

# Neurophenomenology: an invitation to discussion

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No more than a few years ago could open an article concerning neurophenomenology with a statement describing recent rediscovery of the problem of consciousness by the cognitive sciences and pointing to the fact that right now, explaining conscious experience in neuroscientific or computational terms poses the greatest challenge for those sciences. Today however, constataions of this sort start to sound like trivial descriptions of a universally recognized state of affairs. The question of “how the water of the physical brain is turned into a wine of consciousness” is now among the mainstream problems of cognitive science.

Even if the existence of the so called “hard” problem of consciousness is now universally acknowledged and “domesticated” in some sense, this does not change the fact that consciousness still poses an issue so challenging that we cannot really tell whether what we are facing is just another scientific problem, or a full-blown mystery. Briefly, the task is to explain how certain processes taking place in the central nervous system give rise to phenomenally conscious, first-personal experience. On the one hand of the equation we have one object among many (albeit a very complex and sophisticated one), that is, the biological brain, and on the other we have our subjective experiences of smelling freshly mowed grass or feeling the joy upon seeing a close person - in other words, those mental states, for which we

can say that there is something it is like to be in them from the perspective of the experiencing subject. How can we achieve a situation in which our knowledge about the structure and the processes taking place in the aforementioned object would make the existence of something like consciousness *understandable*? How can we avoid being open to the “it’s only correlations” type of argument, so often put forth in one form or the other by both specialists and intrigued laymen, according to which we are at most able to point and describe neural processes that accompany experience, or even those that constitute necessary and sufficient conditions for the occurrence of experience, but we do not possess even a preliminary idea about exactly *how* those processes could generate experience?

Presenting a comprehensive and detailed classification of different types of answers given to questions of this sort is beyond the scope of this short article. Interested Reader will be happy to find a relatively detailed theoretical map of this kind in Francisco Varela’s article presented in this issue of “Avant”. For the present purposes, we can distinguish three wide categories of proposals. First, there is the defeatist mysterianism, according to which resolving the hard problem is forever beyond our reach due to natural limitations of human knowledge (McGinn 1989). Second, there is a large group of theories aiming at taking the bull by its’ horns by providing a reductive explanation of phenomenal consciousness in non-mental, mostly computational and/or neurobiological terms<sup>1</sup>. Unfortunately, theories in this category achieve relative explanatory success only at the expense of their authors (explicitly or implicitly) “demystifying” or even eliminating the very

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<sup>1</sup> Also worth noting here is a class of theories defended by many analytic philosophers of the mind that are based on the proposal that states of consciousness can be reduced to a certain kind of intentional or representational states (see e.g. Tye 2000). In such a perspective, if we could provide a naturalistic account of intentionality, we could explain consciousness as well. Theories of this kind are obviously founded on the assumption that we’re capable of understanding the nature of intentionality without referring to phenomenal consciousness, an assumption that is currently more and more frequently criticized (see Gładziejewski, in press).

concept of phenomenal consciousness that *de facto* made the problem of consciousness such a big challenge in the first place (see e.g. Dennett 1991; Dennett 2007). Third, there is a group of “unconventional”, non-reductive proposals, according to which to solve the hard problem we need to take novel, or even revolutionary steps, like introducing fundamental changes in our understanding of the physical world. This category includes among others the projects that try to rehabilitate some type of psychophysical dualism or neutral monism (see e.g. Chalmers 1996).

Neurophenomenology, a proposal represented by the articles presented in this issue of “Avant”, clearly belongs to this third category. In their articles, Francisco Varela, Robert Hanna, Shaun Gallagher and Evan Thompson express both a sort of “phenomenal realism” – that is, the belief that we must not try to eliminate the category of first-personal, phenomenal experience – as well as anti-reductionism, according to which it is impossible to provide a reductive explanation of consciousness in functional or neurobiological terms. In their perspective, solving the hard problem of consciousness requires us to take bolder, more unconventional steps. The uniqueness of neurophenomenology lies however in the fact that it does not propose new solutions of a strictly theoretical kind – like expanding the ontology of the physical realm – but rather invites us to study consciousness using a new *method*. According to this proposal, the project of studying and explaining consciousness scientifically requires us to modify the methodology that we use to realize this project.

The methodology proposed by neurophenomenologists has two basic components. The first one consists of showing a strategy of studying consciousness from a first-person perspective that would enable us to form a description of conscious experience according to a set of well defined, strict rules. The assumption here is that we cannot study consciousness unless we know exactly *what* it is that we are studying, that is, unless we do not have at our disposal a nontrivial, fine-grained description of conscious experience. Only this kind of description can enable us to bring the knowledge about

experience closer to our knowledge about the workings of the brain. According to neurophenomenologists, the only way that could lead us to develop such descriptions is using phenomenology with its' bracketing of natural attitude and its' pursuit of gaining an eidetic insight into conscious. Phenomenology here is opposed to simple, unqualified introspection. The latter is supposed to be unsystematic, inevitably laden with a number of theoretical presuppositions concerning the nature experience and therefore doomed to generate descriptions that are incoherent, arbitrary and altogether rather valueless. The only way for us to create intersubjectively valid descriptions of consciousness, ones that are worthy of being called "scientific", is to proceed according to Husserl's methodological directives. Appropriately (that is, phenomenologically) conducted investigations will therefore lead us to form descriptions of consciousness that can be unanimously qualified as valid or correct. Descriptions of this sort are open to alterations based on third-personal data (an issue that is discussed below), but should not be treated as merely "folk" beliefs that could be entirely falsified by those data. The results of phenomenological studies constitute a full-blooded, indispensable part of the project of studying consciousness that is just as important as the results of the investigations conducted using third-personal methods.

The postulate to describe conscious experience according to the methods prescribed by phenomenologists has by itself no fundamental implications for the project of studying consciousness within context of cognitive sciences. For it to do so, one should answer a question about how to relate the knowledge based on phenomenological investigations with the knowledge about the workings of the brain that we owe to third-personal methods. The second component of the neurophenomenologists' methodological proposal serves as a solution to this very problem. According to Varela's formulation of it, the idea is that "phenomenological accounts of the structure of the experience and their counterparts in cognitive science relate to each through reciprocal constraints" (Varela 2010; citation taken from the original version of the article: Varela 1996). To put it briefly, this

thesis means that juxtaposing first-personal descriptions of consciousness based on phenomenological method with third-personal descriptions of large-scale brain processes should lead to (1) the discovery of analogies, correspondences or isomorphisms taking place between the structure and the dynamics of phenomenal experience and the dynamics of neural processes; (2) a situation in which a description based on one type of method (first-personal vs. third-personal) would turn out to be a useful tool serving as a way of partially verifying, interpreting or enriching the results obtained using the other type of method. The first part of this thesis has been further developed with the help the concept of “generative passages” (see Lutz 2002). The idea is to attempt to use dynamical systems theory to create formal models that could *at the same time* be applied to both the structure and the dynamics of phenomenal experience and the dynamics of large-scale processes taking place in the brain. The second part of the “reciprocal constraints” conception fundamentally boils down to stating that first- and third-personal data can in a sense complement and support each other. According to this proposal, the data collected using phenomenology could corroborate certain neuroscientific results, as well as aid or even direct the interpretation of third-personal data. The same holds for the other way around. For example, detailed knowledge about neural processes could direct the phenomenological investigation so that it would lead us to discover certain subtle experiential distinctions that had previously gone unnoticed. Phenomenology and neuroscience can therefore “enlighten” each other in neurophenomenology.

As it is with every methodological proposal, assessment of how much neurophenomenology is worth exactly requires us to ask about its’ “cash value”. Can the neurophenomenological method actually enable us to fulfill the task that it is supposed to? Above all, we must notice that there are in fact two ways of understating the nature of this task. On the one hand, neurophenomenology could be understood as being supposed to provide us with such a fruitful way of doing a science of consciousness so that it could be considered a valuable part of cognitive science. On the other hand, one

could say that the ultimate goal of neurophenomenology is even more ambitious: it should let us solve the hard problem of consciousness. This second aim is explicitly stated in the title of Varela's article (2010). It will be worthwhile now to ask about how (if so) are neurophenomenologists coping with fulfilling these two tasks.

As far the first of them goes, it seems that neurophenomenology has already proven itself to be valuable as a way of conducting the science of consciousness. The research based on neurophenomenological methodology has resulted in the discovery of a number of interesting relationships between first- and third-personal data. Examples are provided in the articles presented in the current issue o "Avant". Hanna and Thompson (2010) distinguish at experiential level the property of spontaneity, a sort of prereflective, internal autodetermination or purposefulness that characterizes conscious experience. They discuss multistable perception – in which ambiguous stimulus is by turns perceived according to one or the other possible "interpretation" - as exemplifying this quality. Without delving into technical details, the authors show very peculiar analogies between spontaneity of experience and the patterns of self-organizing brain activity described using dynamical systems theory, whereby stable percepts correspond to the attractors in a phase space and switching between these percepts can be interpreted as autogenerated "switches" between attractors. Gallagher and Varela (2010) on the other hand, point our attention (among others) to simple forms of self-consciousness that accompany embodied action. The authors show that phenomenological distinction between the sense of ownership and the sense of agency is mirrored at the level of neural mechanisms involved in motor control. There are more examples of similar relationships between first-personal experience and neural processes available (Petitot, Varela, Pachoud, Roy 1999; Lutz 2002). What is of crucial importance though is that neurophenomenological research sometimes goes well beyond simply discovering correspondences held between experience and the workings of the brain. A study conducted by Lutz, Lachaux, Martinerie and Varela (see the description in Lutz 2002) is an impressive

example here. In it, phenomenological categories created on the basis of the reports made by subjects that had been asked to describe their experiences of perceiving stereoscopic images actually enabled the researchers to *discover* specific patterns of synchronized neural activity that corresponded to those categories.

Taking results like those mentioned above into consideration, it seems hard to deny the fact that neurophenomenology has already proven its' fertility as a possible methodological foundation for the science of consciousness. But can it help us in fulfilling the second of the targets mentioned earlier? Can it enable us to solve the hard problem of consciousness? In this case, it is much harder to answer positively. Although the subject probably requires to be treated separately and at more length, some arguments supporting this kind of skepticism may be presented here (see also Bayne 2004). Of fundamental importance is the fact that the relationships described by neurophenomenologists that exist between the results of phenomenological analysis on the one hand and the knowledge we have about workings of the brain on the other are by no means explanatory and show no prospects of becoming explanatory. Neither establishing that there are correspondences or isomorphisms between consciousness and neural activity, nor using one type of description (that is, the description of conscious experience or of brain activity) in order to achieve additional insight into the processes standing on the opposite side of the phenomenal-physical distinction makes the existence and nature of consciousness more understandable or explainable using neurobiological categories. We can still rightfully ask about what exactly is the nature of the relation between neural states or processes and phenomenal consciousness; when thinking about the place of consciousness within the physical world, we still lack the feeling of, as Mark Rowlands called it (2001), "epistemic satisfaction". In other words, from the perspective of the hard problem, the results that we arrive at by using neurophenomenological method are closer to having the status of an explanandum rather than an explanans.

Proponents of neurophenomenology have at their disposal an answer to this kind of criticism (Hanna, Thompson 2010; Varela 2010). They may say that since their position is anti-reductive, it is not fair to expect them to reductively explain consciousness using neuroscientific terms in the first place. What is more, their proposal is supposed to even go beyond the usual materialism-dualism distinction. Upon a closer look however, these declarations do not seem to get us much further. Neurophenomenology's status as anti-reductive does not consist in making phenomenal properties fundamental components of the physical world. Rather, it consists in stating that consciousness is an emergent result of the activity of a complex system that includes the body, the brain and the world (Hanna, Thompson 2010). This constatation does not make things much clearer though. First, saying that consciousness is ontologically emergent and therefore cannot be reductively explained leaves open the question of *how* such an emergent entity that includes insides of the cranium along with rest of the body and parts of the environment could exemplify something as "weird" as phenomenal properties. Only answering this "how" question could count as a genuine solution to the hard problem of consciousness. Second, contrary to neurophenomenologists' assurances, their emergentist theory is not really so groundbreaking that it could be said to transcend the materialism-dualism distinction. Bayne (2004: 358) observes for example that sometimes neurophenomenologists state that global neural states are capable of "downward" causation and at the same time they seem to indentify this type of causation with phenomenal (phenomenal-neural) causation. However, such a conception, notices Bayne (2004: 358-359), requires prior identification of phenomenal and (global) neural states<sup>2</sup>. There seems to be a discrepancy between revolutionary aspirations of neurophenomenologists and the consequences of some of their theses. Third, it seems that the emergentist position held by neurophenomenologists does not necessarily

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<sup>2</sup> Bayne (2004: 359) also notices that this thesis seems to be inconsistent with the fact that neurophenomenologists often embrace the idea of the mind as something essentially embedded and situated.

depend on using neurophenomenological *methodology*. In other words, it seems quite possible to develop and hold this position regardless of the outcomes of the research conducted under the “reciprocal constraints” banner<sup>3</sup>. Therefore, even if Varela and others’ emergentism could actually solve the hard problem of consciousness, it would not imply that it is *neurophenomenology* that serves as remedy for this problem.

All these remarks may add an element of critical distance to the overall enthusiasm that could arise in someone after reading the neurophenomenological “trptych” presented in this issue of “Avant”. The hard problem simply remains as hard as ever. Nonetheless, it is beyond doubt that a neurophenomenological project can be considered a valuable voice in the discussion concerning the question of how to make phenomenal consciousness an object of cognitive-scientific investigations. The results obtained so far – including those described in the “trptych” – are promising. One has to hope that they are only the beginning of something permanent, even if presently we are far from realizing Varela’s hope (Varela 2010; citation taken from the original version of the article: Varela 1996) that phenomenology would become “institutionalized” as a part of cognitive science’s methodological repository. As for the Polish philosophical community, it will be good when our local “orthodox”, often antinaturalistically oriented phenomenologists get acquainted with concrete examples illustrating the potential of their discipline when it is practiced problematically rather than exegetically, within the context of the latest achievements of human knowledge rather than inside the philosophical fortress.

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<sup>3</sup> Which does not preclude the possibility of those outcomes proving to be relevant and useful for the emergentist.

## Literature

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