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Aims and Scope

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Not So Hard Problem: Francisco Varela on the Relations between Consciousness, Nature and Life

Не такая трудная проблема: Франциско Варела о взаимосвязи сознания, природы и жизни*

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Оригинальная исследовательская статья

Аннотация:

Статья представляет собой попытку реконструкции работ Ф. Варелы в связи с трудной проблемой сознания. Предпосылки для разрешения (dissolution) этой проблемы можно найти в работах, написанных им в соавторстве с У. Магураной. Теория аутопоэзных систем связывает воедино жизнь и познавательную активность и предоставляет естественно-историческое представление о работе сознания. Аутопоэзис, понимаемый как сеть процессов производства компонентов, используемых как ресурсы для поддержания этих процессов, задает организационные инварианты, отграничивающие живую систему от ее среды. Критерием жизни является способность системы сохранять аутопоэтическую организацию, претерпевая трансформации вместе со средой ее обитания. Структурная пластичность обеспечивает возможность множества различных реализаций аутопоэтических организаций, что влечет радикальные выводы о природе познания. Можно лишь условно выделить познающего и познаваемое в потоке проживаемого им опыта, а структура познания отображает структуру познающего. Эта взаимосвязь позволяет развить программу энактивизма, которая предполагает не только реформу научного исследования сознания, но и пересмотр ряда предпосылок познания как такового. Познание является сенсомоторно обусловленным конституированием мира. Следовательно, сознание не является лишь одним из множества объектов материальной природы, оно обеспечивает нам доступ к ней. Важным является не столько выдвигание новой аргументации относительно природы сознания, сколько отказ от теоретической постановки этого вопроса. Это является следствием принятия энактивистской позиции, которая, в соответствии с подходом теории аутопоэзиса, должна быть применимой к самому познающему.

* Исследование осуществлено в рамках Программы фундаментальных исследований НИУ ВШЭ в 2018 г.

Ключевые слова: трудная проблема сознания, аутопоэзис, телеология, энактивизм, эпигенез, организм, феноменология, трансцендентализм, Ф. Варела.

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Not so Hard Problem: Francisco Varela on the Relations between Consciousness, Nature and Life

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Original research paper

Summary

The author reconstructs the theory of F. Varela with relevance to the hard problem of consciousness. This problem was touched by Varela in relatively late period of his work. However, the implications for dissolution of this problem can be found in his earlier works with H. Maturana. Theory of autopoietic systems ties life and cognition together, resulting in natural historical comprehension of consciousness and its functioning. Autopoiesis, understood as network of processes of production of components used as resources for maintaining these processes, sets organizational invariances, distinguishing living system from its milieu. The main criterion of living system is an ability to maintain autopoietic organization while undergoing structural transformations with environment. Structural plasticity leads to multiple realizability of autopoietic organizations, which, in turn, leads to radical conclusion on nature of knowledge. One can distinguish the knower and the known only contingently, as the structure of knowledge reflects cognitive structure of the knower. This intertwinement permits Varela to introduce the enactivist program, which presupposes not simply reform in the scientific research of consciousness but also rethinking the implica-

tions of scientific knowledge itself. Cognition is a sensorimotor constitution of the world. Therefore, consciousness is not an object of material nature among other objects but provides our cognitive access to nature. Varela intended to abandon the theoretical approach to the problem of consciousness. His aim was not to provide a new argument. This is a consequence of the enactivist position which, according to theory of autopoiesis, must be applicable to the knower himself.

Keywords: hard problem of consciousness, autopoiesis, teleology, enactivism, epigenesis, organism, phenomenology, transcendentalism, F. Varela.

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Introduction: the hard problem and natural history

Every cognitive experience I encounter is naturally regarded as *my own*, subjective experience. It possesses irreducible qualitative distinctness, *what is it like* for me to be myself and experience it as my experience.

This is an obstacle to a materialistic picture of the world, for the latter cannot include it into objective description of the universe. The abyss between the subjective and the objective finds its partial solution in localizing the subjective in a neurophysiology of living beings. Nevertheless, the causal explication of physiological states is not enough for understanding mental states generated by them. The knowledge of neuronal states responsible for feeling a pain is incommensurable with my actual experience of it.

This dichotomy of the mental and physical acquires metaphysical significance as a problem of the divide between experience and nature. One of its formulations was given with a *hard problem*, questioning why the material processes in nature generate a subjective experience while they can be implemented without producing an experiential side.

This metaphysical divide poses an obstacle for a natural scientific thematization of consciousness and its place in nature. The materialist

history of nature does not assert the emergence of experience from nature, it stays anomalous and unexplainable on scientific basis. Thus, what was called an explanatory gap, seems to be a symptom of a metaphysical abyss between consciousness and nature.

There are attempts at conceptualizing experience in a natural scientific manner. In particular, it means that consciousness is either an emergent property of organized matter, or something reducible to it. For example, Maxine Sheets-Johnstone notes that the received formulation of the question of place of consciousness in nature remains incomplete [Sheets-Johnstone 1998]. When we ask about nature of mental state, we imply that it belongs to something, it is not a property of organized matter. Consciousness can be observed in living beings, not in black holes, stones or asteroids. Our understanding of nature of consciousness, she claims, presupposes the inquiry into natural history of living creatures on Earth. Natural history of living beings, both vertebrate and invertebrate, according to Sheets-Johnstone, will complement the perspective of neurophysiological study of humans and higher animals.

What she intends to is the evolutionary reconfiguration of this rupture. Consciousness emerges not as a property of an organized matter, but in animate organic forms. The hard problem and its conceptual recuperations imply the problem of distinguishing, mind and matter, on the one side, and organic and inorganic matter, on the other side, thus making the question even more complicated. Sheets-Johnstone emphasizes the need to reformulate hard problem as follows: *how consciousness emerges in natural history of living beings as feature of animate organic nature?* Agreeing with the fundamental importance of subjective character of experience, she calls for its natural scientific consideration. Sheets-Johnstone develops the concept of minimal conscious awareness that she ties to a proprioceptive feeling of animation. Thus, it shows the intertwinement of vital processes and practical knowledge of one's bodily borders. This capability for kinesthetic self-knowledge is immanent for any kind of living beings on Earth. This move implies:

- Taking the evolutionary perspective seriously: the human experience must be explored in the context of the evolution of nature.
- Rejection of methodological anthropomorphism: consciousness is not a unique feature of *homo sapiens*, being rather an attribute of organic life.
- Consciousness is tied to the organization of the living being's body and cannot be considered apart from its corporeal possibilities.

Basing on evolutionary biology Sheets-Johnstone entangles consciousness, organic life and evolutionary development as inseparable

elements of animation. But which kind of philosophical theory would satisfy this naturalist interrogation?

Autopoiesis, structure and organization

Evan Thompson distinguishes three definitions of life in biology: genetic, ecological and organic [Thompson 2007, 95–96]. The first definition of life emphasizes the reproduction of living beings' lineage maintaining the genetic code as main feature of life. The ecological approach proceeds from living individual as a unity participating interrelations with its environment, establishing its ecological niche. The third account of life sees it as singular and unique living organism and its observable agency. Hence, in order to define what life is we have to take into account the individual living being with its facticity. Thompson prefers the third approach, as it emphasizes that evolutionary unit of species population is secondary relatively to the individuation of these species' members; the individual is primary. As an example, Thompson introduces theory of autopoietic systems, guided by the question: how is it possible that system possesses organization which permits it to act successfully in its milieu?

The original version of the autopoiesis theory elaborated the mechanistic understanding of life [Maturana & Varela 1980, 75; Varela 1980, 3–4]. It accentuates autonomy as defining feature of living systems. Its main implication is the following: there is an organization (“bio-logic”) common for all living systems regardless of components constituting these systems [Varela 1991; Varela 1997].

One of the main features of the autopoiesis theory is distinction between structure and organization [Maturana & Varela 1980, 77]. *Organization* is a set of relations constituting the system as a unity. The dynamical relations between the components constitute the system as a unity. Organization is a set of invariants that can be realized through different structures. The *structure* is a set of actual relations between actual components which constitute the system as a distinct topological unit.

Organization is crucial for defining life, since it is defined by formal relations between components of the system regardless of its embodiments in living systems. Here the concept of *structural plasticity* is introduced: organization can be realized with different structures capable of maintaining constant interrelationships with the environment. Living systems have common organization and can be multiply realized in different structures. Organization and structure define the perspective from which the system interacts with its environment.

Autopoiesis is the system's capability to reproduce its structure. The *autopoietic system* is a system organized as a network of processes of

production of components used to support these processes. It produces elements used as recourses for sustenance of processes of its own production [Maturana & Varela 1980, 78–79]. The processes of self-reproduction constitute the system as an individual with the boundaries distinguishing it from its environment.

Autopoiesis is the minimal definition of life: living systems are autopoietic systems [Maturana & Varela 1980, 82]. The unicellular organism is a good example of molecular autopoietic system. Chemical reactions within it produce molecules which catalyze these reactions enacting individuation of the system through production of semi-permeable membrane delineating this system. Thus, the unicellular organism accepts the resources for reproducing its own structure through the metabolic exchange with its environment. It means that even the most elementary life forms are capable for meaningful distinctions within their life-worlds. Living system cognizes its environment, it permits the system to maintain its homeostasis and stay a solid unit.

While describing the living system's behavior the correspondence between its conduct and environmental conditions with which it interacts shows its structural coupling with the environment. *Structural coupling* is a process of co-existence of living system and its environment during which they interact as the sources of mutual perturbations [Maturana & Varela 1980, 134; Maturana & Varela 1992, 75]. The historical dimension of structural coupling within the individual organism is given in the concept of ontogeny – a history of mutual transformations during which the system's structure gradually transforms through individual development. Possible structural transformations which an autopoietic system undergoes during the ontogeny are restricted by the necessity of maintaining autopoiesis.

Enactivism and natural drift

What is required is a transition from the ontogenetic development to the phylogenetic history of species and their transformations. The enactivist program interrelates cognition, mind and body in an indissoluble unity [Varela, Thompson, & Rosch 1991]. The main thesis of this approach is a dyad: 1) cognition is enaction bringing forth a world; 2) the enactment of the world is realized as a series of sensorimotor patterns.

What distinguishes enactivism from other approaches is its special accent on embodied character of cognition. Cognitive agents cannot be considered apart from the performance of their cognitive agency. This corporeal structure must be observed as temporally extended non-linear dynamical history of perceptually guided embedded actions.

Enaction depends on cognitive agent's embodiment, the agent's experience depends on its cognitive structure. The structural realization of autopoietic organization defines its domain of interactions and the way how it will perform its self-reproduction. Given its plastic structure, the living system's repertoire of actions defines how the world will be lived by this system.

Enactivism leads to understanding that the worlds given to structurally different living systems can possess nothing in common. The only feature shared by living beings is their enactment of the structural coupling with their worlds through dynamics of sensorimotor patterns of agency.

We can talk about the objective reality only in *as if* manner, for our natural idea of objectivity is presupposed by our own cognitive constitution. There is no view from nowhere, to claim that there is an objective world laying out there is to accept the dualism of objective reality and subjective representations. Our cognitive access to the world is not a representation possessing some affinity with the objective world. The idea of objectivity from this standpoint is a derivative of primary experience of the world.

But what can be said about the generative aspect of this dynamical codetermination? The evolutionary path of living beings is considered as a consequence of its anti-representationalist account. For cognitivism representation is the homologue of adaptation in theory of evolution [Varela et al. 1991, 194]. From the cognitivist point of view, cognition as biological phenomenon must execute the task of adaptation and fitness to the environment.

The adaptationist approach to cognition links it with reproduction and survival, introducing natural selection as the factor suppressing any life forms that do not execute the task of optimizing fitness. Any modifications of the living beings which do not perform the task of optimizing fitness are forbidden. This is the *prescriptive* logic of evolutionary path. Steven Jay Gould and Richard Lewontin argued that the observable facts of living beings' morphology witness that natural history is not a history of adaptation and natural selection [Gould & Lewontin 1979]. For example, the form of the human nose is not optimal for successful adaptation to olfactory conditions of the environment but rather an effect of evolutionary development of other parts of the human face.

The anti-adaptationist arguments within the enactivist framework lead to a switch from prescriptive to a *proscriptive* logic [Varela et al. 1991, 195]. If life is a codetermination of organism and environment, then any action performed by a living system permitted as long as it does not interfere the maintenance of the integrity of this system.

Everything that is not forbidden is allowed: selection is a factor discarding the agency incompatible with survival and reproduction. A wide range of structural autopoietic organizations is allowed. The only criteria is the maintenance of autopoiesis and structural coupling providing the metabolic exchange between the individual and its environment.

Knowledge is not about mirroring preexisting world. It is about the multiple ways of experiencing multiple lived perspectives, dependent upon the species-specific structural realization of living systems. The species diversity equals the diversity of structural realizations of cognition and, therefore, the ways of world disclosure to the minds of different living beings.

Evolutionary selection is redefined as factor permitting the emergence of any structures possessing the sufficient integrity to persist as an autonomous agent. This non-adaptationist understanding of evolution means switch from optimal selection to viability. Natural history can be described as a contingent play of forms of life. What we have is only a set of organizational invariants defining the general “bio-logic” of observable life forms.

They do not fulfill design but exemplify the logic of bricolage: structural parts of living being are contingently put together regardless the task of adaptation [Varela et al. 1991, 196]. This approach to evolution was called *natural drift*, emphasizing the aspect of multiplication of animate forms. Every kind of living being brings forth its world enacted by a history of structural coupling. Hence, any form of life with its own viable trajectory possesses its own perspective upon the world imbued with significance in individual and collective history of cognition [Maturana & Varela 1992, 107–117; Varela et al. 1991, 195–198].

The transition from the theory of autopoiesis to enactive cognitive science assumes move from the science of observed systems to the science of observing systems [Vörös 2014, 96–97]. This move coincides with the move from the natural attitude to the transcendental phenomenological consideration. We change our attitude toward ourselves from looking at ourselves as objects in the world to seeing us as subjects for the world. Everything said is said by an observer, everything applicable to the living systems is applicable to the observer [Maturana & Varela 1980, 8]. Scientific observation of living systems leads to the reflexive self-observation. When I understand that the cognitive domain of living beings defines (and is defined by) a domain of interactions determined by the structural embodiment of these living beings, I understand that the possibility of such theoretical consideration is determined by my own being a living organism.

The notion of autopoiesis leads to reconceptualization of the subject [Varela 1980, 270]. The oscillation between observation and self-observation shows that I never see myself objectively. I cannot have a detached view of human subject in the same way in which I can observe the behavior of a bacteria. Combined with the idea of derivability of the idea of objectivity, this leads to epistemological conclusion: *we never have an objective knowledge of ourselves*. While observing ourselves with an objectifying stance, we never cease to be the subjects:

What we ourselves perceive <...> is simply what we perceive; and since we have no way of looking at ourselves and our environment from outside our own experience, we have no possible independent access to whatever it might be that <...> Strictly speaking, *we do not have access to our cognitive domain*, for we cannot step outside it and see ourselves as a unit in an environment.

[Varela 1980, 274]

Experience becomes the most important element of our world picture. The structural regularities constituting the human experience reflect the history of structural coupling that cannot be considered apart from it being *lived*. Our knowledge begins with the most elementary distinction within experience – between oneself experiencing and one's experience as lived. This distinction is always unstable because it cannot transcend this initial stream of experience. This cutting move cannot be implemented from outside our experience, as there is no outside.

This notion has an impact on our understanding of scientific knowledge. In particular, it influences the question how the science of experience is possible. For enactivism, the task of cognitive science is to explore how environment constrains the system, and how the constraints are determined by the sensorimotor structure of the system. Combined with experiential orientation, it leads to explaining how the sensorimotor and environmental regularities emerge from the structural coupling. This presupposes the investigation how these subjective and environmental regularities are given in experience.

The transcendental, teleology and epigenesis

This thesis that knowledge reflects the cognitive organization of the knower possesses the transcendental relevance and can be used as a tool for a dissolution of the hard problem.

One of contradictions of theory of autopoiesis was its persistence on the mechanistic understanding of life. It discards any appeal to the notion of teleology. Varela's reflections on the nature of scientific inquiry

led him to understanding that scientific knowledge should reactivate its entrenchment in experience. Being a scientist, I am still a living being. When I encounter another living being, my reliance on the notion of causality weakens. This is a crucial point in Varela's understanding of the relationships of phenomenology and biology, biology's special position regarding our lived experience.

Varela's consideration on the relations between biology and mechanistic causality led him to inquiry with Kant's third *Critique*. In Kant, the laws of biology cannot be reduced to mechanical laws which are given *a priori*. Compared with physics, the laws of which are deduced from the transcendental categories of reason, biology is doomed to be an empirical science, as its foundations are always laid out in observation. Organic life will never be explained mechanistically since the rules of its internal coherence are contingent upon the mechanistic causality. This led Kant to complement causality with teleology. Living beings' teleological behavior can be given in observation only, while the possibility of this observation for Kant is still guaranteed transcendently.

This notion shows the problem of relations between the *a priori* and *a posteriori*, the transcendental and the empirical. It refers to necessity to find the meeting place of *a priori* invariants of human reason with the lived experience. Also it refers to the implausibility of a tendency to reduce everything to mechanistic laws and calls for a search of a different kind of necessity.

Organization is the set of invariants of the system, while structures instantiate them biologically. Let organization be an *a priori* structure of reason, i.e. the architectonics, while the structures be the concrete embodiments of this reason in living being – a *practical reason* in Kant's terminology – the subjectivity with its finitude, freedom and creativity.

This raises the question of positioning the transcendental in our phenomenal world. Beginning with the earlier attempts to situate the transcendental within the natural history, establishing co-dependence between reason and nature (as in idealist *Naturphilosophie*), and with recent attempts to biologize *a priori* structures of cognition (as for Konrad Lorenz), this interrelatedness of the transcendental and the empirical still remains a problem.

My contention is that this problem, having some similarities with the hard problem, can be resolved within the autopoietic enactivist framework. The most important step to be taken is consideration of the transcendental status of the concept of enactment.

The first context referred to with the mutual exclusion of the transcendental and the empirical is related to concept of epigenesis. It can be found in

the §27 of *Critique of Pure Reason* and §§80–81 of *Critique of Judgment*. This concept is defined as the development of an embryo by a gradual growth of corporeal parts. For Catherine Malabou, the epigenesis becomes the foundation of the deductive solidarity between consciousness and the enacted world [Malabou 2016]. This account is based on Kant's notion of organism embodying the *a priori* structures of reason. The transcendental consideration of pure reason remains incomplete until it finds a place for embodied life within system of transcendental categories.

According to Malabou, the concept of epigenesis refers to the encounter of reason and life. The architectonics of pure reason describes consciousness *before* meeting life; only the causal necessity and foundations of mechanics are considered here. The problem is that we, the knowing subjects embodying the transcendental apparatus, are living beings. Before the reason's encounter with itself the architectonics of pure reason seem to be necessary and unchangeable. But meeting with life allows us to understand that our way of coping with the world is but one among a wide range of possibilities. As Varela, Thompson and Rosch pointed out, "*our human embodiment and the world that is enacted by our history of coupling reflect only one of many possible evolutionary pathways*. We are always constrained by the path we have laid down, but there is no ultimate ground to prescribe the steps that we take" [Varela et al. 1991, 214].

Encountering non-human life, we understand that, observing living beings, we ourselves remain living beings with our environment. Kant emphasizes that solidarity between mind and world is a "happy coincidence." But if this contingent correlation between categories and experience gives us the access to the world, then it still remains necessary for our world disclosure.

The oscillation between contingency and necessity, which forced Kant to move toward considering teleology, defines the second context of transcendental philosophy. While for mechanism the paradigmatic example was machine where the elements constitute the whole system animated by external forces, biology concentrates on the notion of *organism*. As Thompson claims, Kant understands organism as a whole which is more than the sum of its parts [Thompson 2007, 138]. This definition resembles the definition of autopoietic system: the parts of the organism produce each other, being causes and effects of themselves. The autopoietic system emerges from the local interactions between its constituting parts. The only difference consists in its reliance on circular causality and non-linear dynamics [Thompson 2007, 142].

Varela ties the notion of autopoietic foundations of individuality with the notion of teleology considered from metabolic and phenomenologi-

cal points of view [Weber & Varela 2002]. He tried to find the point of agreement of autopoiesis and Kant's third *Critique*. He strove to find common foundations of living beings' autonomy for philosophical and phenomenological frameworks. This move presupposes not only the naturalization of teleology but also revisiting the distinction of organization and structure of autopoietic systems. This aspect once more refers to the entanglement of enactive cognition, teleology and epigenesis.

Coordination between reason and nature must stay the *a priori* principle, as it is necessary for our coupling with the world. Teleology is primary, because we cognize with understanding that we are living beings ourselves. However, goal-directedness is not an internal property of a living being but of its structural coupling with the environment.

Here the enactive understanding of teleology makes an important move. The causal necessity is unthinkable without teleology being an experiential counterpart of it. This dependence of *a priori* ideas on our experience leads to recuperation of theory of autopoiesis. Initially formalist approach to the autopoiesis theory, interpreted from the standpoint of transcendental philosophy, suffers transformation. No universal organization can be thought apart from its instantiations in observable living organisms including us. Metabolic processes of life have a transcendental significance, any observation of nature presupposes the self-observation of observing subject.

The dualism of structure and organization accentuates the organization comprehending the universal bio-logic of observable living beings. The structural plasticity and natural drift allow to separate the unchangeable structures during the natural history of viable living beings. Their architectonic necessity is their viability and persistence. The analogy with the dualism of transcendental and empirical is obvious. But the Kantian re-reading of enactivism/autopoiesis suggests us to revisit this dichotomy. If cognition is enactment of contingent sensorimotor acts constituting a world, then the invariant structures of cognition must be considered in their embodiments. The transcendental cannot be separated from the empirical, and teleology – from causality.

This notion gives us an opportunity for a transcendental reading of the enactive project. With this I mean taking seriously the constitutive role of consciousness. Relations between the transcendental and empirical can be considered as circular in the sense of phenomenological account of "transcendental empiricism." The essential dimension of phenomenology is transcendental experience. For Kant that would be a contradiction in terms, but for phenomenology this transcendentality of subjective experience, just like in Varela's above-mentioned citation, proceeds from co-dependence of consciousness and world. The

artificial duality of lived experience and formal categories of reason is overcome by a genetic account of the emergence of the latter from the former, maintaining their mutual dependence.

For the enactivist framework it leads to move from the autopoietic (architectonic) bio-logic to enactive phenomenology. The description of observable world must begin with reflection of self-conscious observer as part of described experience where the distinction between him and his experience takes place.

Phenomenological account of oscillation between the transcendental and empirical was developed by Varela in the project of neurophenomenology establishing mutual constraints between the experiential invariances and their neurobiological counterparts. The systematic exploration of consciousness in neurophenomenology implies that we cannot know anything about the mental or cognitive without knowing how they are experientially given [Varela 1996, 331]. It means that the inquiry into the neuronal correlates of conscious phenomena should be complemented with the survey into the experiential givenness of these phenomena.

The first steps of this phenomenology were elaborated in proposal for reorientation of cognitive science on an experiential side. Being the primary reality for enactivism, the transcendental experience presupposes the methodological dissolution of the hard problem. As Michel Bitbol claims, the formulation of the hard problem implies the metaphysical priority of the physical nature, being the place where the consciousness emerges [Bitbol 2012, 169]. But for the enactive position, the distinction between mental and physical can itself be enacted from within our experience. It follows that the hard problem is disqualified as introducing false dichotomy.

Conclusions: the dialectic and non-dual thinking

How can autopoiesis, enactivism and epigenetic project be considered as transcendental approaches seeking for a dissolution of the hard problem? Here I want to use Varela's paper "Not One, Not Two" where he gives an outline of a new dialectic overcoming the dualisms informing our thinking [Varela 1976]. It considers two mutually excluding elements of opposition as contributing to a new emergent whole. The elements of dichotomy should be seen from a second-order position in encompassing holistic context. The general formula is as follows:

x/the process leading to x

Two concepts, when considered on one level seem to be as mutually excluding, should be seen as complementary elements whose dynam-

cal interaction constitute a new emergent unity. This move articulates Varela's search for a non-dual thinking [Vörös & Bitbol 2017]. This dialectical approach saturates all Varela's work and encompasses theory of autopoiesis, enactivism and neurophenomenology.

In order to integrate all aspects of Varela's work mentioned above I propose to use this dialectical proposal to reconsider the interrelationships between consciousness and nature. By "consciousness" I mean the organizational invariances of cognitive abilities of living beings capable of maintaining their coupling with environment. By "nature" I mean structurally plastic evolving embodiments of these invariances.

With this, we obtain the following:

Consciousness/nature

Organization/structure

Transcendental/empirical

From these dialectical propositions we can conclude:

- Organizational invariances of cognition and life are unthinkable apart from their embodiments. The transcendental categories are unthinkable apart from the experience they shape, the *a priori* conditions of possibility can only be thought as instantiated in their lived material embodiments. Natalie Depraz emphasizes the importance of distinguishing condition of possibility (in Kant's sense) from phenomenological constitution. Being formal and disembodied, the former is never given in experience, while the latter is always already given intuitively in its concreteness and incarnation [Depraz 1999]. The dichotomy of formal organizational invariances and the structures which embody them is negotiated with the constitutive role of embodiment, facticity and situatedness of life as cognition.

- The "bio-logic" presupposes phenomenology as its basis and consequence. Everything said is said by an observer, hence the world under description is always a world of my lived experience. The main source of our capability of understanding other life forms is the fact that we are living beings, which entangles transcendental phenomenology with the enactive invariances of life.

- Varela's project refuses to provide any "theory" of consciousness, as any theory striving to find a place for consciousness in natural history is initiated with a false dichotomy. We cannot say anything objective about our minds, because we can see consciousness as if it were separate from the world only due to distinctions that are performed within our conscious experience. From here it follows a special meta-theoretical status of autopoiesis, enactivism and neurophenomenology.

The dialectical nerve of these projects is much more important than its theoretical derivatives [Bitbol 2012, 170]. Their specific status is established by a primary fact that subjective life of consciousness is a constitutive element which cannot be considered theoretically due to its enactment of our freedom and creativity.

Radicalism of Varela's work consists in its insistence on the theoretical inconceivability of the hard problem. It is necessary to revise the status of scientific knowledge and to reconsider the problem of the dichotomy between consciousness and nature. This problem is not theoretical and should find its dissolution in the pragmatics of experience.

The non-dual thinking shows that consciousness and nature are intertwined giving a chiasmic dyad the sides of which are unthinkable independently. The dialectical enfoldment of enactive consciousness and constituted world takes place within the flow of lived experience. In this sense, naturalization of consciousness presupposes phenomenologization of natural science transforming our attitude toward the world and rethinking our place in nature [Vörös 2014; Zahavi 2004]. The science of experience has to be much closer to the practices of reflection and the cultivation of experience than to a theoretical consideration.

Theoretical arguments on the nature of consciousness, if conceived correctly, should be cast away in favor of life practice. The gradual development of Varela's work from biology to cognitive science and phenomenology brought him to an insight that consciousness is not something which must be explained, it should be *lived*.

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