server's operations as being conducted solely in terms of "pure relations" (Maturana 1970). Maturana's explanations for languaging (and hence social) behaviors are explicitly relational in this same sense (as coordinations of coordinations … of behaviors; cf. Maturana 1988).

« 15 » Luhmann's stated intention was to generalize the original autopoiesis construct. He encrusted the construct with additional specifications (e.g., connections to meaning) that *narrow* rather than broaden its applicability. It was also methodologically anomalous to have allegedly generalized a construct without any mention of its extant generalization in the original literature (Varela's 1979 contextualization of autopoietic systems as a subset of autonomous systems). Luhmann did not generalize the original concept of "autopoiesis"; he narrowed it and invented two variants tailored to fit the psychic and social contexts his agenda dictated.

Conclusion

« 16 » Buchinger's review of Luhmann's work (on Luhmann's own terms) is an admirable synopsis given the available space. Within that expository scope I generally concur with her conclusions regarding how innovative he may have been. Still, Buchinger's contribution should not be viewed as a capstone, but rather an entry point into a long-overdue discussion of how viable, or even valid, Luhmann's applications of his selected systems/cybernetics bases may be.

« 17 » I therefore recommend the constructivist community should not embrace Luhmann's work without the critical scrutiny that would derive from the discussion heretofore bypassed. Among Luhmann's originally targeted audience (e.g., sociologists), his kaleidoscopic contribution is seen as stimulating or even revelatory. However, among those knowledgeable in the precedents he exploited, Luhmann's legacy includes confusion and discord. One example concerns Maturana and Varela's work, for which Luhmann's arbitrarily piecemeal and demonstrably distorted treatment of (e.g.) autopoiesis is "ill-Luhmann-izing" rather than illuminating. Let us not be content with bedazzlement at Luhmann's kaleidoscope; let us move on to the critical analyses our scholarly roles recommend.

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Author's Response: Adoption Strategies and Applicability of Luhmann's Approach

Eva Buchinger

> Upshot • The three OPCs are instructive and inspiring, in particular for their pursuing of the question-generating function of Luhmann's approach. Whereas Müller elaborates three broad perspectives (inventors, interpreters, and readers of constructivism), Scott concentrates on three specific socio-psychological issues (meaning, person, autopoiesis) and Whitaker addresses especially autopoiesis. In the response I first deal with specific issues and then with Müller's three perspectives.

Questions about "meaning," "person" and "autopoiesis"

« 1 » Bernard Scott's questions concerning meaning aim at its dependence on linguistic expressions (§5), the modeling of information in meaning processing (§6), and the stability/instability of meaning systems (§7). He doubts the adequacy of Luhmann's approach in this respect. I share only some aspects of these doubts; for example those that lead to the suggestion that an enrichment of Luhmann's theorizing on the basis of empirical investigations would be beneficial. Generally, I think that Luhmann was successful in interlinking meaning, language, and information in his theorizing. First, although language is not absolutely necessary in Luhmann's conceptualization of meaning-based communication (i.e., nonverbal interaction may be sufficient in certain situations and meaning is defined pre-linguistically as referential context), it is valued as a "secondary specialization of the communication process" (Luhmann 1990e: 32), which is a precondition of all higher evolution of meaning and allows for a more or less unlimited number of types of behavior that can be used in interaction. Second, only the internal meaning-processing stability of systems allows for their openness to the environment. Third, the "production" of information in this context is "modeled" as a specific selection; i.e., as part of communication as a three-part unity (whereby utterance/corporeality, thematic centering, and expectational nexuses play an important role). In an interdisciplinary approach, I collaborated with physicists in elaborating a mathematical model to explore some of these "mechanics" in Luhmann's theorizing (Barber et al. 2006).

« 2 » Next, Scott questions Luhmann's conceptualization of "psychic systems" as distinguished from "the form person" (§§8–10). Here I agree completely with Scott's remark that Gordon Pask provides an enlightening theoretical framework with the P-individual/M-individual scheme. Especially, the potential of M-individuals for embodying and supporting the processes of P-individuation (Scott 2009: 153) deserves attention.

« 3 » Third, Randall Whitaker (§§5–15) and Scott (§§11–12) criticize Luhmann's adoption of the biological concept of autopoiesis (and especially the notion of operational closure). This is a widely disputed issue whose relevance is not least confirmed by the originators' discomfort with this

adoption. My understanding is that the dominating labeling of Luhmann's theorizing with the term "autopoiesis" is overdrawn. Of course it is clear that Luhmann himself provided for this domination by prominently and repeatedly using the term "autopoiesis." But he also repeatedly insisted on the difference between living and psychic/social systems and claimed much more than an adoption, namely a paradigm change. As far as I can judge, autopoiesis was, for Luhmann, a conceptual vehicle like other conceptual vehicles. In the introduction to his well-known *Social Systems*, he chose a different setting of priorities. It is general systems theory that should be tested in an encounter with sociological material and in this way concepts from other disciplines (including the concept of autopoiesis) could be made useable in sociological research:

> "One of the most important results of this encounter, from which I hope both sides will profit, resides in the radical temporalization of the concept of element. The theory of self-producing, autopoietic systems can be transferred to the domain of action systems only if one begins with the fact that the elements composing the system can have no duration, and thus must be constantly reproduced by the system these elements comprise." (Luhmann 1995a: 11)

« 4 » In this conceptualization, systems would cease if they could not equip their temporalized elements with a capacity for connection that allows reproduction. Here, the capacity for connection is provided by meaning; i.e. meaning structures withstand the dynamics of the immediate (and not merely gradual, entropic) dissolution of the elements.

« 5 » In my understanding, the cornerstones of Luhmann's theorizing are "temporalization" and "meaning." In this respect, he benefitted mostly from the work of Edmund Husserl (I elaborated this viewpoint already earlier in Buchinger (2006) and repeated and complemented it in my main text). In accordance with this, I do not object the critique of Whitaker and Scott, although I do not believe that Luhmann's work should be characterized as a phantasmagoria. I can follow their observation that Luhmann repackaged several of Maturana & Varela's notions under new labels whereby he only partially adopted them, and that this might turn out as misinterpretation from the perspective of the originators. Therefore I will not insist here on the justification of the adoptions (I would be happy to be able to contribute to such a discussion in the future). Instead I would like to draw attention to another area of critique that seems even more fruitful, namely Luhmann's appropriation of the philosophy of the subject. Jürgen Habermas – an experienced observer and critic of Luhmann's developments over decades – started a discussion about this issue in the 1980s (Habermas 2007). He remarks that Luhmann's system theory presents itself as the successor to an abandoned philosophy (whereby I disagree, i.e. that the philosophy of the subject from Kant to Husserl is abandoned), and that Luhmann's conceptualization of system relations is modeled after that of the subject (whereby I agree). In this context I find Habermas' critique of Luhmann's adoption of Husserl's concept of meaning as indicatory for the ongoing discussion.

Questions concerning "inventors," "interpreters" and "readers" of constructivism

« 6 » Karl Müller chooses a different starting point from Scott and Whitaker but comes to a similar conclusion as far as the inventors of constructivism are concerned (§3). He refers to Maturana & Varela's reservation that their biological concept of autopoiesis could be used in other disciplines as well as to von Foerster's skepticism that Luhmann's notions of recursive closure/resonance could be an adequate adoption of his notion of Eigenform. I share his guess that for these and for other proponents of constructivism, such as Gregory Bateson or Jean Piaget, it would have been difficult to reach a consensus about whether Luhmann's work would lead to a dead-end or to a vital research trajectory: as long as this issue is unsettled, Luhmann's theory of social systems functions perfectly as question-generator.

« 7 » Concerning the interpretation of constructivism, Müller questions the relevance of Luhmann's approach for users (§§4–12). He especially scrutinizes the binary coding and the respective programs of societal systems (i.e., function systems). This is indeed a challenging point for those who aim at the practical application of the theory of social systems. In my understanding, Luhmann's elaboration of the complex "codes & criteria & programs" on the level of societal systems is somewhat sketchy and I agree that the theoretical elegance of the notion of binary coding does not accordingly result in empirical applicability. I would say that Luhmann progressed in this issue on the level of organization systems. In his book on organization and decision (Luhmann 2006), he distinguishes between premises of decisions (*Entscheidungsprämissen*) and programs of decisions (*Entscheidungsprogramme*). Whereas decision premises provide for general orientation (a functional equivalent at the level of organizational systems to codes at the level of societal systems), decision programs guide specific decisions (if–then decision programs, purposive decision programs). This conceptualization on the level of organizations could possibly inspire the further elaboration of the "codes & criteria & program" complex on the level of societal systems.

« 8 » Concerning the readers of constructivism (§13), Müller expresses his conviction that they will benefit from fruitful hypotheses, trends, conjectures, etc. This is a conviction that is definitely congruent with my own point of view.

Conclusion

« 9 » It seems to be generally agreed that Luhmann's theory of social systems is challenging as well as inspiring. The complex theory architecture and the partial recklessness in the treatment of the scientific heritage have to be accepted because they go together with the provision of a fruitful theoretical framework.

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