ence may involve a synchronous pattern of neural activity across various neural assemblies, but it is hard to even make sense of the claim that my experience itself involves the same synchronous pattern of neural activity. Accordingly, this does not seem to be the notion of identity operative in SIT.

« 8 » It is more reasonable to read SIT as a form of dual aspect theory, according to which the experiential and the physical are two distinct aspects of one and the same existence, namely, "the phenomenally charged embodied activity" (§44). In this view, not all properties attributable to the experiential aspect of the embodied activity are also attributable to its physical aspect, and vice versa. However, both experiential and physical properties are properties of the embodied activity as a whole. In other words, SIT can be read as concerned not with the identity between the experiential and the physical as such, but rather with the identity of the subject that bears these two aspects.

« 9 » On this interpretation, SIT seems to invite a series of questions to be answered through empirical investigations (in the broad sense) into the nature of embodied activities – or at least unless it denies any systematic structure in the way in which embodied activities involve experiential aspects. For example, if SIT is correct, what is the specific difference between embodied activities with an experiential aspect and mere physical activities devoid of it? What are the differences between embodied activities involving different types of conscious experience such as perception, imagination, empathy, different kinds of emotions, and so on? What are the differences between embodied activities with different kinds of conscious experience among the same general type, such as perception of material things, of images, of animals, of artefacts, etc.? These are arguably legitimate questions to ask even if there is no metaphysical gap between the experiential and the physical.

« 10 » Then the affinity between the neurophenomenological approach and the REC approach to the hard problem is fairly obvious. To pursue the kinds of questions listed above, we clearly need to engage in "a principled consideration of embodiment as lived experience" (Varela 1996: 346). For example, if we want to specify the nature of embodied activities involving perceptual experiences of material things, then we need to explore "what it is like to engage in the activity of" (§40) seeing something. Furthermore, since the embodied activities have physical aspects as well, we also need to resort to third-personal, scientific methods to achieve a better understanding of their nature. In short, neurophenomenology provides SIT with concrete methods (or at least their outline) to flesh out its monistic metaphysics.

« 11 » To sum up, if my interpretations of the two approaches are correct, both neurophenomenology and REC endorse a form of monism. In these views, the subjective and the objective, the experiential and the physical are but two domains or two aspects of an identical layer of being. To be honest, these ideas remain elusive to me, and it seems much clarification is required as to what it exactly means to say that these two domains emerge from a single realm of phenomena or that embodied activities bear both the experiential and the physical within them. In any case, however, the experiential and the physical seem not strictly identical in the sense of sharing the exactly same set of properties. Thus the "strictly identical" in SIT should be handled with care. Monistic metaphysics does not require a strict identity between different aspects of one and the same underlying existence.

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## Authors' Response

# Mind Never The Gap, Redux

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**> Upshot** • We respond to three main challenges that the commentaries have raised. First, we argue that to deal successfully with the hard problem of consciousness, it is not enough to posit a remedy by which to move beyond the hard problem. Second, we argue that it makes no sense to explain identity. Yet this does not commit us to definitions by fiat. The strategy we pursue here, and in the target article, is not to explain identity but to explain away the appearance of non-identity. Finally, while we are sympathetic to Varela's call for a paradigm shift in consciousness studies, we argue here, and in the target article, that this call can only be properly successful if the hard problem is dismantled.

« 1 » In the target article "Never mind the gap: Neurophenomenology, radical enactivism and the hard problem of consciousness," we argued that neurophenomenology, as classically formulated by Varela (1996), seeks to deal with the hard problem of consciousness by advancing a non-reductive explanation of experience that integrates first- and third-person data. From this, we concluded that neurophenomenology:

- recognises rather than remedies the hard problem of consciousness; and
- fails to provide an adequate solution to that problem about the metaphysics of mind.

« 2 » In what follows, we shall respond to three main challenges that the commentaries have raised, and in so doing map some of the central features of our own approach to consciousness. The first complaint is that we have (somehow) misconstrued the project of neurophenomenology. The second complaint is that we have said too little about how, appealing to our preferred identity thesis, we undermine the hard problem of consciousness. And finally, the third complaint is that there is a deeper affinity between neurophenomenology and radical enactivism than we (seem to) grant.

« 3 » We are pleased to note that our main critique of the limitations of the framework of neurophenomenology resonates positively with many of the commentaries. Specifically, Michael Beaton, Shaun Gallagher, Diana Gasparyan, and Oliver Lukitsch & Cornell Schreiber all agree that the neurophenomenological framework either fails to address the hard problem or fails to dissolve it adequately. Consider, for example, what Gallagher says in his commentary: "I agree that Francisco Varela's original proposal to offer neurophenomenology as an answer to the hard problem, rather than to deconstruct it, was the wrong strategy." (§1). Yet not all of the commentaries share this conviction. Most notably, the commentary by Michael Bitbol & Elenea Antonova does not. In sharp contrast to the four commentaries above, Bitbol & Antonova explicitly state that the target article "systematically misconstrues the original approach to the 'hard problem' […] advocated by […] Varela under the name 'neurophenomenology'" (§1).

« 4 » Here we look more closely at the arguments provided by Bitbol & Antonova and their implications. According to Bitbol & Antonova, we commit neurophenomenology to non-reductionism. However, they claim, even if neurophenomenology is a critique of reductionist approaches to explanation, neurophenomenology "adopts *no* alternative naturalistic metaphysical option" (§5). Although Varela did disavow any substantial metaphysics, we nevertheless find this objection hard to square with what Valera in fact writes in places and the authors he explicitly counts as allies, namely those who advance non-reductive naturalistic metaphysical solutions to the hard problem. Thus Varela says: "The phenomenological approach starts from the *irreducible nature* of conscious experience" (Varela 1996: 334). Moreover, he aligns his non-reductionist approach, albeit in a modified form, with that of figures such as David Chalmers (1996), John Searle (1992), and Owen Flanagan (1992). He also talks about getting closer to bridging the biological mind-experiential mind gap. In this light, Varela appears to presuppose the existence of some type of gap that needs bridging that would make logical room for the kind of non-reductionist explanations he promises.

« 5 » But perhaps a different reading is possible. Bitbol & Antonova claim that Varela-style neurophenomenology does not trade in metaphysics and thus does offer a non-reductionist straight solution to the hard problem of consciousness. This is in line with Varela's talk of re-framing the problem rather than solving it. Focusing on those remarks, he can be read as a metaphysical quietist. This would fit Bitbol & Antonova's claim that "Varela had already endorsed the authors' [Kirchhoff & Hutto's] claim that 'the hard problem is not just hard: it is impossible'" (§7). Let us assume, for the sake of argument, that this reading is the one to be preferred. Note that steering clear of metaphysics comes with a price. One cannot offer a straight solution to the hard problem of consciousness. Very well. This fits with Bitbol & Antonova's observation that Varela aims to provide a remedy for the hard problem. However, if we assess neurophenomenology from this angle, it can be complained that it does not do nearly enough, at the right level, to address the intellectual diseases that foster the belief that the hard problem is a genuine problem. Simply noting that first- and third-personal data are reciprocally constrained, for example, whatever its practical value, does little to relieve the tendency to think of these phenomena as fundamentally distinct. Rather, successfully providing a remedy would require explaining away the appearance of non-identity in the sort of ways we discuss below in §8.

« 6 » Although agreeing with our metaphysical considerations about the limitations of neurophenomenology, Gasparyan goes on to note that there are other and perhaps more adequate ways of "handling the unfortunate gap" (§6). She says that if the "gap in the explanation is a natural condition of the entire system and is initially built into it, [then] […] the normal nature of the gap means actual overcoming of this gap" (§6). We admit being unsure about what the author intends here. But even on a charitable reading, the proposal on the table seems to be obviously flawed – when taken as a way of handling the hard problem. That is, were there nothing "irregular" about the (alleged) gap between the phenomenal and the physical, there would still be a gap. Thus, highlighting the naturalness of the gap between the phenomenal and the physical does nothing, in and of itself, to overcome the hard problem of consciousness or otherwise remedy it.

« 7 » Ximena González-Grandón complains that

> "the identity thesis, as a solution [to the hard problem], lies at the core of brain reduction and functionalism, and [so] avoids the possibility of a genuine understanding and characterization of human living experience." (§2)

This complaint makes undefended assumptions about the character and logical implications of our proposed identity thesis. It may be natural to associate any identity claim in philosophy of mind with functionalism or the mind-brain identity theory. Nevertheless, intellectual tendencies aside, there is no entailment here. Mind-brain identity theory does not follow automatically from assuming that the phenomenal and the physical stand in a relation of identity. The embodied activities that are identified with experiences in normal circumstances can be thought of as extensive and not brain-bound. It is thus perfectly possible to endorse an identity thesis while rejecting a neurocentric perspective. Second, radical enactivism offers a definitively non-functionalist vision of minds (for a full paper treatment of this issue, see Hutto, Kirchhoff & Myin 2014). Hence González-Grandón underestimates the actual range of philosophical possibilities and thus mischaracterizes our approach when objecting to the account provided in the target article.

« 8 » Dan Lloyd raises a different but related issue. As he sees it, it is radical enactivism's rejection of a representational theory of mind that poses problems for capturing phenomenality. Lloyd suggests that our own description of experience, which emphasizes the importance of expectations, highlights a problem for our non-representationalism. This is because – he assumes – expectations entail the existence of representational content. Certainly, we do speak of experiential expectations, as in the following case: "You are feeling the texture of the book and even though you are only holding parts of the book you have expectations about the book's orientation, its size, and so on" (§40). However, exactly no argument is supplied to show why the brain – or an extensive brain-body-world system – that anticipates its embedding environment must do so in a way that entails the existence of representational content. There are serious problems in simply

assuming a representationalist account of such expectations (see, e.g., Hutto & Myin 2013). The enactivist framework offers a positive, alternative notion of anticipation that can be understood in an appropriately deflated sense. That is, for any two dynamically coupled systems – such as organism (O) and environment (E) – O can be understood as anticipating the dynamics of the other, E, and *vice versa*, "when it reliably co-varies with the dynamics of [E] and it is robust to the noise inherent in the coupling" (Bruineberg & Rietveld 2014: 7). As such, there is no necessity to think that brains or more extensive systems that enactively anticipate their environments must do so in ways that entail the existence of representational contents.

« 9 » The second group of challenges, from **Gallagher**, **Beaton**, and **Lukitsch & Schreiber**, focuses on our identity thesis. **Gallagher** worries about how we unpack the relationship between the physical and the phenomenal. First, Gallagher thinks that our identity claim fails to make room for reciprocal causal dynamics – a notion at the heart of enactivist approaches to mind. In making this claim, **Gallagher** considers the following example:

> "a material system composed of three dynamically related processual parts, B, C, and E. Changes in any one part can alter the entire system because it can alter the dynamics of the system as a whole. If B is a machine process that starts to operate at a different speed, for example, it can easily cause C to change its behavior, and E might stop functioning altogether. Changes in B causally correlate with changes in C and E, and more generally in the dynamics that characterize the system." (§2)

Note that this does not threaten our claim that the phenomenal and the physical are identical, as Gallagher intimates. To see this, consider again that the claim we pursue in the target article is that conscious experience – its phenomenal character – is nothing over and above forms of embodied activity. If correct, it follows that the physical and the phenomenal cannot be distinct and merely correlated. But this does not commit us, *contra* **Gallagher**, to the additional claim that the relevant embodied activities are not diachronically constituted by a raft of other complex processes standing in the relation of continuous reciprocal causation. For radical enactivism, cognitive processes are activities. They are something we do. This is entirely consistent with our further claim that cognitive processes and conscious experience are a single phenomenon (see also Hutto & Myin 2013; Kirchhoff 2015b; Silberstein & Chemero 2015). In other words, we can keep the identity claim even if dynamical changes in microscopic properties drive dynamical changes in macroscopic properties, and vice-versa. Nothing we say about the relationship between the phenomenal and the physical commits us to the – admittedly non-enactivist – view that macroscopic attributes are not diachronically constituted by microscopic dynamics (cf. Kirchhoff 2015a).

« 10 » **Beaton** draws attention to the issue that identity cannot simply be assumed. That is, one cannot simply posit identity by fiat. As he says:

> "[Y]ou can and must put in the required the legwork here: you can and should make a convincing *argument* that the structure of embodied action is the very same thing as the structure of phenomenal experience." (§6)

We agree. To make any identity claim about the phenomenal and the physical requires one to explain away the appearances of non-identity and demonstrate that an imagined metaphysical distinction between the phenomenal and the physical is an illusion of sorts (Papineau 2002). That requires additional work, but fully explaining away the illusion of non-identity would require a good deal more space than was available in the target article. **Beaton** notes that one way to explain identity is to show that there is a one-way entailment from the microscopic to the macroscopic. As he says,

> "once we know the properties of water and the microphysics of $H_2O$ molecules, we can make a clear argument that $H_2O$ molecules must (as a 'conceptual necessity,' if you will) behave in bulk as water behaves." (§3)

Yet even if my knowledge of $H_2O$ molecules allows me to gain knowledge about the macroscopic properties of water, and vice versa, this does not license the claim that the microscopic and the macroscopic properties are identical. To see this, consider two coupled pendulums oscillating in synchrony. Here, it is possible to know something about one pendulum by investigating the other, and vice versa. This is often explained by reference to the notion of mutual information. Yet it does not follow that the two entities are identical. So it is not evident that Beaton's proposal for demonstrating the identity will work. Finally, **Lukitsch & Schreiber** invite us to consider our identity claim in terms of identity between intentionality and phenomenality. This is an interesting suggestion but there are also reasons for thinking that these two phenomena, while normally inter-related, can come apart. Indeed, it is rather straightforward to show that while intentionality and phenomenality are inter-related, it does not follow that these two phenomena are intrinsically related (as with Searle's (1992) connection principle). The reason is that while experience is phenomenal in its character, the same is not the case for intentionality (for a full treatment of this issue, see Hutto 2000).

« 11 » **Katsunori Miyahara** suggests that our view of the relationship between the phenomenal and the physical is actually close to that of neurophenomenology and hence they should not be conceived of as rivals. He holds that the two accounts differ only trivially. **Miyahara** makes some insightful points. First, like **Bitbol & Antonova**, he observes that for Varela the ambition was to "change the entire framework within which the issue [of the hard problem] is discussed" (Varela 1996: 331). *Prima facie*, at least, this is not different from the suggestion of the target article. Second, Varela and we agree in thinking that to conceive of consciousness as "some private, internal event" (ibid: 339) is a central obstacle when it comes to thinking about consciousness. On these issues, our account and Varela's program of neurophenomenology concur with one another. Moreover, both approaches positively conceive of cognition and by extension conscious experience as grounded in nonlinearly coupled brain-body-environment dynamics. Yet it is in the job that appealing to such dynamics is meant to do that the two approaches come apart. For Varela, as **Miyahara** observes, the neurophenomenological conception of consciousness deals with the hard problem through a research program that takes the form of an open-ended exploration (§4). It is certainly no easy task to change a research culture, and certainly not one that rests on

deep-seated assumptions, such as those that drive the contemporary search for neural correlates of consciousness. No doubt achieving a paradigm shift in this domain is a hard task. We are sympathetic to Varela's call for a paradigm shift in consciousness studies. However, we hold that this paradigm shift will only be properly fruitful if the hard problem is dismantled. Once that is done, it will become possible to explore fully and assess the more pragmatic advances that Varela proposes. This was our main point in the target article.

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