

# PUTTING THE BUDDHISM/SCIENCE DIALOGUE ON A NEW FOOTING

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## 'NEURALISM' AND RADICAL NEUROPHENOMENOLOGY: PLAYING WITH EXPERIENTIAL ROTATION



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**‘Neuralism’ and Radical Neurophenomenology: Playing with Experiential Rotation**  
*Elena Antonova, PhD*

Antonova explained that she intended to address an aspect of neurophenomenology that went beyond methodology to a place that is foundational to the scientific method and its approach to the mind-body problem, or any problems related to monisms or substance ontologies. Her goal was to examine this understanding of neurophenomenology not through narrative pluralism but through “experiential rotation”—adopting a view to see what the world looks like from that perspective. She noted that her own contemplative practice is rooted in the Dzogchen tradition.

She reviewed the historical progression of the ontological status of the mind in experimental psychology, starting from the early behaviorism of Watson (1913), who revolted against the failure of Introspectionism to generate reproducible data and advanced an empirical agenda based on the principles of Positivism, influenced by Comte’s position that “we only know what is objectively observable...” Although philosophical (logical) behaviorism engaged in the debate re ontological status of mental states, psychological behaviorism was ontology-neutral, simply excluding the study of mental states from its paradigm due to their inferential (“illusory”) nature in a pursuit of methodological rigor. It treated the mind (and the brain) as an unknowable black box, limiting scientific investigation to verifiable data—observable behavior.

The black box of the mind was opened with the rise of cognitive science and functionalism, with the black box of the brain becoming observable by the use of fMRI. Initially, the functionalist paradigm explicitly stated the irrelevance of ontology to its approach, with the use of neutral language, such as “correlation,” in reference to the relationship between functional (cognitive) mind processes and the neural dynamics. However, the language became progressively more reductionist, changing to “neural substrates” or “neural basis” of this or that mental process, with an implicit material reductionist position being adopted by most neuroscientists these days.

In the last 10 years, a new trend in fMRI research has appeared, following a seminal publication by Fox et al (2005) showing that the human brain is organized into dynamic, inversely correlated functional networks, with primarily lateral cortical networks activating during attention-demanding cognitive tasks, and mainly medial-based networks, such as the Default Mode Network (DMN), active during “rest.” The initial intuition was that DMN activity during ‘rest’ is related to spontaneous mentation such as mind-wandering, day dreaming, or self-referencing in general terms. However, this intuition was quickly abandoned, as articulated in Raichle’s influential *Science* paper (2006) “The Brain’s Dark Energy,” arguing that intrinsic brain activity cannot be completely accounted for by unconstrained cognition or spontaneous thought, even though these undoubtedly contribute. The principal reason is that spontaneous thoughts are unlikely to be more energy demanding than task-related cognition. With this reasoning in mind, the study of the resting state with fMRI has proceeded by “shooting in the dark”—scanning healthy individuals and individuals with various psychopathologies during “rest,” with no regard to the experience of the scanned subjects. And here is the irony: we moved from the study of the black box of the mind, by trying to unpack the neural dimension of mind’s functional process, to no mind at all. The experience of the

scanned subject has become a black box of the resting-state fMRI, which exclusively studies neural behavior. A new paradigm has emerged that Antonova referred to as “neuralism.”

Patricia Churchland’s reductionist position that equates human experience to the “elaborate functions of a complicated mass of grey tissue” triggered Antonova’s first experiential rotation: what if we accept this view and go down a “reductionist rabbit hole” all the way to the quantum level, where the boundary between matter and consciousness becomes blurred.

Although neuroscientists generally equate physicalism and materialism, modern physics has metaphysical implications that go beyond materialism.<sup>1</sup> Antonova considered philosopher Galen Strawson’s “realistic physicalism,” which leads to panpsychism among other problems. She then turned to Schrodinger’s statement, “The world is given to me only once, not one existing and one perceived. Subject and object are only one. The barrier between them cannot be said to have been broken down as a result of recent experience in the physical sciences, for this barrier does not exist.” This served as a pivot for another experiential rotation, leading her to the position of radical, or foundational, neurophenomenology that Francisco Varela put forward to dissolve, rather than resolve, the hard problem of consciousness.

The problem, in Varela’s view, arises from the standard framing of the question as to how conscious experience arises from pre-existent and real physical objects. He instead offers neurophenomenology as a way of finding meaningful bridges between two irreducible phenomenal domains, without adopting any alternative naturalistic metaphysical explanation. This does not mean merely “expanding neuroscience to include original phenomenological investigations of experience;”<sup>2</sup> rather, he advocates an existential “mutation,” where the issue of consciousness must be addressed entirely from the standpoint of human lived experience. This shift in perspective engages a metaphysical problem from the standpoint of a non-metaphysical experiential stance, revealing that there is no problem to be solved. It is a difficult stance to maintain, as conceded by Husserl, who advocated the practice of epoché (suspension of judgment), leading to the experience of a transcendental foundation of pure consciousness. The epoché needs to be constantly reinstated due to the automatic tendency of the mind, driven by a strong perceptual habit, to be pulled back into the “natural attitude.”

Another peril is that when the natural attitude is dissolved by the epoché, “Cartesian anxiety” may arise, where the absence of an absolute foundation is felt as groundlessness, which might flip into nihilism. But this groundlessness is also the lack of inherent existence (emptiness) that Madhyamika argues for, and as such needs to be brought into experience to transform it, which cannot be done through a purely conceptual understanding. Like the epoché, it is a subtle experiential shift that is often not difficult to glimpse but challenging to sustain, due to automatic re-emergence of the subject/object structure. The radical nature of neurophenomenology as Varela framed it is that its practice in science requires a commitment to awareness that every scientific observations is nothing other than an act of *lived experience*, with third-person knowledge being an inter-subjectively shared experience derived through an agreed upon

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<sup>1</sup> Henry Stapp, *JoS*, Volume 12 (11) 2005.

<sup>2</sup> Thompson, E. (2004). Life and Mind: from autopoiesis to neurophenomenology. A tribute to Francisco Varela. *Phenomenology and the Cognitive Sciences* 3, 381-398.

set of practices. “Objective” need not become “objectified.” The implication of this radical aspect of Varela’s neurophenomenology allows neuroscience, and particularly contemplative neuroscience, to proceed in an ontology-free way while not compromising on methodological rigor.

In the discussion that followed, Clifford Saron spoke of how the pragmatic successes of the reductionist paradigm in delineating complex systems did not require that its constructs should be reified, and Antonova agreed that it was necessary to distinguish between reduction as a strategy for scientific research, as opposed to reductionist claims to objective existence.

Bill Waldron observed that Varela’s position on neurophenomenology was a restatement of the Buddhist analysis of perception, where an object impinges on the perceptual faculty, so that awareness arises, and the three meet in contact as a triad that cannot be dissolved except analytically—in other words, a methodological approach that precludes insoluble binary problems and sees the foundationalist/nihilist or materialist/idealist dichotomies as ill-formed questions.

Francisca Cho noted the relevance of the Buddhist two truths doctrine. She suggested that the Madhyamika idea of emptiness is a meta-level reflection on the nature of mind that acts as an experiential rotation in itself, as it purposefully avoids the demand for “truth as content” that is triggered by the language of absolute truth.

Based on her own experience of Dzogchen practice and a conceptual study of Yogacara’s Eight-Consciousnesses model in the context of Dzogchen discourse, Antonova then offered another experiential rotation, framing what is known about the main functional regions of the brain and large-scale brain networks in relation to the Yogacara model. She recounted a dream that had led her to interpret the Buddhist metaphor of one who is “lotus-born” as a being born with a brain arising from the mud of evolution (a murky pond) that reflects reality without distortion. A Dzogchen view might alternatively describe evolution as a devolution into grasping, delusion, and ever increasing complexity of conceptual construction, obscuring the original state of pure perception, wisdom, and compassion.

Looking for a framework to study the Dzogchen meditative experience of resting in *rigpa*, translated as in the ultimate nature of the mind, she contrasted the *innatist* Dzogchen perspective versus the *constructionist* approaches of certain other Buddhist schools (Dunne 2011), or the sudden path versus the gradual path. She proposed that *innatist* approach to practice (such as resting in *rigpa*) might be characterized by the bottom-up neurodynamic, whereas the top-down control might be characteristic of the *constructionist* approach to practice. After associating the five sensory consciousnesses with the respective primary sensory areas, she linked the sixth consciousness, *mano-vijñāna*, to the function of the lateral prefrontal cortex, which integrates sensory information and enables discrimination, conceptualization, abstraction, and manipulation of information. She linked the seventh or afflictive consciousness (*kliṣṭa-manas*) to the function of the Default Mode Network (DMN) and proposed that the interplay between the lateral fronto-parietal networks and the DMN associated with the sixth and seventh consciousness respectively might give rise to ego-fixation. In response, Waldron offered an alternative analysis based on the Yogacara system.

She then inquired into what brain mechanisms might support the eighth consciousness, or *ālaya-vijñāna*, which is understood as the consciousness that carries

karmic propensities from one lifetime to the next, and suggested neural networks involved in habit formation.

David Germano added further distinctions between the Dzogchen and Yogacara theories of *ālaya-vijñāna* and how they related to the different path structures of each tradition. Dzogchen describes *rigpa*, or primordial awareness, as being highly responsive and highly sensitive to context, in addition to being “empty in essence, radiant in nature, and pervading in care,” and constantly engaged in creative ferment. When self-aware it gives rise to liberation, but the same *rigpa*, when self-awareness is absent, also gives rise to the *ālaya-vijñāna* as the basis for a suffering, distorted existence. He also emphasized the complexity of Dzogchen descriptions of consciousness, which are only in part experientially oriented.

Saron protested that the framing of the neuroscience in this context was based on “an impoverished view of the brain” and that the Dzogchen claim to see undistorted reality or “things as they are” doesn’t compute with our knowledge of how even basic perception occurs, let alone how the default mode network works. Waldron countered that the current dialogue was a very similar project to what Rausch, Thompson, and Varela had accomplished with *The Embodied Mind* some 25 years earlier, though with more sophisticated and well-developed taxonomies and methods. Thus, any proposal like Antonova’s would be met with constructive interdisciplinary criticism, and should be considered as a first step in launching the conversation rather than defining the project.

Antonova concluded by sharing some preliminary results of an unpublished study of experienced meditators during a series of mental states whilst being scanned using fMRI, including mind-wandering, conceptual planning, and open presence meditation, with a simple even/odd number task as a baseline control.

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