

man social systems, not only by criticizing Maturana's and other authors' visions, but by also proposing the distinction of two *human social systems classes*: institutions and second-order interconstitution systems, the latter category proposed as a theoretical explanation for "constructivist" systemic social work (systemic mediation, systemic family therapy, and work with social networks). He applied these concepts to describe practical cases of social systemic work in Esteves-Vasconcellos (2014).

« 31 » Esteves-Vasconcellos and I, although independently and through different methodologies, aimed at providing a general conceptual framework that could be applicable to any kind of dynamic entities distinguished or intuited as existing in a given *observational domain*, regardless of their nature. There is still work to be done in order to ascertain that there are no contradictions between both generalization proposals and whether they are equivalent or just complementary in some aspects.

« 32 » Whether these two highly coinciding generalization efforts could prove to be useful for tackling the specific domain of social phenomena is still an open theoretical research subject. Whatever the case, any effort to talk properly about "autopoiesis" beyond or aside the biological realm needs to refer to some accepted generalization rigorously inspired from the conceptual categories used by M&V when they created the concept, and sociological research on the matter should not be an exception.

« 33 » Even if social systems – conceived as inter-agent communication networks – cannot be construed as purely *mechanistic* systems, I showed that they could be construed as *partially* autonomous systems, but that their *autonomous* features *could not be linked to the component production processes*, as required for autopoietic systems (*à la* M&V). I stressed the point that they could be construed as possessing different *degrees of autonomy*, according to the observed incidence of "external" *allonomous* factors.

« 34 » Finally, I also proposed that by distinguishing *processes* of communication interactions involving groups of physical agents (*processors*), these diachronically distinguished processes could be considered as more *abstract* dynamic entities existing in a "space" of *interacting processes*, and that in

this abstract space the *process-like entities* could become components of an emerging higher order system, *participate in the production* of other process-like entities and *constitute a possible autopoietic system* in that abstract space. I even proposed that "[...] a possible way to circumvent [the] incompatibility [between Luhmann's and Maturana's constructs] would be to conceive communications as process-like dynamic objects" (Urrestarazu 2014: §110), provided that, for any specific social system distinguished in this way, any claim about its autopoietic nature "would need to be assessed by applying the six VM&U Rules validation test." (ibid: §111)

Conclusion

« 35 » With regard to their first shortcoming, the validity of the adoption of the autopoiesis concept by Luhmann is not fully addressed in Cadenas & Arnold's paper. I showed that this adoption is *not justified* (Q1) if its sole purpose is to account for the emergent and self-referential features exhibited by social systems – conceived as systems composed of communications within a meaning domain – since these features may be more generally explained for systems that are not autopoietic. I also showed that, in general, an adoption procedure is *not theoretically adequate* (Q2) if it is not based on the explicit adoption of the whole underlying onto-epistemological paradigm and conceptual framework that could make the concept of autopoiesis intelligible in other meta-biological or non-biological domains.

« 36 » With regard to their second shortcoming, Cadenas & Arnold missed mentioning recent developments in interdisciplinary research towards making explicit the general systems theory underlying M&V's conceptual framework. At least two contributions were omitted (Esteves-Vasconcellos's and mine), in which novel ways of addressing the explicit generalization of M&V's concepts are proposed that constitute steps towards developing a common language for disciplines seeking to explain rigorously the systemic phenomena observed in their specific fields of inquiry.

« 37 » I conclude by agreeing with Cadenas & Arnold when they "[...] argue that the theory of autopoiesis can only expand its horizons beyond the biological model

if a theory of social systems based on *communication* is adopted." (§21, my emphasis). Then, the point comes to elucidate how to develop a communication concept that is compatible with M&V's onto-epistemological paradigm and conceptual framework. This task has not been yet accomplished satisfactorily, and I also agree with their remark that "[t]his situation must be addressed *in all its complexity*" (§21, my emphasis).

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Does Social Systems Theory Need a General Theory of Autopoiesis?

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> **Upshot** • The authors claim that it is justified to extend the concept of autopoiesis from its biological origin to other disciplines, predominately those that have a social character. However, the authors do not lay strong enough conceptual grounds to justify this extension of autopoiesis because it is unclear what concept of autopoiesis it is that would achieve this objective, or why the concept of autopoiesis itself should be crucial to this endeavor.

« 1 » A fundamental question that Hugo Cardenas and Marcelo Arnold fail to address in their target article is why it is that, in their desire to unify systems theory, they require an autopoietic conception of social systems. From the conceptual point of view,

why not leave autopoietic systems theory within the confines of a theory of biological or living systems? The authors state, “we attempt to refocus the debate on the concept of autopoiesis for social systems research” (§5). The authors claim that they will analyze the “benefits shown by this concept [autopoiesis]” as it applies to social systems research and applications, “but also the consequences for social systems theory derived from restriction to a merely biological level” (§5).

« 2 » While the authors give a stellar review of the scholarly research on this topic, they do not in fact show, as they wish to, the benefits of applying the concept of autopoiesis to social systems because they do not justify the essential claim that social systems are in fact autopoietic. Are they? Despite the authors’ suggestion that the debate concerning whether social systems are autopoietic (and on what grounds they are) has become stale, there is nonetheless no argument put forward by these authors that would decide the issue either way. Without this, the authors are left to rely on a somewhat curious strategy of listing some of the applications of autopoiesis to social systems research (in the sociology of law and art and economic sociology) as if the more the concept of autopoiesis has been applied to the separate researches and research fields, the more evidence there is that social systems are in fact autopoietic. But are these various applications to social systems really deploying properly autopoietic concepts? Have the arguments of Humberto Maturana and Francisco Varela – i.e., their protest concerning the extension of autopoiesis to social systems – been defeated *conceptually*, or might the authors’ examples of applications be based on a false (or simply metaphorical) understanding of what constitutes autopoietic systems proper?

« 3 » It is far from obvious that the applications in the sociology of law, economic sociology, sociology of art, etc., are in fact conceptually grounded in a theory of autopoietic systems. Not a few of these applications listed in the target article, it should be mentioned, end up borrowing Niklas Luhmann’s notion of autopoiesis rather than Maturana and Varela’s. This point needs to be addressed more directly since it is possible that these applications qualify only as

Luhmannian (that is, social) cases of autopoiesis (which may not be autopoiesis after all, if Maturana and Varela are correct). These applications are theories of, *mainly*, social systems researchers and are thus already well within the Luhmannian understanding of autopoietic systems theory, thus *a-priori* foreclosing the possibility that such frameworks might *not* be autopoietic.

« 4 » In relation to the above, it is unclear just why it is that the authors seem to require a theory that confirms that social systems are autopoietic in the first place. The authors claim that autopoiesis is *one* of the fundamental concepts of the constructivist epistemology, but I fail to see how this insight necessarily assists the authors in their desire to unify systems theoretical research. Could this act not be performed by dropping the autopoietic concept from the realm of social systems? Must the unified framework of systems theory, the authors’ desire to promote the development of new interdisciplinary research in systems theory, be so Luhmannian-Maturanian-Varelian; must it be autopoietic? Why? Is the logic merely that more researchers have found productive research paths when accepting that social systems are autopoietic and that those who keep to the notion that social systems are not autopoietic have found less productive research paths? Yet even if this is the case it does not support the assertion that the former researchers are actually doing research on properly autopoietic systems. Only an argument that defeats Maturana and Varela, on conceptual grounds, by showing that social systems are in fact autopoietic could support this position.

« 5 » To their credit, Cadenas and Arnold do attempt to point out the main weaknesses of Maturana and Varela’s position on the non-extension of the autopoietic to the social, but none of the “weaknesses” they point out actually concern *conceptual* aspects of this position. Instead the authors tell us their ideas are based on “old and outdated paradigms” (§26). But, at the level of argumentation, just what is it that, owing to this outdatedness, makes Maturana and Varela wrong? Nothing on this is said. Instead readers are merely told, “[t]his partly explains the fact that most sociological research on social systems has not followed this path” (§26). And? Of course if one’s goal were to unify

systems theory, and one wished to do so by incorporating social systems and the theory of autopoiesis (as our authors wish to do), then this would appear to be a significant point. But this sort of argumentation says nothing about the accuracy or inaccuracy of Maturana and Varela’s conceptual claim(s).

« 6 » Cadenas and Arnold also note, quite oddly, that Maturana in particular offers “the inexplicable and express renunciation of sociological knowledge” (§26). First, is it sociological knowledge he renounces or does he renounce the notion that sociological knowledge is of the same methodological or paradigm-type as autopoietic systems theoretical knowledge? More curiously, though, what is inexplicable about this renunciation? This is left unstated and seems unfair to Maturana’s explanatory framework of “everyday life,” or his other concepts of the social. On this point, Cadenas and Arnold then argue that “in terms of [Maturana’s] contribution to understanding the social phenomenon, there is no qualitative improvement of current sociological knowledge. In a way, it is more a regression” (§26). Maturana and Varela’s “advanced” conception of biological systems “has a minimum impact on their notion of social systems” (§26). Even granting such a regression or minimal impact, this changes nothing in whether social systems are autopoietic.

« 7 » Similarly, the authors claim that Maturana and Varela’s account of social systems is “a middle-range theory” (§27); “focuses on social groups” (§28) rather than complex social systems (are social groups not complex social systems?); “definitively rejects giving a universalistic relevancy to social systems” (§29) (but whose goal is this anyway?); is utilitarian (§31); and is similar to the theory of biocenosis (§32). Still, absolutely none of these points demonstrates that Maturana and Varela are wrong about the way in which they wish to limit the concept of autopoiesis. So it is arguable that Cadenas and Arnold have failed to show how these traits are problematic from the conceptual point of view – for instance, how might Maturana and Varela’s advanced conception of biological systems actually augment the concepts the authors would wish to see put in place within their (perhaps curious desire for an) autopoietic social systems theory – and not simply from the

point of view that presumably preferable, non-“outdated” social systems theories do not have these traits. The authors do state that these traits “are a direct consequence of subsuming the explanation of the social phenomenon to the biological” (§34) and this might go some way toward a conceptual clarification of the flaws of Maturana and Varela, but more could have been said on this. Yes, it can be argued that Maturana and Varela do maintain a “vague sociological and anthropological view of social systems,” (§34) but this does not indicate how their conception of autopoietic systems theory (indeed of *any* conception of autopoietic systems theory), appropriately integrated within social systems theory, might help to do the job, if it can, of productively using autopoietic systems theory within a more unified systems theory (as the authors wish to use it). This last point reflects the nub of my earlier criticisms as well.

« 8 » Again, Cadenas and Arnold do none of the heavy-explanatory lifting where these conceptual issues are concerned. This is particularly visible in the “Results” section of their abstract, in which they declare:

“[w]e claim that it is justified to extend the concept of autopoiesis from its biological origin to other disciplines, and to develop its interdisciplinary character, following the spirit of systems theory and constructivism.”

But there is insufficient argumentation for this supposed “justification.” What is sorely lacking are arguments that state just what the correct concept of autopoiesis *is* that would justify such a unification or would justify why the concept of autopoiesis itself should be so crucial to this endeavor, especially considering that, as the authors’ claim:

“if we try to apply the theoretical principles of Maturana and Varela to a more complex social systems theory, huge explanatory problems arise. The amount and density of social phenomena that fail to be explained by this theory are so extensive that it becomes necessary to limit these ideas to a very specific set of phenomena.” (§38)

Notwithstanding the irony that this is partially why Maturana and Varela were leery of extending autopoietic systems theory to social systems theory (including Luhman-

nian) in the first place, it can be argued that this explains Maturana and Varela’s hesitation in this regard and their reasons for moving on to theories of social groups and, in Maturana’s case, “everyday life” (but this is hardly the issue where the target article is concerned). So while it appears *possible* that such a statement ought to mean that Maturana and Varela should have extended their concept of autopoiesis more progressively toward an autopoietic theory of social systems, it does not necessitate that it means this. Maturana and Varela might just have been correct that social systems are not autopoietic because social systems are not bounded in the same ways. John Mingers expresses similar doubts regarding the extension of autopoiesis to the social:

“It is one thing to say analytically that communications generate communications, but operationally they require people to undertake specific actions and make specific choices...One communication may stimulate another, but surely it does not produce or generate it.” (Mingers 1995: 149f)

It seems very plausible that the dynamics Maturana and Varela assigned to social systems just do not carry over to social systems in the ways that Luhmann or any other social systems theorist may have wished them to. Again, why do the authors require an *autopoietic* theory of social systems to unify systems theory?

« 9 » Certainly the target article’s extensive, excellent review of the scholarly literature on the debate on the concept of autopoiesis and its limits should help with the development of new *perspectives* on the debate. Still, lacking the *conceptual* argumentation for why an autopoietic system ought to be adopted toward the cause of a unification of the field, lacking a clear statement regarding which (whose) autopoietic system ought to be adopted, and lacking conceptual clarification about what the nature of a social systems theoretical autopoiesis might look like (perhaps some less regressive concept of social autopoiesis than is given in Maturana and Varela’s discourses on society), this target article cannot yet state that important changes to practice should be made – in contrast to what the authors claim in the “Implications” section

of their abstract. The development of new methods or concepts capable of unifying systems theory or constructivist epistemology requires fleshing out the notion of the “formal principle” (§51) the authors propose and a stronger conceptual clarification capable of filling in the lack or gaps that remain *in lieu* of the authors’ own conceptual clarifications.

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Missing: The Socio-Political Dimension

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> **Upshot** • Cadenas and Arnold argue in favour of deploying the concept of autopoiesis to study human societies. This OPC makes a case for the opposition: autopoiesis is not an appropriate tool for studying human societies, and attempts to do so both miss out key aspects of human societies and, incidentally, damage the concept of autopoiesis.

« 1 » A key feature of human societies is that their organization and functioning are open to variation. Moreover, the members of human societies can and do engage in value-laden discussions of the choices involved. This is the dimension of *politics*, in the full and noble sense of the term. The major weakness of “social autopoiesis” is that it completely fails to get to grips with this dimension. In §40 of their target article, Hugo Cadenas and Marcelo Arnold do briefly mention this criticism. However, they im-