

Network Society

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I. Complexity

Take self-organization as a paradigm to conceive the nature of society. Self-organization is an observer's answer to the question of how a phenomenon is able to reproduce, given that traditional scientific explanations, such as causality and statistics, fail, because that phenomenon consists of neither few and heterogeneous variables (suitable for causal explanations), nor of many and homogeneous variables (suitable for statistic explanations). Warren Weaver called such a phenomenon a complex one (Weaver 1948). It challenges an observer to acknowledge that it knows more of itself than the observer is able to comprehend. The observer is thus called upon to forego any attempt to "understand" the phenomenon, and instead to "control" his interaction with that phenomenon in such a way that he is able to relate what he might be doing or refraining from doing with what happens – never being sure, of course, whether what he is observing "is" the phenomenon as such or rather his interaction with it (Ashby 1958; Morin 1974; Glanville 1987).

Society is such a phenomenon to be called complex, since it consists of large numbers of heterogeneous variables which defy any causal or statistic description and explanation. Society should even be called "hypercomplex", since it not only is, for an observer, complex, but also describes itself as such, thus adding the knowledge of being beyond traditional ways of scientific explanation to its own complexity (Fuchs 1992; Luhmann 1997; Qvortrup 2003).

The paradigm of self-organization is a paradoxical one. In drawing a distinction between the observer and a phenomenon, it consists in understanding the observer's world as the necessary context of the phenomenon's reproduction. Thus, the self-organization of society does not

just happen out there, but calls upon the observer to be concomitantly performed by him. Any notion of the nature of society, therefore, has to take into account the performing observer's contribution to the reproduction of society. By "nature", we mean once again a paradoxical process of reproduction, which combines constant decay (or entropy) with ever-renewing form (neg-entropy) (Luhmann 1995a). At any one instant in the reproduction of society, an observer is called upon to relate the form just dissolving to a form just emerging. Quantum physics comes to mind, which has a fundamental indeterminacy solved, i.e. temporarily translated into, or confused with, determination, by an observer deciding on his choices. Louis H. Kauffman calls "network synthesis" such an introduction of markers which transform indeterminate into determinate expressions (Kauffman 1978).

As abstract as these considerations relating to a possible paradigm to conceive the nature of society may seem, they should not come as a surprise to a reader acquainted with sociological theory. Ever since sociology began to consider society, it has offered notions of society which conform to an operational understanding of a society, even though the inclusion of the observer has only recently been acknowledged. Auguste Comte explicitly speaks of the disorganization and reorganization of a society going from its theological and metaphysical to its scientific state, requiring its observers to forego any empty, because anarchical, criticism in favor of a political understanding of the necessities of production (Comte 2000). Karl Marx and Friedrich Engels think rather similarly of capitalism as the vaporization of anything resembling a corporative society and require its observers to engage in a revolution, transforming society into one which finally has a non-nonsense view of human life and relations (Marx/Engels 1998). Classical sociology continues that line of thought, albeit by doing away with any notion of progress (and redemption) or decadence (and damnation). Gabriel Tarde conceives society as a state of association, reproducing via a strict discontinuity of its elements, yet homogeneity of the being of these elements (Tarde 1999). Emile Durkheim looks at the abstract complementarity (and, thus, necessary even if difficult solidarity) of the corporations and professions to be distinguished and separated by their taking part in the social division of labour, when considering the organization of society

(Durkheim 1998). Georg Simmel thinks of society as a sum of forms of relations constantly engaging individuals and their historical reality within processes of synthesis that emerge and dissolve (Simmel 1950). Max Weber focuses on either subjectively felt community ("*Vergemeinschaftung*") or on the rational choice of relations ("*Vergesellschaftung*"), the latter being by definition a process of constant re-negotiation (Weber 1978). And Talcott Parsons goes all the way back to Aristotle's *Politics* to denote by society that social system which self-sufficiently is able to produce and reproduce the fulfilment of all functions necessary to produce and reproduce itself (Parsons 1966).

The nature of society thus has been regarded as an "autopoietical" process long before that notion has been introduced with respect to "living systems" by Humberto R. Maturana and Francisco J. Varela (Maturana/Varela 1980). Society must certainly not be considered a living system, yet it features its own kind of "cognitive" self-organization, if "cognitive" refers to an ability to distinguish between what is useful for reproduction, and what is not. Nothing, of course, guarantees that such a distinction, as made by a self-organizing society, is in accordance with an understanding of usefulness held by the human observers engaged by that society.

Following Niklas Luhmann, we propose to look at processes of "communication" when watching how a complex and therefore self-organizing society engages its observers in reproducing itself (Luhmann 1995b and 1997). Communication here means that any one observer when trying to determine the indeterminate, produces degrees of freedom of choices which call for their own conditioning, i.e., framing, to become options of real action. This is like in Claude E. Shannon's Mathematical Theory of Communication: You have to accept a set of (other) possibilities if you are going to produce, i.e., to select, any one of them (Shannon/Weaver 1963); you may even consider actually producing that wealth of unknown other possibilities by selectively doing what you are doing (Luhmann 1995). This is the single idea we need to address in the paradoxes mentioned above: Society reproduces as an indeterminate set of possibilities the very moment any one possibility is taken up by one or several of its observers. In the mathematical theory of communication undertaken in engineering, that set

of possibilities is a determinate one, thus going for a probabilistic calculus of information and communication. In sociology, we propose to drop that assumption of a determinate set of possibilities in favor of an indeterminate one, turning the set of possibilities into a context, contextualized by the very operation of being chosen (Gumperz 1982; Auer/di Luzio 1992), thus going for a possibilistic calculus of information and communication (Baecker 2005). We draw on the mathematics of George Spencer-Brown to consider such a possibilistic calculus consisting in distinctions being called and crossed, and defining forms which comprise the two sides of a distinction, the operation of the distinction, and the space brought about by the distinction being drawn (Spencer-Brown 1994).

II. Coding

Let us start our description of network society by recalling the simple, yet powerful mechanism of producing and dealing with social uncertainty proposed and developed by Harrison C. White in his eponymous *Identity and Control* (White 1992). Networks are considered to consist of, and reproduce, a number of heterogeneous elements, such as ideologies, institutions, individuals, technologies, and sites, tied to one another via relations of identity and control. There is no one element not receiving its identity from the relations it is tied into. And there is no way to maintain identity if not via the control of the contribution of one's own identity to all other identities. That includes expressions of identities which consist in imposing themselves on others, and depend for that imposition on the others accepting that it in one way or another. Thus, identity, as well as control, is mutual, or cybernetic (Glanville 1987).

All we need to be able to understand, i.e. control, the self-organization of a society is to look at networks being constituted by elements of any, yet necessarily heterogeneous, kind tying themselves into relations of mutual identity and control (Latour 1996). The heterogeneity is necessary as a reminder of indeterminacy and uncertainty, and thus of the complexity calling any one observer to make up his or her mind for him- or herself. The heterogeneity is finally necessary as a reminder of the impossibility of being sure what identity one is dealing with (including one's own) from any one

moment to the next, as unknown processes of dissolution and re-emergence may be happening in between.

A network society is in principle an ecological one, in that it comes without any super-system encompassing all networks and giving them some order rendered by any external reference. Instead, a network society excels in neighborhood relationships which exhibit all kinds of consensus and conflict functional for the self-maintenance of the networks involved. That is, even networks among themselves only add to networks, thus giving society its unavoidable structure of self-similarity (Turner 1997; Fuchs 2001; Abbott 2001).

If networks define the structure of a network society, we may call the distinction between identity and control the code of that society, given that a code may be understood as a distinction able to translate unspecified events into internal events that produce some kind of information (Ruesch/Bateson 1987). Any code must combine resonance with connectivity, or variety with redundancy, to be able at any instant to produce that kind of information which contextualizes any one message by the set of possibilities it is selected from. Identity and control seem to be able to ensure just that as identity is open to self-determination and self-indeterminacy, and control means attempt and success as well as ignorance and failure.

Relying on Spencer-Brown's notation of form, we may thus define the network as follows:

$$\text{network} = \overline{\text{control} \mid \text{identity}}$$

We give "control" the status of the operation drawing the distinction of the network, that operation calling up the context of "identity", like a commitment one is expected to bring with one and exhibit if any attempt to control is to succeed, thus adding constraint, i.e., determination (calling up new sources of indeterminacy), to possibility (Elster 2000). This means that networks are constituted by attempts to control by attributing identities to all elements involved.

Spencer-Brown's notion of "form" (Spencer-Brown 1997; Baecker 1999) enables us to look at three features of such a distinction. The first feature is that all distinctions only come about by being operated by first-order

observers being watched by second-order observers. Distinctions are not categories to order the world, but operations produced by observers, and watched by other observers. They produce a reality brought about via second-order observations, so that this reality by one and the same token is both indeterminate and self-determining (Luhmann 1992). The second feature is that any one distinction, by being drawn, constitutes its own form, consisting of its two sides and the separating line of distinction viewed together within the space that distinction opens up when and by being drawn. This means that any one distinction, when looked at with respect to its form, defines the connection and correlation of two terms being distinguished without having to specify how this connection and correlation come about if not precisely by the distinction distinguishing the two terms. The notion of the form of a distinction thus looks at the space of operations severed and explored by that operation of distinction. And the third feature is the "re-entry" of the operation of the distinction into the space of the distinction such that for instance "identity", on one hand, gets its focus by being distinguished from "control", and vice versa, in such a way that, on the other hand, "identity" and "control" become indistinguishable by being connected to each other, calling for the same distinction to be drawn again if the form of the network is to be reproduced. This may remind the reader of the philosophical and literary endeavor of "deconstruction", which was able to show that we, observers of our society, only trust distinctions we are able to distrust as well. The indeterminate yet determinable reality constituted by second-order observers is a reality perfecting itself out of its own corruption, and corrupting itself due to its own perfection. That is why ambivalence is the first and last word to be spoken with respect to both the kind of reality our society is embedded in and producing, and our stance towards that reality.

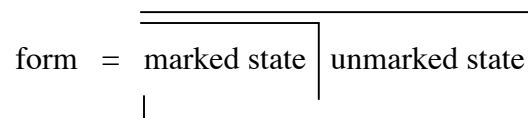
III. Meaning

The network society is a world society. Its meaning horizon is the world as a whole, which means that any one actualization of meaning is to be compared with, and severed from, all other actualizations of meaning which come to the mind of any one of the identities involved. To handle the

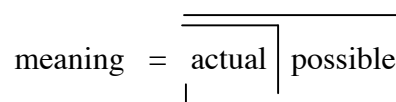
enormous overflow of meaning present at any one moment, the network society relies on cultural forms which allow it to deal highly selectively with the meaning it has access to. Niklas Luhmann proposes distinguishing three cultural forms with respect to dominant communication media, as there are: manuscripts in Antiquity, print in modern times, and the computer, including the Internet, in our next society: He outlines Aristotelian *telos* for the writing culture, Cartesian self-reference for modern culture, and perhaps a Spencer-Brownian form for our culture as three selective devices which allow one to go for dynamic stability in the midst of the instability unleashed by a wealth of new meaning accessible (Luhmann 1997; Baecker 2006).

If we concentrate here on our society, the next society (Drucker 2001), we can outline the cultural form as the selective device able to handle the surplus meaning of the computer and the Internet culture, which sometimes is taken to be the culture of a network society coming of age (Castells 1996). The cultural form of the Spencer-Brownian calculus means that any one meaning is dealt with according to a pattern relating possible next operations included and an unknown horizon of other possibilities excluded. That is, as in operational research proposed by W. Ross Ashby (Ashby 1958), the one and only question to be dealt with and to be decided at any one instant is what possibly to do (or forego) next while knowing that there is a context, or frame, one is ignorant of and possibly has to turn one's attention to the very next moment.

If the general notion of form in Spencer-Brown reads as follows:

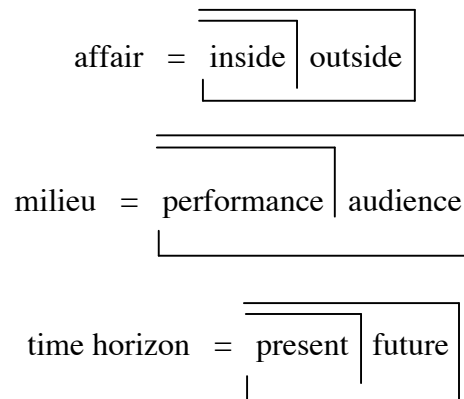


and if the unmarked state stands for the indeterminate as the excluded other side of the distinction included into the form, we can specify that general notion for the particular case of meaning by saying:



Note that this is an understanding of meaning which is compatible with philosophy, sociology, and economics (Whitehead 1979; Luhmann 1995; Shackle 1972).

For all specifics of meaning we may adhere to the three dimensions of meaning distinguished by Niklas Luhmann, which are the factual, the social, and the temporal (Luhmann 1995). Any communication, i.e., any action and experience, in network society would thus take the form of a non-linear sequence of choices distinguishing actual insides of affairs, actual performances within certain milieus, and actual present time horizons, from possible outsides, possible audiences, and possible futures:



This is to say that all communication and action drawing on meaning and producing meaning in a network society relies on a combination of subject matter, milieu, and time horizon to take its actual choices within the context of possible other choices. All affairs are affairs consisting of a certain inside of a matter, to be compared, at any instant, with possible outsides of more or less relevance. Any milieu is a milieu produced by performances searching for, and finding, their audience, framed by a general experience of publics as switching devices between networks (Goffman 1959; White 1995). And any time horizon has to be chosen with respect to unknown futures with more or less relevance to the present, selected and identified with or without reference to a certain past.

Note that there is a certain affinity between the temporal dimension of meaning and its overall form in that the future is by definition unmarked. That may be the reason why the next society is best coordinated with respect to its unknown future as institutionalized in uncertain investment projects in the market economy, uncertain chances of re-election in democratic

politics, uncertain fates of love in passionate relations of intimacy, the interest of art in newness, or in the never-ending process of theoretical curiosity in the sciences. This kind of coordination with respect to the unknown future organizes more complexity than any social ordering of the society or factual ordering of the matters to be dealt with could possibly do. That is why the complexity of the next society is a temporal one (Luhmann 1997), and why all meaning has no other choice but to look for its respective present anchors, framed by an unknown future, marked as the unmarked state.

What is more, we may witness another change of the temporal order of society by relying more and more on a distinction between event and process, which displaces the older distinctions between fleetingness (or vanity) and eternity, for pre-modern society, and between past, present, and future, for modern society. Event and process relate the moment and its possible, yet uncertain and risky, and promising or dangerous, context, frame, and development in such a way that any one moment cannot gain its dynamic stability unless by looking at just the very next moment it may be able to link to, or to refer back to. There is of course no eternity any more in distinction to all that fleetingness which would guarantee some kind of self-identical recursion, anchored in some transcendental infinity. Instead, we are always dealing in finite singularities, which constitute a world that is the ecological unity of the difference between one singularity and possible other singularities (Heidegger 1995). And there is no historical identity of past, present, and future any more, to be distinguished with respect to epochs, and to be taken seriously with respect to memory, duty, and expectation. Instead, we are invited to surround any one event we may wish to rely on with its own horizon of past, present, and future, only to be constructed with respect to almost instant deconstruction. Time becomes a gift, which we give and receive, making up our sometimes local, sometimes global accounts of whom to include into, and exclude from, it, what to focus on, and what not, and how long to insist on it for what reasons (Derrida 1991).

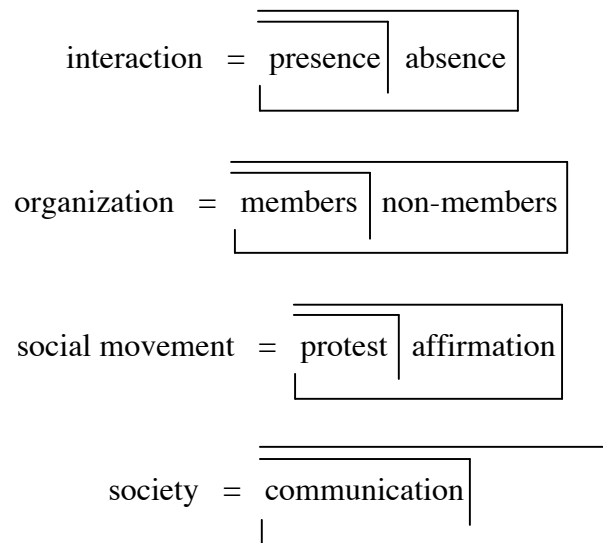
IV. Structure and Evolution

There is more structure to this kind of network society than just networks. We may notice, following again Niklas Luhmann, that there are interactions, organizations, social movements, and some society of its own, which are remarkably self-similar and exhibit patterns of communication and action nobody really has difficulties in identifying, in distinguishing, and in getting along with (Luhmann 1997; Baecker 2005).

Interactions consist of communication among people present. By exhibiting their own form, which consists in the inclusion of the absents excluded, they deal with the question how to get along with those present given that others, specified and unspecified, are absent (Goffman 1959). Organizations extend the reach of possible communication and action, including "collective" action, to people not necessarily present by restricting the possible reach to members only of any one organization and by having to translate "diffuse" communication into "specific" decisions which add a form of the regulation of decisions to the open form of the iteration of communication (Simon 1997). Social movements are restricted neither to those present nor to members. Instead they can only use the medium of "protest". This implies that they relate to issues that cause disturbance or fury that are, in turn, attributed to certain people or institutions responsible for these issues. One tends to believe that all this can be avoided if only things were better organized or if one could exclude certain people from certain business areas. Social movements reproduce as long as the protest works, and vanish as soon as cause and emotion, address and countermeasures lose their evidence. The only pattern or even "system" which is able to reproduce with unspecified, still undetermined meanings of communication is society itself. It consists of all communication possible, viewed from any one instantiation of it. It is a measure of possible reach, describing the global as "small" and the local as "rich" (Watts 1999; Leifer 1991).

All of these structures are to be considered as Spencer-Brownian forms, so that social self-organization at any moment takes place with respect to both the respective selections chosen (people present, members, protest cause, communication) and the unmarked state as the substitute symbol for the indeterminate, yet determinable other side of the distinction (people

absent, non-members, loss of protest cause, silence). We thus can proceed with our description of the network society by saying that it consists of a non-linear and heterarchic network among the following structures, each of them, except for the society, coming in plenty, if not a mass of instantiations. The society, given that it is the world society, comes only in one copy, strange as that may appear (Stichweh 2000). We have the following forms, and it seems they sum up neatly what self-similar structures network society provides us with (Baecker 2005):



Extensive empirical research might possibly ensue, looking, among many other issues, into the structuring of interaction via absent gods, friends, foes, and relatives; of organization via the seeking of balance towards non-member clients, investors, stake-holders, and regulators; of social movements via the unavoidability of participating in the same society the protest is addressed to; or of society seeking to recruit individuals, people, given that these rely on their senses, their reasons, and their idiosyncracies when judging whether and how to partake in any kind of communication.

This kind of research may realize that and how social institutions are already tuned to manage the form of distinctions connecting their terms by separating them, such as religion, viewed as an endeavour in the regulation of behavior with respect to both interaction and motivation (Weber 1988), or capital markets enforcing the interests of non-members on the members of an enterprise (Jensen 1993), or trade unions searching for reasons to accept the same jobs whose terms of trade they tend to refuse (Baecker 2004), or

art presenting society with the communication of excluded perceptions of colour, sound, taste, and meaning, only to experience that it gets tamed and framed with reference to the beautiful, to the sublime, or just to culture (Adorno 1997).

Add to the knowledge of structure a knowledge of evolution and you end up with a first and simple, yet already rather rich picture of the network society self-organizing. It is simple with respect to received sociological wisdom, yet rich with respect to a possible algorithm of communication, or a Whitean "calculus of trade-offs in uncertainty" (White 1992, p. 17), which describes the sensitivity and robustness, the switches and recursions any one communication at any one moment exhibits.

Evolution comes in three mechanisms: variation, selection, and retention (Campbell 1969; Luhmann 1997). They tell you once again that any event is part of a network, be it a network searched after, one to be avoided, or one intervening as a surprise to those involved. Any one event may turn out to be a variation to be selected negatively or positively if it does not just disappear the moment it appears. Any one event may also turn out to select other events to either go with it or not. Any one event may even turn out to put into perspective a whole range of other events so that they become accommodated to some pre-selected frame which acts as a kind of bottleneck to the event selected. In social evolution at least, there is no telling which events belong to what kind of mechanism, since any one of them may become recruited by different networks with respect to all three mechanisms.

Take sociological theory as an example. What is a sociological theory in terms of evolution? It is a variation mechanism with respect to other theories. It says No to them and pursues some different track. It is also a selection mechanism, which may be responsible for a whole range of facts never to be seen again and a different range of facts to be looked at for the first time in their life. The theory may even define new kinds of facts, like those which defy received methods of empirical research because they deal with unmarked states, being ways of communication to handle its own ignorance and uncertainty (Luhmann 1997, chap. 1. II). And it may be a retention mechanism showing how both theory and facts are to be regarded within the sociological tradition so that it can become a part of it without

risking destroying it. It makes sense to distinguish a scientific event like the emergence of a theory with respect to all three mechanisms of evolution, even when all three play their role in such a way that the theory does not neatly fall into the range of any one of them. It makes sense because the reasons to invest work into that theory, or the reasons to refuse and even fight it, might be rather different reasons when it comes to investing in, or fighting, variation, selection, or retention. Variation may be well received since it broadens the evolutionary pool of the whole discipline. Selection may be looked at more sceptically since it threatens, or seduces, to ally with facts and methods in such a way that it becomes stronger and stronger. Retention, then, may attract both followers and opponents, since the perspective is to serve the discipline which is welcomed by everybody anyway. Kuhn's paradigms, thus, are textbook examples of products and premises of self-organization with respect to both their inertia and their agitation (Kuhn 1962).

Evolutionary mechanisms, as applied to social form, act like a guarantee and master clock for all events constituting elements of a network. They provide for the essential self-diversity that is part of any self-identity (Whitehead 1979, p. 25). Looking at an element in terms of the event it is, it falls apart into being different events to different observer perspectives embedded within different networks.

V. Knots

Let us conclude our enquiry of self-organizing complexity, networks, recursive forms (or even *eigen*-forms), and evolution (Kauffman 1987; Kauffman/Varela 1980; Varela 1979). What you end up with are knots of communication and action, which bring together indeterminacy, determination, and self-reference. Any one of these knots, a milieu of certain people, an organization searching for its purpose, a society giving a bonus to conventions obeyed, or a social movement insisting on the morality of its protest, is a network about to dissolve and to re-establish itself from the indeterminate set of possibilities it has just added to.

If it were not for the markers adding their prejudices and insisting on their choices (Kauffman 1978), that kind of network society would be far too

improbable to stand any evolutionary chance. As far as we know, these markers are human beings, fragile, finite, and solitary. Yet it is they who know how to tell events and processes apart. And it is they who with any event look for a different one, trying to check on their opportunity costs, and who in any process come up with just enough inconsistency, groundlessness, and imagination to keep things and networks alive (Heidegger 1995, §49).

These human beings have nothing to invest but their observations, including second-order observations of observers coming as their own knots of networks, focusing on them or just keeping their distance from them. That is the operation providing networks with the information they need, if in-formation is just another word for a knot coming undone or being cut.

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