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## A Radical Epistemological Severance

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**> Abstract** • Given that there are many implications of Maturana's approach that still need elaborating, I draw attention to the radical quality of his theorizing and to his endeavors to outmanoeuvre the language of realism.

« 1 » The revolutionary nature of Maturana's model is made clear when we focus on his effective dissolution of the *inside–outside metaphor*. As discussed by Fritjof Capra in §§14f and 47 of his target article, this metaphor is at the base of several other common concepts, for example, that of mind–body dualism and its current metamorphosis in brain–body approaches. The metaphor contains an ineluctable Cartesian trap of dualism, which Maturana wanted to avoid.

### The inside–outside metaphor dissolved

« 2 » Alfred Korzybski's metaphor of the map versus the territory underlines that it is not possible to see how well one's mental map is an effective mirroring of the territory: "A map is not the territory it represents." He goes on to say that "If we reflect upon our languages, we find that at best they must be considered only as maps. A word is not the object it represents" (Korzybski 1994: 157).

« 3 » Maturana, however, created a model to dissolve this metaphorical gap between the *inside* and the *outside*. While Korzybski and others warn that "the map is not the territory," Maturana claims instead that the map *is* the territory. The map *is identical* with the territory.

« 4 » For Maturana there *is* no map *inside* which tries to represent an *outside*. There is only *fit* (Glaserfeld 1984: 21ff). "Fitting" occurs due to the history of structural coupling of a system with its medium. Both the system *and* its medium *embody* the precise structural changes which have wrought a fitting between them.

« 5 » From this perspective the system and medium are not two separate entities which are interrelating across a gap. The system is not something that is set apart from the medium. Rather both form a consensual, structurally coupled domain of existence. They compose a network of reciprocal orientation and interlocked actions.

« 6 » Maturana says that given the condition of structure determinism –

“[...] for living systems there is no inside or outside in their operation as autopoietic unities; they are in autopoiesis as closed wholes in their dynamics of states or they disintegrate.” (Maturana 1988a: 14)

### The radical reconstruction on communication and language

« 7 » A second way to see the radicality of Maturana's theory is through his theory of language. For Maturana (1988a: 26), the structure of our language brings forth a reality. In this sense Maturana's construct of structure determinism also applies to language that brings forth a given reality by the operations of distinction of the observer. It is not possible to have a conception of the world beyond the structure of our language system.

“We have no way of referring to ourselves or to anything else outside of language. [...] the operation of reference exists only in language and to be outside language is, for us as observers, nonsensical.” (Maturana 1988b: 43)

« 8 » Outside of language there is nothing. There are no independently existing objects or components of reality outwith language waiting for us to stumble upon them and blend them into a composition – “nothing pre-exists its distinction” (Maturana 1988a: 24).

« 9 » In Maturana's view, communication ceases to be understood as efforts to transmit “information” from one person to another and instead becomes an action for orienting the other person within their own realm of sense-making:

“Linguistic interactions orient the listener within his cognitive domain, but do not specify the course of his ensuing conduct.” (Maturana & Varela 1980: 50)

Traditional realist view of communication	Maturana's view of communication
The transmission of information	"In-formation" – A process of orientation of the listener within their own construct system
A "description" of objects, events, experience	Interactional patterns arising from the coordinations of actions
Instructional interactions	Being invitational
A representation of reality	A metaphorical frame of reference
Dealing objectively with reality	A process of intersubjective coordinations

**Table 1** • The change of meaning of communication.

« 10 » Language as orienting means that it is neither denotative (it does not point to anything in the outside world), nor is it connotative (it does not point to anything in the inside world either). Instead of the notion of "information" there is a shift to the idea of processes of "in-forming" (Varela 1979: 265f) within the realm of significances of the person's construct system (Kelly 1955).

“[W]ords are not symbolic entities, nor do they connote or denote independent objects. They are distinctions of consensual co-ordinations of actions in the flow of consensual co-ordinations of actions.” (Maturana 1988b: 47)

« 11 » Communication means orientation of the listener within their own realm of relevances. If what is being spoken lies too far beyond the reach of their construct system then the likelihood is that the person cannot "understand" what is being said. Table 1 summarizes the radical shifts that Maturana makes in his view of communication.

### Circumventing of the language of realism

« 12 » According to Maturana we cannot be "outside" of language. In Harley Shands's terms, we cannot get language outside of us. Shands describes this impossibility by using the metaphor of language as a parasite that gets into us in the first years of life and which becomes "essential to the identity of its host" (Shands 1975: 86).

« 13 » In Kenny (1989), I claimed that –

“[...] objects arise in languaging and at the same time obscure the operations of distinction for which they stand. Hence we see these entities

which seem to exist independently of everything. (Kenny 1989: 25)

In other words, objectivity is produced as a side-effect of our ways of conversing whereby we bring forth objects as if they were permanent independent entities existing outside of language.

« 14 » Thus, objectivity generates the illusion that such a world contains secrets that are hidden from our view. Terms like "insight" attribute a status of mystery to those objects (forgetting that we previously brought them forth). For example, Capra, starting with his title and continuing in §§3, 6, 7, and 12, falls into this realist trap of using the term "insight."

« 15 » To have "insight" means to have found some observer-independent entity. "Insight" is anti-constructivist because it eliminates alternatives and shifts one from thinking in hypotheses to believing that one has found some kernel of "truth." As George Kelly quipped – "Insight is what you are left with after you have been stripped of your imagination" (Kelly 1969: 347).<sup>3</sup>

3 | This is not the place to discuss alternatives in great detail, but let me mention George Kelly (1964), who counterposed the "language of hypothesis" against the notion of insight. Similar to Gregory Bateson's (1972) "explanatory principle," which acts to close off any further thinking about an issue, Kelly's language of hypothesis is a constant invitation to reconstrue alternatively, and thus to remain in creative movement. The goal is not to find "answers" but rather to find more important questions.

### Stylistic circularities

« 16 » One of Maturana's efforts to escape from the grip of the language of realism is seen in his preference for circularities of speech and writing – to mirror the hypothesized self-referred circularities of organizational closure in living systems. This gave rise to a style of writing where the text was isomorphic with the presumed circular life-making processes of biology (Capra §§4f). While this is admirably creative, it also posed difficulties for people whose linear understandings of events collided with his stylistic circularities. Here is a typical example:

“[T]he participants of a consensual domain of interactions would be operating in their consensual behavior making consensual distinctions upon their consensual distinctions, in a process that would recursively make a consensual action a consensual token for a consensual distinction that it obscures.” (Maturana 1988a: 19)

« 17 » Commenting on his style, Maturana gives the example of Heinz von Foerster, who had corrected the "Spanglish" of one of Maturana's original texts.

“I was furious. I thought that my text had been destroyed. Heinz von Foerster said he had only cut all repetitions; in my view, however, he had linearised my method of circular discourse.” (Maturana & Poerksen 2004: 158)

The circular repetitions that von Foerster had seen fit to eliminate are also seen by many readers as a form of redundancy, or worse as tautological, appearing to say the same thing twice or even three times.

### Redefining common terms

« 18 » Problems in understanding often arise when an author redefines a common term in an entirely different way. Maturana has done this with his idea of *cognition* (§§5f, 13, 15f). This term, as redefined by Maturana, has little or nothing to do with the usual notion of cognition as it is used in cognitive psychology or neuroscience, and has little or nothing to do with the ancillary concepts of memory, thinking, etc.

« 19 » As Capra notes:

“In the Santiago theory, cognition involves the entire process of life – including perception, emotion, and behavior – and does not necessarily require a brain and a nervous system.” (§46)

« 20 » For Maturana, cognition is the conservation of structural coupling with the medium – or acting effectively in the environment with regard to the conservation of one’s existence as a system. Cognition is defined as the operation of a living system in its domain of existence and is not a representation or a revelation of something that is independent of it. For Maturana, this means that it has no content and that it is not about anything.

« 21 » This leads Maturana to claim an identity between *acting* and *cognition* – thus “knowing is doing and doing is knowing.” As a blanket affirmation this may not seem to be saying anything more than that the system (including also *any* living system where thinking is not supposed to occur) operates in such a way as to act effectively with regard to its ongoing survival.

« 22 » Karl Popper (1976: 168) expressed the view that natural selection (“survival of the fittest”) was tautological, arguing that it comes close to only saying that “survivors survive.” Equally, Maturana’s notion of cognition might be taken as tautological in saying only that a system has the ability to survive in a medium: “A cognitive system is a system whose organisation defines a domain of interactions in which it can act with relevance to the maintenance of itself [...]” (Maturana 1980: 13).

« 23 » Obviously, where a theory contains tautological affirmations, it can be accused of lacking explanatory power. So, in relation to Maturana one might wonder: Does cognition mean anything more than that the system knows how to act in the world with reference to its own ongoing existence? Is it a tautology? **Q1**

#### Avoiding teleology

« 24 » Apart from redefining common terms in unusual ways, Maturana also entirely eliminates a whole range of common theoretical constructs that have no place in his specification of autopoietic systems. This includes notions expressing finalities such as purpose, intention, goals, and also control and regulation.

« 25 » Aware that the dominant realist view induces a preference for teleological excursions, Maturana takes pains to avoid any intrusion of symbolic explanations into his definition of autopoiesis, remaining strictly within his *operational descriptions*.

“[N]otions of purpose and goal that imply that at every instant a later state of a system as a whole operates as part of its structure in the present do not apply to living systems and cannot be used to characterize their operation.” (Maturana 1988a: 14)

« 26 » In the autopoietic and cybernetics literature there is a widespread use of the term *self-organization* (Capra §§5, 10, 11, 18, 46, 56). This is an example of the form of teleology that Maturana tried to avoid. He saw that it is a “miss-take” to talk of the system as a “self-which-organises-its-self.” It constitutes a “self-contradiction” in that there is not some *part* of the self that is unilaterally controlling some other part in order to “get it organized.” The implied attribution of purposefulness and control is rejected by Maturana for whom the system is in a co-ontogenic structural drift in the effectuation of its niche. Theoretical constructs such as purpose, intention, goals, etc. have no relevance for describing the living system as a structure-determined system.

« 27 » Writing about the circularity of the living network, Capra (§5) notes that “the circular closure of the nervous system amounted to a radically new understanding of cognition” and that Maturana “postulated that the nervous system is not only self-organizing but also continually self-referring.” Here we may raise another question to clarify the status of this system closure: Given that the system’s organizational closure is a constant, does it not follow that the system exists unchanging and is therefore not “self-organizing”? It is not in a constant process of constructing “organizational closure”? It just is as it is? **Q2**

« 28 » As Ross Ashby (1962: 114) commented on the term “self-organizing” that “the adjective is, if used loosely, ambiguous, and, if used precisely, self-contradictory.” The same observation probably applies to any of the “self-” hyphenated terms such as “self-referential,” “self-generative,” “self-production,” “self-regulating,” “self-monitoring,” “self-observation” etc.

## Conclusion

« 29 » I have briefly sketched out some of the radical implications of Maturana’s theories that often go unremarked. He achieved a radical epistemological severance from both realism and idealism, which can be seen in his treatment of the classic inside–outside metaphor, in his innovative reconstruction of language, and in his creative efforts to avoid the traps of the language of realism. Our daily language is entirely saturated with realist terms and when we attempt to describe a constructivist outlook, the realist terms are automatically invalidating, negating, and contradicting our efforts to describe a non-realist view. It is an ongoing process of self-refutation.

« 30 » Each of Maturana’s attempts to circumscribe the traps of realist language potentially create problems for those who are trying to understand him. Given that in his own theory communication means *orienting* the other within the semantic space that they already occupy, many of his strategies fail to orient the other because they do not discern those elements that Maturana is trying to bring to their attention within their existing semantic psychological space. This is because such a semantic space is almost entirely colonized by the language of realism.

« 31 » Capra’s article goes a long way towards clarifying many of the subtleties of Maturana’s work, especially in elaborating how he dissolved the inside–outside dualism and the importance of this for the mind–matter confusion (§§14–16, 47).

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## When Studying the Mind, What Domain Is Being Investigated?

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**> Abstract •** I problematize the ambiguity in the use of the terms, “cognition” and “mind.” Do these terms describe specific dynamics of physical changes within the organism (i.e., a third-person perspective) or subjective experience (a first-person perspective)? I argue that the lack of precision in addressing cognitive science’s domain of research creates a blind spot about the central importance of subjective experience.

« 1 » In his target article, “The Organization of the Living: Maturana’s Key Insights,” Fritjof Capra traces the development of Humberto Maturana’s (and Francisco Varela’s) theory of autopoiesis from Maturana’s early years to the theory’s full maturation into what the author calls the “Santiago theory.” Capra offers a thoughtful overview of Maturana’s opus, which, I believe, is a fitting homage to a scholar who has made fundamental contributions to constructivist approaches.

« 2 » However, one item on the article’s list of Maturana’s achievements is problematic: Capra concludes with the claim that the process–structure distinction of the Santiago theory is nothing less than a solution of the mind–body problem, and “Mat-

urana’s greatest achievement” (§59). There are two major issues with this claim: (a) the idea is not unique, and (b) the Santiago theory’s structure–process distinction does not offer a solution to the mind–body problem.

## The structure vs. process distinction is not unique to the Santiago theory

« 3 » The view that the body (of a living organism) is a structure enabling a very special process (i.e., the mind) is not exclusive to Maturana’s view. The structure–process distinction is not at all a new idea and has been applied in all of science, including early cybernetics and cognitive science. Early cognitive science was based on the premise of the so-called *information-processing* (or *computer*) *metaphor of cognition*, i.e., the notion that the mind is a certain kind of processing (or “calculation”), enabled by the suitable (Turing machine-compatible) structure of the brain (Bermúdez 2014).

« 4 » This does not imply that the computer metaphor of cognition equals the Santiago theory, but only that they both apply the structure–process distinction in order to understand cognitive processes. Maturana’s theory was much more sophisticated than the cognitive science at the time. One of his unique insights was the essential mutual interdependence of structure and process. Very early on, he also recognized the importance of the need to incorporate the whole organism into the explanation of how the mind works (something that would today be filed under the label of embodied cognition). He clearly saw the dependence of the organism’s reality construction on the structure as well as on the organization of the organism.

« 5 » As Capra (§§41–49) emphasizes, Maturana’s understanding of the mind is inextricably interwoven with the answer to the core question of “What is life?” Those (and many more) are undisputed contributions of the Santiago theory that go beyond the cybernetic thought of the day. What the Santiago theory did not resolve is the mind–body problem.

## Mind, cognition and experience

« 6 » In §15, Capra claims that Maturana solved René Descartes’ “fundamental division between two independent and sep-