From Within, or the Domain of Design Practice

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Abstract: Engaging with biology of cognition is a form of practice rather than application. In the context of design, biology of cognition can be conceived of as initiating an educational process that supports agents to act "from within" rather than "from without."

1.   Randall Whitaker's target article is a much welcome contribution to the body of literature that engages with Humberto Maturana's foundational biology of cognition (BoC), which he began in 1970 and extended at various points to encompass the biology of love and cultural-biology as taught at Matríztica,[1] an educational institution co-founded by Maturana in his later life. While the target article does not provide a structured overview of the concepts that comprise BoC, it outlines the problems in engaging, applying and extending BoC. The article presents Whitaker's deep understanding of the subject matter and will be valued by those who engage with the work of Maturana. Given the popularity of the concept of autopoiesis in various fields, for example, the overview of the development of the concept (§§39–50), which highlights that Maturana restricted autopoiesis to the molecular domain in his later writings (§§44–48), is important and will find many interested readers.

2.   Sharing with Whitaker an interest in design, I have found the passages that discuss BoC as a framework in design contexts particularly enlightening. In my own practice, relating to Maturana's concepts has often been helpful for clarifying dynamics of relationships and shifting the attention to interactions with objects and environments. The difference between structure and organization, for example, is of relevance in this context.

3.   Organization relates to the identity or idea of a system. If a system's organization changes, it loses its identity. Someone who recognizes a thing as a pencil does so because that thing is organized as pencil. Pencils can be structured differently. They can

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[1] "Fundamentos en biología-cultural," https://www.matrizticaonline.cl/pages/fbc-programa, accessed 14 November 2022.

have green paper around them or red paper, or no paper at all. The hardness of the lead can vary. If I want to design a new pencil, I need to make sure that the designed object's organization can be distinguished as pencil. Structural changes do influence the behaviors of things when we interact with them. A pencil with a 2B lead draws differently from one with a 2H lead. Structural coupling is what defines the interactions with an environment. Only rarely do designers invent new things with new organizations. Design mostly deals with structural changes. A designer, given the task of developing a new car model, will typically design what fits the idea or organization of a car. Structural changes will make it appear novel or contemporary. The design of the iPhone, however, one could argue, entailed the invention of a new organization – a new species of objects – as it merged the ideas of a computer screen and a phone, creating the smartphone.

4.   Whitaker mentions entitative bias as one of the prevailing viewpoints that make it challenging to engage with Maturana's biology of cognition. Entitative bias shifts the focus of attention toward the appearance of objects and beings as entities or figures differentiated from an environment or ground (§§55–61). Highlighting that the focus on entities deemphasizes relations (§61), Whitaker confirms what Stafford Beer alluded to already in his preface to Maturana and Francisco Varela's "Autopoiesis: The organization of the living," which he wrote in 1973:

> "The revolt of the rationalists […] began from a principle of 'methodical doubt'. But they became lost in mechanism, dualism, more and more categorization; and they ended in denying relation altogether." (Beer 1980: 63)

5.   Contributing to the entitative bias, according to Whitaker, is Maturana's usage of the term "bringing forth." The target article provides a good overview of how the expression can be seen as contributing to an entitative bias (§56). A well-known usage of "bringing forth" in the sense of revealing an absolute "truth" could be seen as further adding to the problematics. It features prominently in Martin Heidegger's essays "The Question Concerning Technology" (1971) and "The Origin of the Work of Art" (2003). Heidegger used the expression "bringing forth" (*Her-vor-bringen*) to highlight that "poiesis" is a process, and while this emphasis on process is in line with Maturana's philosophical framework, a Heideggerian "bringing forth" with its emphasis on revealing "truth" is problematic. While one could argue that Heidegger's conception of truth is relational, the dominant understanding of truth is in the sense of "objective truth" (Heidegger 1972: 69f, 1998). In the philosophical framework of BoC there is no place for "objective truth," as Figure 1 in the target article highlights. Considering this context, Whitaker's proposal to replace "to bring forth" with "to educe," and thus with a verb that does not carry connotations of objective truth, might assist in making BoC more accessible. As Whitaker outlines, the verb "to educe" also carries important systemic understandings. Even though it distinguishes a unity, it "simultaneously specifies the context within which the distinction was enacted, the set of properties (affordances, etc.)" (§57).

6.   Replacing expressions and terms can be helpful for clarifying ideas. I often use this strategy in the design studio, asking students to think about design in verbs rather than

nouns, and about designed objects or built environments as affording interactions rather than providing functions. This means replacing the idea of designing a library, for example, with the idea of paving the way for how people can approach books, select one, and take it into their hands, possibly read it, or take it to a counter to go through a process that registers the book with them, so they may pack it into a bag and take it home. So, I agree with Whitaker (§27) that design practice is best situated in the domain of interactions.

7.   Later in his life, in the context of the Matríztica project, Maturana became a designer as well, conceiving a program that aims at "the broadening and deepening of relational skills that promote collaboration and teamwork."[2] Yet, his earlier work, more theoretical in kind, created the foundation for his later engagement in creating educational frameworks. As emphasized already in the post scriptum to his paper, "Biology of Cognition," the alternative to reason is a frame of reference that is set to correspond with desires rather than needs (Maturana 1980a: 58). Maturana's philosophy of living constitutes an aesthetics strongly related to design practice. Many years later, his book on biology of love reminds its readers that human beings have the capacity to make the world in which they want to live.

> "[…] the very same expansion of the reflective thinking that has opened our desires for power and for domination over everything, and has alienated us from ourselves, opens for us the possibility for the conservation of loving humanness, if we indeed want it. We do not have to do everything that is possible for us to do, we can choose." (Maturana & Verden-Zöller 2008: 211)

8.   As Maturana and Gerda Verden-Zöller outline, humans have agency and have the responsibility to choose. Moreover, a few individuals who enact what is desirable through their living may initiate change, and eventually, a new, more desirable, community of individuals who live a new mode of living may emerge.

> "At the beginning, any new manner of living in a human community is lived by one or a few individuals, but if that new manner of living begins to be systemically conserved in the community generation after generation, a new culture arises, and with its conservation, eventually a new biological lineage and a new kind of being may appear." (Maturana & Verden-Zöller 2008: 218)

Biology of love reveals an ethics of agency inherent in Maturana's philosophy and of particular interest within the context of design (Westermann 2020).

9.   Considering what has been outlined above, I suggest that other changes to terms and expressions, avoiding problematic connotations, could circumvent also other areas of prevailing mainstream viewpoints that prevent an engagement with BoC in design contexts. For example, Whitaker speaks of "applying" BoC or an "application" of BoC. The terms "apply," "applying," and "application" are mentioned thirty-five times

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[2] "Fundamentos de la Biología-Cultural" https://matriztica.jumpseller.com/fundamentos-de-la-biologia-cultural accessed 14 November 2022, my translation.

throughout the text. Yet, the idea of application, I claim, is misleading as it arises not from within the phenomenal domain, i.e., the domain of designing, but from the viewpoint of what Maturana called the domain of descriptions. As he outlined, the domain of descriptions is "the metadomain in which the observer makes his commentaries" (Maturana 1980b: xviii). What is relevant in the metadomain, he further states, "cannot be deemed to be operative in the phenomenal domain, the object of the description" (Maturana 1980b: xviii). The term "application," I propose, might further contribute to an entitative bias because it expels design agents into the domain, which belongs to external observers and which prioritizes entities over relational dynamics (Maturana 1980b: xix).

10.   What is more, deriving the idea of application from Maturana's texts does not seem straightforward at all. Quite on the contrary, in the introduction written for *Autopoiesis and Cognition*, Maturana called his paper, "Biology of Cognition," a "cosmology" (Maturana 1980b: xviii). As a cosmology, BoC can hardly be applied. Even as a meta-cosmology that allows a plurality of local cosmologies to exist within, BoC can hardly be applied, taken apart, or adapted. An adaptation could easily lead to a violation of the entire framework.

11.   An analysis of Matríztica's educational programs and other texts and interviews on education (e.g., Maturana & Dávila 2006; Maturana, Dávila & Mora Olate 2017) reveals how carefully Maturana and Dávila have chosen words to describe programs of activities in particular disciplines or domains of practice in a way that does not violate the idea of a holistic dynamic system. Thus, for example, Maturana and Dávila suggest that education should primarily be concerned with "[…] three fundamental aspects of living: to feel emotions, to reason, and to do" (Maturana & Dávila 2006: 36). I suggest that this way of describing has been chosen to maintain a position within the phenomenal domain, avoiding the domain of descriptions.

12.   These arguments suggest that the idea of application might contribute to an inappropriate domain qualification of designing and thus prevent a full engagement with BoC in the context of design. So, in the context of Maturana's philosophy, with its strong focus on acting from within a relational world, the association with "application" in the target article feels rather unlucky. Would it be more appropriate to refer to the domain of practice rather than the domain of application? **(Q1)**

13.   In contrast to application, which is a process "from without," practice is always enacted "from within." Thinking further, one could conceive of BoC as essentially initiating an educational process that shifts the viewpoint to acting from within. Otherwise said, engaging with BoC in the context of design implies the initiation of a practice of perpetual learning that is always enacted from within.

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