

Foundations of Niklas Luhmann's Theory of Social Systems

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Of all contemporary social theorists, Luhmann has best understood the centrality of the concept of meaning to social theory and has most extensively worked out the notion's implications. However, despite the power of his theory, the theory suffers from difficulties impeding its reception. This article attempts to remedy this situation with some critical arguments and proposals for revision. First, the theory Luhmann adopted from biology as the basis of his own theory was a poor choice since that theory has no explanatory power, being purely descriptive; furthermore, that theory is fundamentally flawed since it implies that viruses are impossible. Second, Luhmann's theory of meaning cannot coherently make the social domain autonomous as he desires since Luhmann does not take into account the distinction between syntax and semantics. By introducing this distinction, making clear that social systems consist of rules, not just communications, and raising the rule concept to the same prominence in social theory as those of actor and system, autonomy can be maintained while avoiding the counterintuitive aspects of Luhmann's theory.

Although his work has not yet received in other countries the attention it deserves, Niklas Luhmann is widely recognized in Germany as the most noteworthy contemporary social theorist.¹ Unsatisfied with the present state of sociology because the discipline "remains dependent on working with the data that it produces itself, and, where theory is concerned, on working with the classical authors that it has itself produced" (Luhmann 1995, 11; 1984, 28), Luhmann was taken aback by the "theory-disaster which sociology has experienced as a result of the introduction of so-called empirical methods" (Luhmann 1990a, 410). He undertook to correct the situation by

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developing a concerted research program that spanned three decades. In this program, he has done the conceptual work otherwise neglected by sociologists by constructing from the ground up a unified system of concepts that aims to span the social and modern society in particular.

The responses to this highly complex, self-contained, and interconnected theoretical product have been several. One can distinguish several different kinds:

1. rejection of the theory as speculative and unscientific, insufficiently concerned with empirical verification (Zolo 1986; Wagner 1994, 1997);
2. rejection of it on the grounds that it gives up humanistic, enlightenment, and emancipatory values, which should be maintained (Habermas 1985; Miller 1994) or because it abstracts from individuals to an absurd degree (Izuzquiza 1990);
3. use of the theory as a "toolbox, out of which one can take individual concepts and theorems depending on one's immediate goals, without having to worry about the rest of the theory" (Schimank 1991, 579);
4. criticism of the theory from the perspective of general system theory, with the argument that what is constitutive of society is not communications but neural networks or some other biological entity (the papers collected in Schmidt 1987) or making some other modification of the theory from a natural science perspective (Leydesdorff 1996) while following Luhmann's general method of theorizing;
5. full-fledged embrace, with little or no criticism of Luhmann's fundamental theory (Baecker 1988; Willke 1992);
6. seeing the theory as currently the most advanced sociological theory and hence adopting it, while presenting it less "self-referentially" than Luhmann or his close disciples do, not working wholly within it, and making connections between it and the sociological tradition (Kiss 1986, 1989).

The approach proposed in this article adopts the last position, with a critical spirit. One can agree with Luhmann that sociology can not uncover new knowledge merely by engaging in empirically orientated "normal science" and that the classics did not say all that there is to be said of a general nature about society, particularly modern society. To make progress, all science, and not just sociology, must explore different concepts and find a set that allows it to adequately take apart the phenomena it studies (Buchdahl 1969, 495-512; Mayr 1982, 24, 75-76). None of the other positions listed above, aside from number 5, does this aspect of science sufficient justice or has led to as promising and versatile a body of theory as has Luhmann. Unlike the fifth type of response, however, I do not believe that a full-fledged,

noncritical embrace of the theory is appropriate for the following reason. Luhmann has carried out his program by employing a very particular strategy, consisting of two interrelated moments: he has explored how far one can take theorizing of the social "in and for itself," in which the role of individuals is "bracketed out." To do this as freely as possible, he has proceeded in a "speculative" fashion, without pre-occupying himself with epistemological problems (until the core of the theory has been constructed) or the question of how the theory is to be verified empirically. I believe that this was the correct way to proceed at the time: the sheer richness of Luhmann's *Gedankenwelt* shows that. However, now that the theory has taken on a more or less mature form, one can pose the question of whether the same exploratory mode of theorizing should be continued by sociology indefinitely. For, to someone who has a more or less conventional view of science—the kind most natural scientists themselves have—and who wants to see sociology become a mature science, Luhmann's theory suffers from two related problems. First, it is not clear what the status of Luhmann's theory is: Luhmann himself takes ironic or indeed paradoxical positions on this question and declines to say that the theory is "true" (Luhmann 1987b). His theoretical strategy has forced him to adopt an antirealist position, not just on social entities but on physical ones as well. Despite Luhmann's arguments to the contrary, that can be taken as a warning sign that something is amiss with the theory.² Second, since the theory operates in its own hermetic conceptual world, it is not clear how its concepts relate to clearly identifiable empirical entities, and hence it is not clear how his theory can be linked up with "neighboring" empirical sciences such as psychology, social psychology, or biology (not to mention how it can be related to actors' own self-understanding). But the linkability of related sciences is one hallmark of their maturity: if one could not connect chemistry to physics and biology to chemistry, one would feel that something is wrong.³ Both these problems are a direct consequence of Luhmann's strategy of "unrestrained exploration."

The conviction underlying the present article is that the time for such conceptual exploration is over. If sociology is to continue to progress, it must shift to a phase of consolidation of concepts. Now that the domain of the social has been limned in a way that almost certainly would not have been possible without letting lapse the constraints that a good social theory, *pace* Luhmann, should be compatible with actors' own self-understanding and that the way in which theory is verified must be clearly specified, it is time to reimpose those

constraints. This article outlines in two steps one way of doing so, the first critical and the second one of reconstruction. Thus, in a first step, I shall attempt to show how the difficulties of Luhmann's theory can be traced to two substantive (as opposed to strategic) choices that he made: adopting the system concept of Humberto Maturana and adopting a phenomenological theory of meaning. In a second step, I shall try to show how under the guidance of normative conceptions of scientific method obtained from the contemporary philosophy of science, it is possible to use concepts from the contemporary philosophy of mind to provide an underpinning for Luhmann's theory and to reconstruct the latter in a way such that it obtains the same truth status as any valid theory in the natural sciences. If this demonstration can be carried out at all convincingly, then one will have reason to believe that by making some conceptual substitutions, it is possible to preserve the generality and richness of Luhmann's theory while freeing it from the paradoxical and hermetic qualities from which it now suffers.

1. LUHMANN'S ADOPTION OF THE THEORY OF AUTOPOIETIC SYSTEMS

From the very beginning, Luhmann based his social theory on system theory since the latter gave him the level of abstraction that he needed to describe social phenomena without explicitly considering the role played by individuals. It was only in the early 1980s, however, that his theory took on what he considered to be a more or less finished form, and he published his central work, *Soziale Systeme* (1984). This was when Luhmann adopted a new version of system theory—the theory of autopoietic systems—whose principal originators were the Chilean neuroscientists Humberto Maturana and Francisco Varela. In contrast to the preceding system-theoretic paradigm, which first distinguishes a system from its environment and then proceeds to describe system processes by relating them to functions that the researcher attributes to them, the new theory radically dismisses all such talk on the grounds that the old theory employs an observer-relative viewpoint that need not at all correspond to the “phenomenology” of the system, taken as a unified entity “for itself.” Since what distinguishes a living system from a nonliving one—specifying the “essence” of the living was a prime concern of Maturana's—is that it

is able to produce itself by reproducing its elements while maintaining an organization of these elements that is characteristic of it, the way to obtain a "true" understanding of such a system is by focusing on this very process of self-production and self-organization (Maturana and Varela 1980, 82). (If an observer wants to study the system by ascribing functions to it, that is fine, but this kind of investigation can only be a complement to the stance that looks at the system in and for itself and cannot replace it.) Since what one notices from such a perspective about the elementary processes of living systems—whether they be the synthesis of organic molecules in a cell or the generation of impulses in a neuronal network—is that every elementary event and process are exquisitely attuned to the process of the system's self-production—its autopoiesis—taken as a whole, the concept of self-reference takes on great importance in the theory, even at the level of the elements of a system. Once all of this has been accepted, the only remaining task is to show how an autopoietic system, despite being "closed" in the manner just described, is still able to interact with its environment. The way this is done is by taking the position that while no events outside the system can "enter into" the system, they can "deform" its autopoiesis without disturbing its closure, and this deformation can in turn lead the system to change its behavior with respect to its environment. In analyzing such a process, it is important not to confuse an observer's description of an environmental event impinging on a system with the way that event is "processed" by the system itself. Thus, to note a famous experiment that was a major influence on Maturana, when a frog flicks its tongue at a passing fly, it does not perceive a fly at a given point in space and then respond by directing its tongue toward that point. Rather, there is a certain hard-wired link between retinal neurons and motor neurons that is activated by certain stimuli to the retina. When a fly happens to be nearby, the appropriate neurons fire, and that is all (Lettvin et al. 1959). Specifically, there is no representation of the space surrounding the frog as a spatiotemporal continuum populated by physical objects with various properties, which is the way a human observer experiences it.

It is easy to see how the theory of autopoietic systems precisely matched Luhmann's needs. Maturana's theory postulates a class of entities that could be instantiated at various levels—namely, the cellular, the cognitive, and (according to Maturana himself) the social, the defining characteristic of which is to produce themselves out of

their elements. The theory is self-contained, in the sense that it may make use of empirical knowledge provided by various sciences but does not need any theoretical constructs or abide by any requirements for explanation from those sciences to produce explanations that are satisfactory on its own terms. Thus, to provide a satisfactory theoretical treatment of a given class of systems, it is only necessary first to define what elements constitute a system from that class and second to show how the system is able to carry out its autopoiesis by producing its elements. Once that is done, one may proceed to elaborate descriptions of various specific traits and behaviors of these systems in terms of this phenomenological analysis of them, without needing to bother, for instance, about how the elements of these systems are produced from a commonsense or physical science point of view since these points of view are outside of the system's autopoiesis and hence irrelevant. To take the analysis of social phenomena abstracting from individuals to its logical end point, therefore, it is necessary only to describe the domain of these phenomena and define the constituent elements. Since this domain is evidently not the domain usually studied by the natural sciences, that of physical entities in space-time, that will obviously require some extension of Maturana and Varela's theory.

Luhmann had already made the first step some time before adopting Maturana's theory in his 1971 work, with the introduction of his concept of meaning (*Sinn*). The concept is derived phenomenologically but without reference to a specific system type as the representation by a system of aspects of the current state of its environment that are of interest to it, together with a simultaneous reference to other possible states that are not currently instantiated. As it happens, two types of systems operate over the medium of meaning: psychic systems (Luhmann's term for what philosophers and others ordinarily call minds) and social systems. Since "meaning is nothing but a way to experience and to handle enforced selectivity," it is according to Luhmann an anthropomorphic error to see any intrinsic connection between meaning and minds or brains since there is no reason to think that social systems are any less complicated than psychic systems (Luhmann 1990b, 82; see also Luhmann 1995, 97-99; 1984, 141-43). The second step was to posit that while psychic systems produce themselves by producing thoughts, social systems do so by producing communications; both thoughts and communications have meaning in exactly the same way. When one takes this theoretical

step, one sees that an autonomous domain of the social does indeed open up before one, with human actors being situated, as Luhmann stresses, in the environment of social systems instead of composing them, as one has tended to suppose until now. Since the production of a communication cannot be reduced to the activity of a single psychic system or to a simple aggregation of the activities of several ones, it is wrong to attribute the communication to human actors, as one does in the case of action: a communication must be both sent and received, and the determining factors of what is communicated are largely contingencies of the immediate situation, such as communications that have previously been made, which are the result of the ongoing process of communication as it develops over time rather than of the specific traits of individual psychic systems (Luhmann 1995, 139-45; 1984, 193-201). Thus, while social systems certainly need psychic systems as a "substrate" to function, it is nevertheless true that since the medium in which they operate—meaning—is as much the product of social systems as it is of psychic systems, it is no more improper to speak of communications without regard to the lower-level processes that "enable" them than it is to speak, as philosophers commonly do, of mental events or processes without regard to the underlying neural events and processes. (Luhmann is in fact critical of philosophers for privileging the self-reference of psychic systems over other kinds of self-reference; see Luhmann 1995, 99-102; 1984, 143-47.) Furthermore, with the theory of autopoietic systems, one can now hope to account for the restless, creative nature of social systems without needing to consider the role played by individuals at all. Since social systems are autopoietic systems, they must by definition keep on producing their elements, which are communications. If a social system, whether it be an organization or a whole society, were to stop producing communications, it would simply cease to exist—and we know that this does not usually happen.

I am not able to give even a short account in this article of the many results that Luhmann has been able to achieve with this theory, which, as I have argued in the introduction, are largely attributable to Luhmann taking the idea of social autonomy as far as it will go—something that also accounts for the strangeness with which the ideas we have just presented usually strike a reader until she has immersed herself in Luhmann's writings for some time. Instead, I shall proceed to consider what can be seen as fundamental flaws in the theory deriving from the theory of autopoietic systems. The best way to do this is first by means of a direct critique of the latter theory itself.

2. THE THEORY OF AUTOPOIETIC SYSTEMS

Maturana and Varela (1980) claimed to make a contribution not only to general system theory but also to biology, cognitive science, and epistemology and indeed to unify those fields. However, the only field in which their theory has entered into the mainstream discussion is cognitive science. Here they provide a useful critique of the until recently dominant symbol-processing paradigm.⁴ It is not hard to see why their theory has not received significant attention in the other two fields. Philosophers since Berkeley and Kant have explored the idea that there is no ready-made, observer-independent world out there identical to the one we experience; in contemporary philosophy, that point has been argued for once more by philosophers such as Hilary Putnam and Nelson Goodman. Since philosophers have been able to make the same antirealist, constructivist points that Maturana and Varela make without needing to make a strong ontological commitment to a concept such as autopoiesis, it is not surprising that they have not paid much attention to that theory. Why the theory of autopoiesis has not entered mainstream biology shows more clearly why the theory is problematic.

As was noted, a main purpose of the theory of autopoietic systems was to provide a concept that allows one to clearly see the difference between living and nonliving systems; in addition, Maturana and Varela (1980) claim that the theory allows them to explain life. In so doing, they somewhat impertinently dismiss the commonly accepted conception of what distinguishes living from nonliving systems—the possession by the former of a genetic program that allows cells to conduct in a controlled manner sequences of operations that have evolved through the process of natural selection (Mayr 1982, 55-56; Morin 1981). According to the authors, there is no special significance as far as a fundamental understanding of life is concerned about the fact that a cell's genes possess in a highly stable form instructions for the assembly of the cell's proteins: indeed, it is highly misleading to speak of instructions since instructions presuppose a code, which is an observer-dependent notion. What makes a cell living is the circular organization of all of the chemical reactions that occur in it, and there is nothing special as far as the cell's self-production is concerned about the reactions involved in gene transcription and protein synthesis as opposed to others involving metabolism, maintenance of the cell membrane, and so on.

A detailed criticism of Maturana and Varela's (1980) biological theory is not possible here, but one is probably not required. They claim to "explain" life by means of the concept of autopoiesis, but what they provide is not what is normally thought of as an explanation but a "derivation" of the "phenomenology" of the cell—such as it maintaining a boundary to its environment, preserving a certain organizational identity, and reproducing—from the "phenomenology" of autopoiesis:

It is our assumption that there is an organization that is common to all living systems, whichever the nature of their components. Since our object is this organization, not the particular ways in which it is realized, we shall not make distinctions between classes or types of living systems. . . .

We are emphasizing that a living system is defined by its organization and, hence, that it can be explained as any organization is explained, that is, in terms of relations, not of component properties. (Maturana and Varela 1980, 76)

What the authors really provide, however, is what is normally only considered as a first step in the understanding of a given set of phenomena: a description of them.⁵ The way biologists explain how the cell is able to produce itself is by postulating that its genes specify instructions for doing so and by elucidating the mechanisms that the cell possesses, allowing it to carry out the "instructions" in the genes. Indeed, it is hard to see how a cell would be able to exist without dying, much less "maintain its identity," if it did not maintain in a fairly stable form a description of how to do so (Eigen and Schuster 1979).⁶

Maturana and Varela's (1980) rejection of the genetic explanation seems to be based on two errors. First, they make a circular argument by rejecting the characterization of life in terms of teleonomy (directed but not teleological behavior guided by a program) on the grounds that by using concepts such as the genetic code, teleonomy uses observer-dependent descriptions, while a living system must be described in terms of its own internal organization (Maturana and Varela 1980, 85-86). The argument is circular because the reason they give for understanding life in terms of its internal organization—its autopoiesis—is that so far, a sufficiently unified conceptualization of life had not been found (the conceptualization in terms of natural selection, replication of DNA sequences, and teleonomy seem unified to many). The second error is the common mistake made when

discussing biological problems of confusing ultimate and proximate causation and a general disregard for evolutionary thinking. The authors argue that because the cell does not really decode the genetic information in its DNA but merely carries on chemical reactions that make up its circular organization (proximate causation), the genetic code is an observer-dependent entity and hence irrelevant to the fundamental principles of life (Maturana and Varela 1980, 90-93). But the reason the cell has DNA is that through the process of natural selection, DNA came to prevail in the earth's biosphere because it provides a very efficient mechanism for replicating life (ultimate causation) and in this role presumably is central to an understanding of life!⁷

What we have considered so far indicates merely that the theory of autopoietic systems has no explanatory content, providing simply a description of certain kinds of systems. This description itself does not have a great deal of content since aside from making some epistemological points, it merely elaborates the assertion that "systems produce themselves" to "systems produce themselves by producing their elements," without saying anything about how they might maintain structures or implement mechanisms. However, it also turns out that the theory is quite simply false, at least insofar as living systems are concerned. That this is so can be easily seen by considering the example of viruses (which curiously are nowhere discussed in the autopoiesis literature to my knowledge, neither by the theory's originators nor by commentators).⁸ Central tenets of Maturana and Varela (1980) are that living systems such as cells are autonomous in that they do not pick up ready-made information from their environment but that their internal processes are merely "perturbed" by external events, and that it is wrong to think of a cell's DNA as playing some central or controlling role since the cell's autopoiesis must be understood as a whole in which all the reactions that occur exist in a delicate mutual balance. The order that exists in the cell is attributable not to the genetic machinery acting as a "controller" of the rest of the cell but to the mutual, reciprocal adaptation of the circular reactions occurring in the cell. In such a world, there is obviously no room for viruses. For what viruses do is very effectively take over the cell's mechanisms of protein synthesis, substituting their own genetic instructions for the cell's. The cell's gene transcription machinery is not only able to understand the information in the viral DNA—and the cell thus takes up without any modification information from the outside and lets it enter into its own internal operation, something fundamentally at odds with the theory—but the cell is able to merrily

go on synthesizing new viruses while carrying on operations that normally are part of its autopoiesis, such as using energy from its stored reserves and maintaining its membrane. Thus, despite being so radically modified, the cell's autopoiesis (if that is still the correct word) continues, and the cell dies not because some fine balance between its various reactions has been disturbed but because it has simply used up all its resources to produce virus particles or because it is so full of those particles that it bursts.

That a phenomenon as ubiquitous as the virus so clearly contradicts a fundamental assertion of the theory of autopoietic systems—that they are autonomous in the sense that they do not pick up and process “verbatim” information they encounter in their environment—leads one to suspect that other criteria than simply explanatory power lie behind the authors' enthusiasm for the concept of autopoiesis. And indeed, one does find liberal-humanistic and ecological values being voiced both by the authors and their commentators, with warnings being given against overvaluation of the general or the species at the cost of the individual, using the theory of autopoiesis to “ground” them (Maturana and Varela 1987, 244-50). One may thus speculate that one reason that led the authors to leave out a fundamental aspect of life—its program-based nature—was their inclination to absolutize the concept of autonomy because of their ethical beliefs.⁹

Luhmann took Maturana and Varela's vision of how a cell works as his prototype for how to conceptualize social systems. In the same way that molecules produce other molecules in a circular process, communications produce communications. The ability to abstract from the individual that this provides allows him to make descriptions of modern society that are compelling to a degree matched by few if any other theories. And yet one has doubts. It may make at least as much sense to say that communications made by a group of individuals interacting are produced by the group itself, taken as an emergent entity, as it does to say that they are produced by the individuals themselves, but does the same hold for meaning itself? Also, as Schimank (1985) has argued, it is doubtful whether the theory can explain societal differentiation (a primary concern of Luhmann's social theory, as opposed to his theory of social systems) or whether it can explain social change in general, for that matter (Schmid 1987). Yes, society often changes gradually, so that it is hard to see any particular individuals as producing the changes intentionally, but might not individuals sometimes have an effect? And if so, should not a theory with universal intent be able to deal with that? Might there not be a

component missing at the fundamental level of description from Luhmann's theory—a component that not merely declares that systems produce themselves but actually explains how social autopoiesis takes place—that isolates mechanisms analogous to the mechanisms of gene transcription and protein synthesis of the cell? Rather than trying to answer these questions directly at this point, let us first sketch out a view of scientific method that can lead to the development of such a foundational theoretical component.

3. SYSTEM THEORY AND EMPIRICAL SCIENCE

Luhmann's project is, most fundamentally, to limn the social (Luhmann 1982, ix). In undertaking such a task, he departs from a positivist view of how science works—by patiently accumulating knowledge through empirical investigation as opposed to actively constructing a theoretical framework that can tie all this knowledge together. Instead, he adopts the view often voiced by natural scientists that obtaining the right concepts is necessary before significant progress can be made, following the stipulation of Talcott Parsons that choosing the right “primary abstractions” is of fundamental importance (Ackerman and Parsons 1966, 24-25). His project is also guided by two other views of how scientific research should be carried out. One is that one should aim for general theories (Luhmann 1995, xlvii; 1984, 9). The other is his often-voiced observation that science tends to look for successively smaller “fundamental entities” (Luhmann 1990a, 329). Accordingly, the way he has carried out his project is by starting off from the most “general” theory possible, system theory, and then “respecifying” this theory to conform to the social domain as defined by what its fundamental constituent entities are—namely, communications.

I agree with Luhmann on the overarching importance of conceptual work but believe that he has misconstrued the way in which science achieves generality and overestimated the general applicability of the heuristic to look for ever more elementary entities. While it is indeed true that generality of theories is desirable in science and that the way to achieve this is often through abstraction, one can distinguish two different ways of achieving generality. System theory takes one way, while the individual empirical sciences—and science as a whole—take the other. System theory departs from a very abstract characterization of its object domain—complex-unified entities

consisting of simpler parts—and asks what of a general nature can be said about such entities without paying attention to the specific qualities of these unities and parts but only to the relations between them. Empirical science, on the other hand, does pay attention to specific qualities of the entities with which it deals, and the way it does so is by looking at different kinds of entities separately. Thus, physicists study physical systems while biologists study biological ones. Despite this compartmentalization of the sciences, science ultimately does achieve an all-encompassing unity by making connections between the various disciplines: biology links up with chemistry, chemistry with physics, and so on, but without everything being “reduced” to physics since “higher-level” disciplines can point out regularities that are not apparent at and cannot even be described on the physical level (Oppenheim and Putnam 1958). It is not too hard to determine the “separation of labor” between the empirical sciences and more abstract disciplines such as system theory. Only the former can provide valid and complete scientific explanations. This is because science ideally aims to extend explanations as far as possible down the links of a chain of causes, producing a given event or phenomenon (Railton 1981). If one goes far enough down such a chain, one will have to deal with the specific qualities of the entities involved, rather than the relations between entities with which system theory deals. In addition, the empirical sciences can import any insights or discoveries from system theory into themselves, so it cannot be the case that there are phenomena that only system theory can explain. One thus sees that the role of system theory is rather like that of mathematics: by working in a purely conjectural abstract realm, it is left free to explore conceptual models without concern for their immediate applicability and may thus come across ideas that would not otherwise have been found that may be of explanatory value in the empirical sciences.

The role of system theory is hence to look for analogies across disciplinary boundaries in case such analogies lead to models that can be of use in particular empirical sciences. Accordingly, it makes no more sense to say, as Luhmann (1995, 12; 1984, 30) does, that “there are systems” without specifying what kind of systems—chemical, biological, or whatever—than it does to say that “there are Euclidean planes”: both concepts are abstractions with no empirical referent. Failure to understand this point can lead to the construction of a harmful ontology and to what one might call a “metaphysical” mode of thinking. Now, there is nothing wrong with constructing

ontologies. As we know, for example, from Quine (1969), science makes ontological decisions all the time when it tells us, for instance, that water exists. The way it comes to this conclusion, however, is by considering a multitude of empirical information in relation to a network of theory that is able to account for that information. To say that water exists is on one level merely shorthand for a whole range of empirical data, and once one says it, to make the "ontological jump" and take the statement at face value is merely to incorporate it into the commonsense point of view that there really is something out there. For the aforementioned reason that system theory, because of its abstractness, does not make well-defined links with empirical data, one is not entitled to make the same ontological decision with respect to "systems in general." The unfortunate consequence of supposing that one can is to start thinking that by remaining within system theory, one can really explain anything. This is what Maturana and Varela do. Unfortunately, this is also what Luhmann ends up doing: even though he "respecifies" system theory to deal with social systems, he does not do so in a way that enables him to deal with concrete social systems but remains immersed in the ontological/explanatory structure of the theory of autopoietic systems. Thus, in order for the theory of social systems to be an adequate scientific theory (and that means an empirical and explanatory theory), it must be able not only to describe the social domain by saying that it consists of communications but also to explain (or at least point to an explanation) how communications come about. All that it is able to do, however, is to refer to the definition of autopoietic systems, which is that they produce themselves by producing their elements. Thus, communications are produced because it is in the "nature" of social systems to produce them. As we have seen, the theory of autopoietic systems is not able to explain how biological cells produce their elements, and there is no reason to think that it would be able to do so in the case of social systems. It is hard to see how one would explain the production of communications, other than by considering the brain and/or mental processes of individual actors.¹⁰

The view of empirical science I have just sketched leads me to propose an approach to carrying out Luhmann's project alternative to Luhmann's own. Instead of assuming at the outset of one's process of theory construction both that the right theoretical framework (autopoietic systems theory) and the right determination of the "essence" of the social have been selected, in such a way that one is precluded from incorporating into one's framework the large portion of

potentially useful theories that are not compatible with these selections, proceed as follows.¹¹ Start from the body, taken as a whole, of scientific theory that does not deal with the social and then see what additional theoretical categories and explanatory strategies one must add to it if one is to adequately explain the social.¹² Thus, since it is commonly accepted that the higher one goes up the hierarchy of "levels of emergence" from the physical to the biological to the social, the less reliable one's knowledge becomes, one may take as given biology and especially evolutionary biology (but not, of course, on a naively reductionist understanding), take with a grain of salt theory from cognitive science—but be ready to incorporate portions of it if they appear to account in an efficient way for wide ranges of social phenomena—and only then see what else one needs if one is to be able to account adequately for social phenomena. And in taking the last step, as we noted at the outset, let us take Luhmann's theory as our starting point and try to change it as little as possible. This means, among other things, that we follow Luhmann in adopting the social system as a fundamental category of social theory. But we do so not by supposing that "there exist systems" that can be adequately understood by means of the self-contained theory of autopoietic systems but by being willing to exploit the analogies that exist between organized collections of individuals and other kinds of systems, such as cells.

It can be seen that this way of going about, what Parsons (1997) called "building social systems theory," has certain correspondences with Luhmann's way of thinking about it. Luhmann often remarks that in doing social theory, one should take the normal as improbable, for instance, when asking how social order is possible (Luhmann 1981, 195-285). This can be taken as a distancing strategy, a way of getting one to stop taking the social for granted and to look at it from the outside. Our program of seeing what one needs to add to the natural sciences to deal with social phenomena, while trying to keep the third-person view of the natural sciences, serves the same purpose. Also, we have already noted that Luhmann remarks that he follows the practice of the natural sciences of seeking out ever-smaller constituent elements. We take that practice to be merely a consequence of the basic aim of science to aim for unification (Friedman 1981; Kitcher 1981). The further one can extend explanations, the more unified science becomes. Therefore, if one can explain the behavior of some particles by doing so in terms of the smaller particles constituting them, one should do so. Looking at it thus in terms of the goal of explanatory unification, as opposed to drawing general conclusions from what

that leads to in practice in certain cases, leads one, however, to a different evaluation of the role of "elementary entity" played by communications in Luhmann's theory. Communications do indeed appear to be elementary constituents of social systems (whether they are the only ones is another matter), but this does not mean that one can stop the analysis there: the goal of explanatory unification still impels one to ask how they come about, and if to answer this one has to go down to the level of individual actors, one is forced to do so, if not to stay there forever, then at least to show how the connection can be made.

4. ACTOR THEORY

In the same way that biological processes are able to occur because of the chemical properties of the molecules that make up organisms, social processes are enabled by the properties of human beings. Therefore, it would seem that for a full and deep understanding of social phenomena, consideration of the characteristics of human beings is unavoidable. From a purely natural science point of view, what the properties of human beings are that allow them to engage in complex behaviors is rather clear: it is the possession of a highly complex nervous system in which all but one ten-thousandth of the neurons are devoted not to registering environmental stimuli or producing motor responses, but rather to detecting patterns of correlations between these stimuli and responses and the outcomes of the latter and making use of these patterns to produce flexible and successful behavior (Maturana and Varela 1987, 159). One can describe this nervous system completely in terms of the objective, third-person language of physical science. Now, what is interesting insofar as the cognitive and social sciences are concerned is that human beings produce patterns of behavior that cannot be captured in this third-person language. For instance, if one observes people going into a bookstore, one sees those people who leave taking rectangular objects from the store engage in a certain kind of behavior before they do so: some give slips of paper to someone standing across a counter, others hand her a plastic card and push some buttons, and still others sign a piece of paper. What is interesting about this is that there is nothing common to these three types of behavior that can be described in physical terms. Rather, to see what the three have in common, it is necessary to switch to a different, intentional level of analysis and to say that they

are all different ways of what one calls making a purchase. To understand what the latter means, one needs to have at one's disposal concepts such as the beliefs and desires a person has. As many philosophers have shown, working with such concepts brings one into a completely different world of enquiry than that of the natural sciences since a given statement about a person's beliefs or desires may be definitely true or false, although there is in principle no way of objectively determining if either is the case: one has no choice but to interpret the person's actions, communicative and otherwise, with the goal of determining the truth value of the statement (Taylor 1985; Searle 1992; Dennett 1987).

Except to someone with an extreme behaviorist orientation, the fact that one can observe fairly stable patterns of intentional behavior leads one to conclude that when studying human behavior, it is legitimate and indeed unavoidable to use a level of analysis additional to the one that deals with (objective) physical phenomena: the semantic level that comprises people's (subjective) beliefs and desires.¹³ In mapping out the basic "architecture" of our theoretical framework, therefore, we posit such a level, which is equivalent to Luhmann's category of meaning. However, unlike Luhmann, we see no reason why the acceptance of one level must mean the rejection of another. This is because while we agree with him that theory should strive for generality, we take the implication of this differently than he does since, as noted, we take as our starting point the body of natural science as opposed to a closed, self-contained theory. Therefore, to us generality means not only the ability to describe all phenomena within the language of one's theory but also the ability to incorporate possibly valid explanations, wherever they may come from. It may be that, despite the intentional nature of human behavior, certain patterns of behavior are best explained at the physical level. (This is most likely in cases where natural selection would have, in behavioral domains having a high influence on reproductive success, "hard-wired" a predisposition to particular kinds of behavior [Symons 1987].) Furthermore, if one wants to give a complete explanation of any given behavior, even one stated in intentional terms, it is ultimately necessary to go down to the physical, neural level since it is the latter that gives rise to intentionality. Accordingly, in addition to the semantic, we also posit a second, physical level of analysis.¹⁴

The question now arises whether we should leave it at these two levels. I believe that we should not and that an additional set of regularities should be taken into account before one proceeds with

actually constructing social theory. If one considers the whole range of human behavior, one finds some regularities that are clearly not the consequence of biological processes but also are hard to put into the framework of intentionality, which involves people's usually conscious beliefs and desires and also individual volition. The preeminent example of this is language. Clearly, we have little choice about the properties of the language we use, taking it essentially as "external nature," and the way we come to acquire a language (as children anyway) also is not conscious or volitional. These facts alone make it unsuitable for placement at the intentional level. But it also has a more "formal" property that makes it unsuitable for that. As opposed to "semantic objects" such as meanings or novels, language has a syntactic nature that makes it amenable to a relatively non-open-ended description by means of a relatively small number of rules. Thus, the way a language "enters into us" is different from the way, say, a novel does: while each of us reads and remembers a novel through the lens of our particular personality and experiences, one suspects that a language, as a grammar and a set of dictionary definitions, acts in each person from the same language community in essentially the same way—as an equivalent habitual conformance to the same set of rules.¹⁵ One can find other patterns of behavior that are analogous to language: gestures such as handshakes that have a received meaning, expressions used as greetings or farewells, and simple rules of conduct such as that one does not take something from stores without paying for it. Something characteristic of all the examples but the last is the ability of these patterns of behavior to change in a gradual way analogous to biological evolution, as the consequence of numerous individual human actions of varying degrees of volition. The simple, easily decomposable nature of these behaviors seems to be the reason for this: a pattern of behavior can change by one component of its "program" being substituted by another from somewhere else, in the way that genes are recombined upon the sexual reproduction of an organism, or the spellings of words change (Dawkins 1976, chap. 11).

This quality of rules, that they appear to have an existence apart from the intentions of the actors who follow them and to be capable of evolution on their own in a mechanical manner apart from their interpretation by actors—analogously to genes—suggests that rules have what we may call a syntactic aspect apart from their semantic aspect that makes it appropriate to accord to them their own level of analysis in our framework.¹⁶ This is not to say that rules are followed blindly by actors and never interpreted by the latter. What it does mean,

however, is that rules can be and often are followed without reflection, either out of habit—simply because doing so has worked in the past—or out of simple time pressure. In such cases, it is as reasonable to attribute the actions that are entailed by rules as much or even more to the rules themselves as to the actor following them, and this is a second reason to locate rules outside of the semantic (intentional) domain, into what we are calling the syntactic level. Yet a third reason to accord rules an autonomous ontological status with respect to actors and intentionality, and probably the most important, is the following. As has been argued by Pettit (1993) and Haugeland (1998), among others, rules underlie human rationality and hence intentionality itself. Unless I am able to take certain rules, for the moment anyway, as given—such as the rule that “‘pencil’ is used to refer to pencils”—I will be able to get neither the processes of reasoning nor of communication off the ground. It thus appears that underlying our intentionality, and thus making semantics possible, is a constantly evolving set of rules, the vast majority of which at any given time we follow mechanically and without reflection. It is worth noting that many and probably most of these rules are shared by the members of a community. Such rules that are followed by more than one person—whether it be by the members of a society, an organization, a family, or a “subculture”—we may call cultural rules.¹⁷ To say that people can “share” rules is not to say that one can actually find in each person’s brain the same sentence-like structure. It is merely an efficient way of describing a regularity that does not fit easily into either of the two levels we have mentioned and one that we believe can be theoretically productive.¹⁸ Thus, in addition to the physical and semantic levels, we postulate a middle syntactic one.¹⁹ The combined description of human beings at these three levels I shall call actor theory (Viskovatoff 1998).

5. A REFORMULATION OF THE CONCEPT OF SOCIAL SYSTEM

Before proceeding any further, it will be useful to recall one of the basic problems Luhmann was trying to solve and the means he chose for solving it. This was how to conceptualize social phenomena as in some sense autonomous from individual actors—and thus how to describe these phenomena as an emergent entity occurring at a “higher level” than that of individual minds and hence not requiring

a direct reference to the latter in these descriptions. The way he did so was by adopting the theory of autopoietic systems to make an analogy between individual minds (psychic systems) and social systems and to argue that in the same way that minds are "constituted" by thoughts, social systems are constituted by communications. To make the autonomy of social systems from psychic systems complete, Luhmann adopted the unusual position that meaning, the "medium" of both thoughts and communications, is in no way more intrinsic to minds than it is to social systems by developing a phenomenological definition of meaning.

Now, if one looks more closely at Luhmann's account of social systems, one finds that they do not in fact consist solely of communications. They also have a structural component in the form of expectation structures that, unlike communications, subsist through time.²⁰ A possible reason why the concept of expectations, despite "its central theoretical position" (Luhmann 1995, 292; 1984, 397), is not mentioned in most cursory descriptions of social systems by Luhmann and others is that the systems described by the theory of autopoietic systems have no structures: there are only the systems themselves, their elements, and the circular organization by means of which the systems produce themselves by producing their elements (which is a major flaw in Maturana and Varela's theory, as discussed in section 2). In any case, since communications (like thoughts) are "temporal" elements of fleeting duration, by introducing the concept of expectations, which refer to such temporal elements but by their very nature must themselves subsist through time, Luhmann is able to give his systems "enduring" structures despite his initial characterization of social systems as being systems that consist of elements that are communications precluding this.²¹ In what follows, the reader must hence bear in mind that social systems consist not merely of communications but also of expectation structures, even though that is not how Luhmann's theory is usually presented.

It is interesting to ask just what kinds of entities these expectation structures are. Following the previous section, it is natural to consider them to be collections of rules. A couple of examples will help to motivate this. According to Luhmann's social theory, modern societies are differentiated into functional subsystems, each of which has its own specialized "communications medium" that determines the way it interacts with its environment. Thus, the legal system is specialized for processing information in terms of the distinction *legal/illegal*, and the economy is specialized for doing so in terms of the distinction

profitable/unprofitable. It is easy to see that both types of activity are “programmed” by being formalized in a highly detailed manner: the function of judges is to make legal decisions on the basis of statutes and precedents as laid out in legal texts and not on the basis of what they personally find to accord with “common sense.” A large proportion of what is taught in business schools is how to make investment decisions according to formalized accounting criteria. Similarly, a defining characteristic of modern organizations is that organization members make decisions not on the basis of their own whims but according to formal guidelines set forth and disseminated within the organization.

It is hence reasonable to think of the expectation structures that, together with communications, make up social systems such as functional subsystems or organizations as being collections of cultural rules and to conclude that, in terms of the typology introduced in the preceding section, expectation structures fall under the category of syntax (except for when they are interpreted by actors, as will become clearer below). What of communications themselves: are they syntactic or semantic? Here the situation is more complicated, and it will be necessary to go into Luhmann’s account of communication in some detail. According to Luhmann, communication is a synthesis of three selections: information, utterance (*Mitteilung*), and understanding (*Verstehen*):

According to today’s standard interpretation, information is a selection from a (known or unknown) repertoire of possibilities. Without this selectivity of information, no communication process could emerge. . . . Furthermore, someone must choose a behavior that expresses [*mitteilt*] this information. That can occur intentionally or unintentionally. What is decisive is the fact that the third selection can base itself on a distinction, namely, the distinction between information and its utterance. (Luhmann 1995, 140; 1984, 195)

The three-part nature of a communication is critical for Luhmann since it is this that gives communication, and hence social systems, their irreducibly social nature. A communication cannot occur (successfully) unless the “receiver” of an utterance sent by a sender accepts it, but for it to be successful, it is not necessary that receiver and sender have the same understanding of the utterance’s meaning. Since the meaning of the communication is hence contained neither in the mind of the sender nor of the receiver (as Luhmann puts it,

communication does not involve a “transfer” [*Übertragung*] of information from one to the other), communication is irreducibly social.

As we have noted, Luhmann wants to see meaning as being “operated on” by social systems as they produce communications just as directly as it is by psychic systems as they think:

[Psychic and social systems] emerge by the path of co-evolution. One is impossible without the other, and vice versa. They must, so to speak, differentiate themselves in respect to meaning. Meaning is the true “substance” of this emergent evolutionary level. It is therefore false (or, more gently, it is a falsely chosen anthropocentrism) to assign the psychic, that is, the conscious anchorage, a sort of ontological priority over the social. It is utterly wrong to seek a “carrier” [*Träger*] for meaning. Meaning supports itself, in that it enables its own self-referential reproduction. (Luhmann 1995, 97-8; 1984, 141; translation modified slightly)

But it is possible to take the position that meaning does indeed have a particular kind of carrier—human minds—without thereby being forced to deny the irreducibility of the social. Indeed, there is nothing in Luhmann’s account of communication that suggests that one should do anything else. According to that account, there are three ways in which information is represented: in the mind of the sender, in the mind of the receiver, and as an “utterance” in some kind of symbolic form so that a physical token is produced that allows the corresponding meaning to be conveyed from the sender to the receiver.²² But it is only in the third aspect that a communication has an embodiment independent of a particular mind and hence can serve as the basis for an autonomous social domain. (Compare the case of cultural rules: cultural rules “reside in minds” but, by definition, in the minds of more than one individual. So cultural rules also do not “depend” on any particular mind, even though there are not usually physical tokens that correspond to them—as is the case with communications—although there certainly can be, as when rules of conduct are formalized in a body of law, for example.) To be sure, in this third aspect, as an utterance, the communication is meaningful in the same way that a stop sign, for example, is meaningful. But this meaning takes the form of what John Haugeland (1998, 163) has called derived intentionality: the utterance, like the stop sign, has meaning only because human actors read a meaning into it, by interpreting it. Thus, since it is only in the first two aspects that a synthetic representation of the world is created through the interpretive activity of actors, so that semantics is present, we are led to the conclusion

that in social systems, whatever semantic processing of meaning occurs occurs in individual minds. Communications, as utterances, exist outside of minds but having, as symbols, only "congealed meanings," they have only syntax, not (underived) semantics.

Hence, Luhmann's account of communication does not lead to the result that social systems have semantics in a way that does not depend on individual minds: the components of which they are composed—communications as well as rules—and hence they themselves only have syntax. Insofar as actors follow rules routinely and without reflection, one can view the process of communication as occurring purely at the syntactic level, with the intentionality of the actors playing no causal role in it (in the sense that had intentionality and not just mechanical rule following been present, things might have turned out differently). In such a case, rules have causal efficacy exactly in the same way as computer programs do, and the emergent order that we call social systems is built up and maintained through collections of rules being triggered in different actors, with the rules processing information and maintaining synchronization with each other through the exchange of utterances in the form of physical tokens.²³ Of course, the intentionality of actors can have some influence on how things play out, but this will be, as Luhmann puts it, purely as "noise": the "medium" in which the autopoiesis of the social system occurs is purely that of syntax.

But perhaps we do not need to look at communications to get the result that social systems have meaning just as "available" to them as it is to psychic systems. After all, it is plausible that much more complexity is contained in the routines making up an organization than in the communications occurring in it, and as Luhmann points out, the ability to process meaning requires a system to have a high degree of complexity. Now, according to Luhmann's theory, since Luhmann says social systems have their own "system reference" and process information at as "fundamental" a level as psychic systems do, without this processing being reducible to the activities of individual minds, social systems must be essentially computers or, rather, distributed information processing systems,²⁴ with human beings functioning as information processors sending, receiving, and manipulating the symbols of which communications are composed. Perhaps we were too quick to relegate the cultural rules constituting social systems to the realm of syntax, and these rules are capable of providing social systems with the ability to process meaning as directly as

people do: as a result of this very complexity perhaps, sets of rules are able to move from a syntactic to a semantic processing of meaning.

Unfortunately, this possibility is ruled out by a famous thought experiment of John Searle's (1980). The experiment is designed to refute the claim that a computer program could be written that would be capable of thought and goes as follows. Imagine that you are placed in a room with a window through which slips with Chinese characters are given to you. Although you do not understand Chinese at all, you follow instruction manuals in the room to manipulate the Chinese characters you are given to produce new strings of Chinese characters, which you then write on slips of paper that you hand out through the window. Suppose that the slips of paper you are being given have written on them questions in Chinese and that the slips you are handing back contain answers also written in Chinese. Suppose further that these answers are so sensible that any Chinese person, unless he knew how the answers were produced, would suppose that they were written by an ordinary Chinese speaker. Thus, the system made up of you and the instruction manuals is successfully simulating thought in the way that it has been the objective of artificial intelligence to simulate it. In following the instruction manuals to manipulate symbols, you have been like a computer executing the program. But the point of the thought experiment is that even though you successfully manipulated the symbols, you would have no understanding of what the Chinese sentences mean. Similarly, a computer following a program could never understand natural language: it has, as Searle puts it, syntax but not semantics. Thus, by analogy, even if we consider the cultural rules that, along with communications, make up social systems, social systems, to the degree that they make use only of their social resources—resources that cannot be reduced to individual psychic systems—also do not have semantics but only syntax.²⁵ But since from the way he describes meaning²⁶ it is clear that Luhmann intends it to comprise semantics, this means that Luhmann cannot be right when he says that meaning is in no way more intrinsic to minds than it is to social systems.

The reason Luhmann took the strong and extremely counterintuitive position that meaning is intrinsic to social systems in exactly the same way that it is to minds, rather than the weaker position that social systems are able to build up internal complexity in the form of rules (programs)—that social systems have semantics and not just syntax—seems to be twofold. First, Luhmann was working with the theory of autopoietic systems, and that theory, as we have seen, vastly

undervalues the program concept, even for system types for which it is essentially universally accepted by modern science. Second, he has tended until recently to believe that the importance of language for social processes tends to be highly overvalued (Luhmann 1971, 70-71; 1990b, 50-51), so it was natural for him to see little relevance of a linguistic distinction—that between syntax and semantics—for social theory. Since Luhmann's approach to bringing the meaning-concept into the theory of social systems does not appear to be workable, the reasonable course of action is to bring meaning into the theory in a more attenuated manner, one that recognizes that only human beings possess original intentionality (or, for that matter, what Searle calls "intrinsic intentionality") and thus attributes only syntax to social systems.

Precisely this was the purpose of the actor theory introduced in the previous section. Mainly by a consideration of the properties of language, that theory explicitly defined a "syntactic" level as a natural kind for the analysis of human beings. It thus fits in quite well with the theory of social systems, serving as a "foundation" on top of which the former can be built, replacing the theory of autopoietic systems and Luhmann's meaning-theory. Social systems do not consist of actors; nor do they consist of actions. They consist of communications and cultural rules (that they depend on the latter is obscured in Luhmann's presentation because he relies too much on Varela and Maturana's theory). Accordingly, as I have argued, social systems do not have semantics: they just have syntax. But that is still quite a lot. With syntax, they can achieve what Luhmann attributes to them, so that Luhmann's account of the social is not substantially altered. As in Luhmann's unmodified theory, individuals are in the environment of social systems. Furthermore, we are not compelled to go back to being what Luhmann calls *alteuropäisch* and viewing the subject as unified; certainly we can still agree with Luhmann that it is wrong to think of bodies of knowledge, such as science, as being "contained" in knowing subjects, as opposed to in society itself.²⁷ We also do not deny that social systems and not just individuals can act (or, more precisely, that actions can be and are in fact attributed to them) or that communications are produced by social systems recursively and self-referentially. Our move is very simple: we make one concession to the subject—that it is the carrier of meaning.²⁸ Luhmann thought that he needed to transfer the ability to process meaning to systems in general to make his theorizing go through. But that is only because he

underestimated the power of the rule concept and did not distinguish between syntax and semantics.

According to Luhmann, with the concept of interpenetration, which deals with how psychic and social systems depend on each other to produce themselves,

it is easier to understand why the concept of meaning must be employed on such a high theoretical level. Meaning enables the psychic and social system formations to interpenetrate, while protecting their autopoiesis; meaning simultaneously enables consciousness to understand itself and continue to affect itself in communication, and enables communication to be referred back to the consciousness of the participants. Therefore the concept of meaning supersedes the concept of the *animal sociale*. (Luhmann 1995, 219; 1984, 297)

But the same claim can be made for the theoretical framework presented here. This is because language has a double aspect—syntactic and semantic—and because the rule concept shows us how “action” is possible without thought. Individuals and social systems can interpenetrate each other because individuals can understand the meaning of the symbols they use, while social systems can respond to these symbols like machines by mechanically following rules. Instead of generalizing the field of application of the philosophy of the subject so that it applies to social systems as well (as Habermas 1985 has accused Luhmann of doing), a more productive strategy at this point is to develop the analogy between society and a machine.²⁹

6. BRIDGING INDIVIDUALISM AND COLLECTIVISM

A long-standing problem in social theory is the fragmentation of the field into two opposed theoretical tendencies, individualism and collectivism, or, in more sociological terms, between action theory and system theory. Individualists try to reduce the social to the actions and mental states of individuals, while collectivists argue that there is something irreducible about the social that cannot be expressed at the level of individuals. A commentator has recently observed that “it might be argued that Luhmann’s systems theory represents the most radical attempt yet seen to exclude the human actor from any account of structure and system” (Hamilton 1996, 169). Two authors who have attempted to overcome this opposition

or "dualism" are Pierre Bourdieu and Anthony Giddens. To consider just the latter, Giddens has written about his theory intended to do this, that

if interpretative sociologies are founded, as it were, upon an imperialism of the subject, functionalism and structuralism propose an empiricism of the social object. One of my principal ambitions in the formation of structuration theory is to put an end to each of these empire-building endeavours. The basic domain of study of the social sciences, according to the theory of structuration, is neither the experience of the individual actor, nor the existence of any form of societal totality, but social practices ordered across space and time. Human social activities, like some self-reproducing items in nature, are recursive. That is to say, they are not brought into being by social actors but continually recreated by them via the means whereby they express themselves as actors. In and through their activities agents reproduce the conditions that make these activities possible. (Giddens 1984, 2)

Elsewhere, he defines how the term *system* is used in his theory: a system is "the patterning of social relations across time-space, understood as reproduced practices" (Giddens 1984, 377). Several points are worth noting here. First, the way in which the reproduction of the social practices is described has a resemblance to autopoiesis as it is described in the system theory literature.³⁰ Second, since these practices are taken to be the "basic domain of study of the social sciences," and since social systems are considered to be no more than collections of such practices, Giddens has no real concept of a social system that does justice to the term. And third, as a consequence of the second point, Giddens is not really able to overcome the "dualism" between the individual and the social by introducing the concept of rules: instead (and the same can be said for Bourdieu), what he has done is isolate a third aspect of the social in addition to those emphasized by individualists and collectivists, respectively, that of rules or social practices (and hence merely started one more empire-building endeavor). To really overcome the dualism, the third must mediate between the first two in a way that preserves their importance; instead, in Giddens's work, they recede into the background. One can argue that by introducing the distinction between syntax and semantics into social theory, particularly into Luhmann's theory, one has for the first time the conceptual means by which to give an account of how it can be quite sensible to attribute action to social systems while

keeping a place for the actor in the story.³¹ The way to do so is to treat the concepts actor, system, and rule as all equally important and fundamental for social theory.

A commentator on Luhmann has observed that “retrospectively, Luhmann noticed that the creative power of paradoxes was one of the themes he neglected in *Soziale Systeme*” (Rossbach 1993, 114). So *Soziale Systeme* is incomplete in itself; Luhmann’s increasing preoccupation since that work was published with paradoxes, and their “creative power” has been his way of trying to bring into a world from which human actors have been removed the creative power that social systems lack.³² The proposal made here is an alternative: the concept of rule, seen by analogy with the computer program, gives social systems just the amount of “creativity” they actually possess, without committing a “leveling” of the intentionality of individuals and the “mechanical” nature of organizations and other social systems.

Luhmann was trying to do two things, among others: to find a theory that spans the social and defines it in a positive way and (derivative of the former) to find one that is self-reflexive. The way he chose to do so was by introducing a set of concepts that self-referentially support each other. But a result is that both realism and the individual are lost.³³ We can keep the two by doing things a bit differently. We keep most of the social theory but build in the reflexivity in a different way. Philosophy and social science have themselves lately been becoming reflexive, with the introduction of the notion of folk psychology: in a situation where cognition has been raised as a scientific problem, the self-understanding of cognitive systems themselves (including those of cognitive scientists) is introduced into theorizing as one theory among others (albeit one that may be heavily wanting in terms of explanatory power in certain respects). Instead of proceeding as Luhmann does—providing a definition of meaning in terms of his own theory—we can start off from the commonsense, folk-theoretic notion of meaning.³⁴ This can be taken as a primitive or as a problem for philosophy, cognitive science, or neuroscience. But we do not have to do everything all at once, as Luhmann in effect does in his theory architecture. We can compartmentalize theories for object domains more: this allows our theories to build up greater complexity than theories that attempt to span the whole of reality on their own terms alone.³⁵ Luhmann’s theory is not general in that it lacks the concepts to do justice to the subject’s own self-understanding, according

to which he or she is able to think, while an organization or a society is not. The way he handles this is by saying that the notion of the subject is obsolete. But on biological-evolutionary grounds, in addition to common sense, one can disagree.³⁶ By allowing a reentry of subjects' own self-understanding into social theorizing, our theoretical framework bridges common sense and social and natural science in a way that retains the unique insights into modern society that Luhmann's theory provides.

NOTES

1. But increasingly outside of Germany as well. For instance, the new *Blackwell Companion to Social Theory* states that "the rise and significance of Parsons's sociology have to be seen within [the] context of international conflict over the status of social theory. The collapse of Parsonianism left the systems theory of writers like Jürgen Habermas and Niklas Luhmann in a position of triumphant dominance. After Parsons, no American general system emerged to compete with Habermas's critical philosophy or Luhmann's systems analysis" (Turner 1996, 16). The *Companion* also observes that "Habermas is discussed at various points in the *Companion* but the scope and variety of Luhmann's sociology have yet to be fully analyzed and appreciated" (p. 109).

2. More precisely, Luhmann holds that the inability to resolve the controversy between realism and constructivism indicates that "society" should frame its "epistemological problem" (*Erkenntnisproblem*) differently, in terms of differences, such as the difference between reference and truth and that between self- and other reference. Then, "Considerations of reality shift from [*Der Realitätswert verlagert sich von*] reference to the difference that is actualized in all reference" (Luhmann 1990a, 706-7). See also note 33.

3. Luhmann himself has observed that linkability is important: "the classical logic . . . or the classical ontology have not considered that an observer, to be able to observe reality, must also observe himself. In this sense, I break with the old-European tradition. However, I do not agree with the call for the fragmentation of the interconnections, the horizons, the paradigms, and the instruments of investigation and description which has been raised in European modernity against the ideal of the unity of science, because then one utterly loses sight of the problem of interconnection and unity" (Luhmann 1987a, 164-65). To be sure, Luhmann has certainly made connections with disciplines such as law, pedagogy, history, and literary theory, which deal with roughly the same "level of emergence" as does sociology. The problem is that he has not been able to make clear connections with lower-level disciplines that could show how sociology can (noneliminatively) reduce to cognitive science and/or biology in the same way that biology reduces to chemistry.

4. As Varela points out, this approach tries to explain cognition in terms of computational processes manipulating symbols but without explaining how the cognitive system itself is able to make the discriminations necessary to decide whether a given symbol postulated by the cognitive scientist applies to a given set of inputs (Varela,

Thompson, and Rosch 1991, 134-40, 147-50; Thompson, Palacios, and Varela 1992). The same criticism has been made in other ways by others (e.g., Dreyfus [1972] 1992; Searle 1980; Edelman 1992, 211-52).

5. This description is admittedly a highly suggestive, intuitively satisfying one. Furthermore, one can concur with the authors that the importance of "breaking the genetic code" is often overvalued in comparison with the elucidation of the principles that allow the cell as a whole to operate in an orderly fashion. As Richard Lewontin (1992) has argued, even if one completely knew the DNA sequence of a cell's genes or indeed knew what function of protein synthesis or gene regulation each gene served, one would still be a long way from understanding how the cell actually works.

6. Luhmann, in fact, makes essentially the same point when he remarks that a system must construct a self-description (Luhmann 1995, 9; 1984, 25).

7. Dennett (1992) has made a similar criticism of the "target" article coauthored by Varela, Thompson, and Rosch (1991). The distinction between ultimate and proximate causation is due to Ernst Mayr.

8. That this is so is especially curious in view of the fact that viruses almost inevitably come up in any discussion of what makes a living system living since they represent a borderline case.

9. It thus turns out that the theory Luhmann uses as a basis for his own is "normatively burdened." This is ironic in view of Luhmann's criticism of, for example, Marxist theory as being flawed because it has normative motivations underlying it (Luhmann 1991).

10. In his last major work, Luhmann himself observes that "in light of a wide-ranging and quite critical discussion, one must mention above all the meager explanatory value of the concept of autopoiesis. It only requires that in all explanations, one must depart from those specific operations which reproduce the system—and indeed the system which is the explanans as well as the one which is the explanandum. However, it says nothing about which specific historical structures in such systems have developed on the grounds of the structural coupling between system and environment. It does not explain, therefore, the historical system-states from which the further autopoiesis proceeds" (Luhmann 1997, 66). Luhmann concludes from this, however, only that to explain societal differentiation, for example, the sociologist must provide a historical analysis that shows how society took on specific forms of differentiation over time. He does not conclude that because the concept of autopoiesis cannot explain how its own object domain—whether it be biological or social—is constituted (as opposed to how in certain concrete cases autopoiesis has led to certain particular structures), it must be abandoned in favor of a theory of greater explanatory power.

11. Luhmann himself says that the possibility of such incorporation is desirable (Luhmann 1986, 132-33).

12. Searle (1995) and Pettit (1993) follow this approach to theorizing about society. It is a strategy analogous to the one that Dennett (1987, 3-7) describes contemporary philosophy of mind as following: it adopts the third-person view of natural science and then sees what new constructs not employed by the latter one has to introduce to understand mental phenomena.

13. While beliefs and desires are subjective, one can argue with Searle (1992, 1995) that it is an objective fact that people do have beliefs and desires.

14. We set aside the complication that it can be argued that a kind of interpretation is involved in evolutionary thinking that is not present when one is working with physics, as is explored, for example, in the essays collected in Dupré (1987).

15. This is not to say that one cannot have a subjective attitude toward a language or employ it creatively in one's own specific style. The point is that even if one does, one still perceives the language as something objective and external to oneself, whether one employs it consciously or automatically, despite the fact that it is in a sense "inside" one.

16. The framework being outlined here thus makes room for the undirected evolution of social institutions "behind the backs" of the actors themselves, which is the (only) kind of social change that is dealt with in Luhmann's theory.

17. Following D'Andrade (1981), who introduced the term *cultural programs*.

18. As Kitcher (1982) notes, genes also are not well-defined entities, but that does not mean that they are not legitimate scientific concepts.

19. From a somewhat different perspective, Searle (1995) has also concluded that a method of explanation other than one involving causes or reasons is required for the explanation of social phenomena. See especially chap. 6.

20. "Structures of expectation are basically the condition of possibility for connective action and thus the condition of possibility for elements' self-reproduction through their own arrangement. . . . Action . . . seems to escape its momentary transitoriness, to go beyond itself. This is possible, however . . . by structures of expectation that are pre-given and constantly reactivated, reducing the uncertainties of the future (and along with them the temporal self-reference of the individual elements, i.e., actions) so that action can specify itself by selecting relations. . . . Thus the concept of structure complements the conceptualization of elements as events" (Luhmann 1995, 289; 1984, 392-93). As one can see from this passage, in Luhmann's theory architecture, expectation structures actually complement actions, not communications. Since the difference between communications and actions is related to systems' self-observation, a complex topic I am not able to discuss here, I will ignore this complication here. In any case, it does not affect my main argument since Luhmann elsewhere acknowledges that communication presupposes a "coding" (Luhmann 1995, 142; 1984, 197).

21. Luhmann does not appear to believe that by introducing the concept of (expectation) structures, he is in fact making a major revision of Maturana's theory, as the following observation suggests: "With the help of the thesis that social structures are nothing else but expectation structures, the theoretical gain [provided by the concept of expectations] can be combined with system theory" (Luhmann 1995, 292; 1984, 397; my translation).

22. Luhmann is quite clear that the utterance always takes on a symbolic form. "The utterance must duplicate the information, that is, on the one hand, leave it outside yet, on the other, use it for utterance and reformulate it appropriately: for example, by providing it with a linguistic (eventually an acoustic, written, etc.) form" (Luhmann 1995, 142; 1984, 197).

23. Here I must disagree with the otherwise masterful analysis of social autopoiesis of Martens (1991). Martens writes that "the processing of information is an achievement of psychic systems. Communications only process information, insofar as the operations of a psychic system participate" (p. 634). If one makes clear that social systems consist not only of communications but also of rules, then under conditions when rules are followed routinely, it is perfectly legitimate to abstract from individual actors and thus to say that communications are produced by the rules and hence by social systems themselves. Rules are certainly capable of processing information, if computer programs are.

24. This is quite a plausible conclusion, in view of Luhmann's characterization of meaning as "a processing according to differences" (Luhmann 1995, 66; 1984, 101). That phrase describes well what computers do.

25. Like utterances, rules are not without any intentionality—they are meaningful—so again the point is that social systems do not have semantics in the sense that they do not have original (as opposed to derived) intentionality. As they are followed by a social system, however, its rules come to have a more "imposing" intentionality than that of a stop sign since those rules, taken as a kind of system akin to a computer program, are capable of responding to their environment in various ways, while a stop sign just sits there. Haugeland (1998), discussing the intentionality of a robot, has described this more imposing intentionality as follows: "There is a clear (even if limited) sense in which the robot is actually making and using [its] representations as *representations*—that is, as aids to dealing vicariously with other things that are not themselves present. . . . On the other hand . . . all of the standards for what are treated as objects, adequate representations, goals, success, and so on, are tacitly presupposed and 'hard-wired' in [the robot's] design. The point is not that the standards are *given* to the robot; rather, the robot doesn't 'have' them at all—they remain entirely external to it. So, even though its actual intentionality is not merely delegated (like that of the words on a page), nevertheless the standards in virtue of which those states can be understood as intentional and normative are conferred from the outside. Hence, its states do not belong to it (as a subject) in the way that ours belong to us. That is why I want an intermediate classification between genuine and merely derived intentionality—namely, *ersatz* intentionality" (Haugeland 1998, 302-3).

26. If not from the way he defines it, as a "processing with an attention to differences." This failure to distinguish between the semantic and syntactic aspects of meaning is not the only instance where Luhmann fails to maintain clearly an important distinction in his treatment of meaning. For instance, he more than once conflates his concept of meaning, which involves the ability of an observer to make distinctions, with meaning as it is used in the phrase "the meaning of life" (Luhmann 1987).

27. But neither are we forced to proclaim the obsolescence of the concept of the unified subject: something Luhmann does in an attempt to make plausible his proposition that meaning is constituted as much by social systems as by individuals—indeed, we need to maintain this concept as a value (see note 31).

28. But we need not hold that the subject is autonomous of society. Pettit (1993, 95-98) has argued that for thought to be possible, a subject must be able to interact with other subjects: rules cannot be treated as norms unless they can be applied mistakenly, and to understand that a mistake has been made, one subject must be able to take distance from itself over time or, more commonly, two subjects must be able to negotiate what is the proper way to follow a rule.

29. Such a strategy would fit quite well with Luhmann's own descriptions of social processes. Max Miller (1994, 114) has observed that "it appears in Luhmann's writings as if social communication and collective processes of argumentation had been delegated to machines or robots." And, indeed, while Luhmann is capable of attributing a great deal of subtlety to individuals' reasoning in intimate relations, for example, his descriptions of social processes occurring at a more "macro" level do make them appear rather mechanical.

30. In fact, Giddens (1991, 204) has reported that he has been "influenced by theories of autopoiesis (i.e. of self-reproducing systems) in biology."

31. The next step in bringing philosophical rigor into social theorizing is to clarify how, while (following Wittgenstein) rules "underlie" human thought and while we take rules to be (along with communications) constitutive of social systems, human thoughts possess semantics, but social systems do not, in a more constructive way than simply by means of an application of a thought experiment, as was done here. One part of the story must surely be, as Pettit (1993) and Haugeland (1998) have argued, that human beings but not computers are thinking systems in the sense that they can strive to follow rules correctly—that there is, in following a rule correctly, something at stake for humans but not for machines.

32. As Wagner (1994, 1997) has noted, this preoccupation with paradox is related to Luhmann's belief that he is engaged in a postfoundationalist project since he departs in his theory from difference, not identity. As Wagner shows, in this Luhmann is mistaken since his primary difference—that between system and environment—is grounded in an identity, that of the world. But there are bad foundationalisms (ones that depart from metaphysical premises) and good ones (ones that depart from a commonsense physicalism). It is a testimony of the power of Luhmann's theoretical corpus that, as is argued in this article, its foundation can be shifted from a metaphysical to a physicalist foundationalism.

33. Unfortunately, I am not able to provide an account of Luhmann's antirealism here, much less offer a critique of it. It is intimately related to his formulation of system theory as dealing with systems that are self-referential and hence closed to direct contact with their environment and as proceeding by means of functional analysis, where instead of asking what are actual states of affairs, one looks for functional equivalents. Luhmann himself states that he accepts and merely generalizes Kant's notion of the thing-in-itself, so that no system, whether it be psychic or social, has contact with the environment "in itself" (Luhmann 1995, 101; 1984, 146). "Reality as such (that means without a relation to knowledge) is unknowable. Reality can only be, as it is—without distinctions and dark" (Luhmann 1990a, 698). Luhmann can thus be seen—ironically, in view of his dismissal of the "old-European" philosophy of the subject—as suffering from what John McDowell (1994) has called "some characteristic anxieties of modern philosophy" and his antirealism responded to accordingly.

34. Luhmann has cautioned, "Please try to avoid common sense!" (Sciulli 1994, 64). We can agree with him that for science to go beyond common sense is desirable. But to do that, it need not *deny* common sense: Luhmann tends to conflate the two moves.

35. Analogously, the main point of Luhmann's theory of modern society is that problems are better solved by the functional subsystems of society than by the society containing those subsystems.

36. As observed in note 31, a proper analysis of intentionality will show that intentionality in its full sense and hence meaning is only possible when actors are committed to following rules, something that is not possible if they do not see themselves as subjects. Furthermore, one can give arguments from evolutionary biology why it is adaptively advantageous for them to be so (Dunbar 1993).

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