COMPLEXITIES OF FORM:
THOUGHTS ON A DE- ONTOLOGIZED AESTHETICS
OF RECURSIVE PROCESSES

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Abstract

The objective of what follows is –as explicitly indicated in the title– to present and concisely discuss, in a simple and comprehensive manner, some preliminary thoughts pertaining to a general, deontologized, processual aesthetics, i.e. an aesthetics based not on fixed identities, closed substances and stable forms, but on an increasingly complexified architecture of trans-forms of differences and entangled recursive processes, i.e. processes that unfold and evolve by recursively folding back into (re-entering) their own plane of processual activity, thus giving rise to high-level complexities of self-reference, differ- entiation and transformation.

Keywords: *aesthetics, difference, process, recursion, trans-form.*

1.

What is so concisely being discussed here is immediately related to a general complexity-oriented epistemology, bringing together two distinct modes of thinking-inquiring that, in the course of modern and contemporary western rationality, with the exception of certain few –literally out-standing– cases, have regretfully been standing in stark contrast to one another: on the one hand, speculative-reflective ontometaphysics and, on the other, positivist, exact-scientific formalism. Although thoroughly elaborated and developed during the last five decades, the aforementioned generalized epistemological thinking mode has not yet managed to "contaminate" the particular, "hard" and "soft", disciplinary sciences, thus remaining largely ignored. Be that as it may, its systematic exclusion from the institutional canon does not by any means reduce its unquestionable significance and major historical importance.

Indeed, when it comes to getting involved in (first-order) observing and decomplexifying phenomena of "restricted complexity" (whether they be of a macro-physical or of a mi- crophysical order), the particular sciences turn out to be exceptionally loquacious. They do what they are trained to do best: they produce data by making use of various novel methods and analytical tools of partialization, compartmentalization, formalization, modeling and implementation. But, when it comes to thinking upon what Morin (2008) calls "generalized complexity", which entails a higher-order, recursive

observing mode, one that requires first and foremost their reflexive re-entering into their own observational space (a process of incessant, critical auto-differentiation and transformation or, alternatively, a process of reflecting upon their own reality and how they construct it), the particular sciences suddenly start to stutter; they become aphasic. That kind of generalized complexity-oriented thinking mode "requires… an epistemological rethinking, that is to say, bearing on the organization of knowledge itself" (Morin, 2008).

For the inquiring mind who shares the above epistemological concerns, a short, yet exeptionally lucid account of the "Why's" and "How's" underlying the divide between speculative-reflective and exact-scientific thinking mode, but also of the ironic twists and the inescapable re-emergence of speculative ontometaphysics at the very heart of "hard" science (as, for instance, in the cases of W. Heisenberg's tackling the problem of causality in quantum mechanics and E. Schrödinger's inquiry into the physical basis of consciousness and the matter-mind relation) has been handed down to us by Günther (1962), eminent Hegelian philosopher-logician-cyberneticist and a colleague of W. McCulloch and H. von Foerster at the renowned in the sixties Biological Computer Laboratory of the University of Illinois-Urbana.

2.

For the sake of argument, let us proceed from the premise (our primary, founding distinction) that what is termed "the observer" (that is, the state or act of observing embodied in the form of a perceiving-cognizing subject coupled with a so-called perceived objective reality), being itself a fabricated (symbolic-imaginary) construct generated through an act of observation (that is, through a distinction-drawing process engendering symbolic- imaginary world-forms, structured on the basis of observing subjects and observed ob- jects that might as well be the very subjects that do the observing), is not taken as some sort of incontestable *Ding an sich* or an *a priori* empirical certainty, but as a mere convention: a general regulatory concept, principle or medium for reducing –and yet, para- doxically enough, for generating further– complexity. This paradoxical double gesture could be depicted as a Möbius strip: reducing complexity is tantamount to inducing further complexity – a seemingly contradictory condition that is immediately resolved as soon as we think of it in non-dualistic topological terms.

This is definitely not the place to point out the deep metaphysical origins of the irreducible, systematic and systemic complexities resulting from the inherently paradoxical onto- logical status of the circular causal relation between a whatever (individual or collective) observing-perceiving subject and its observed reality. To get a sense of the issue in question, one needs only consider for a while the Pascalian dizzying insights (Pascal, 1958) into the cosmic "parts & whole" feedback loop, in which the problem of the observer seems to find its utmost expression.

We define the "observer" as a general regulatory concept, principle or medium for reducing complexity, insofar as it serves to do away with the puzzling contradictions inherent in the scientific aspiration for an ultimate objective description of the world – a description that would be completely independent of partial subjective worldviews. These contradictions arise the very moment we reasonably assume that descriptions exist only insofar as there is at least one observing subject who endeavors to describe: "To remove these [contradictions] one had to account for an „observer" (that is at least

for one subject): (i) Observations are not absolute but relative to an observer's point of view (i.e., his coordinate system: Einstein); (ii) Observations affect the observed so as to obliterate the observer's hope for prediction (i.e., his uncertainty is absolute: Heisenberg). After this, we are now in the possession of the truism that a description (of the universe) implies one who describes it (observes it). What we need now is the description of the „describer" or, in other words, we need a theory of the observer" (von Foerster, 1982).

On the other hand (which, as we have already suggested, is essentially the same hand drawing itself as other), we define the "observer" as a general regulatory concept, principle or medium for generating further complexity insofar as its introduction into our thought-system gives rise to the possibility of an observer-dependent theory in which complexity –generated by recursion, reflexivity and self-reference– prevails. Paraphrasing H. von Foerster's formulation (von Foerster, 1991), a theory of the observer requires that an (individual or collective) observer assumes the task of writing it. From this follows that if that theory has any aspirations for completeness, it inevitably has to also account for the very writing of this theory. And even more fascinating and complicating, the writer of this theory also has to account for her or himself writing this theory. Which means that –contrary to traditional, orthodox scientific ways of proceeding, in which (subject-less) objectivity is the rule– this theory demands that the observer's observing should necessarily be included in her/his observations; that the observer must necessarily enter her/his own descriptions; that the properties of the observer not only *shall*, but also *must* enter the descriptions of her/his observations.

Thus, as far as the relation between the observer and the observed (or the subject and object of observation) is concerned, in the context of an observer-dependent theory, complexity –manifested in the form of paradoxy, self-reference, recursion and reflexivity– is unavoidably forever present. In search for completeness, an observer-dependent theory (that wishes to remain committed to its foundational principle of undecidability) will paradoxically (and yet, quite logically) lead to unending latency, ever-growing complementarity and eventually incompleteness. However, the latter is not raised as an issue to be resolved. To the contrary, it is invited insofar as it is the very condition of possibility of completeness. At that level of epistemological thinking completeness amounts by definition to deferred completeness.

Such an epistemological stance implies a different kind of bioethics and biopolitics of time which might be called "second-order cybernetic deconstructive", insofar as it is fundamentally concerned with processes of infinite *re-progression* "in" and "out" of nested –one into another– contexts, that is with processes of ever-growing recursive contextualization. As noted by Rasch (2002), "what was once „the whole"… that could be seized… as a totality, now becomes an immanent field of observations, descriptions and communications, a „totality of facts", as Wittgenstein wrote, that must contend with the uncomfortable situation that any observation of a fact is itself a fact that can be observed. The whole… is a whole that forever divides itself with every observation into more and more „facts"… a self-referential whole, thus an inescapably paradoxical one. Accordingly, we are no longer in the realm of a foundationalist „first" philosophy, but rather in the realm of a „second-order" philosophy of observations of… observations".

3.

Reductionistic or over-simplistic as it may sound, it appears that these issues of self-reference, reflexivity and recursion have been so deeply rooted in the very foundations and course of development of our 2,300 year-long western rationality that the latter – from its very inception, that is since Aristotle's official laying down the formal logical basis (laws and principles) of thought and scientific inquiry– might, in its entirety, be treated as an unremitting, inescapable confrontation with the onto-logically problematic, if not disastrous, implications of those (irremediably inherent in it) issues. Anyone with a rudimentary understanding of the classic Freudian schematization of the psychic apparatus'' three-fold structure as well as of the unavoidable recursive loops resulting from it, already gets the point: as in all dramatic tales of neuropsychotic systems seeking to chase away some firmly embedded in their own structure, disorganizing element that under- mines their sense of self-control and unity, what is systematically repressed, inhibited, expelled, keeps coming back in through the back door reinforced, becoming the very organizing principle of the system itself.

Having been exhaustively elaborated in the context of eighteenth and nineteenth century (Kantian, Fichtean, Hegelian) transcendental idealist investigations into the reflexive and dialectical structures of subjective perception in its relation with objective being, the issues of self-reference, reflexivity and recursion were subsequently "resolved" (that is, bluntly expelled, forbidden, repressed) by early-twentieth century Russellian theory of types (van Heijenoort, 2002), then irreparably reinstalled by Gödel at the very heart of rationality, as a *sine qua non* "defect" of any mathematical formal system (Nagel & Newman, 2005), in order, eventually, to be reshaped and introduced anew by a number of intricately related areas of scientific inquiry such as: second-order cybernetics (that is, cybernetics of first-order feedback cybernetics or, alternatively put, cybernetics recursively applied to itself), radical constructivist bioepistemology of autopoiesis, social- communicational systems theory, as well as certain instances of philosophically oriented cognitive scientific research, as in the cases of Hofstadter (1999 & 2008) and Dennett (1992 & 2017).

These areas and practices of thinking-inquiring share a common epistemological ground in that they are expressly concerned with (the complications inherent in) writing the above-mentioned strangely loopy theory of the observer: an observer-dependent theory (a theory of observing observing), which accounts for its very own act of writing and even for its accounting for the accounting for its act of writing. And in doing so they all end up dealing with the fundamentals of circular processes: more precisely with a wide diversity of interrelated (biophysico-socio-cultural) recursive processes that unfold and evolve by recursively folding back into (re-entering) their own plane of processual activity, thus giving rise to high-level complexities of self-reference, differentiation and transformation.

By the terms "self-reference", "differentiation" and "transformation", we mean that these processes (re)produce themselves from themselves by interacting with themselves. But, in order to do so, they must first distinguish themselves from themselves. Each process of distinction-making, performed within and by a system, marks off a difference which, traveling through the circuits of the system, triggers further differences (trans-

forms of differences) that affect the very internal states of the system itself. This is one way of interpreting G. Bateson's famous notion of "difference" conceived as a product of distinction-drawing that makes a difference ("a difference which makes a difference"): "When you enter the world of communication, organization, etc., …you enter a world in which „effects"… are brought about by differences" (Bateson, 2000).

Such a world is the world of the reflexive domains in which we presently take ourselves to exist. Following Varela (1979) and Maturana & Varela (1987), Kauffman (2016) gives the following description of how a reflexive domain could be imagined: "A reflexive domain is an abstract description of a conversational domain in which… each participant is also an actor who transforms that domain. In full reflexivity, each participant is entirely determined by how he or she acts in the domain, and the domain is entirely determined by its participants. […] A Community of observers / participators forms a reflexive domain D. By this term I mean that each person in the domain is also an actor in that domain. Each one acts upon the others and each can be acted upon by the others and by himself".

Every choice, action and distinction taking place in the context of a reflexive domain contributes to its expansion which, in turn, affects the internal organizational pattern of the network of relations which constitute the reflexive domain. The domain unfolds and evolves by recursively folding back into (re-entering) its own plane of circular processual activity. In reality, the domain is not a Euclidean entity, but a dimensionless pattern. It has neither outside nor inside. It is us, the observers, who introduce these terms in order to capture it, frame it, describe it, shape it and make it intelligible. Yet, even these secondorder descriptions and distinctions, insofar as they take place in the context of the reflexive domain in which we exist as observers, actors and participants, are not external to the domain, but an integral part of it. Such reflexive domains cannot be understood in purely Euclidean terms, as if they were geographical entities, spaces or territories. It is impossible to say where a reflexive domain begins and where it ends. Reflexive domains are not measurable substances but interlacing organizational patterns that produce them- selves. They can only be conceived in topological terms.

4.

Let us conclude, at this point, by asking ourselves: in what way does the term "aesthetics", featured in the essay's title, enter into the discussion? How does aesthetics relate to fields of scientific inquiry, such as Einsteinian-Heisenbergian physics and second-order cybernetic epistemology, which appear to be alien to it? How is aesthetics brought into play?

Aesthetics is invoked here only as part of a wider and deeper epistemology of cognition. As a matter of fact, aesthetics has always already been from the start pure epistemology. One might even go so far as to claim that there never was and there will never be such a thing as "aesthetics" as a distinct discipline, independent from a science of knowledge and cognition. *Aesthesis* does not and cannot have an existence of its own. Since Aristotle and, much later on, since Kant, Schelling and Freud, we have come to realize that what we call *aesthesis* is constituted as such through a whole array of interconnected, primary and secondary, formal, transcendental logical, reflexive

and other (un)conscious mechanisms that function as a whole. Similarly, what we call *morphi* is far from being some *a priori* given entity floating somewhere "out there" waiting to be captured and processed: it is generated –through recursive processes   of distinction-drawing– within the system of the (individual or collective) perceiver, who is actively constructing it, producing it, stabilizing it (Spencer-Brown, 1969; von Foerster, 2003; Kauffman 1987, 2003, 2005, 2009 & 2016).

The core problem that keeps cropping up in every discussion about aesthetics, aesthetic- sensory perception and experience lies, until this day, in the fallacious ontological distinction between a perceiving subject and a perceived object; a perceiving interiority (a cognizing agent) and a perceived exteriority (an object to be cognized by the latter); an observer and an observed. In contrast to an ontological dualistic approach, the objective of this essay was to point towards a constructivist mode of aesthetic inquiry, which treats the subject and the object of perception not as distinct ontological poles and closed substances, but as emergent processes generated within a common operating framework: within the horizon of observation.

In the context of that mode of aesthetic inquiry, the emphasis is not put on the *what* a thing *is*, i.e. on classic ontological issues of identity, substance and form, but on the *how* a thing is constituted, shaped, objectified, *becoming some-thing*, i.e. in ontogenetic issues concerning processes of mediation, differentiation and (trans)formation.

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