as the top network of our intellectual culture (and as operating network of all function systems as well) a recursive system of second-order observations. This in turn leads to the hyper-complexity of systems which contain a redundancy of possible self-descriptions, implying more than one identity. Self-identity becomes, to use a Whiteheadian term, self-diversity. Any self-description, then, has to describe a system with a plurality of self-description, and there is no chance to regain the old unitary concept of nature-based rationality.

This obviously means that the distinction of the observer and the observed re-enters itself. "Observing systems," the ambivalent title of Heinz von Foerster's collection of papers,²⁰ catches this point: systems observe systems which themselves observe that they are observed-by themselves and by other systems. And observing systems means, as I said before, drawing a distinction for indicating one side and not the other. Observing observers then means: distinguishing distinctions-always excluding the unmarked space of other observables; that is, always excluding the unobservable world and the operating observer itself.

This world of observing systems no longer has any use for a concept of rationality requiring one and only one correct description. Since early modern times we have been deconstructing the idea of a rational world, or a rational being, or a well-ordered state of nature the imitation of which would be rational as cognition and as action. I could prove this historical point with many examples. One of them may suffice. In the seventeenth and eighteenth centuries the theory of fine arts ruined the

idea of imitation by giving it an observer-related meaning. Roger de Piles saw the importance of surprising imitation in catching the attention of the public; i.e., of observers. For the artist himself the technical means of producing such effects require quite a different knowledge and ingenuity.²¹ Imitation remained for a while the verity of paintings; but this verity was already defined by its function of coordinating the technical skills of the artist and the surprised attention of the public. The verity of art-that is its capacity to coordinate observing systems.

Within modern society, within the developed world of observing systems, a world-inherent ontological rationality with its "intrinsic persuaders" (to use Parsons' term) appears as naive; or as an illusion belonging to the world of first-order observers who cannot see that they cannot see what they cannot see. There is no place any more for world rationality, the world remaining the transcendental "horizon" of intentional activities (Husserl) or the unmarked space (Spencer Brown) from which an observing system has to distinguish whatever it singles out for observation. However, this by no means implies that rationality has become an old-fashioned idea. We may encounter such opinions but

then we would have to ask: What do you distinguish by "rationality," what is the other side, the outer side of this form?

V.

Re-entry's first entry into the history of ideas, into the history of social semantics was a theory of human nature. Then came the time of the subject, providing for a re-entry of the distinction between the subject and the world into the subject. Re-entry-without this term, of course-became the form in which the ontological gulf between the subject and the world (or: the indescribability of the world) could be accepted (ignored and not ignored at the same time). But the subject, taken seriously, precludes intersubjectivity. This was the final and unacceptable conclusion of Husserl's *Cartesian Meditations*. Alfred Schutz had an easy task in bringing the fact of what he called "intersubjectivity" back in; but he did not provide any theory for this "inter" of the intersubjectivity; and any kind of "inter" indeed is incompatible with the subjectivity (or as one would say in German: "Subjektheit") of the subject. This means the "death of the subject" if this term is supposed to denote an empirical human individual or all human individuals.²² And again we lose both sides of the worldsubject distinction the anchoring ground for a notion of rationality. Alienation and reification will be not simply imperfections, not simply deviations from human nature, but universal conditions. This result, however, depends on our using the distinction subject/world to frame our observations. And after all, why should we do this?

To proclaim the death of the subject is a precondition for any theory of observing systems. It is unavoidable in a society which produces all its important semantic stabilities-its *Eigenvalues*, Heinz von Foerster would say-by a recursive network of observing observers. Now, observing observers is a social affair.²³ Hence, a society basing itself on second-order observation cannot tolerate a windowless subject. The windowless, self-constructing, autopoietic unit has to be a social system, has to be the society itself.

To see the society as a system means to describe it by distinguishing system and environment. The form of a system is the difference of system (inner side) and environment (outer side). Then, the re-entry of this distinction into itself means that the system itself has the capacity of distinguishing itself from its environment. In fact, all systems, psychic and social ones, which constitute their own operations within the medium of meaning cannot avoid using the distinction of self-reference and external reference as their prime distinction, as the code of the system-

tem, as the first bifurcation which produces the history (and thereby: the reursivity) of the system.

This in itself is not rational. It is a necessity without which no meaningful system could reproduce itself. This type of re-entry of the system/environment distinction into the system is a precondition of systemic rationality. We are on a track with good prospects, but necessity is not yet rationality. We need a further distinction.

A rather attractive possibility can be offered by introducing the notion of complexity at this point. It is a common, generally accepted assumption of general systems research that the difference between system and environment is a difference in complexity. The environment is always more complex than the system. This is the statement of an observer. The observer can be the observed system itself. It can be aware that the environment is more complex than itself and that it will have to run the risk of "reducing complexity."²⁴ In Ashby's terminology it will have the problem of "requisite variety."²⁵ This certainly is old style systems theory, but it has the advantage of providing access to a lot of technical knowledge about "coping with environmental complexity" by inappropriate or non-analogical means; e.g. digitalization. Given this knowledge it no longer appears completely absurd (or stubbornly utopian) when we define rationality as the *re-entry of the distinction between high complexity and low complexity into low complexity*.

Obviously, this is no longer the Weberian notion of rationality, defined as predictability, confronting barriers of irrationality. It is no longer Husserl's notion of technical ("Galilean") idealizations opposed to the concrete subjectively satisfying meanings of the life world. It is no longer "*Gesellschaft*" in contrast to "*Gemeinschaft*" (Tönnies) and no longer "*Geist als Widersacher der Seele*" (Klages). It is a different type of form, a different form of distinction. It is (as it was in our whole tradition) a specific case of re-entry; and this means: a specific case of dissolving the paradox of distinction, of unfolding the self-diversity of the operation observing.

This makes much more sense if we define complexity as an evolutionary variable or even as the fatal outcome of evolution. If evolution depends upon a split of systems and environments, environmental complexity will always grow much more rapidly than systemic complexity because systems belong to, and disturb, the environment of other systems. This does not preclude stable states, but we are far away from the favorite notions of our immediate past: the twin concepts of progress and equilibrium.²⁶ Complexity is simply the epigenetic result, and in fact the only recognizable direction, of evolution. In an evolutionary perspective meaning has to be understood as the medium of condensing forms for operations coping with complexity that itself takes on

the form of meaning.²⁷ And rationality then becomes *adesperate concern of the societal system to survive its own evolution*.

The famous dialectic of history and reason does not come to an end—except by observing the observers who use this distinction with the ambitious idea to formulate a theory of the world, a theory of totality.²⁸

VI.

Instead of summarizing this long and abstract line of historical and conceptual considerations I rather would like to apply its results to two points of prevailing concern in modern society: (1) to the ecological question and (2) to the question of the relation between individuals and the societal system.

If we conceive of society as an autopoietic system producing and reproducing communication by a network of communications, ecological problems and person-related problems are strictly parallel questions. Ecological conditions and individuals are environmental facts. They are not operating within the social system of the society. They are not communications but maintain and reproduce themselves by other kinds of operations. There is, however, a decisive difference. Individuals are connected with the communicative system by structural coupling. That is to say: they can perturb or irritate communication. Other ecological conditions that are not channeled by chains of structural couplings of living cells, organisms, brains and conscious states can only destroy parts or the total network of communication—like spilling ink over paper, burning down libraries or killing people.

We know a lot about the ecological conditions of human life and about the environment of a society which has achieved and continues to guarantee a certain standard of living. Our society knows much more than any previous society. But as soon as it comes to predict the consequences of specific changes we are at a loss. Our knowledge seems to prevent rather than to facilitate predictions. Predictions would presuppose quasi-technical tight

couplings.²⁹ But we know that ecological stabilities depend on loose couplings which could absorb changes on the one hand and give them unpredictable consequences on the other. The society, therefore, looks like an experiment with its own ecological consequences, and it knows them only to the degree to which it produces them.³⁰

Exactly the same is true if we look at the relations between societal communication and individual well-being, and in particular the conscious states, memories, attitudes, etc., of individual individuals.³¹ We

can *influence* individual behavior by communication to an astonishing degree, particularly by inducing individuals to become members of formal organizations.³² This is, more or less, producing communication by communication; i.e., reproducing the social system. But as soon as we set out to *change* individuals as psychic systems, we face in-transparent complexities and incommunicabilities; and so much more so as we find out that the individual system is in-transparent to itself as well. Psychotherapy, therefore, seems to operate under heavy uncertainty conditions, stricken by many unsuccessful attempts and some unexplainable successes, surviving not as a technology but as a profession.

All this does not mean that we have to admit "irrational" bases for motives and actions.³³ But the difference between knowledge and lack of knowledge will have to re-enter the system. The usual reaction is: searching for more knowledge. But this will only increase the range of the distinction, it will lead, if successful, to more knowledge and to more lack of and demand for knowledge. We will have to accept social situations in which the difference of certainty and uncertainty resolves into uncertainty. Strictly speaking, the future is a time horizon of the present that never can become itself present; its actuality remains the actuality of a horizon that moves as one approaches it.³⁴ Therefore, predictions can never indicate what future presents will show; but they may contain a program of changing the prediction when the future presents approach and new information becomes available. Knowledge, like money, needs temporal discounting. And knowing this prohibits defending controversial positions with "better knowledge". Dialogue then does not have its own reasonableness in its desire for finally convincing solutions. Or if this is reasonable, we should distinguish between reasonableness and rationality. Rationality can be, if we stay within the redefined tradition—our tradition—understood as the re-entry of a distinction in its own space. And as memory always defines the available options a more systematic memory (re-entering itself) may mean more options. But this is one of those predictions that are constructed for self-correction. This remains to be seen.

NOTES

1. It may suffice at the moment to refer to George Spencer Brown, *Laws of Form*, 2nd ed. (New York: Dutton, 1979).
2. See Heinz von Foerster, *Observing Systems*, (Seaside, CA: Intersystem, 1981).
3. See Spencer Brown, *Laws*, pp. 56ff., 69ff. Cf. Louis H. Kauffman, "Self-Reference and Recursive Forms," *Journal of Social and Biological Structures* 10 (1987), pp. 53-72; Elena Esposito, *L'operazione di osservazione: Costruttivismo e teoria dei sistemi sociali*, (Milano: 1992), p. 215ff.

4. We could also have started (there is no right beginning, no necessary first distinction) with this problem. Kauffman does so, "Self-Reference," p. 53: "Any distinction involves the self-reference of the one who distinguishes'. Therefore, self-reference and the idea of distinction are inseparable (hence conceptually identical) ." The last part of this statement refers of course to a further observer (the mathematician) who distinguishes what has to be taken as identical.
5. The Greek text reads: ὅτι ὁ ἐκ τῆς φύσεως ἐκείνης ὁ θεὸς καὶ τὸ πᾶν ἐκείνην οὐκ ἔστιν ἰσοῦς τῷ θεῷ. καὶ τὸ πᾶν ἐκείνην οὐκ ἔστιν ἰσοῦς τῷ θεῷ. (1254 a 36-37).
6. Another helpful distinction established a teleological relation between imperfect and perfect states of nature. So Aegidius Columnae Romanus (Egidio Colonna), *De Regimine Principum*, Printed Edition (Roma: 1607), p. 5: "*natura enim semper ex imperfecto ad perfectum procedit.*" And it is in this sense that the natural order can be described as rational.
7. And in the 16th and 17th centuries: to produce a meaningfully distorted form. See Jurgis Baltruaitis, *Anamorphoses ou perspectives curieuses*, (Paris: Perrin, 1955).
8. See a text that is in other respects a manifesto for the sovereign state: Francois Grimaudet, *Les opuscles Politiques*, (Paris, 1580), fol. 93v ff. (opuscule XIV: *Que l'homme politique doit avoir esgard a se maintenir*).
9. Of course *only* in the noble house. Other people are educated by the necessities of life--*videntur excusabiles esse* by the Roman aristocrat Colonna, *De Regimine*, p. 303.
10. Colonna, *De Regimine*.
11. *De ordine libri duo* 1.6.18 (Corpus Scriptorum Ecclesiasticorum Latinorum 63, 1922), reprint (New York: Johnson, 1962), p. 133: *ita quasi ex antithesis quodam modo, quod nobis etiam in oratione incundum est, ex contrariis, omnium simul rerum pulchritudo figuratur.*
12. Richard Price proposes another solution, distinguishing liberty and licentiousness, license being not the extreme but the opposite of liberty because it opens itself to external passions and interests. The trick is, of course, excluding these as external factors from the exercise of freedom and then making the distinction of internal (reasonable, voluntarily accepted) constraints and external ones where man acts under the pressure of him-self. See *Observations on the Nature of Civil Liberty, the Principle of Government, and the Justice and Policy of the War with America*, 2nd. ed. (London: 1776), pp. 12ff.
13. E.g., Spencer Brown, *Laws*, p. 105.
14. Ibid.
15. Cf. for this final solution by metaphor, Nikolaus Cusanus, *De visione Dei*, in *Philosophische-theologische Schriften*, Vol. 111, (Wien: Herder, 1967), mm. 93-219.
16. See, for pertinent remarks, Terry Winograd and Fernando Flores, *Understanding Computers and Cognition: A New Foundation for Design*, (Reading, MA: Addison-Wesley, 1987), pp. 7ff.

17. Compare Rosalie L. Colie, *Paradoxia Epidemica: The Renaissance Tradition of Paradox*, (Princeton: Princeton University Press, 1966), and Hilary Lawson, *Reflexivity: The Post-Modern Predicament*, (London: Hutchinson, 1985).
18. See David Roberts, *Art and Enlightenment: Aesthetic Theory after Adorno*, (Lincoln, NE: University of Nebraska Press, 1991).
19. See Kenneth Burke, *Permanence and Change: An Anatomy of Purpose*, 3rd. ed. (Berkeley: University of California Press, 1984), pp. 89 ff. on "perspective by incongruity." Perspective by incongruity is of course a term of third order observation. Intellectuals themselves prefer the positively valued term "critique."
20. See note 2 above.
21. See his *Cours de peinture par principes* (Paris: Jacques Estienne, 1708).
22. See Agnes Heller, "Death of the Subject," *Thesis Eleven* 25 (1990), pp. 22-38.
23. We may be inclined to admit an exception for soliloquies or self-observations. But even this implies an internal boundary separating the observer and the observed. It implies equipping apart of the system with higher reflective capacities than the whole of it. And such a center of condensed reflection will in turn attract observers.
24. This formula has been developed for psychic systems by Jerome S. Bruner, Jacqueline J. Goodnow, George A. Austin, *A Study of Thinking* (New York: Wiley, 1956).
25. See W. Ross Ashby, *Design for a Brain*, 2nd ed. (London, 1954); id., *An Introduction to Cybernetics* (London, 1956).
26. Twin concepts, because equilibrium was not meant to be historically stable but rather was conceived of as a limiting condition of progress or as a rational control device for checking its present possibilities. And if this was "western" terminology, German philosophers would prefer rather to talk about history and reason.
27. See Niklas Luhmann, "Complexity and Meaning," in *The Science and Praxis of Complexity*, (Tokyo: United Nations University, 1985), pp. 99-104.
28. See again David Roberts, *Art and Enlightenment*, and also Martin Jay, *Marxism and Totality: The Adventures of a Concept from Lukacs to Habermas*, (Berkeley: University of California Press, 1984).
29. See Niklas Luhmann, "Technology, Environment and Social Risk: A Systems Perspective," *Industrial Crisis Quarterly* 4 (1990), pp. 223-231.
30. See Wolfgang Krohn, Johannes Weyer, "Die Gesellschaft als Labor: Risikotransformation und Risikokonstitution durch moderne Forschung," in Jost Halfmann, Klaus Peter Japp (Hrsg.), *Risikante Entscheidungen und Katastrophenpotentiale: Elemente einer soziologischen Risiko{orschung*, (Opladen: Westdeutscher Verlag, 1990), pp. 89-122.

31. This formulation "individual individuals" reacts to the social habit of talk-ing about individuals without indicating who is meant and to the corre-sponding lack of concern for the individuality of any concrete individual.
32. Chester I. Barnard calls the range of choice open for organizations from the point of view of individuals a "zone of indifference." *The Functions of the Executive*, (Cambrldge, MA: Harvard University Press, 1938), p. 167 ff.
33. See Nils Brunsson, *The Irrational Organization* , (Chichester: 1985).
34. See Niklas Luhmann, "The Future Cannot Begin: Temporal Structures in Modern Society," *Social Research* 43 (1976), pp. 130-152.