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Summary

Society as System and its Ecological Environment

A Study in the Sociological Systems Theory of Niklas Luhmann

This thesis comprises of two main parts. The first part is an exposé of Niklas Luhmann's sociological systems theory. This presentation includes the basic tenets of the theory, the historical development of the theory, and analytical discussions.

The second part comprises of a systems theoretical analysis of one of society's most pressing contemporary problem complexes, that of the ecological environment thereby showing the relevance of systems theory in understanding a contemporary sociological issue.

Based on my earlier studies, I have formulated two hypotheses:

1. Modern society generates environmental problems which not only have grave destructive consequences on the natural environment, but these environmental problems are also equally as large and ever increasing as problems of society which impact the whole of society. Society is characterized by diversity, something also true of social scientific theory. The problem of the environment points directly to the need for a theory of society as a whole, despite diversity.
2. Luhmann's systems theory is a complex theory about social systems in their environments. The theory of social systems lies at the foundation for the development of a general theory of society. The theory of society makes possible a complex understanding of how the issue of the ecological environment is dealt with in society and consequently it offers an explanation of why the most important environmental problems have not been solved.

The need for a complex theory to analyze environmental problems leads to a study of Luhmann's comprehensive work. As Luhmann himself asserts, this issue makes more urgent not only detailed specialized studies or the development of 'environmental sociology', but rather first and foremost a theory of society. The fact that Luhmann's system theory in general and his theory of society in particular are rather unknown in Scandinavia makes it necessary to present the theory in depth. Only after doing so can the environmental issue be placed in its context.

In systems theory, just as in every other complex theoretical construction, theory is intertwined with methodology. An important part of the theory, which is also a methodological instrument, is the cybernetic observer's perspective. As an observer, one can maintain a necessary distance in sociological analysis, even in the presentation of Luhmann's sociology. In this sense the discussion and analysis is an attempt to observe how through systems theory Luhmann observes social systems and their environments.

Luhmann's systems theory is not about an individual creation. His great contribution is in his further development of systems theory. The majority of modern social theories have their points of departure in normative assumptions. By having the observer perspective as the point of departure, the general problematique of systems theory is: Using sociological theory, how can one most fruitfully observe and describe social systems and their environments? Systems theory can thus be said to be a problem oriented descriptive theory and method that implies the observer.

Within the framework of Luhmann's systems theory, one can discern three primary levels of analysis: 1) the general theory of self-referential and autopoietic systems; 2) the theory of social systems as autopoietic communication systems; and 3) the theory of society as a separate social system itself. This motivates the division of the first part of the dissertation into three primary sections. The emphasis in my presentation rests on the theory of society.

From its inception, systems theory developed with the help of concepts and theoretical ideas from a number of schools of thought. Luhmann continues this tradition, and his work draws inspiration from classic and modern sociology, numerous philosophical sources, legal theory, the theory of second order observations (second order cybernetics; Heinz von Foerster), cognitive sciences, etc. I show how Luhmann transforms concepts from other theories and incorporates them as basic elements in systems theory.

In the first main section, the analysis is carried out on the most general level of the theory, the general theory of self-referential and autopoietic systems. In the first chapter I begin by taking up some of the primary concepts in systems theory: operation, distinction, form and observer.

1) Operations are events that occur or take place in a system. They are the basic elements of systems. The operation which is the basic element of the social system is communication. 2) It is through distinctions that we can understand the world. In order to be able at all to observe and think of the social system as an entity, one cannot begin with identity. At issue here is difference in a cognitive meaning, not a normative meaning. Systems theory is a theory about the difference (distinction) between system and environment. Its fundamental method of analysis is therefore a methodology of distinction. Neither is the object of analysis a thing or an object 'system', but rather a form. 3) Luhmann's concept of form is taken from the Anglo-Saxon logician George Spencer Brown. It is a concept of form which can be operationalized and thus is an operative form logic. 4) Another central part of systems theory is the observer perspective or the theory of second order observations. In this way, the observer analytically is introduced into the world. As an observer, one makes distinctions based on observations. The distinctions one chooses serve the construction of the theory, in this case, systems theory as a theory of the difference between system and environment.

In a following chapter some of the themes which are central to sociological systems theory in general and the theory of self-reference and autopoiesis in specific are taken up. I begin by describing the paradigm shift and history of systems theory. The entire development of the theory goes from being a theory about wholes and parts and objects and relationships to becoming a theory of the difference between system and environment. In this way the basic concept of system changed drastically.

The Twentieth Century critique of power is often synonymous with a critique of system. Regardless of one's position on this social criticism, which has a long history, this critique is based on an entirely different concept of system than that of systems theory. With the latter, on the contrary, one attains a more distanced view of system in relation to environment. This is true for, among others, those organizational systems that build power structures.

Luhmann's system theory is a theory of complex systems. The problem of complexity itself is an old problem in science and philosophy. The history and semantics of the term are taken up. A complex system is defined as a system which comprises of multiple elements or components, such that each part cannot be united with each other part. Complexity thereby forces selection.

The method of functional analysis is inescapable in modern social science. None the less, it has been the subject of comprehensive critical discussion. In the sociology of the 1950s, especially that of Parsons and Merton, 'functionalism' was a primary theme. This is also the case with the first of Luhmann's publications from the late 1950s and early 1960s. Luhmann attaches himself primarily to Merton, but conducts a far more thorough revision of the concept of function, in which among others, Leibniz and Kant play an influential role. Luhmann thus develops functional analysis as a method with which one can show how the different or rather like can function as equivalent. Function in this sense does not aim at 'explaining' causality.

Finally, the theory of self-referential and autopoietic systems and their structural couplings is presented. Autopoiesis means 'self-production' and indicates a high degree of autonomy. I take up the background of the concept, its structural conditions and the paradoxes which the autonomy of systems gives rise to. The system's borders, or phrased alternatively, openness and closedness, is one of the paradigmatic questions. That autopoietic systems are closed means that they, as forms, are distinctly separated from their environment. But they are not isolated from their environment. The normal operations occur independent of the environment, but the system must be open to its respective environment in certain structural respects. They regulate relations to the environment in different forms, which are summarized under the term structural couplings. In social systems, on the one hand, communication takes place independent of the environment. On the other hand, in order to live on, all social systems must be cognitively open.

In the second section, the analysis is shifted to the level of the general theory of social systems and their environments. I first take up the importance of action and communication in a systems theoretical context. Social systems are understood quite simply as a communication systems. Action, which has long been the dominant point of departure in all sociology, signifies a communication which can be attributed to persons in a system. Communication continuously opens a multiplicity of realizable options for further communication and action. This state has long been called contingency. Contingency is defined as that which is neither necessary nor impossible. Here and in various later contexts, it is argued that the development of modern society is the result of a high degree of contingency.

In the following chapter, the concept of meaning is taken up. This concept has been a central sociological concept since Max Weber. Luhmann takes his point of departure in Husserl's phenomenological concept of meaning and develops it as a distinction between the actual and the possible. In this way the prevailing subject reference is dropped. Meaning is a basic prerequisite for social and psychic systems; in social systems nothing can be observed or thought without meaning. This is also the case, as I show with the loss of meaning.

Social systems create interactions, organizations and society. Interaction is the simplest form and is defined, in accordance with Goffman, by the principle of presence. Luhmann's organization theory on the one hand subscribes to the organization theory tradition and on the other hand it breaks with it radically in many respects. Organizations are primarily characterized by decision-making criteria; decisions are the autopoiesis of organizations. In modern society, organizations are inescapable for coordinating activities in most areas. In this way, they solve a number of otherwise difficult to deal with problems. But, as I show, organizations also create new problems.

The final chapter in the section is devoted to the relationship between man and society. After an introductory discussion of how man has been described in sociology up to the present, I take up, among other matters, the relationship between psychic and social systems and the role of consciousness in communication. The historical semantics of the concept of person shows clear changes in roles and personal and impersonal relations. The main thesis is that man as an individual is outside social systems, while man as a person is within social systems. In this way, systems theory accentuates the importance of individuality.

The theme of the third section is SOCIETY AS SYSTEM. This is an exposé of Luhmann's systems theoretical general theory of society. My structuring primarily follows that which Luhmann himself lays out in his most prominent work which has recently been published.*

* Luhmann's magnum opus, *Die Gesellschaft der Gesellschaft* ('The Society of the Society') was published in June, 1997. My work has been made possible by Luhmann giving me access to manuscript versions of this work and being able to attend many of his lectures on

I begin the first chapter by problematizing the theory of society in general and giving an overview of the central tenets in Luhmann's theory of society. I show how Luhmann develops his theory of the societal system in part based on systems theory's basic assumptions, and in part by reconstructing the concept of society in an historical semantic context related to philosophical and social scientific traditions of thought. Luhmann demonstrates, among other things, that society, contrary to what many believe, cannot be synonymous with the state or politics, and that the theory of society must take its point of departure from the complexity and conditions of contingency of society. Thus, it cannot be grounded in moral universalism, or on any other general norms about the 'right' direction in which to develop society. This does away with an important earlier argument against general theories.

Modern society forms a global communicative system, an acentric world society. There are, as we can easily see, great differences in the global social order. By seeing society as one system, one single global unit, this fact is not ignored, but rather entirely in accord with the forms which are the hallmarks of Luhmann's theory.

The theory of society comprises of four main parts: the theory of communication media, the theory of evolution, the theory of differentiation and a theory of society's self-description.

I begin with the communication media. The most important medium in the communication system is language. Besides language, there are many other specific media especially in modern society, such as money, power, law, truth, love, etc, which are called symbolic generalized communication media. The communication system uses a binary code which in principle codes everything which is said (and written) in a yes and a no version. This already lies in the nature of our language. A no must not block further communication and lead to irresolvable conflicts. The interchangeability of perspectives, double contingency or alter's observation of ego's no, in normal cases leads to alter being able to modalize his position and communicate another message which can be accepted or vice versa. In the symbolic generalized communication media, communication is coded in a commensurable way according to its functional orientation. Distinctions such as pay/don't pay, government/opposition, just/unjust, true/false statements, love/don't love, etc, decide how communicative operations will continue.

The breakthrough of the symbolically generalized media has large effects on the development of society. One is that it leads to a drastic reduction in the importance of morality in society. It is no longer possible, whether desirable or not, to credibly to formulate important social questions as moral questions. In short, the breakthrough and spread of these media is synonymous with the breakthrough of modern society.

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the theory of society.

The systems theoretical evolution theory is developed from Darwin's classic theory, where the distinction between variation and selection is central. I synoptically show how Luhmann reconstructs and re-specifies Darwin's concept of evolution into a general theory of social evolution.

Differentiation theory has a long tradition in sociology. I begin the chapter on differentiation with an historical review and discussion of the theory. For Luhmann, differentiation is about differentiation of systems. Social systems differentiate according to system and environment and society by the principle of equality and inequality. Modern society, which is characterized by functional differentiation, is treated in depth. The economy, the system of politics, the legal system, science, etc., form function systems in modern society. I show how they are identified as autopoietic systems. The principle of function is a basis for comparing how systems function or don't function.

Differentiation gives many benefits, but also generates many problems for society. For the individual, whether one is part of society or not is a question of inclusion or exclusion. In normal cases, persons are included in the economy, in the system of politics (in democracies), in the family system, etc, as well as, for example, sociologists participate in the scientific system. But for example, by being unemployed, one risks being excluded first of all from the economy, and then from other systems. Increased structural unemployment on a global scale, has led to the exclusion of more and more people. According to Luhmann, modern society stands before two increasing problems which are tied to the relationship between the social system and its environment: 1) The risk that the difference between inclusion and exclusion, or being in or out of the system of society becomes a metacode which governs the survival opportunities for more and more people; and 2) The global ecological environmental problem.

The theory of society can in turn be observed as a theory of society's self-description. In the European tradition of thought, such self-descriptions are called reflexivity. I end this main section and the dissertation's first part by showing how Luhmann's theory of society is crowned by the observation that the theory of society itself as an autology, a sociological description of society in society.

In the second part, the primary theme is ENVIRONMENTAL PROBLEMS AS PROBLEMS OF THE ENVIRONMENT OF THE SYSTEM OF SOCIETY. Here I return to my initial issue. The problem of the ecological environment raises a demand for a general theory of society, how it functions and why broad-ranging complex problems do not appear to be resolvable. I use in part systems theoretical specialized studies of the ecological problem and in part substantiate my argument with the help of literature and documentation from many disciplines.

The analysis proceeds from three hypotheses:

1. Social systems are communication systems. Society can thus only relate and react to the environmental problem through communication. The contemporary history of the environment problem bears witness to this fatal fact.
2. The whole of society is, to a high degree, dependent upon technology. Therefore, modern society, to a greater extent than previous societies, is exposed to risks.
3. Society is differentiated into function systems which operate independent of each other. This circumstance causes great difficulties in attempting to solve environmental problems. However, this insight can be the only key to solutions.

Earlier, people have been harmed by damaged environments without knowing what has caused these harms. Only after attaining knowledge of the context through experience or research can one communicate about them and thereby create the possibility to solve the problems. The fact that society is a communicative system means that only that which can be communicated can be treated as a societal problem. Negative environmental consequences can therefore only be understood through communication. In this sense, one can speak of ecological communication.

In the theory of society it was shown that morality cannot take a central place in communication in modern society. Therefore, neither morality nor ethics can play a central role in solving environmental problems. Environmental ethics, I show, leads to intractable difficulties and to the risk of, as all moral communication, blocking further communication. In connection with von Foerster's thesis on "eigenvalues", the possibility of ecological eigenvalues to be asserted in society is discussed.

Risk is a central theme that touches all of modern society. It is primarily the high degree of dependence on technology which subjects modern society to risks. But communicatively seen, the emergence of contingency already forces risk-taking. In current thinking, one often differentiates between security and risk. A central thesis is that the decisive distinction is instead between naturally produced dangers and self-produced risks. This distinction accentuates the fact that risks are generated by the system of society and that the problem of risk is a problem generated by our own decisions.

The importance of risks does not motivate the whole of society being labelled a "risk society". As shown earlier in the analysis, modern society is primarily characterized by functional differentiation. In the final chapter, two questions are focused on: What effects do ecological problems generate for the different function systems? and; How can society pay attention to and adapt itself to ecological problems within the system of politics, the economy, science and the legal system?

The facts that function systems operate as autopoietic systems and that society lacks a directing and steering center leads to great limitations in solving the almost limitless ecological problems. It is however the systems which must find solutions to the problems. Systems theory no longer postulates that the system is primary to its environment and that the environment must adapt to the system, something which Parsons, among others, posited in his earlier work. A central tenet in early systems theory, and a point much and rightly criticized by earlier critics of systems theory, is thus removed from the theory.

A scepticism towards all forms of steering has spread, and especially the market model of society has achieved a renaissance. None the less, the problems of the welfare state and structural unemployment as well as recent ecological problems all increase the demand for steering. I show that the systems theory approach makes possible a new form of steering. Steering of autopoietic systems is to a great extent a question of self-steering. This does not however downplay the innumerable causal relations between systems and their environments. Causality is something that an observer can attribute to various systems but does not say that the system's operations must follow the same directions. On the contrary, one can often show the reverse. In the public debate, many speak favourably for political or economic steering. What should be noted as the one or the other is, I show, to a very great extent, conditional.

In the political system, ecological problems are a matter of efforts, political risk-taking and revision. The ecological issue crosscuts the left-right scale and has greatly contributed to the decline of the relevance of this axis. Ecological issues have created new opinions within the old parties, and new parties which set ecological issues in the center of their activities have been created practically all over the world.

The modern economic system is not a system of resource conservation, but rather operates in terms of utility, scarcity and conservation circularly, i e for the good of market operations. To the economy the "environment and environmentalism" are about new markets and to a greater extent, increased costs. More correctly, it is a question of who should bear the costs, or in other words, a distinction between internalizing and externalizing. The question of whether growth is an inescapable principle of the economy or not is, as I show, yet another difficult dilemma in the relationship between the economy and its ecological environment.

For the system of science, the area of the ecological environment is about identifying and analyzing problems. Science uses specific theories and methods for its observations. In this way science is also limited by the theories and methods that are at hand. Furthermore, there are limitations stemming from disciplinary differentiations and academic specialization which diminish the possibilities to find overarching solutions. On the other hand, it appears that extended interdisciplinary efforts and more holistic theories appear destined to failure. The magic word, sustainable ecological development, is not, as I show, a sustainable scientific concept. None the less, this concept can function as a programmatic statement for organizations that intervene in many function systems.

Within the legal system, the ecological issue is communicated under the conditions of law, that is to say in terms of how norms and laws, as distinctions between norms and facts, should be interpreted and applied. When one defines who is the instigator and what is caused, the environment so to say has no spokesperson, but rather the distinction between rights to freedom and enforced regulation dominate also in environmental law, it is just that this relationship isn't about the environment.

One conclusion is that ecological problems remain unsolved and an increasing threat to the whole system of society and its environment so long as we focus only on either politics, or the economy, or law, or science and technology. Society, to this day, has not created and differentiated an ecological function system. An area of communicative ecological operation, analogous to the economy, religion, etc. does not exist today. Development of such an area should be seen as a future possibility.

For the time being, we are referred back to the society which exists, with its existing function oriented systems, organizations and interactions. The structural conditions that generate problems are the same that created the development of modern society. Expressed abstractly, this revolves around the loss of redundancy in communication being combated by an immense increase in complexity and contingency.

In conclusion, I have tried to show, with the help of the sociological systems theory and differentiation between the system of society and its ecological environment in particular, how one can observe and describe complex problems like the environment problem. Systems theory is one possible theoretical option, and not the least in a situation where sociology lacks a general theory and up to now has stood helpless in the face of the problem of the ecological environment.

The systems theoretical approach, which to a great extent is the result of Niklas Luhmann's scholarship, can be seen as a new and in many respects untried sociological theory and method, even though it is now successfully employed by numerous social scientists. This work is intended to contribute to the introduction of sociological systems theory in Scandinavia. It is my hope that systems theory can contribute to a renaissance for sociology, if one understands this as a science which proves capable of not only being able to deal with specific matters in social systems, but also sociology's great classical issues. Above all, this relates to the question of *how society is possible,* now and in the next century, in the face of ever increasing ecological environmental problems.