Keller, K.D. (1999). Sociotechnics and the Structuring of Meaning: Beyond the Idea of Autopoietic Social Systems. *Cybernetics and Human Knowing*. Vol. 6, No. 2, pp. 76-96.

Cybernetics & Human Knowing, Vol.6, no.2, 1999, pp. 76–96

Sociotechnics and the Structuring of Meaning: Beyond the Idea of Autopoietic Social Systems

Kurt Dauer Keller[1]

Abstract: Luhmann's remarkable idea of social systems may appear to be potentially helpful for the conceptualization of social life as it relates to systems, not least technical systems. Established concepts of sociotechnical systems are not sufficient for guiding the 'wild growing' discussion and formation of social systems in relation to, for instance, research and development on computer-supported work. Luhmann's theory of autopoietic social systems might seem to offer the higly required understanding of social life as being based upon meaning. However, a critical investigation of Luhmann's position reveals that it can hardly be useful in this regard. A phenomenological approach suggesting a focus on 'play and games' is briefly introduced to indicate how the problems of Luhmann's position may be avoided.

Introduction

This paper questions whether the notion of meaning which Luhmann associates with autopoietic social systems allows an adequate understanding of social experience and practice. Luhmann's position seems to draw up some conceptual topics which should be dealt with in any satisfactory theoretical foundation for combined consideration of social and technical systems, e.g. research and development on computer supported work within and across organizations. The sociotechnical approach to the reorganization of work settings makes up an established standard for combined consideration of social systems and technical systems (cf. Babüroglu 1992, Kelly 1978, Mumford 1987a, 1987b, Susman 1976). However, the principle of autonomous work groups — which was also promoted by the sociotechnical approach — always seemed to be a loosely coupled idea, never firmly integrated with the basic notion of a necessary matching between the social system and the technical system. The structuring of meaning which is not only essential to autonomous work groups, but to all social life, entirely escapes sociotechnical approaches. Luhmann offers a much more sophisticated conception of social systems and autonomous organization in line with certain views in gestalt psychology, phenomenology and critical theory.

[1] Department of Communication, Aalborg University, Langagervej 8, DK-9220 Aalborg, Denmark. E-mail: keller@hum.auc.dk

Two aspects of Luhmann's position, the ontological status ascribed to systems and the definition of sociality by autopoiesis and meaning, appear to be particularly important to the topic of combined social and technical systems. First, he tends to claim that any system exists only for an observer. This conception stressed by others as well (e.g. Checkland & Scholes 1990, Klir 1991) contrasts with realism and objectivism in traditional systems theory and its application in social science (Parsons 1951). Far too often, it is forgotten that sociotechnical systems do not have an ontological existence of their own. They are only simplifying concepts serving to relate in our imagination the functions of a computer system with the functions of human cooperation. Actually, Luhmann does not claim that machines and human beings should be analyzed with the same concepts. But neither does he say much about technical systems nor about self-organization (as a concept of the structuring of work and other social domains). Rather, his focus is on the general idea of social systems.

The next particularly interesting aspect of Luhmann's position, the very idea of autopoiesis in social systems, points to the reality of history and social change. Clearly, the research on and development of computers for work settings is marked by the necessity as well as the difficulty of understanding the meaning structuring interplay of intended development and unintended events in work organization, including various degrees of social self-organization. Thus, for social science (with or without attention to technical systems) Luhmann's most interesting and provoking feature is certainly that he combines a systems theory approach with a notion of the social structuring of meaning. This combination — which challenges basic distinctions between human science and natural science — is enacted with his concept of autopoiesis and its application on social systems.

The critique of Luhmann's position proceeds as follows: First, Luhmann's theory of autopoietic social systems is briefly presented. Then, four points of critique are outlined. The criticism concludes with the assertion that Luhmann's concept of meaning is quite problematic and restricted. Finally, it is pointed out that the increasingly common notion in social science of the structuring of meaning as *Spiele* (play and games), in particular a phenomenological conception of it makes up an alternative to the idea of autopoietic social systems. So, starting from the internal premise of Luhmann's theory the critique proceeds and ends with an external discussion of it.

A Brief Presentation of Luhmann's Theory of Autopoietic Social Systems

Luhmann defines an autopoietic system as a self-referential system which is sovereign with respect to the constitution of all the identities and differences it uses. An autopoietic system develops itself. This happens through self-reference.

> Thus, everything that is used as a unit by the system is produced as a unit by the system itself. This applies to elements, processes, boundaries, and other structures and, last but not least, to the unity of the system itself. (Luhmann 1990a, p. 3)

The unity of the system implies a particular difference, namely the difference between the system and its environment. Two further characteristics of Luhmann's conception of self-referential autopoietic systems are important. First, they are not only self-organizing in the sense of upholding and changing the structures of their own more or less stable construction. Autopoiesis consists in processes which are (of course) composed of dynamic elements. Not only the ordering, maintenance and progression of the system but also its disintegration and decay are autopoietic. Secondly, the closed world which an autopoietic system produces is not material but formal. It is the form of the system and its units (including the separation of the system and its environment), i.e. constellations of differences and identities. (One might think that this follows from emphasizing that autopoiesis is self-referential, i.e. in some sense symbolic, but in fact Luhmann also talks of self-referential machines.)

There are three main categories of self-referential autopoietic systems: biological systems, psychic systems and social systems. Life is the autopoietic organization and self-referential closure of biological systems, — and biological systems only. Meaning exists in two mutually exclusive forms: consciousness which is the autopoietic organization of psychic systems, and communication which is the autopoietic organization of social systems. According to Luhmann, a human being must always be regarded as a self-referential system but never as a system which makes up a unity of biological, societal and psychological existence.[2]

The elements of a meaning based system (social or psychic) are events, i.e. not short-term states but incidents which vanish as soon as they appear. 'Events are happenings that make a difference between a 'before' and a 'thereafter'.' (*ibid*. p. 10). The 'duration' of these events are defined by the autopoietic system itself. While all autopoietic systems produce their own boundaries through the system-environment distinction, meaning-based systems require an additional 'world-encompassing' dichotomy for their self-description, the dichotomy of event and situation. With reference to Husserl's phenomenology, Luhmann regards a situation as the horizon of events which influences the selection of possible next events.

The concept of autopoiesis also implies an emphasis on processes and dynamics in social systems, in contrast to ideas of systems' maintenance from (static) structures, e.g. through the replication of stored patterns. Social systems are networks of recursively produced and reproduced communications. Elementary units of communication are composed of information (defined as 'internal changes of states'), utterance and understanding (including misunderstanding). An operating unit cannot be decomposed into these aspects, but 'further units' of the same system can distinguish between the three aspects of the 'operating synthesis' which make up an elementary unit. In particular, distinction between information and

[2] cf. chapter 6 in Soziale Systeme (Luhmann 1987) where different kinds of systems' mutual utilization of the 'alien' complexity is discussed as an interpenetration of systems which never the less remain environment to each other.

utterance leads to a separation of 'hetero-referentiality' and 'self-referentiality', whereby the system separates itself from its own topics and environment.

Understanding is a special kind of observation. It is the projection of meaning onto another system being 'recognized' as a distinct autopoietic organization and self-referential closure. At the level of general systems theory, Luhmann defines observation as 'handling of differences' (Luhmann 1987 p. 63). In meaning-based systems, where observation is associated with understanding, the differences in question are of a correspondingly more specific kind, namely system-environment differences (cf. ibid. p. 111). Luhmann insists on regarding observation as something which takes place in a system: the observer is always a system. So, in social systems understanding (or observation) is a kind of communication, and in psychic systems, it is a kind of consciousness.

Social systems are divided into three kinds, namely societies, organizations and interactions:

- Societies are encompassing systems without any environment in which to find other systems to understand and communicate with. However, they are able to extend and limit themselves.
- The autopoiesis of organizations are based upon decision-making, i.e. a restricted kind of communication which concerns the unfolding (through new distinctions and selections) and practical solution of difficulties and problems (or 'paradoxes' as Luhmann prefers to call it).
- Interactions are autopoietic through the presence of people: the current interaction produces boundaries to environmental communication together with the participants' roles and obligations in other systems than the current interactive system. The system is closed in the sense that the ongoing communication has to be understood in the 'context' of the system.

So, the autopoieses of societies, organizations and interactions use different kinds of communicative units as their basic elements and produce different kinds of system-environment boundaries.

Luhmann neither regards action as a necessary social phenomenon nor as an inherently social phenomenon. They are only derived as a secondary aspect of communication. Appearing in individual psychic systems as well as in social systems, actions are the responsibility *attributed* to selections in the communication process. However, this appearance of attributed actions serves as a simplifying self-observation which is required for reflexive communication and thus for the progressive autopoiesis of social systems. In contrast to communication, actions are associated with a normative and reflective stance which Luhmann regards as a subordinate component of social and psychic systems.

For the understanding of Luhmann's view of social systems, it is important to realize that he operates with at least four different concepts of 'paradox':

- First, paradoxes are mentioned as self-contradictory circumstances in the strict sense of formal logic, i.e. statements on the form 'A is not A'. Together with the corresponding tautological form ('A is A'), paradoxes in this basic sense cling to a fundamental circularity of self-reference (cf. Luhmann 1987 p. 59, 1990a pp. 126-7). Of course, this is purely a matter of form: regardless of what the semantic content of 'A' might be, no new meaning is stated in the form of the paradox or the tautology.

- Secondly, 'paradox' refers to the conflict or contrast of incompatible opposites in the semantic universe of communication or consciousness, i.e. in the real world of meaning (cf. Luhmann 1987 pp. 495-501). In this context, it is rightly emphasized: 'Also a contradiction, also a paradox has meaning.' (ibid. p. 138; my translation.) Correspondingly, we can hardly avoid to associate some kind of meaning with the statement of a tautology, e.g. an intention to make attention to some entity (the 'A') or the unintended disclosure of a state of confusion.
- Third, paradox is talked about more obscurely as 'entangled hierarchies' and 'logical collapse of a multilevel hierarchy' which differs from simple contradictions (cf. Luhmann 1990a pp.7-8). This sense of 'paradox' refers to the result of his attempt to reduce the meaningful conflicts and oppositions of social life (both in its collective and individual aspects) to the terms of autopoietic systems. Thus, now the second sense of 'paradox' (relating to everyday life) is not only regarded as broader than the first (relating to formal logic), but also as emerging mysteriously through autopoietic steps out of the self-referential circularity of 'paradox' and 'tautology' in the first (i.e. the strictly formal) sense:

  > Since all self-descriptions of society are either based on paradox or on tautology, the problem is not to avoid paradox or tautology but to interrupt self-referential reflection so as to avoid PURE tautologies and paradoxes and to suggest meaningful societal self-descriptions. (*ibid*. p. 136).

  So, on this third level (the systemic interpretation of experienced paradoxes), paradoxes are involved in a 'normative' mechanism of systems development.
- Fourth, paradox is a way of societal self-description in which society is 'coding its own identity' through social theories. Social science approaches may be based on paradox, and then they produce progressive or revolutionary self-descriptions; alternatively, approaches may be based on tautologies, and then they produce conservative self-descriptions (ibid. pp. 127-128). For Luhmann, this is a kind of peak state in an autopoietic progression of social systems. Perhaps Luhmann himself only admits any clear distinction between two states: the first in contrast to the three others. However, the further differentiation helps to clarify his discussions.

Luhmann wants to integrate the more commonly recognized theory of open systems in his theory. He asserts that recurrent articulation of closure and openness is a constitutive necessity of an emergent level of communication. At any emergent level, 'the elementary operation' of communication comes about by a synthesizing 'understanding' of the distinction of information and utterance. Whilst 'information' refers to the environment of the system, the utterance, attributed to an agent as action, is responsible for the autopoietic regeneration of the system itself. Evidently, it may be questioned whether this characterization of a system and its environment through the distinction between utterance and information helps to explain how a system can be open at all.

As it appears, the universe of systems which Luhmann describes is largely composed of abstractions upon abstractions. Thus, the seemingly clear and simple statement that the autopoiesis of social systems means 'to continue to communicate', actually implies some rather intricate notions: A social system emerges by inventing a binary choice which does not exist without the system, the choice between being and not being. The unity of the autopoietic system is a recursive 'processing' of the difference between continuing and not continuing. Every step of autopoiesis is a selection of the autopoiesis instead of stopping it.

Now, this brief presentation of Luhmann's theory of autopoietic social systems has not revealed much about how social self-organization might be related to sociotechnical systems and to the structuring of meaning. The criticism of Luhmann's position should uncover why that is so.

Criticism of Luhmann's Position

This very short presentation of Luhmann's theory of autopoiesis in social systems should make it possible to indicate some serious problems in his understanding of social life. My criticism of Luhmann's approach to social science consists of four main issues. In the order of growing problems they are:

1. Luhmann's theory of autopoietic social systems concentrates on peculiar functional topics.
2. The theory is rather futile as regards the conceptualization of social life.
3. The theory is caught in tautology and self-contradiction.
4. Fundamental assumptions in the theory are absurd.

With varying wording and accentuation, the first two of these issues have often been pointed out in criticism of Luhmann's theory (e.g. Giddens 1984, Habermas 1981, Knorr Cetina 1992). Largely, this criticism consists in discussing the implications of the neofunctionalism which characterizes Luhmann's theory. The last two issues must be regarded in the new systemic context of Luhmann's radical kind of constructivism. To some extent, the climate of post-modernism and social constructionism also influences how these issues can be interpreted and, as I will attempt to show, criticized. In particular, we are confronted with questions about the theoretical assimilation of contingency and ambiguity in (contemporary) social life. In my view the questions which Luhmann confronts us with are: Should our notions of meaning and structuring in social life be subsumed under axiomatic ideas of systems? Must social theory apply self-contradictory and absurd descriptions in order to grasp what sociality is?

A discussion of the four mentioned issues leads us step by step to the question concerning Luhmann's theory which is most basic from a social and human science point of view and which is the topic of our final discussion of Luhmann's theory: how are systems related to meaning?

Peculiar Functional Topics

The first issue relates to the basis of Luhmann's approach, biology and traditional systems theory. He declares that the concept of autopoiesis has to be abstracted from and reconsidered in comparison with its biological connotations. But actually, like established systems theory, he presents biologism as a foundation, rather than just biological connotations, for the conception of social systems.[3] Clearly, the concept of autopoiesis transcends previous 'paradigms' where systems were

[3] Luhmann builds upon Varela's and Maturana's conception of autopoiesis, but departs from their focusing on biology (cf. Luhmann 1990a). Still, as usual in social functionalism, the very notion of systems is thoroughly rooted in biological metaphors in Luhmann's writings.

regarded first as 'a totality of parts' and later with a focus on system-environment relations. Still, these notions of systems are not rejected, but assimilated through the new distinction between identity and difference within the paradigm of self-referential systems. He prefers to talk about the internal differentiation of systems as 'distinctions between sub-systems and their environments', instead of as 'part--totality differences'. However, the traditional questions concerning the emerging functional qualities of a system's unity (in contrast to the structural combination of the systems' parts) together with questions concerning systems' survival and relationships to their environments remain predominant in Luhmann's discussions.

Luhmann's version of sociological functionalism preserves the roots of systems theory in cybernetics, biology and evolutionism. Clearly, his view of autopoietic systems is inspired by Hegel's philosophy of the systemic development of the spirit (in addition to Varela's and Maturana's conception), and the notion of 'meaning' which he sets as the foundation for social and psychic systems is sustained by an attempt to apply Husserl's phenomenology (without accepting its premise of the transcendental subject). Obviously, Luhmann has assimilated an impressive body of knowledge concerning the theory of science. But ultimately, his discussions and explanations always lead to topics within systems theory (complexity, reduction, selection, etc.). A number of particularly odd topics and notions emerge from his exercise in transforming concepts of experience into concepts of systems: For example, we are told within the span of eleven pages about 'the world's frequency of change', 'a total programming of the social dimension in the form of moral', together with 'a compulsion to combine' forced on the factual dimension (*Sachdimension*), the time dimension and the social dimension (cf. Luhmann 1987, pp. 117, 121, 127). One obvious problem here is the attempt to build up everything from binary information. Social life always appears to us as holistic formations of situated meaning, never as the synthesis of binary coding arrangements.

In some cases, Luhmann's adherence to the tradition of general systems theory, and consequently his ambition of designing conceptual notions for the comparison of functional and structural abstractions within and across different categories of systems, entails an inspiring imagination and provocation. But his project also employs several procedures of hasty (or contingent) identification and denotation which appear to effectively block this trend. On one hand, an 'on-off thinking' is applied from cybernetics, which leads to a postulate of 'binary coding' everywhere (cf. Luhmann 1987 pp. 311-315; 1990b pp. 591-593). On the other hand, anthropological metaphors are used upon cybernetic, biochemical and evolution-theoretical matters, 'choice' is used as a synonym for 'selection', 'observation' is used for 'data reception', etc. Again, it is difficult to recognize the world we know of through Luhmann's glasses.

Futile Conceptualization

The second point of criticism is of course related to the first one. Because he is continuously concerned with questions of abstract and hypothetical 'form' and very little with 'actual matters' of social life, Luhmann's theoretical discussions remain very futile. Together with a seemingly scarce interest in the great literature and the lasting themes of social science (cf. Luhmann 1987, pp. 7–8) except from Parsons' works, his preoccupation with abstractions upon abstractions in systems often leads to obscure and highly metaphoric phrases. For instance he claims that interactions 'are aware', 'communicate' and 'decide' or that 'information and utterance are forced to cooperate' (cf. Luhmann 1990a pp. 5 and 12). Poor specifications of seemingly important topics are frequently due to the meagre conceptual framework as well as an insistent returning to tautologies and paradoxes. Let me give a few examples:

> Boundaries may count as sufficiently determined . . . when the society system which consists in communication may decide through communication whether something is communication or not. (Luhmann 1987 p. 54; my translation.)

Moreover, self-referential systems may reach a level of complexity where they 'presuppose themselves as production of their self-production'. Finally, the world functions as lifeworld when it is 'the closure of the circularity of meaningful self-reference' (*ibid*. pp. 70 and 106 respectively; my translations.)

Behind the colorful examples of particularly artful considerations, the more general problem is, as pointed out by Knorr Cetina (1992), that Luhmann's approach lacks conceptual and methodological sensibility concerning the discourses and practices of social fields. In a time where functionalism is generally criticised as an outdated and superficial view within social science, it can hardly be denied that Luhmann represents a more insistent functionalism than Parsons did. Even 'critics' who esteem Luhmann's work highly (e.g. Starnitzke 1992 and Werner 1992) point out that its adequacy for empirical analysis remains an open question. Undoubtedly, the theory might find some approval or be inspiring within disciplines like law and economics which are less concerned with understanding the rich and various details of social life than with models and measures to predict and regulate a rather small number of formal behavior parameters. This is also indicated by Luhmann's attention to the society level of social systems rather than the levels of organizations and interactions. It is a focus in line with traditional functionalist ideas of systems as macro level institutions which characterizes the political and economical architecture of the society in general. This macro level orientation framed the debate between Habermas and Luhmann. Habermas' critique (1981, 1985) points to the fact that Luhmann's theory can only support the regulation of societal structures, not the criticism of societal structures. The formal design of the theory restrains the semantics of conflict topics in social life like reification, suppression and crisis, and thus prevents the concern for substantial topics of the social sciences.

All in all, Luhmann's perspective of social systems is far removed from attempts to comprehend the real-life interplay of social actors and social structures as it takes place, for instance, by the organization and performance of cooperative work. Actually, the general problem with his fruitless concepts — that they do not maintain a hold on the social reality we know of in our daily life — is clearly manifested in relation to the specific field of self-organization in work groups:

- First, Luhmann's notions of self-organization and differentiation in social systems do not seem to be of much potential help for the conceptualization of work groups and computer-supported work. In fact, for Luhmann, self-organization is less than the self-reference and self-production which define biological systems as well as social and psychic systems. Self-organization is only regarded as a topic concerning reversible structure, i.e. 'matters' which can be reproduced and changed, in contrast to the non-reversible processes of autopoietic systems of more than a minimal size and complexity (cf. Luhmann 1987 pp. 24–25, 62, 73–75).
- Furthermore, the very idea of sociotechnical systems is rejected alongside with the denial of other possible unities of social systems with other categories of systems (*ibid*. p. 67).
- Finally, he neglects the attention to informal functions and structures which has marked progressive organizational research for half a century and which has been important in the understanding of self-organization in work groups (*ibid*. pp. 259, 269, 462).

As it has been indicated above, these problems signify more serious shortcomings in Luhmann's theory than the difficulties with notions of sociotechnical systems and social self-organization. The self-organization in work groups must appear to a Luhmann style of thinking with a strangeness which concretizes the hollowness of his concepts of sociality.

Tautology and Self-contradiction

Self-contradiction is frequent in Luhmann's works. Under the label 'paradox', he claims that it is a fundamental feature of meaning-based systems and a similar status is ascribed to 'tautology' (cf. Luhmann 1990a, 1990b). The autopoiesis of meaning-based systems is largely concerned with 'de-paradoxing' and 'de--tautologizing', i.e. unfolding more than paradoxes and tautologies from self-references. The fact that we do experience the phenomena of paradox and tautology may of course legitimize their appearance in theoretical and empirical descriptions as well. In accord with phenomenological or dialectic thinking, such descriptions would be strictly reflected for the methodical purpose of analysis or presentation. But Luhmann does not defend a phenomenological or dialectic theory of science, and his discussions lacks a systematic attention to the distinction between 'in itself' and 'for itself' aspects of systems' development and autopoiesis. Therefore, some crucial self-contradictions in his works seem to be unintentional. We will focus on one apparent paradox of great importance to his theory, concerning the ontological status of meaning-based systems.

In the beginning of chapter one in Luhmann's main work on social systems, it is stated: 'The following considerations presume that there are systems.' On the following page he asserts the more narrow thesis: 'There are self-referential

systems.' (Luhmann 1987, pp. 30-31; my translations.) It is made very clear in this context that his concept of systems refers to reality: systems are real. Later, we are told that the system-environment difference is not absolute in an ontological sense but relative to the system and to an observer. Still it is to be regarded as objective. This is explained by reference to a 'new epistemology' which stems from Maturana's work and causes some annoyance for Luhmann:

> Irritating is here at first the thesis that a system-environment difference only is accessible for an observer and not for the autopoietic process itself. But this first impression is then corrected through the permission of self-observation. (*ibid.* note 5, p. 244).

It is remarkable that Luhmann now fully accepts the idea that systems only exist for observers, he merely insists that the observer may (or have to) be the system itself. At first, one might think that his original statement is defended in this way: an observer-independent reality of the system is secured by fixing 'the observer' in the role of the self-referential system. But that is not quite evident. On the contrary, Luhmann is led to talk about far-reaching epistemological problems in this connection, because, according to his own theory, everything is caught in self-reference! In fact, Luhmann regards as two contributions to epistemology his extension of the concept of self-reference to all kinds of 'last elements', and, his point that theories claiming universal validity (like his own) have to account for their own role as an object within the field of research, i.e. they have to be self-referential (cf. Luhmann 1987 p. 653). Obviously, stating this universality of self-reference makes it difficult also to defend any idea of observer independent reality.

Furthermore, it must be noticed that Luhmann actually withdraws the opening statement from *Soziale Systeme* about the real existence of systems. It was merely 'a kind of introductory statement which is overtaken and annulled by the actual analysis' he explains (Luhmann 1992, p. 15; my translation) with reference to the naturalistic epistemology and radical constructivism to which he acknowledges his belonging. Now, the point of departure for discussing the ontological status of systems is the reverse: the theory of autopoietic systems is itself an autopoietic system which has to be 'de-tautologized' in its self-reference. Of course, he realizes the problem that the assumed self-reference of his theory (or in general: of any observer position) threatens to preclude any acceptable conception of reality. But, it is also evident that Luhmann cannot do much about it. In an attempt to find some foundation for the systems in reality (Luhmann 1987 pp. 648-649), it is stated that a higher probability of reference to reality is attained stepwise through critical investigation of the 'conditioning' (i.e. 'the function of causes' or 'conditions of possibility') of systems. This attempt might indicate that we are stepping outside the systems to see how they are conditioned. But unfortunately the argument is quite superficial: the so called 'conditioning' only leads us back to the autopoiesis of systems.

We look in vain for any 'opening' in Luhmann's description of self-reference which might legitimize discussion (within his approach) about the reality as we know it. Obviously, he is not satisfied with the everyday metaphors and loose

ideas of self-organization and spontaneous development in social systems. He seriously wants us to regard autopoietic social systems as a reality. He even refuses to face the choice between defending a radical constructivism ('we construct the systems') and claiming the reality of autopoiesis ('the systems construct themselves').

In consequence of the mentioned problems of self-contradiction and tautology in Luhmann's treatment of 'reality' and 'systems', it seems to me that Luhmann's theoretical scenario is based upon free-flowing suppositions about the relationship between what a system 'is' and how it 'appears' to an observer. On the one hand, he asserts that systems are real and perfectly observable; on the other hand, he emphasizes that observation is always reductive and that the distinctions upon which it is based are always contingent. Under the label of 'autologic', he defends the self-referential circularity of his theoretical system (Luhmann 1990b p. 588; 1992 p. 11). At the same time, he has not settled his mind concerning whether or not autopoiesis should obey basic principles of formal logic: ' . . . we know that unrestricted self-reference is impossible for purely logical reasons . . . ' (Luhmann 1990a p. 137.); 'The autopoiesis does not stop in face of logical contradictions.' (*ibid.* p. 8.). It seems to me, that at best, an interpretation of these statements mounts to a clash of distinctions between different levels of discussion and comprehension: a system appears in the same way in ontology, epistemology, scientific theory, empirical knowledge and common sense notions. (At worst, there is only a play with words to be found at the bottom of Luhmann's statements about what a system really 'is'.)

Due to the frequent occurrence of self-contradictions and circular conceptions Luhmann's approach prevents its own access to reality and implies extremely contingent interpretation. That can hardly be denied. Still, why not disregard these challenges or even insist on their ability to provoke creative thinking? Thus, we might wonder whether Luhmann's extensive work of conceptual imagination and reconstruction, his impressive systemization of scientific insight and theorems, could be valuable as a theoretical inspiration. This leads us to the final point of criticism.

Absurd Assumptions

Luhmann is very explicit about the incompatibility of biological, social and psychic systems. While we may think of a human being as a unity, it cannot be a system according to Luhmann, because the system operations of our biological life, our communication, and our consciousness respectively are too heterogeneous for any autopoietic reproduction to take place (Luhmann 1987 p. 67-8). However, it is simply absurd to claim that when I talk with Hanne, I am either alive, communicating, or conscious, but not all three at one time. Nor are we confined to accepting this distinction between perspectives of understanding. We may perfectly well conceptualize and discuss more directly what we actually experience and do. Luhmann, nevertheless, regards the distinction between society (or

collectivity) and individuality as basic. The 'nature of the social' he calls it (with the inverted commas; Luhmann 1990a p.131). This entails that relationships between individuals as well as between the individual and the society being strange and problematic to his theory. He does not really account for these topics, but simply chooses to take some social relations for granted through auxiliary hypotheses (which draw upon Parsons): the hypothesis of 'double-contingency' and the hypothesis of 'interpenetration' respectively, both of which remain subordinate to the idea of autopoiesis in social and psychic systems. 'Double-contingency' means that both of the two actors want to let their own action depend upon the action of the other. This situation (recognized in the game-theoretical model called 'the prisoner's dilemma') serves to address questions of self-referential circularity in a social context. However, double-contingency is only possible through interpenetration (though the latter marks a higher evolutional level than the former). 'Interpenetration' stands for the sharing of actions in social and psychic systems and also for intimacy among psychic systems (cf. Luhmann 1987 pp. 293–294).

We will look briefly at these matters with a focus on a particular and quite fundamental problem with the meaning-based systems: the relationship between an observing system and an observed system. This topic concerns the possibility of interpenetration and is common for 'ego-alter' (I — the other) relationships amongst social systems as well as amongst psychic systems. It becomes evident that Luhmann is unable to describe the relationship between two meaning-based systems in any way which coheres with our ordinary experience of social life as well as with the hypothesis of autopoietic social systems. He can jump to and fro, but not integrate the two.

Luhmann wants to assimilate the common notion of a system's openness to an environment. But this involves the theoretical problem that an observer is caught in his own universe of self-reference because, in distinction from life-based systems, meaning-based systems reflect upon the system-environment difference, and this reflection is a necessary part of their autopoietic development. Self-observation characterizes the autopoiesis of a meaning-based system. Environments and system boundaries . . .

> . . . take on meaning for the processes of self-referential systems . . . so that such systems can operate internally with the difference between system and environment. By all internal operations, meaning enables a continuous accompaniment of references to the system itself and to a more or less elaborated environment. (Luhmann 1987 p. 64; my translation.)

Hence, the so-called 'openness' of a social or psychic system clearly remains a circumstance which does not break but is completely subordinate to the condition of autopoietic 'closedness'.

The distinction which separates a system from its environment is not pre-given but has to be constituted, i.e. observed by the system as its own 'unity of differences'.

> All observation is assigned [angewiesen] to making unity accessible; and for that purpose it must be oriented towards differences . . . Thereby, the unity of difference is defined through the observer, not through his object. (Luhmann 1987 p. 654, my translation.)

Although the self-reference of any system requires an environment, this is 'only' a logical condition which Luhmann accepts as an empty, initial point of departure: a 'self' must be distinguished from 'something other' (i.e. something completely unspecified) in order to exist at all. Clearly, the recursive 'closedness' of autopoiesis implies that direct observation of the system's unity is impossible from a position outside the system.

Luhmann asserts that it is the observation of social systems which is paradoxical in the sense of 'entangled hierarchies', although it is the systems themselves which have to 'de-paradoxe' out of this entanglement through autopoietic communication: Observers attribute chains of actions to a social system but it reacts by 'communication about itself' (Luhmann 1990a p. 7–8). Although complicated due to the systemic jargon, this has meaning provided that the observer is the system itself: The system has to operate on the basis of integrated self-understanding (of course the subject and the object of self-observation cannot be completely identical). Whilst this indicates Luhmann's intention to make a better integration of his thesis of 'double-contingency', i.e. to couple self-observation with an understanding of being observed from outside, it does not imply any observation from an external position. But after all, must external observation not be regarded as a condition for self-observation, rather than as a consequence of it? What we get is a suggestion about how (in Luhmann's theoretical universe) a self might speculate about being observed 'from outside', but not an explanation of how external observation could be possible in the first place. In fact, the mere intention of explaining how one meaning-based system can observe another is just about as far as Luhmann reaches in his main work on social systems.

In later works, Luhmann attempts to take into account that an external observer can see aspects of a system which it does not see itself, e.g. when the author himself is explaining social systems. Luhmann needs to accept the existence of external observers, not just to satisfy minimal requirements of realism but in fact also to explain more consistently how any autopoiesis can take place in meaning-based systems. The problems of self-reference at the first level of paradox and tautology (the formal logical level) are not supposed to, and cannot, be eliminated (cf. *ibid*. p. 127), because these problems are definitive to his systemic foundation and make up the very idea of autopoiesis. But the problems of 'entangled paradoxes and tautologies' are always handled one way or the other, because the mechanics of autopoiesis at this (the third) level are designed to look like social development. Now, starting from an assumption of some social reality, i.e. the assumption of external observation of a system, Luhmann hopes to be able to bridge back to autopoietic self-reference in meaning based systems. I will indicate this attempt with a pair of examples.

Luhmann asserts that external (or as he calls it: 'second-order') observation of autopoiesis involves self-understanding when the observed system is of the same

category (e.g. a social system) as the observing system: If an autopoietic system observes another autopoietic system . . .

> . . . it finds itself constrained by the conditions of autopoietic self-reproduction . . . and it includes itself in the field of its objects, because as an autopoietic system observing autopoietic systems, it cannot avoid gaining information about itself. (Luhmann 1990a p. 16.)

Here, a very plain experience, well-known in everyday life as well as in phenomenological and hermeneutic studies, becomes quite mysterious when transformed to systemic thinking: Why would a 'self-referentially closed' system ever have to ascribe the same aspects of attributed autopoiesis to itself and to another system?

Likewise, Luhmann simply assumes the existence of observing systems of second order with abilities which are obvious from a realistic point of view but paradoxical in the context of his theory, for example: 'Only an observer is able to realize what systems themselves are unable to realize.' (*ibid*. p. 127.) An observation can 'interpret as artificial and contingent what the system itself assumes to be natural and necessary' (*ibid*. p. 139). With this last assumption Luhmann declares that he finds himself ready to explain how observation can be united with its object and make societal self-observation and description possible, i.e. how everyday experience of social perception should be regarded as self-referential constitution of an autopoietic system:

> An observer can realize that self-referential systems are constituted in a paradoxical way. This insight itself, however, makes observation impossible, since it postulates an autopoietic system whose autopoiesis is blocked. Therefore, the assumption of pure and unrestricted self-reference transfers the paradox to the observation itself. Such an observation would contradict its own intentions. Therefore, realizing the necessity of interruptions in processes of self-referential constitution deparadoxizes the object of observation and -at the same time- the observation itself. (*ibid*. p. 139.)

So, paradoxes in the social and historical sense are first 'substituted' for paradoxes in the formal logical sense and then 'interrupted'. Does this explain self-observation as social perception? Does it answer more questions than it raises? I will let Luhmann's suggestion of an explanation speak for itself.

Luhmann's Reduction of Meaning

Behind the problems with Luhmann's divisions of social life — at the roots of his discussions of 'second order observation' and 'de-paradoxization' — is the notion that reality is composed of systems: we cannot realize anything beyond systems. This leads us to Luhmann's account of the 'constitution' of meaning from self-referential paradoxes and tautologies. Now, a brief discussion of Luhmann's conception of meaning must first indicate how the problem of absurd assumptions, which was the last of our four points of criticism, seems to stem from the very idea of 'meaning' in Luhmann. Secondly, I am going to point out that the extension of 'meaning' according to Luhmann is very limited compared to the phenomenological view of 'meaning' which has

inspired him. Within a phenomenological approach it is very obvious that most of the meaning we know of neither consists in systems (autopoietic or reproduced) nor in system-environment relations.

Luhmann assumes that 'in society there are no unobserved operations' (Luhmann 1990a p. 138). This is a quite surprising statement which seems to exclude the possibility of unintended structures and events, unconscious processes, etc. in society. Furthermore, he declares:

> On the second order level of observation, we [man] can see all: what the observed observer sees, and what the observed observer does not see. The second order observation brings about a universal approach to the world [Weltzugang]. (Luhmann 1990b p. 581; my translation.)

He asserts that observation of the production of meaning is always of second order. For this reason, is it interesting that any second order observation is also simply an observation, i.e. an observation of first order, and as such it has a 'blind spot', namely its own act of distinction and point of distinction (*ibid*. pp. 581-582). Obviously, this blind spot prevents 'universal observation' after all.

As to the 'de-paradoxization' Luhmann also indicates a kind of blindness at the centre of the experience of meaning. In this context, however, it seems as if he merely insists on obscurity: the circularity of self-reference . . .

> . . . is interrupted and interpreted in a way that cannot — in the last analysis — be accounted for . . . processes of 'detautologization' and 'de-paradoxization' requires the 'invisibility' of the underlying systemic functions and problems. (Luhmann 1990a p. 127.)

Recalling the mingling of first and second order observation in the handling of 'de-paradoxization', this might be somewhat clarified by accepting that there is a convergence between self-reference and other-reference, i.e. (as in the conception of games which we will return to) that something is more basic than self-reference. This perfectly sound thesis would destroy Luhmann's whole theory, so he prefers to demolish the thesis and lead us back into systemic circularity and obscurity: the point of convergence between self-reference and other-reference has to be accepted as — once again — self-reference and also as something 'unmentionable' (Luhmann 1990b p. 593).

In consequence, he introduces the denotations 'natural' and 'necessary' for interruptions of self-reference which conceal the paradoxical and tautological problems of self-referential identifications. Correspondingly, 'artificial' and 'contingent' interruptions 'allow for this insight but postulate that the paradox be resolved' (Luhmann 1990a p. 138). Luhmann attaches much importance to this distinction between 'artificial' and 'natural'. It can mark the difference between operation and observation in a system or mark the second order observation of ideologies and values in first order observation. It is noticeable, however, that both in 'natural' and 'artificial' cases, the interruption of self-reference is based on misunderstanding: the basic paradoxes and tautologies cannot be solved, only concealed or altered! Apparently, Luhmann associates such misunderstanding with the very notion of meaning. All meaningful experience is based upon an

interpretation of contingence (i.e. contingent reduction of complexity) as difference, he says (cf. Luhmann 1987 p. 315).

Luhmann's conception of 'meaning' is heavily inspired by Husserl's phenomenology, but subsumed under the systemic scheme and thereby seriously constrained. In line with Husserl, he begins:

> The phenomenon of meaning appears in the form of a surplus of references to further possibilities of experience and action. Something stands in the focus, at the centre of intention, and something else is indicated marginally as the horizon of a 'and-so-on' of the experience and action. In this way, everything which is intended holds the whole world open for itself, and thus also constantly guarantees the topicality [Aktualität] of the world as accessibility. (Luhmann 1987 p. 93; my translation.)

But soon (*ibid.* p. 111–112, 135–136), Luhmann has limited the concept of meaning to entities (elements, processes, systems) which appear to be identical through abstraction (repeatable observation) and symbolic representation (words, types, concepts). Thereby, Luhmann reinforces the tendency of scientism which Husserl himself criticized in his late writings by pointing to the importance of the lifeworld. Accordingly, it is problematic to suggest — like Habermas (1985) and Schwemmer (1987) have done it — that Luhmann's theory can find its relevance as subordinate to a theory of the lifeworld. (Any reconciliation of systems theory and phenomenology would have to be based on a phenomenological concept of meaning which excludes the idea that meaning basically is something systemic.)

In accordance with his limited concept of meaning, Luhmann assigns abilities like observing, discrimination and designating to the domain of life and not to the domain of meaning (cf. Luhmann 1990b pp. 586–88). Consequently, if you simply perceive a figure on a background (notice a difference or make a distinction), this does not have any meaning to you unless you have identified the figure reflectively as something known. So, according to Luhmann, the immediate perception with which all our experience and practice unfolds is meaningless in an emphatic sense. This also applies to experiences of utility, facticity and existence (cf. Luhmann 1987 p. 97). Still, Luhmann approaches a sensible notion of meaning (and identity) as the precondition for self-reference (cf. Luhmann 1987 p. 26) and for the formation of systems (cf. Luhmann 1990b p. 587), but only to erode it shortly after through the promotion of 'autologic' and self-referential circularity (*ibid*. pp. 591–95). In unreflected, immediate experience Luhmann cannot recognize the structures of *meaning* which implies accessibility to the rest of the world that we know of. To him, immediate experience is only composed of systemic differentiation, form and boundaries initiated from an 'unmarked state' of complexity, selection and contingency.

From a phenomenological or hermeneutic point of view, meaning neither consists in 'being related to itself' nor in a 'processing of differences' between topicality and possibility, like Luhmann claims. He is much closer to solid ground, namely the phenomenological concept of intentionality, when he declares: 'The self-mobility of occurring meaning is autopoiesis par excellence.' (Luhmann 1987

p. 101; my translation.) Meaningfulness varies, but meaning does not emerge from anything which is different from meaning, and human experience cannot transcend intentionality, the spring of meaning. But Luhmann is unable to utilize the concept of intentionality (which was not fully developed by Husserl, but by Merleau-Ponty) because he clings to a subject-object relation with his system-environment distinction and because he basically associates the concept of 'form' with 'formality' rather than 'meaning'. To him, form is simply objective differences and unequivocal distinctions, and meaning is always well-formed and unambiguous. This obstructs his discussion of the emergence of meaning. Apart from functional and operational 'explanations' (which of course relate to systems and not to meaning), Luhmann presents a universe of answers without questions, solutions without problems. If he had focused more closely on 'form' as it appears in the structures of our immediate perception, he might have realized that distinctions always make meaning and that the differences we notice always have meaning.

Phenomenological Conception of Games in Social Life.

The following points to an alternative to the idea of autopoietic systems, where social systems are meaning-based in a more radical sense than in Luhmann's theory. *Spiele* (or *jeux*) are simply more essential to the creation and structuring of meaning than systems are. Undoubtedly, any autopoiesis in social life will also have to be found in some *spiel* (*jeu*).

There is more to social life than systems. Social processes, with their irreversible change of social life, do not take place in systems. Social identities with their implicit and explicit structuring of social fields in relation to a lifeworld and a present are not systems. The notion of 'social games' may help us to grasp this. (For now, I am going to apply the English term 'game', although *spiel* and *jeu* signifies the matter much better.) This notion is already widely applied (though not always designated like that) in theories of human and social sciences. Distinguished examples are found in works of Bourdieu (1990), Giddens (1984) and Lyotard (1982). These and other similar conceptions are not associated with the discipline called 'game theory', but may be inspired by very different thinkers, undoubtedly first and foremost Wittgenstein with his idea of language games (*Sprachspiele*). Therefore, it must be emphasized that the word 'game' should be understood in the sense of 'play' as well.

One may get a first idea of 'social games' by thinking of the term as a metaphor inspired by what goes when people are playing chess, for instance. The objects and rules of the game only make up a 'foreground' which takes on meaning through our engagement and initiative: having fun, trying to win, interpreting and redefining the rules, etc.

Conceptions of social games elucidate the unfolding of social fields in association with principles of praxis and experience. The structuring of practices and discourses is not predictable from, but nevertheless largely in accord with, some

more or less established rules. These rules are predominantly implicit (i.e. not clearly recognized by the participants of the social field in question) and informal (i.e. not very specific and clear-cut).

A concept of social games allows an interpretation of contemporary social theory in the light of the 'mature' phenomenology which we find in Merleau-Ponty's work (cf. Keller 1995). In this light, it is emphasized that social life is predominantly an existence anonymous to itself[4] where the meaning of passing activities and perceiving as well as lasting praxis and experience is bodily structured. In the daily life (and also: within our own life horizon), we are first and foremost social identities taking part in the processes of cultural community, social responsiveness (Asplund 1987, Waldenfels 1987) and social sensibility (Ostrow 1990), rather than an ego opposite to an alter, or an individual opposite to a collective (a group, an organization, a society).

This phenomenological approach also makes it possible to apply the compelling understanding of meaning which Merleau-Ponty developed on the basis of Husserl and Gestalt-psychology: Meaning is structured in dynamic figure-ground perspectives. This goes for perception (i.e. immediate feelings of meaningfulness or the lack of it in communication, action and sensation) and for more thematic reflection as well. As opposed to usual notions, a perspective is not understood as (essentially) unfolding from an individual onto an object, which then stands out as the figure with its background around and behind it. The figure is at the vertex and the background is at the opening of the perspective. The perspective is the way in which a field makes meaning for us as bodily-social beings: the structuring of a focus (figure) from a horizon (background) through anonymous social identity. This identity may be regarded as experience, praxis, discourse, practice, habitus, dispositions, positions, habits, routines, etc.

The theoretical and methodological implications of this understanding have been discussed previously (Keller 1995, 1997) so I will confine the presentation here to a minimum of remarks to indicate the expressiveness of perspectival (i.e. figure-background; e.g. theme-context) structuring and the richness of differing types of perspectives which we employ. A perspective is the way in which bodily intentionality crystallizes as meaning (i.e. meaningfulness or a conflict or lack of it) through the structuring of a social field. Something always stands out as topical and implicitly related to a whole field for us. Meaning is this immediate relatedness. Perspectives are a very basic structuring of fields as reflections which concretize the fields previous to symbolic representations and self-referential identifications. Therefore, a *gestalt* can simply 'stand out' in our practices without appearing as the very specific or general entity which we would recognize by closer observation, an event can be 'present' in our discourses before it is realised as either factual or imaginary, and so on.

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[4] This is experiences and practices of an on (in French), man (in German) and man (in Scandinavian languages). In English this pronoun is splitt into one, we, you and they, but to some extent the sense of a more general anonymity is expressed in passive diction without a pronoun, like 'it is expected that . . . '

In Merleau-Ponty's phenomenology, intentionality is understood as a generative structuring of meaning which starts from bodily-social fields of experience and praxis. Social processes are basically regarded in the perspective of movements and events which make differences and introduce distinctions in the present. This defines coherence and conflicts between moving ahead towards a future and being bound backwards in a history, but does not imply any fundamental difference between a social field and a social identity. Institutions, styles and projects are examples of this coherent structuring of social fields and social identities. Obviously, this concept of social identity emphasizes the openness of a social experience and practice which concretizes a social field: Perspectives of fields are a structuring of meaning with the movements, tendencies, potentialities, etc. which define and influence a topical matter or concern. Perspectives may be simple reflections which make some order in the field without necessarily implying distinctions between subjective and objective entities, individual and collective, or social actors and interactions.

Social identity is first and foremost anonymous. It is the cultural feelings of selfness which coheres with their corresponding social fields through the structuring of meaning and finding order, in current actions and expressions as well as in lasting practices and experiences. Of course, this does not have to involve much cognition and rationality but may very well unfold predominantly as a matter of aesthetic emotion and practical motivation. A crucial point about understanding anonymous being is its association with concreteness: As a social identity, we take part in the games of a field in a concrete way; there is no basic choice between the specific and the general or between the reproductive and the creative. The delimitation and rules of a game are only structures of near backgrounds, foregrounds or passing figures which immediately relate the occasions, questions, difficulties and possibilities of current events to an open background of experience and praxis. Thus, social games are reproductive as well as creative. As reproductive phenomena, they may be described as an interplay in various different perspectives, for instance an interplay of rules and resources (Giddens 1984), or an interplay of demands and motives (Keller 1994): Being involved in a social game implies taking up a certain latitude with certain restrictions (Asplund 1987, Waldenfels 1980).

In summary, the notions of social games, which we find in many approaches to human science and social science, have clear advantages in contrast to Luhmann's idea of autopoietic social systems. The attempt to tightly associate (if not identify) the entirely ubiquitous phenomenon of meaning (including all its wild growing and indefinite aspects which are very basic and include whatever we might call 'meaninglessness') with the straitjacket of systemic formalism (the rationale of which is to construct rigourousness and preserve accuracy) is an impossible project. The above indicated conceptualization of social games, however, is consistent with the notions and perceptions of meaning which unfold in our daily life as well as in different kinds of scientific understanding, interpretaion and explication. While Luhmann's theory of social systems (as a contemplation of contemporary social life) and perhaps in particular his idea of autopoiesis

(released from the systemic biologism and formalism) contain interesting elements which might be reconstructed in other theories, a concept of social games is a more direct help to analyse how systems — e.g. sociotechnical systems — are and could be embedded in sociocultural structures of meaning.

Conclusion

It has been pointed out that there are serious problems in Luhmann's conception of social systems. These problems were discussed through four main issues which led to a final criticism of his very restricted notion of meaning:

1 Luhmann's theory of autopoietic social systems concentrates on peculiar functional topics.
2 The theory is rather futile as regards the conceptualization of social life.
3 The theory is caught in tautology and self-contradiction.
4 Fundamental assumptions in the theory are absurd.

In contrast to Luhmann's approach, the phenomenological concept of meaning which is found by Merleau-Ponty refers to much more than conceptual, linguistic or representational meaning: We are perfectly able to perceive (i.e. feel) meaning, e.g. the figure of a certain professional style on its sociocultural background, as a bodily rooted reality and communicable phenomenon without making distinctions between outside and inside, without taking on the status of a subject in relation to its object, and without experiencing anything which fully qualifies as cognition, consciousness or individuality.

With the concept of social games we can explain the utility and usability of sociotechnical systems in the contexts and situations of actual work processes. Social systems are integrated in work performance through the informal structures and functions of social games. The game concept offers us a firmer base in conceptual knowledge and practical experience concerning the actual environment in which a sociotechnical system is applied, i.e. the sociocultural background and the concrete work situations that characterize the particular work domain in question.

The application of the concept of social game on the domain of work performance makes it more clear what self-organization and autonomy in work must mean. Latitude in the work performance requires flexibility and transparency of the computer based systems which are going to be integrated as artifacts in the work processes (cf. e.g. Keller 1994). Furthermore, explication (rather than blind formalization) of the various perspectives on a work setting (cf. e.g. Keller 1997) is a most important precondition for influencing the dynamics of work organizational development processes. In short, Luhmann's concept of autopoietic systems mistreats our experiences and practise of social life. This could be avoided by adopting the concept of games for their interpretation.

Acknowledgments

I am grateful to editors of *Cybernetics & Human Knowing* Søren Brier and Darek Eriksson for helpful comments on previous versions of this paper and to Hanne

Porsborg Clausen, Department of Communication, Aalborg University for her help with making the text into a better English.

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