# In Search of the Totality of Experience

## Husserl and Varela on Cognition

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## 1. The motive of "Naturalized phenomenology"

Francisco Varela was a biologist who was interested in the biological roots of cognitive phenomena. Thus, his perspective is based on the scientific disciplines concerned with the study of the mind, i.e., the cognitive sciences. According to him, in their current frontier, the cognitive sciences discover that the knower and the known are co-implicated. This is in direct contradiction to the classical scientific tradition of objectivism. At this point there is abundant reason why Varela took a phenomenological approach to cognitive phenomena. "Naturalized phenomenology" is the name for the general research program that he reached after a long career as a biologist (it is to be regretted that he died in 2001). In naturalized phenomenology, "phenomenological accounts of the structure of experience and their counterparts in cognitive science relate to each other through reciprocal constraints."[1] In his case "naturalization" does not mean "naturalism." He sought to integrate the insight of phenomenology with the knowledge of cognitive science, not by "naturalizing" consciousness, but by radicalizing the transcendentality of consciousness, through the mediation of the theory of autopoietic systems. For example, under the title of "neurophenomenology," he proposed an explicitly naturalized account of the experience of present nowness based on two complementary approaches: phenomenological analysis and cognitive neuroscience.

The distinctive characteristics of modern science consist in objectifying all things and formalizing the knowledge of the objective. Cognitive science is and has been such an activity characterized by objectification and formalization. In the beginning Varela, as a cognitive neuroscientist, sought to find the essence of cognition in the activities of neural systems of the brain. In due course, however, he felt as though he was standing in front of a door he could not open. For him it seemed that there is an unbridgeable gap between the internal descriptions of lived experience and the scientific descriptions of its natural biological basis. He sought a connecting link between the world in front of the door and the world behind the door and finally found the key to open the door in phenomenology.

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[1] Francisco J. Varela, "Neurophenomenology: A Methodological Remedy for the Hard Problem," in: Jonathan Shear (ed.), *Explaining Consciousness—The 'Hard Problem,'* (The MIT Press, 1997), p. 351.

Historically speaking, Goethe was the first to recognize that there is an unbridgeable gap between the world of lived experience and the world of scientific descriptions. In his *Farbenlehre* (1810) he criticized Newton who tried to explain the phenomena of color formally (mathematically) by the spectrum analysis of light wave in his *Opticks* (1704). He thought that the colors perceived in direct experience could not be reduced to the formal properties such as refractive index of light wave etc. and sought to establish the color science based on intuitiveness. Goethe's attempt at the color science has a relevancy for the leading motive of Husserl's phenomenology. Husserl, like Goethe, had a strong feeling of crisis toward the tendency of modern science to separate from the basis of intuitiveness. Starting his academic career as a mathematician in the end of the nineteenth century, Husserl opposed formalistic methodology in nineteenth century mathematics (for example, Hilbert's axiomatism) and tried to found the concept of number on the basis of intuitiveness of mental act of counting in his *Philosophie der Arithmetik* (1891). There is a close affinity between the fact that Goethe opposed Newtonian optics and the fact that Husserl opposed formalistic mathematics. Although it was almost inevitable that their attempts took on untimely character in their respective times, their attempts implied radical criticism of the methodology of modern science. Swimming against the current, both Goethe and Husserl returned to the basis of intuitiveness and sought to reconstruct knowledge on it. If the leading motive of phenomenology consists in reconstructing knowledge on the basis of intuitiveness, we may say that Goethe was the first phenomenologist before Husserl (in fact, Goethe's color science is worthy of the name "phenomenology of color").

The motto of phenomenology "to the things themselves" means in the first place that we should return to the basis of intuitiveness (direct experience). In the second place it means that we should adapt the method to the thing and should not adapt the thing to the method. The point is that phenomenology, in the course of the analysis of things themselves, pressed by the thing itself, seek an appropriate method and thereby continually opens new horizons. Modern science, on the contrary, attempts to adapt all things to its method (objectification and formalization) indiscriminately and compulsorily.

Varela had the critical mind that was common with Goethe and Husserl in essence. He thought that, in order to understand the essence of cognition, he should enter into the dimension of the unobjective underlying the objective that is captured by the method of objectification in science and, in the end, encountered phenomenology as the method to capture the unobjective.

The unobjective underlying the objective is the act of objectification of consciousness that constitutes the objective as such a thing. The problem now arises: The act of objectification itself remains anonymous as what cannot be objectified as long as the process of objectification is pursued. Science goes directly toward the objective that is considered to be "out there" in itself and thereby neglects the act of objectification underlying the objective. As Ulrich Claesges says, "the world of objective science is determined by a particular relation of consciousness to its

object, but this relation itself remains concealed."[2] Science therefore cannot realize the total knowledge that expresses the totality of experience. Or rather, as Gadamer said, science relinquishes the claim for total knowledge from the beginning. Anyway, it is inevitable that scientific knowledge remains partial and fragmentary. Phenomenology, on the contrary, attempts to turn its gaze of reflection on the act of objectification underlying experience and thereby realize the total knowledge of experience.

The further problem now arises: To reflect on the act of objectification means inevitably to objectify it. Phenomenological reflection, therefore, is a paradoxical effort to objectify what cannot be objectified, an endless chain of reflections, and bears the indication of unfinished nature. Merleau-Ponty linked the task of phenomenological description of human experience to the painstaking work of modern writers and painters such as Balzac, Proust, Valery, and Cézanne. The unfinished nature of phenomenology is inevitable because we always live our experience as a whole and the claim for total knowledge of experience belongs to the essence of life. (We cannot live our experience as a part or a fragment. The most inherent characteristic of life is what the Greek called *hen kai pan*.) To be total, in this case, does not mean to be complete. Because of its incompleteness, it is natural that phenomenological description as total knowledge is to be complemented by scientific description as partial knowledge.


## 2. Autopoietic Systems

Varela and Niklas Luhmann represent the paradigm change in systems theory since the 1970s, which occurred with the background of discoveries of self-organizing phenomena of systems on various levels of analysis. This new trend in systems theory is represented by the theories of autonomous, self-referring and self-constructing closed systems—in short, autopoietic systems.

Varela and Luhmann acknowledged that they were deeply influenced by Husserl in their methodology. This suggests a possibility of integrating Husserl's transcendental phenomenology with the theory of autopoietic systems. In fact there are noteworthy internal relationships between Husserl's thought and the theory of autopoietic systems both in respect of historical contexts and in respect of theoretical results obtained from them. Historically stated, Husserl's turn from static to genetic analysis of consciousness corresponds to the development from structural to autopoietic standpoint in systems theory. In particular, Husserl's analyses of passive constitution pursued in the 1920s under the title of "analyses of passive synthesis" could be interpreted as an anticipatory description of self-organizing process of consciousness as an autopoietic system.

According to Luhmann, consciousness is a self-referential autopoietic system, because consciousness is a living system and life is defined as autopoiesis. However, we immediately get into trouble in precisely defining what the components of consciousness are. Luhmann presented

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[2]  U. Klaesges, *Edmund Husserls Theorie der Raumkonstitution* (M. Nijhoff, 1964), p.11.

the thesis that *Gedanken* or *Vorstellungen* are the components of consciousness in his article "Autopoiesis of Consciousness" in 1985. But his thesis is misleading, because we can still find the elementalistic bias of nineteenth-century empirical psychology there. We should remember here that Husserl opposed elementalistic methodology in nineteenth-century psychology. Following Brentano, He considered mental phenomena as those phenomena that contain objects intentionally within themselves and found inseparable correlations between acts of intention (noesis) and objects of such acts (noema)—for example, as Brentano said, no hearing without something heard, no believing without something believed, etc. We should think of the components of consciousness, following Husserl's insights, noesis-noema correlations.

As Klaus Held says, consciousness is not like a container that can be filled with any kind of thing. Consciousness consists of various acts (noesis) whose character is in each case determined by the kind of corresponding object, and the object can appear to consciousness only in the corresponding manner of givenness. Here Husserl sees the "universal a priori of correlation between experienced object and manners of givenness."[3] That is to say, when we perceive an object, it is previously given as what is perceived in consequence of the productivity of consciousness (the productivity is not necessarily "active," it can be also "passive"); when we remember an object, it is previously given as what is remembered in like manner and we never confuse what is perceived with what is remembered. What follows from this is that consciousness reveals three significant characteristics:

Firstly, consciousness makes application of its operations to the results of its own operations. In this way, it constitutes the components of the system (noema, that is, an object captured in its manner of givenness) in a self-referential way. Consciousness is a network of intentional correlations of noesis and noema. It is a self-contained unity whose only reference is to consciousness itself.

Secondly, according to Husserl after his "transcendental turn," consciousness is not only "consciousness of something," but also, conversely, all other being, as reality, is only in relation to consciousness, that is, relative to it. Consciousness is "absolute" in the sense that *nulla re indiget ad existendum*: "it needs no *res* in order to be,"[4] therefore completely autonomous.

Thirdly, consciousness is operationally closed system, which comprises "everything." It produces and reproduces elements (and boundaries) in a recursive way. It has no outside, or, in other words, an outside is precisely nonsense.

To sum up the major characteristics of consciousness, self-reference, autonomy and the absence of outside are of most significance. Transcendental consciousness is nothing else but the consciousness that bears these characteristics. Here we can see a noteworthy isomorphism between autopoietic system and transcendental consciousness. The elements of transcendental

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[3]  E. Husserl, *The Crisis of European Sciences and Transcendental Phenomenology*, trans. D. Carr (Northwestern Univ. Press, 1970), p. 166n.
[4]  M. Heidegger, *History of the Concept of Time*, trans. T. Kisiel (Indiana Univ. Press, 1985), p. 103. According to Heidegger, *res* is here understood in the narrower sense of *reality*, *transcendent being*, that is, any entity that is not consciousness.

consciousness are self-referentially constituted noesis-noema correlations. They form a network by linking up together. Noesis-noema correlations are recursively produced and reproduced by a network of noesis-noema correlations.

If transcendental consciousness is an autopoietic system, this seems to suggest a radicalized concept of intentionality. The concept of intentionality, often defined as "directedness to objects," implicitly presupposes the distinction between "inside" and "outside" of consciousness. It is apparently incompatible with the transcendentality of consciousness, because transcendental consciousness has no "outside," therefore no "inside" as well. Should we, then, abandon the concept of intentionality? If we do so, consciousness loses its dynamism. The only way of solving the problem is to interpret intentionality as a recursive self-relation of consciousness. Only when we consider consciousness in this way, we can say that consciousness is a living system, because self-reference is the most inherent principle of life.

The theory of autopoiesis sees the autonomy of consciousness in the self-reproduction of a network. But at the same time consciousness has a relation to environment, and the most significant "environment" for it is nervous system of the brain, which itself is another autonomous network. The theory of autopoiesis understands the relation of consciousness to nervous system as structural coupling, i.e., interference between the two autonomous networks. It offers a chance of getting around the falsely posed alternative between reductionism and dualism. In brief, consciousness as an autopoietic system distinguishes itself from nervous system, anotheer autopoietic system, by constituting components in a self-referential way and linking them together in a hypercycle. Transcendental consciousness is a total system in which self-referentially constituted components (noesis-noema correlations) are hypercyclically coupled.


## 3. Enaction

Varela's naturalized phenomenology of cognition is an attempt to describe the total structure of cognition by setting the approaches of phenomenology and cognitive science in the relation of mutual constraints. According to Varela, the present debate in the theory of cognition is dominated by an unfruitful schism. On the one hand, idealistic theories are concerned with the autonomy of consciousness as a cognitive system, running the risk of missing the relation of consciousness to environment. On the other hand, the approaches of cognitive science (computationalism and connectionism), which is characterized by input-output paradigm of system-environment relations, analyze all sorts of interactions between cognitive system and environment, but have developed no conceptual tools to do justice to the autonomy of consciousness.

Varela formulates, taking visual perception as an example, the way of raising questions in cognitive science up to this time as the question: "Which came first, the world or the image?" The answer of most vision research—both computationalist and connectionist—is the *chicken*

*position:* "The world out there has pregiven properties. These exist prior to the image that is cast on the cognitive system, whose task is to recover them appropriately (whether through symbols or global subsymbolic states)."[5]

We tend to think that the only alternative is the *egg position:*"The cognitive system projects its own world, and the apparent reality of this world is merely a reflection of internal laws of the system."[6]

Varela suggests a middle way between these two chicken and egg positions. His theory of autopoiesis, which is characterized by closure paradigm of recursive production of elements (and boundaries), offers a chance of negotiating a middle path between the Scylla of cognition as the projection of a inner world (subjective idealism) and the Charybdis of cognition as the environmentally conditioned information-processing (scientific realism). His intention is to bypass these two extremes by studying cognition not as recovery or projection but as "enaction" (embodied action), i.e., a history of structural coupling that brings forth a world.

Computationalism and connectionism both presuppose the existence of external world surrounding cognitive system and take representation (internal model of external world) as their central notion. They see cognitive system from the standpoint of "outer observer" and describe the interactions between cognitive system and external world according to input-output paradigm. For Varela, on the contrary, the most important thing is to carry out a radical conversion from the standpoint of an "outer observer" to that of the "system itself." To understand the standpoint of the system itself, Maturana's metaphor is of great use:

> What occurs in a living system is analogous to what occurs in an instrumental flight where the pilot does not have access to the outside world and must function only as a controller of the values shown in his flight instruments. His task is to secure a path of variations in the readings of his instruments, either according to a prescribed plan, or to one that becomes specified by these readings. When the pilot steps out of the plane he is bewildered by the congratulations of his friends on account of the perfect flight and landing that he performed in absolute darkness. He is perplexed because to his knowledge all that he did at any moment was to maintain the readings of his instruments within certain specified limits, a task which is in no way represented by the description that his friends (observers) make of his conduct.[7]

For Varela Husserl's "transcendental turn" corresponds with the conversion from the standpoint of an "outer observer" to the standpoint of the "system itself." Both are the approaches to do justice to consciousness as a living system that is entirely self-referential and has no "outside."

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[5]  F. Varela, E. Thompson and E. Rosch, *The Embodied Mind* (MIT Press, 1991), p. 172.

[6]  *Ibid.*

[7]  H. Maturana and F. Varela, *Autopoiesis and Cognition: The Realization of the Living* (D. Reidel, 1980), p. 51.

Seen from the standpoint of the "system itself," there is neither input nor output, because there is no "outside." The world is not "out there" independent of our cognitive capacities and "represented" by a cognitive system that exists independent of the world. Rather, cognitive system "enacts" the world in cognition. But of course this does not mean that cognitive system constitutes the world in a vacuum. As Varela emphasizes, cognition depends upon the kinds of experience that come from various sensorimotor capacities of body, and these individual sensorimotor capacities are themselves embedded in a more encompassing biological context, i.e., they are formed through a history of structural coupling with environment (interference between the two autopoietic systems, cognitive system and environment).

For Varela consciousness has double sense: it encompasses both the psychological consciousness (environmentally conditioned information-processing system) and the lived, transcendental consciousness (self-referential autopoietic system). These two sides of consciousness are obviously not opposed. Instead, we continuously circulate back and forth between them. Varela led the way, by making this double sense of consciousness the focus of attention, to explore the possibility for circulation between cognitive science and phenomenology.