

Autopoiesis and Autonomy in the Space of Meaning

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> Upshot • Social autopoiesis does not operate in physical space and cannot be understood by analyzing cause-effect relationships. Social systems are observing systems operating in the space of meaning. Therefore a validation procedure guided by the classic rules for determining autopoietic systems is misleading. However, the target article clarifies a point of great importance for sociological research: the difference between autopoiesis and autonomy (closure).

« 1 » Whether a social autopoiesis exists and how it might be conceptualized, modeled, and traced empirically is still an unresolved and controversial issue. The contribution of Hugo Urrestarazu raises crucial questions in this respect – for example, questions about system components, the domain specificity of autopoiesis, and the difference between autonomy and autopoiesis. Yet he neglects second-order cybernetics and sociology, which leads to conclusions that are biased and only partly tenable. This comment focuses on different aspects of this omission and discusses them in relation to some of Urrestarazu's assertions. It recalls particular ideas of operation, communication, production, and cybernetics so as to highlight some unique aspects of social self-reproduction in the space of meaning. I will conclude with a paragraph that emphasizes the difference between autopoiesis and closure (autonomy) as worked out by Urrestarazu with reference to Francisco Varela. Niklas Luhmann has underestimated this difference but its consequences are of great importance for any further development of sociological systems theory.

« 2 » One of the most nagging problems in applying the concept of autopoiesis to social systems revolves around the determination of *components* that realize social autopoiesis. In this respect, Urrestarazu's article provides striking evidence that an auto-

poiesis of social systems is empirically (and ethically) untenable if it is assumed that the components of such systems are physical agents, i.e., human beings. That is, by following Urrestarazu's argument, we are now in an even stronger position than before when it comes to dismissing any attempts that try to describe social autopoiesis in terms of (interaction between) human beings.

« 3 » If all conceptions of social autopoiesis that in some way or another consider living organisms (or parts of them) as components are ruled out (see especially §§74, 87, 93–95 and 102f) then currently only one option is left: Luhmann's theory of social systems. This seems to comply with Urrestarazu's assessment since he also comes back to Luhmann and discusses his approach as an alternative (§§107–111). Luhmann was well aware that the deployment of the autopoiesis concept in sociological research could not work with humans as components. His turn from action to *communication* as system component (Luhmann 1995b) has to be understood exactly in this context. But the theory of autopoiesis is not the primary reason for thinking of social systems and their components in this way. Sociological theory has never really considered the total complexity of human beings to be part of the social process. Though they take part and are part of the form of the social, they are not simply social parts in themselves. The social might consist of relations, actions, interchange, imitation, flows, interactions, roles and positions, or networks of expectations but it certainly does not consist of "people." Thus from a sociological point of view, human beings have never been a real option when deliberating about possible components of social autopoiesis.

« 4 » Defining social systems as composed of dynamic agents *and* communication events (as the form of interaction between the former) is not a pertinent resort either (§56). Social autopoiesis is realized by one – and only one – form of *operation*. Obviously, this deviates from the classic rules for determining autopoietic systems (§117; Varela, Maturana & Uribe 1974). This deviation is not simply a violation of these rules but rather a specification and development that prepared the ground for defining a social autopoiesis that goes beyond a simple analogy of biological and

social forms (which is misleading and gives rise to notions of autopoiesis with human components). It is an outcome of composing autopoietic theory with the calculus of indications (Spencer-Brown 1994; Varela 1979) and second order cybernetics – particularly the theory of recursive functions and the computational ontogenesis of eigenforms (Foerster 2003). To assume that autopoiesis is realized both by agents and events means to shift the problem of reproduction to the and-relation between human beings and communication. By allowing the above-mentioned developments to inform (or: re-form?) the theory of autopoiesis, the focus changes: now the autopoiesis refers exclusively to communication events and thus to the *reproduction* of such events in and out of a network of such events. This is highly compatible with sociological research on communication and interaction, which looks at how specific identities, actors, and persons are produced as (and in) structures of interaction and communication (Abbott 2001; Goffman 1967; White 1992; Luhmann 1995b). Dynamic, physical agents are certainly the main source of perturbation for social systems. But this is exactly why they have to dwell in the relevant environment of social systems.

« 5 » Ideas about Collective Behavioral Patterns (CBP entities, see §§70–73) come close to this understanding, but Urrestarazu confines their significance to autonomous systems. He abides by the position that social autopoiesis has to produce the agents (§75), which is indeed an "awkward condition" (§74). That CBP processes "appear ... as unrelated to the production of communicating agents in the physical space" (§75) is not a problem. It is rather the empirically observable solution that social autopoiesis has found to make itself possible. Collective behavioral patterns (for sociological reasons it is preferable to speak of "patterns of expectation," but this cannot be expounded here) *must* be unrelated to the production of communicating agents. This is a precondition for socio-cultural evolution (Campbell 1969). Hence the relationship between human vertebrates (with their consciousness) and social systems has to be understood as one of *co-evolution*. They are different systems and realize their closure on different operational grounds. If we want to under-

stand *human agency*, conditional freedom of choice, innovation, and autonomy with regard to human beings then we do better to not integrate them as components into social systems – regardless of whether we conceptualize the latter as autopoietic or autonomous.

« 6 » The difficulty lies in describing component production. This becomes even intractable, however, if one tries to understand production and communication via cause-effect couplings between material components in physical space. Sociological theories that are prone to systems, networks, and fields (Abbott 2001; Karafillidis 2010; Luhmann 1995b; Martin 2011; White 1992) have turned the issue of *causality* upside down: the interesting aspect is how we bring forth causal textures within the structural arrangements in which we take part. The operational process, which leads to the observation of particular causalities, occurs in a different domain. *The observation of causality is not a causal affair.*

« 7 » In order to understand re-production of communication, we have to abandon the idea that communication is a physical activity and subject to cause-effect-relations and forces (§§53–54). Communication moreover emerged as an antonym of causality in cybernetics (Ruesch & Bateson 1987; Bateson 2000: 454–457). This involves communication not really being a “component.” It is an *operation*, i.e., (1) an event in the immediate present that vanishes as soon as it is there, and (2) an element-in-relation; that is, operations are not elements in themselves – they are inherently relational in character: a single operation (an unrelated element) is impossible. In other words, operations are processual entities and have structural properties. These aspects are the main – but barely appreciated – contributions of Luhmann to a general (domain-free) theory of autopoietic systems. Urrestarazu’s account of Luhmann misses the point because it still looks for elements that are ontologically different from the relations that connect them (§109).

« 8 » Social systems do not have components in the strict sense but consist of operational and networked chains of events. It is therefore meaningless to discuss whether the components are more or less autonomous than the system (§46), because they

produce the system and basically *are* the system. They do not live a life of their own outside the system like atoms in some kind of primordial soup. It is not only more efficient for a system to generate its components *in situ* (§48), rather, there is no other way. This is a very fundamental understanding of autopoiesis and it entails pivotal consequences. I will just mention two of them. First, all social structures, e.g., “components” such as expectations, institutions, actors, organizations, etc., are being produced and reproduced on the fly, i.e., by maintaining the process of connecting events in the medium of communication (with the help of oscillation and memory; see Spencer-Brown 1994: 60f). Second, the notion of boundary is transformed. The network of autopoiesis does not produce a system boundary as a part of the system besides other parts, but the system is all boundary. We see here that once again the classic VM&U Rules for the validation of autopoietic systems (§117) do not suffice and must be modified by generalization in order to be able to describe social autopoiesis.

« 9 » This operational approach is a necessary condition for ascertaining social autopoiesis. The problem of autopoiesis then is not about maintaining the system’s organization. It is rather condensed to the issue of reproduction itself. If the system consists of events then the problem lies in determining empirically how the system enables itself to produce some next event that refers to some previous or subsequent one. But searching for some origin, cause, or reason for operations in the physical world is a dead end. It is a misconception to believe that communication originates from physical entities. There is no doubt that operations of communication are physically embedded. Living organisms (or: sensorimotor-entities in general) are a necessary energetic environmental condition for social systems. Yet in a classic cybernetic fashion, it is information that channels and regulates the energy within the system (Ashby 1981; Bateson 2000) – and that *selectivity of the system* is the crucial aspect we should focus on when we try to understand social systems and their self-reproduction. If systems were causally constituted by outside forces, there would be no need to examine systems at all. That would be true determinism.

« 10 » If social autopoiesis is nothing but the self-reproduction of communication then we are dealing with a self-referential relation. Social systems observe themselves to make self-reproduction possible. They are *observing systems*. This has always been neglected by Humberto Maturana, and Urrestarazu is no exception. Social systems are not “there” and able to be observed by some external observer (§50, footnote 5). The observer is internalized into the system (Foerster 2002: 79); the system is an observer observing itself in order to determine its next operation.

« 11 » Urrestarazu starts with the question of whether autopoiesis is a domain-free concept or not (§1). In his view both Maturana and Varela doubt that it can be domain-free. Actually, this commentary has taken it for granted that autopoiesis is a domain-free concept anchored on the level of a general theory of autopoietic systems. As such a concept it then has to be re-specified in particular disciplines. This was also Luhmann’s position. In §40b Urrestarazu refers to Varela, who also drops the restriction that relational boundaries must be in physical space. And Maturana states:

“There is no restriction on the space in which an autopoietic system may exist. The physical space in which living systems exist is only one of many. In fact, living systems exist in the physical space as the space defined by their components. Accordingly, we have chosen to identify living systems with only autopoietic systems in the physical space because this is the space in which we exist, and because for that reason this space constitutes for us a peculiar limiting cognitive space. Otherwise the properties of autopoietic systems as autopoietic systems must be isomorphic in every space.” (Maturana 1981: 22f)

The concept of autopoiesis can be considered domain-free but then it is to be expected that different validation rules might apply. In this case both the general concept of autopoiesis and the relevant rules of validation are altered.

« 12 » Following the above citation of Maturana, we have to recognize that all autopoietic systems in physical space are living systems. Social systems, however, do not live. They realize their autopoiesis in a different space, i.e., the *space of meaning*

(Luhmann 1990b; White et al. 2007), which is intimately linked to notions of distinction, communication, and observation (Karafillidis 2013). Basically all the preceding paragraphs have been trying to lay bare some prerequisites for an understanding of autopoiesis in the space of meaning. Yet the classic validation rules for autopoiesis are developed with reference to physical space. Looking for descriptions of autopoiesis in other spaces makes clear that these rules are not irrevocable. The main difference with respect to autopoiesis validation might now be the injunction to research for an empirically and theoretically plausible operation that is responsible for the self-reproduction of a system.

« 13 » In the case of social systems, Luhmann has chosen communication as operation. He has presented much historical and theoretical evidence across a wide range of topics and subjects to show why this choice is plausible, sociologically productive, and useful. However, he conceived of society as a social system that encompasses (neither physically nor in a Euclidian fashion, to be sure) all other forms of social systems. As a consequence, he had to propose that there are autopoietic systems within society as an autopoietic entity. Though one could suggest that his voluminous studies on functional subsystems are a kind of evidence that this hypothesis might hold, some unresolved sociological issues remain (Maturana & Varela 1987 discussed this issue fleetingly but deliberately left it open). We need not come back to those issues in detail because what is significant here is to point out new developments that circumvent this hypothesis, that is, that do not need to decide whether it is true or false in order to proceed. Rather, the currently emerging theory of social forms treats systems as one form of distinction and assumes that world society is the only autopoietic social system (see Chapter 9 in Karafillidis 2010). We then have only one form of social autopoiesis: society as a system that perpetually computes the local/global conditions of possible further communication. Society is thus neither macro nor micro. It is the self-similar, dispersed, and concurrent reproduction of communication. The emphasis of Varela (1981) and the detailed discussion of Urrestarazu (§§23–32 and *passim*)

on the difference between autopoiesis and autonomy now becomes vital for further research. Henceforth, society might be conceived as the form of social autopoiesis that is highly differentiated into multiple social forms (e.g., organization, family, association, love, discussion, person, city, tribe, nation, gambling, conflict, etc.), each of which participates in society's reproduction. These forms can be autonomous and operationally closed but need not be autopoietic. They do not produce their structural components themselves though they are autonomous in how they select and combine forms and how they determine switchings between forms. Whether it is worthwhile to adopt the distinction of active and passive autonomy (§32) or whether it is even possible to distinguish degrees of robustness of a social form as suggested in §§36f (counting perturbations could prove unfeasible) are open and debatable questions. Urrestarazu's meticulously and densely written piece displays the requisite theoretical scrutiny that facilitates such a debate. In this respect it is indispensable for continuing the work on a theory of (social) autopoiesis.

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Human Autopoiesis?

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> **Upshot** • It is argued that to define social systems as non-biological is to deny their intrinsic biological groundedness, which affects their complex system dynamics. In the case of human social systems, the ecological phenomenon of human society should not be confused with human social organizations as cultural artifacts.

« 1 » The main problem discussed by Hugo Urrestarazu is whether it is possible to specify physical and components' relational conditions under which some social systems can be properly considered as autopoietic unities. This problem arises if we are inclined, even though intuitively, to view certain complex dynamic systems, such as various kinds of functionally organized groups of autonomous molecular systems (organisms), as living systems. If we are, in fact, inclined to do so, we must assess the autopoietic nature of a complex dynamic system; if our assessment is positive, then this system is a living system. But the question posed by Urrestarazu is whether autopoiesis can be conceived as a domain-free rather than domain-specific concept (§1). This question arises because the original notion of autopoiesis was conceived in an attempt to explain the phenomenon of life within the framework of biology; it is the name of the organization of living systems as discrete autonomous entities that exist as closed networks of molecular production, and it is the necessary and sufficient condition for the constitution of living systems that exist only as long as their autopoietic organization is conserved (Maturana & Varela 1980; Maturana 2002). Defined in this way, autopoietic living systems are biological systems (organisms), and autopoiesis is a domain-specific concept that, for this reason, precludes (at least, on first sight) its application to, for example, social systems.

« 2 » Urrestarazu's premise is that social systems are non-biological systems. Arguing that a social system (as defined in §§50–57) ceases to be mechanistic when applied to human social systems composed of individual agents with high-level cognitive capabilities, he proposes a description of such social systems as communication networks producing collective behavioral patterns (processes) involving coordinated activities performed by multiple agents within some arbitrary regions of space for some arbitrary durations (§§68–70). Such an approach allows a view of a social system as an evolving relational dynamic structure of communicating agents that, at the same time, is a producer of arbitrarily extended and more or less persistent collective behavioral patterns ("CBP entities") among agents. Thus, according to Urrestarazu, a conceptual frame-