Enacting the "Body" of Neurophenomenology: Off-Radar First-Person Methodologies in Pragmatics of Experiencing

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> **Context** • Recent discussions in neurophenomenology pointed out the difference between its current state and how it was initially proposed by Francisco Varela. This discrepancy was characterized by Claire Petitmengin as the difference between mild and radical neurophenomenology, arguing that only the latter is able to dissolve the subjective–objective experiential gap. > **Problem** • Radical neurophenomenology invites us to explore the co-constitution of the subjective and objective poles in lived experience. However, this proposal has led to some concerns regarding its implementation. We point out that the issue goes deeper than that of just developing an appropriate know-how. It concerns the difficulty of conceptually grasping the "overcoming" of the subjective–objective split, both in our lived experience and at the paradigmatic/theoretical level. > **Method** • We propose that neurophenomenology has to embrace its pluralistic and open-ended nature – destabilizing first–third person connections through the process of constant (methodological) refinements. A key component of this process is the exploration of various first-person methodologies. We reflect on the characteristics of first-person methodology, and how different approaches can foster the study of different "sectors" of lived experience, as well as provide unique frameworks for intersubjective corroboration. We compare first-person methodologies to skilled performance, which varies with each instance of neurophenomenological methodology. Consequently, we present three body-oriented first-person disciplines: somatics, somaesthetics and emersiology. > **Results** • Each discipline shares the same assumptions as neurophenomenology with regard to the notion of living/lived body and the pragmatics of experiencing, focusing on first–third person dynamics. Moreover, each of them addresses (the problem of) meliorations of lived experience, echoing the process of constant refinement. > **Implications** • Enacting the original principles of neurophenomenology requires a shift from condensing phenomenal data to a narrow framework of particular "phenomenology," to accounting for a malleable frame of intersubjectively valid data. During the constant refinement process, new standards and methodological procedures are established, creating new "frames" for the validation of data stemming from a given first-person method. > **Constructivist content** • Our proposal stems from the enactive approach proposed by Varela and others. Additionally, the proposed pragmatic notion of constant refinement can be deemed to be a constructivist methodology. > **Key words** • Emersiology, first-person methodologies, lived body, lived experience, neurophenomenology, pragmatics of experiencing, somaesthetics, somatics.

Introduction

« 1 » In 1996, Francisco Varela proposed a unique research program by the name of neurophenomenology, which promised a non-reductionist framework for cognitive science, combining first-person study of lived experience with support from precise third-person (neuroscientific and behavioral) data. In the center of this program was the idea of establishing mutual constraints between first- and third-person approaches to cognition, which was based on the enactive approach put forth in *The Embodied Mind* (TEM) written together with Evan Thompson and Eleanor Rosch (2016; VTR). Neurophenomenology can be considered a methodological or pragmatic extension of the enactive approach and its postulate of the fundamental circularity of science and experience (Varela 1996). This connection is also visible in how neurophenomenology's first-person side utilizes not only phenomenology, as in the European, Husserlian tradition, but also Eastern contemplative traditions (e.g., Buddhism), which influenced ideas found in TEM. These traditions represent an "active, disciplined phenomenology," which contrasts with the complete lack of any "sustained tradition of phenomenological examination" in "Western science and culture at large" (Varela 1996: 346).

« 2 » Despite the far-reaching promises of neurophenomenology, the rather scant studies and the difficulty of methodologically "pulling-it-off" (Berkovich-Ohana et al. 2020) has led to concerns about its feasibility (Ataria 2017). This state of affairs is puzzling, given how widespread enactive/embodied approaches have become in cognitive science. Neurophenomenology was – after all – a natural extension of these. This worry leads to questioning whether Varela's proposal had been correctly implemented in the first place. For instance, Claire Petitmengin (2017: 139) argues for distinguishing between *mild neurophenomenology* (establishing correlations between the first and third person) and *radical neurophenomenology* ("investigating the process of co-constitution of the subjective and the objective poles, within lived experience").[1] A similar position is present in Michel Bitbol's (2021) recent article, where he addresses the misleading character of mutual constraints between first and third person. In Bitbol's view, speaking of these two domains is already a step back to dualistic thinking, preventing us from being faithful to Varela's original intention of building a "relation between conscious experience and the living body that *starts from lived experience and links back to it*" (ibid: 145; italics in original).

« 3 » However, the current state of neurophenomenology may not be an issue of interpretation or faithfulness, but an inevitable reaction to its extremely demanding character. It required shifting not only how we think about embodied lived experience but also how we think about carrying out the science of such experience. The shift from third-person objectivist science to the open-ended approach of neurophenomenology was then not only theoretical but existential. This is what Sebastjan Vörös and Bitbol (2017) deemed "enacting enaction," meaning that if we take the corollaries of the enactive approach seriously, we have to think about applying its logic to our own scientific practice – we have to *en-act/en-live* enaction. Nonetheless, for neurophenomenology, in order to survive in the sociocultural body of science, it was necessary to

restrain its ambitions to fit the predominant values and standards of (cognitive) science. To some extent, this was predicted by Varela (1996: 331) himself: "the price we need to pay is heavier than most people are willing to concede." Yet this serves only as a short answer to the underlying deeper problem.

« 4 » In what follows, we start by exploring the tension between mild and radical programs of neurophenomenology, arguing for an alternative view of "dissolution" of the first–third or the subjective–objective split. We propose a more pragmatic perspective, stating that dissolution can only be performed by destabilizing first- and third-person connections, through ongoing methodological progress, leading to constant refinements or "updates" for neurophenomenology (2.0, 3.0, and so on). However, this does not necessarily result in going back to mild, correlational studies, but rather recontextualizes this progress in terms of training and working with embodied lived experience. Parallel to Bitbol's (2021: 149) conclusion is that it is not so much explaining neuro-experiential correlations, as "un-folding" self-knowledge through gradual progress in developing "general mutual constraints." In other words, progress in neurophenomenology should be thought of not as adding additional declarative knowledge about experience but as pragmatics of experiencing – gaining more detailed/fine-grained self-knowledge about a previously unnoticed (or inaccessible) range of lived experience – hence "un-folding" and the existential aspect of en-living enaction mentioned above. Given the mutual constraints, changes in experience/the first-person side may urge changes in third-person interpretations, leading to something along the lines of constant refinement of our methodologies. Still, continuous refinement cannot stop at only training in phenomenological methods and explications of lived experience, which are taken as neurophenomenology's sole means to an end by many researchers. This is a severely limiting perspective, as it seems to go against the open-ended character of neurophenomenology, missing how Varela's usage of phenomenology was more than that of Husserlian tradition, being instead his own synthesis of various approaches to human experience (Varela 1996: 335). Training only in the phenomenological method

cuts off possible meliorations of embodied lived experience. Following Varela and Jonathan Shear (1999), we then argue that first-person approaches are like skilled performance: that experience is malleable to training, meaning that what is defined as the criteria of intersubjective corroboration and as phenomenologically "invariant" in "neurophenomenology 2.0" can change drastically in "neurophenomenology 3.0." In the second part of this article, we introduce three first-person, body-oriented disciplines that account for the embodied character of experience, and which have so far fallen outside the interest radar of neurophenomenology's advocates: *somatics*, *somaesthetics*, and *emersiology*. Each discipline shares many commonalities with neurophenomenology regarding the lived body or the embodied pragmatics of experiencing. These are not all-encompassing solutions, but instead, should be taken as valuable allies in pushing the Varelian project forward, through the aforementioned constant methodological updates. We hope that this juxtaposition can be mutually beneficial, since the issues present in neurophenomenology can also be illuminating for scholars working with other disciplines.

Mild versus radical: The (in)feasibility of the Varelian project

« 5 » Neurophenomenology was dubbed by Varela as the remedy for David Chalmers's (1995) hard problem of consciousness – explaining why physical processes in a brain lead to subjective experience. Instead of filling the gap with some "extra ingredient" or entirely neglecting its existence – reducing mental phenomena to neural processes – Varela's idea shifts our perspective, proposing an alternative. He opts for creating a new science of experience that does not take the existence of the gap for granted, but redefines the fundamental way in which we ought to think about the relation between subjectivity and objectivity:

" There is life beyond the objective/subjective duality. One of the originalities of the phenomenological attitude is that it does not seek to oppose the subjective to the objective, but to move be-

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1 | See also Bitbol & Petitmengin (2017), where the split between mild and radical (there: "deep") neurophenomenology originated.

yond the split into their fundamental correlation. […] Consciousness is not some private, internal event having, in the end, an existence of the same kind as the external, non-conscious world." (Varela 1996: 339)

To fully appreciate Varela's position, it is necessary to properly grasp the idea of overcoming the subjective–objectivity duality presented earlier in TEM and the enactive approach, i.e., how the co-dependent structure of experience (mutability between experiencing, embodied agent and the surrounding world), led to the insight that the explanatory gap is an issue arising only from the perspective of an experiencing agent.

« 6 » Perhaps a good starting point lies at the roots of embodied cognition – the pioneering work of George Lakoff and Mark Johnson (1980), "exposing" objectivist and subjectivist myths. They propose the notion of experientialism or

❝ [t]he experientialist myth [which] takes the perspective of man as part of his environment, not as separate from it. It focuses on constant interaction with the physical environment and with other people. It views this interaction with the environment as involving mutual change. You cannot function within the environment without changing it or being changed by it. ❞ (ibid: 229f)

VTR endorse this view, it being consonant with their "view of cognition as enaction" (TEM: 178), reminding the reader later on that the enactive approach was developed as a commitment to science that does not appeal to objectivism or subjectivism (ibid: 243). This puts heavy weight on epistemology and scientific realism, and consequently, on the pragmatics of performing science. As Lakoff and Johnson (1980: 227) note: "a general realization that science does not yield absolute truth would no doubt change the power and prestige of the scientific community as well as the funding practices of the federal government."

« 7 » Sebastjan Vörös, Tom Froese & Alexander Riegler (2017: 191) state that to deal with the so-called "hermeneutical circle" (science done by particular scientists who are themselves experiencing agents in a particular culture, with their own history, beliefs, motives, embedded in a particular socio-political vision of science), VTR "posit

the fundamental circulation between 'lived experience' and 'scientific understanding' i.e., to enable a continual back-and-forth exchange between first-person (phenomenological) and third-person (scientific) approaches to mind and consciousness." Consequently, this later became known as the *working hypothesis of neurophenomenology*, the idea of reciprocal first- and third-person constraints, inaugurating neurophenomenology as the "flagship methodology of enactivism" (ibid). From this, it follows that we can never escape the built-in reflective character of science – dissolving what we understand as realism and idealism (ibid). This dissolution serves as a basis for dissolving the hard problem.

« 8 » To reiterate, we are unable to close the hard problem's gap within the framework of subjectivism or objectivism. In order to *dissolve it*, it is necessary to overcome the subject–object dichotomy that haunts our theories – folk and scientific. The distinction between subjectivity and objectivity is a heuristic one and should not be mistaken for a fundamental truth about a mind-independent reality. Hence, any endeavor of reductionism (e.g., using solely third-person neuroscience to explain subjective phenomena) fails in that it presupposes the existence of the gap in the first place. As Varela explains:

❝ We are not concerned with a private inspection but with a realm of phenomena where subjective and objective, as well as subject and others emerge naturally from the method applied and its context. This is a point that reductionists and functionalists often miss. Experience is clearly a personal event, but that does not mean it is private, in the sense of some kind of isolated subject that is parachuted down onto a pre-given objective world. ❞ (Varela 1996: 340)

In this exact manner, Petitmengin (2017) presents an "alternative" reading of Varela's proposal – *radical neurophenomenology* – stating "that the hard problem is not only a philosophical issue, but a fact of experience […] we experience a gap, a difference in nature, between physical processes and our inner life" (ibid: 141). However, in our view this is the initial interpretation stemming from Varela's proposal. If the so-called alternative version is what Varela proposed,

then what led to the dominance of what Petitmengin calls *mild neurophenomenology*?

« 9 » Radical neurophenomenology is said to dissolve the gap, doing so *in experience*, whereas mild neurophenomenology (which merely establishes correlations between neural activity and mental phenomena) fails to do so. As Petitmengin explains, "in the perspective of mild neurophenomenology, the separation between subjective experience and neuro-physiological processes is considered as 'given'" (ibid). From the perspective of radical neurophenomenology, however, this contradicts what Varela originally had in mind. The second feature of mild neurophenomenology – "validating first-person descriptions through objective criteria" – means that the descriptive categories used to structurize verbal reports of experimental subjects are also situated within the gap-supposing theory (ibid). Suffice it to say, the problem remains intact. Radical neurophenomenology, on the other hand, does not presuppose the gap's existence, shifting how we ought to think about the hard problem itself. It cannot "receive a theoretical, conceptual answer" but can only be addressed in the same place as it originated from – lived experience (ibid).

« 10 » Radical neurophenomenology is then not a study of correlations but "the very process of separation of the objective and subjective poles, at the root of the hard problem, within lived experience" (ibid). It attempts to move from bridging the presupposed neural and phenomenal poles, to mutual constraints understood as identifying "parameters of reciprocal elaboration" (ibid: 146). Yet many researchers familiar with neurophenomenology may find this rephrasing of mutual constraints to be odd. This may be due to the prevalence of mild phenomenology over its radical counterpart. According to Aviva Berkovich-Ohana (2017), all empirical research conducted so far within neurophenomenology falls into the "mild" category.[2] This is not surprising, given how much Varela's original idea had demanded. He described it as posing a "double challenge." First, it mandates anyone who wishes to conduct experiments to master phenomenological methods and

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2 | The exact same list of studies is presented in Berkovich-Ohana et al. (2020).

constantly practice them like a skill. This is predicated on the requirement that researchers would have to take seriously first-person approaches as "valid sources of phenomena" (Varela 1996: 346). Second, it "[transforms] the style and values of the research community itself," by changing fundamentals such as "what objectivity means" or how to go about teaching aspiring researchers (ibid). As Varela underlined, "this is not a betrayal of science: it is a necessary extension and complement" (ibid). Taking his double challenge into account, it should not be surprising that such a demanding research program – in order to "survive" – had to be toned down. We agree with Vörös's (2017) comments on Petitmengin's radical proposal saying that:

❝ Varela's original proposal is *in no need of 'further radicalization,'* especially if the latter entails (re)casting it in terms of identity theory (or any fixed metaphysical position, for that matter). In fact, to claim that it does is to already miss its radicality. ❞ (Vörös 2017: 150; emphasis in original)

« 11 » Kristian Moltke Martiny (2017) approaches "radicalization" from a different angle. He argues that neurophenomenology was never able to flourish to its full potential because cognitive scientists neglected Varela's proposal, mainly due to its incompatibility with the current model of science and the pragmatics of the scientific community. On a similar note, Camila Valenzuela-Moguillansky, Alejandra Vásquez-Rosati and Riegler (2017: 132) describe neurophenomenology as implying "a radical methodological, conceptual, epistemological, and cultural political shift, which may even have a profound impact on policy-making in academia."

« 12 » Yet probably the most damaging factor lies in the scant tangible results. A more robust empirical background seems necessary to convince the scientific community to give neurophenomenology much-needed attention. The Varelian project requires not only changes in approaches to ontology and epistemology but also in the pragmatics of science, financing research and university-level education. The scientific community is not wrong in being skeptical, simply because neurophenomenology does not provide enough substantial

evidence – at least not in proportion to the claims it brings forth, as these resemble an overall paradigm shift rather than methodological tweaks. That is not to say we belittle what has been accomplished so far under the umbrella of neurophenomenology. On the contrary, neurophenomenological research led to many successes: it established that patients suffering from epilepsy can anticipate seizures (Petitmengin, Baulac & Navarro 2006; Petitmengin, Navarro & Le Van Quyen 2007), deepened our understanding of the subjective experience of the rubber-hand illusion (Valenzuela-Moguillansky, O'Regan & Petitmengin 2013), provided insight into mental causality (Garrison et al. 2013), or – as in the pioneering studies of Antoine Lutz (2002) and Lutz et al. (2002) – showed that first-person methodology can guide the analysis of third-person, neuroscientific data. These, among many others, are all immensely important results, yet is it enough to put neurophenomenology under the spotlight?

« 13 » As of 2020, there have been 33 empirical studies published that explicitly employ neurophenomenology as a main method. As mentioned above, these are all mild neurophenomenology (Berkovich-Ohana 2017; Berkovich-Ohana et al. 2020), but, "mildness" is not an issue here – the study count is (given that two decades have elapsed since Varela's introductory paper). Despite our endorsement of radical neurophenomenology, we find it difficult to elevate it as the main "go-to" for neurophenomenology. Petitmengin's proposals have been criticized for missing an adequate amount of practical know-how, of how to go about performing radicality – leaving dozens of researchers with great ideas on paper, but lacking a precise set of procedures for how to put them into practice:

❝ Despite Petitmengin's (2017) attempt to clarify what is meant by Varela's radical neurophenomenology, Berkovich-Ohana remains 'perplexed as to how a neuroscientist can actually implement this 'radical' line of research in the lab' (Berkovich-Ohana 2017: 158). Radical neurophenomenology is appealing philosophically, but it is technically and practically too ambitious. In addition, there is a striking lack of a single paradigmatic attempt that shows how to implement this radical proposal. ❞ (Martiny 2017: 64)

« 14 » However, the problem may go deeper than that of just construing a know-how or implementation. First, we have to ask ourselves why exactly radical neurophenomenology appears so difficult to implement. To put it differently, why was the proposal capturing the initial idea of Varela deemed "appealing" but at the same time "too ambitious"? The answer lies exactly in what Varela had pointed out, and what Petitmengin later emphasized, i.e., the subjective–objective split is primarily a consequence of our lived experience. Radical neurophenomenology invites us to explore the micro-dynamics of this dichotomy within lived experience, yet we are never able to "step out" of it. This is because we cannot overcome the experiential gap from the existential position we currently find ourselves in. Consider a standard hermeneutical objection against the first-person study of experience. In the introductory pages to *On Becoming Aware* (2003), Natalie Depraz, Varela and Pierre Vermersch boil down hermeneutical/deconstructive objections (excavation fallacy) to the claim that because all experience is "'always already' enfolded in language" then all results of first-person methods are just going down the rabbit-hole of linguistic gibberish. While the legitimacy of these kinds of objections will be touched upon later in more detail, we want to pose this problem differently. What we mean by our current existential position is the result of our current theories (folk and scientific), methodologies, and so on. These shape how we have come about understanding lived experience (laden with the explanatory gap). From this stem all the difficulties of conceptualizing "overcoming the subjective–objective split." As such, we see radical phenomenology as a *goal* rather than a *starting point*. And while agreeing with Petitmengin on a philosophical level (and someone with more expertise in a phenomenological method could probably also agree on an experiential level), to push forward the neurophenomenological project and keep it relevant, we ought to look for an alternative.

« 15 » Another hindrance in supposing one clear-cut know-how for neurophenomenology is its being "a case of scientific pluralism," preventing anyone from establishing a "single all-encompassing theory" (Valenzuela-Moguillansky, Vásquez-Rosati

& Riegler 2017: 137). However, this plurality might also happen to be beneficial. As stated in the introductory section, neurophenomenological explanations are different, in that they "un-fold" new possibilities of self-knowledge and self-transformation, rather than state some laws or regularities (Bitbol 2021: 149). Overcoming the gap takes practice, which in neurophenomenology's case, means continuous enhancement and transformations of research protocols and data interpretation. We take this as a "pragmatic fix" for the mild–radical neurophenomenology tension, arguing that the most beneficial solution is that of aiming at constant methodological updates, leading to neurophenomenology 2.0, 3.0, and so on. In consequence, neurophenomenology should be seen as working in a sectoral manner, destabilizing various first–third person, subjective–objective connections by means of mutual constraints. This closely resemblances what Martiny (2017: 64) means by evaluating research based on its adaptability to a given situation.

« 16 »   Our proposal can also be connected to what Berkovich-Ohana et al. (2020: 1) call a "typology of bridges, [creating] mutual constraints between [first-person] and [third-person] approaches." In their view, there are multiple ways in which first-person and third-person perspectives within neurophenomenology can influence each other in a reciprocal manner. Moreover, they describe various corollaries of how phenomenological first-person data is acquired. If we naturalize the phenomenology of lived experience by narrowing it to a set of pre-defined parameters, we lose complexity and richness of description; however, such a "thin phenomenology" is easier to measure and formalize, making it more suitable for integration with third-person neuroscience methods. On the other hand, a method which aims at gathering more detailed and non-reductive description is considered "thick phenomenology" – it captures more dynamic aspects of experience by, e.g., acquiring its data through phenomenological interviews. Applying this to the case at hand, radical neurophenomenology should be seen as a commitment to thick phenomenology, furthest on the spectrum. It works as a heuristic, explaining why science of experience cannot ditch the first-person per-

spective and how it is embedded in lived experience, but leaves us with the question of how to go about the implementation. The "bridge typology" view is attractive in that it shows how further progress can be accomplished, even by performing so-called mild neurophenomenology:

> Rather than advocating the use of one method over the other, we suggest that this methodological trade-off is essential to the open-ended circulation envisioned by the [neurophenomenological research program]. (ibid: 5)

Phenomenology in neurophenomenology

« 17 »   In this section we would like to reflect on the question of what it would mean for neurophenomenology to embrace this pluralistic proposal, utilizing different "phenomenology" approaches to studying first-person experience. We start with some necessary remarks about first-person methods and then follow it by pointing out the limitation of only "phenomenological" neurophenomenology. First-person approaches are haunted by something that Miyahara et al. (2020: 1) described as *the problem of phenomenological data collection*, i.e., that of "obtaining reliable phenomenological descriptions from experimental subjects." In neurophenomenology, this is addressed to some extent by time- and effort-heavy training procedures, promising high-quality research at the cost of inaccessibility (ibid: 2). However, if we take into account neurophenomenology's pluralism, we have to address the problem differently. Reliability of data is not something permanent, or universal, but should evolve with each rendition of neurophenomenology. It depends on the given "sector" of first-person–third-person connection we focus on, as well as a first-person approach we utilize. As such, the data-collection problem thus takes the form of a "framing problem," i.e., accounting for reliable phenomenological descriptions, given the malleable "frame" of intersubjectively valid data.

« 18 »   Let us describe why this is the case by referring to Varela and Shear's (1999: 14) assessment of first-person methodologies: "no methodological approach to expe-

rience is neutral, it inevitably introduces an interpretative framework into its gathering of phenomenal data." Although they do not address the issue directly, they identify common features of first-person approaches: *basic attitude*, *phenomenal filling-in*, and *expression and intersubjective validation*, each ineluctably influenced by the framing problem.

« 19 »   The *basic attitude* denotes shifting our perspective from mental content to mental process (as in phenomenology, where one "brackets" the naive, natural attitude, shifting to a reflective one); and *phenomenal filling-in* refers to the requirement of "a specific training to pursue the initial suspension into a fuller content, and the role of mediation or second-person is important here" (ibid: 11). The former is achieved (and conceptualized) depending on the given method with its training procedures. The mediation process is possible due to a common framework between the person providing a report and a person interpreting it. As such, mediation processes and the basic attitude are influenced by the phenomenological frame we decide on. This also shows that first-person approaches are not a purely subjective, private endeavor. They are part of the same world as "standard science." What differs is the phenomena they study. Whereas first-person methods tackle phenomena manifesting for agents head-on, third-person approaches distance themselves from agents who create these approaches (ibid: 1). There are no objective "things-out-there" independent of the mental contents of agents studying them:

> Science is permeated by the procedural and social regulation that go under the name of scientific method, that permits the constitution of a shared knowledge about natural objects. The linchpin of this constitution is public verification and validation according to complex human exchange. What we take to be objective is what can be turned from individual accounts into a body of regulated knowledge. This body of knowledge is inescapably in part objective, since it is constrained and regulated by the empirical, natural phenomena. (Varela & Shear 1999: 1)

This links back the ideas put forth by VTR – developing the enactive approach – a commitment to science falling neither for

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subjectivism nor objectivism (TEM: 244). Similarly, Lakoff and Johnson (1980) argued against myths of objectivism and subjectivism, claiming that the perceived properties of objects are only *interactional properties*. Putting this together, we see that first- and third-person methods never escape the fundamental reciprocity, which should prompt us to reflect on possible constraints of our own understanding (and theories) of experience.

« 20 » Subjective experience is part of the natural world – not some inaccessible "private entity" – it is open for examination. This is the third common feature of first-person methods – *expression and intersubjective validation*. Varela and Shear (1999: 11) state that "the processes of expression and validation will require explicit accounts amenable to intersubjective feedback"; however, as has already been established, these validations are dependent upon the phenomenological framework of the given method. Varela and Shear were aware of this "hermeneutical objection," claiming that "whatever description we can produce through first-person methods are not pure, solid 'facts' but potentially valid intersubjective items of knowledge, quasi-objects of a mental sort. No more, no less" (ibid: 14).

« 21 » In neurophenomenology, the key component of acquiring valid first-person data lies in the "gesture" or "movement" known as *Phenomenological Reduction (PhR)*. Varela (1996) describes it as moving from natural-naive experience to a more reflective/second-order one. This comprises four aspects: *attitude* (the bracketing described earlier), *intuition* (intimacy/clarity of experience achieved through shifting attitude), *training* (which is key for developing skills necessary to stabilize the previous two aspects) and *invariants* which require some more unpacking. In the phenomenological tradition, invariants were established through a method called *eidetic variation*:

> Philosophers have always been on the lookout for what Plato called the *eidos* or essence of things. In developing his phenomenological method, Husserl proposed a way that would draw out the essential and invariant characteristics of the things that we experience. Quite simply, it involves using our imagination to strip

away the unessential properties of things. If the object that I am examining happens to be a book, what features of it can I imaginatively vary without destroying the fact that it is a book […] The phenomenologist can do the same with perception, face recognition, decision making, social perception, and so on. (Gallagher & Zahavi 2008: 27)

Invariants thus refer to the "categorical and structural features of experience that are phenomenologically describable both across and within the various forms of lived experience" (Thompson, Lutz & Cosmelli 2005: 4). Essentially, eidetic variation prevents phenomenological "anything goes" since invariants are subject to intersubjective corroboration. Varela (1996: 337) likens them to "public descriptions" as we search for conditions for variations.

« 22 » The influence of training on attitude and intimacy is generally taken for granted. However, the relation to invariants needs some explanation. For instance, Thompson, Lutz and Diego Cosmelli (2005: 34) point out that many facets of experience require multiple variations to become noticed. Through repetitive training in an experimental setting, we "enable new contrasts to arise" which in turn "enable[s] the emergence and stabilization of phenomenal invariants" (ibid). On the surface, it might seem that invariants are something to be "discovered," something stable and unchanging. However, this would be a mistake, as it would suppose that through practice in a given first-person method, we gain access to some mythical, previously unknown domain (ibid: 37). Instead, as with any data stemming from first-person approaches, we should see them as quasi-objects or interactional properties, yet nonetheless a valid source of knowledge.

« 23 » The pursuit of more and more stable invariants does not negate the possibility that what was once deemed/thought of as invariant structure, changes with growing expertise (both that of a single practitioner, and that of the scientific community). Modifications in our epistemic access to lived experience have direct consequences on intersubjective corroboration. The constant refinement of methodology leads to changes in what is considered phenomenologically invariant among theory-

makers qua practitioners, as well as governing criteria (or frames of reference) for intersubjective validation. In the words of Varela and Shear:

> [H]uman experience is not a fixed, predelineated domain. Instead, it is changing, changeable and fluid. If one undergoes a disciplined training in musical performance, the newly acquired skills of distinction of sounds, of sensitivity to musical phrasing and ensemble playing, are undeniable. But this means that experience is explored and modified with such disciplined procedures in non-arbitrary ways. (Varela & Shear 1999: 14)

Because various first-person methods can target different sectors of lived experience, they can lead to discovering completely different invariants. This is an important point if we consider it together with changes on the third-person side. Training in first-person methods is expected to coincide with:

> specific short-term and long-term changes in brain activity. […] Category formation during learning is accompanied by changes in the ongoing dynamics of the cortical stimulus representation (Ohl, Scheich, and Freeman 2001). But the fact that phenomenological training can modify experience and brain dynamics is not a limitation, but an advantage. Anyone who has acquired a new cognitive skill (such as stereoscopic fusion, wine-tasting, or a second language) can attest that experience is not fixed, but dynamic and plastic. First-person methods help to stabilize phenomenal aspects of this plasticity so that they can be translated into descriptive first-person reports. (Thompson, Lutz & Cosmelli 2005: 37)

« 24 » Constant refinement in neurophenomenology may be seen vertically, as it deepens our understanding of a given sector. However, it can be also achieved horizontally – by adopting various first-person disciplines – "zooming into" new sectors of lived experience. Following the open-ended character of Varela's initial proposal (which was never based solely on phenomenology to begin with; see, e.g., Froese 2011: 641f, and Pace Giannotta 2017) we should now be able to see the main issue with restricting neurophenomenology to just phenomenology. In regard to expression/intersubjective validation, it is only one of the possible frames of reference. In regard to phenom-

enal filling-in/training, neurophenomenology can be extended by the application of somatic learning, potential meliorations of lived experience, and the exploration of emersive leisures. These methods are crucial for the first-person study of bodily experience in disciplines separate from the phenomenological tradition, each providing unique know-how that can be useful in the constant refinement process.

Off-radar first-person methodologies: Building bridges

« 25 » We would like to draw researchers' attention to the potential of those disciplines that incorporate first-person methodology, but do not come up very often on the spectrum of neurophenomenological research:
- Somatics
- Somaesthetics
- Emersiology

Throughout this section, we develop their description in the context of core ideas behind the original neurophenomenological project:
- The notion of the living/lived body as a source of knowledge
- The pragmatics of (embodied) experiencing

Each discipline accurately shares those assumptions – appealing to embodied practice. They also focus on the same set of problems as neurophenomenology – balancing first–third-person dynamics.

The notion of the living/lived body

« 26 » In his tribute to Varela, Thompson (2004) directly points out the consequences of the explanatory gap to neurophenomenology as he poses the question "what is it for a physical living body (*Körper/leiblicher Körper*) to be also a lived body (*Leib/körperlicher Leib*)?"

❝ In putting the problem this way, I am relying on the phenomenological distinction between the body as a material thing (*Körper*), and the body as a living and feeling being (*Leib*). This distinction is between two modes of appearance of one and the same body, not between two bodies or two properties (in the property-dualist sense).

Hence the explanatory gap is now between two types within one typology of embodiment or living being, not between two opposed and reified ontologies ('mental' and 'physical'). Furthermore, this gap is no longer absolute, because in order to state it we need to make common reference on both sides to life or living being.❞ (Thompson 2004: 384)

For Varela then, advocating neurophenomenology as a remedy for the hard problem, it was indisputable that "lived experience is where we start from and where all must link back to" (Varela 1996: 334). Thompson aptly summed it up thus:

❝ [t]here is no dualism or idealism here: the transcendental lived body is no other than the empirical living body; it's simply that body re-membered in a certain way – namely, as where we start from and where we must all link back to, like a guiding thread.❞ (Thompson 2004: 394)

Now let us examine how a similar notion of the lived/living body experience has developed in the disciplines of somatics, somaesthetics and emersiology.

Body in somatics

« 27 » Somatics should not be understood as an organized research perspective. It is rather a non-schematic approach to body cultivation, complemented with some theoretical aspects. The term "somatics" was coined in the 1970s by Thomas Hanna to define the catalog of embodied disciplines that combine orientation with personal practice, based on sensory awareness (Schiphorst 2009a). The name itself was a derivative of Husserl's term "somatology," a study on relationships between the first-person experienced body and scientific studies on the body (Johnson 2004; Mullan 2014). On theoretical grounds, Hanna has recontextualized the classic Greek term *soma* (body), which he describes as "[…] expanding and contracting, accommodating and assimilating, drawing energy and expelling energy. Soma is pulsing, flowing, squeezing, and relaxing" (Hanna 1985: 35). In this framing, it ceased to be identified as a kind of impersonal object, but was defined from the first-person perspective as "me, bodily being" (Hanna 1970: 35–37). This is the exact opposite of the neo-phenome-

nological understanding of soma (*Körper*), which is defined as the object of natural science, when the "body" (*Leib*) denotes the "dynamic and variable structure of perception" (Wang 2015: 40). Hanna (1995), then, understood somatics as a discipline totally oriented around the soma, as experienced from within, so all theoretical movement is based exclusively on embodied, first-person experience. As a consequence, somatics was described as a "study of the soma, which is not only first-person perception of the living body, but is its first-person regulation."[3] According to some researchers, this assumption makes somatics a part of cybernetics, a theory of all living systems, and the mentioned "regulative" character of soma is presented in the wider context of "the living matrix" (Oschman 2016: 185). What is striking is that "the living matrix concept" is being explained there in direct relation to *autopoiesis*, understood as a "characteristic of living systems to continuously renew themselves and to regulate this process in such a way that the integrity of their structure is maintained" (Kaparo 2012: 45). Thus, taking into account autopoietic logic, according to which all living systems are cognitive systems (Thompson 2004), the potential of somatics, as a first-person experience grounded cognitive tool, becomes noteworthy. In practice, somatics works as a discrete tool of an ameliorative character (Schiphorst 2009a: 52). It is rather limited to the sphere of prophylaxis, thus preventing accidents and injuries, and however often it is used in the training process of various somatic activities, "it has nevertheless transformed pedagogy into a more 'active' and exploratory experience for the student, in which physical sensations are more important than the mirroring and reproduction of forms" (Ginot 2010: 12). Isabelle Ginot however, highlights both therapeutic and epistemological aspects of somatic discourse, in spite of that they do not follow scientific standards precisely, but rather incorporate scientific knowledge and methods into the system of somatics (ibid: 13).

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3 | "What is Somatics?" by Thomas Hanna, Retrieved on 11 February 2022 from https://somatics.org/library/htl-wis1

Body in somaesthetics

« 28 » Somaesthetics, at some level, shares the notion of soma with the tradition of somatics. Its founder, the neo-pragmatist philosopher Richard Shusterman, follows an almost identical definition of soma to that of Hanna, calling it a "living, sentient, purposive, body" (Shusterman 2015: 181). This is, however, complemented by a meliorative notion of embodiment (Ginot 2010; Shiphorst 2009a), grounded deeply in Shusterman's pragmatic standpoint: "I regard somaesthetics as a natural extension of pragmatist philosophy, emerging from the creative integration of two earlier themes: pragmatist aesthetics and the pragmatic idea of philosophy as an embodied way of life or art of living" (Shusterman 2015: 181). However, this attitude provokes researchers such as Ginot (2010: 19) to boil down Shusterman's standpoint to the general question: "can we apply somatics to philosophy?," but the state of affairs seems to be more detailed. The pragmatist notion of embodiment has been well established for decades (e.g., John Dewey or William James, see: Shusterman 2013), but at the same time, its tradition seems to lack practical use and examination. Shusterman, then, seems to perceive his somaesthetics as a multileveled project (pragmatist somaesthetics, practical somaesthetics, theoretical somaesthetics), which works on the synergy between philosophical and the cultural notion of embodiment and embodied practices (Shusterman 2008). Contrary to Hanna, Shusterman understands embodied practices as meliorative processes, which can be treated both epistemologically and pragmatically, as a mode of enhancement of experience on the aesthetic level and simply as a way of improving the quality of human life. He proposes the concept of "transactional experiential inquiry," which follows William James's notion of "double-barreled experience," embracing both what is experienced, and how it is experienced (Shusterman 2015: 181). This type of open-ended inquiry, echoing the pragmatist pursuit of constant improvement, seems to correspond well with Varela's attempt at incorporating experiential methodologies to cognitive science, preventing totalization of any framework (Froese 2011: 639), complying with our constant refinement proposal.

Body in emersiology

« 29 » The concept of somatic inquiry presented by Shusterman seems to be in some important aspects mirrored in an approach proposed by the group of researchers constructing the discipline of modern body ecology, including such scholars as Bernard Andrieu, Oliver Sirrost, Terezinha Petrucia Nobrega and Alexandre Legendre. Their method of so-called "emersiology" is directly expressed in the title of the book written by one of its founders: *Learning Through My Living Body: Emersiology's Method* (Andrieu 2018). The body is defined then as a living body, an organism "that both ensures our biological existence and incorporates all of the information necessary for our motor activity and emotional lives" (Nobrega et al. 2017: 39). This informational and environmental context of bodily enactment seems to correspond well with Shusterman's notion of "enhanced experience," which is "concerned with improving our capacities for perception (*aesthesis*) and for the enjoyment of those perceptual experiences, not merely for ourselves but also for others by shaping our lives and actions to enrich the aesthetic quality of the societies and environments we inhabit" (Shusterman 2015: 194). Moreover, the meliorative, pragmatic character of emersiology is clarified when we take into consideration how it is based on processes of aesthetic immersion in nature, understood as "a practice of selfcare that extends to a sense of responsibility for caring for others through our lifestyle choices" (Andrieu 2018: 17).

« 30 » When it comes to methodology, emersiology seems to share the "double-barreled" character of pragmatic inquiry, as the body is both a subject and a medium of the inquiry, which is carried out through concentration on boundary points of environmental immersion and the emersion of performers (Andrieu 2018). Here, immersion is understood on at least two levels, as it refers in particular to certain acts of non-reflective engagement of consciousness in bodily experience (Andrieu, Nobrega & Sirost 2018: 19), but also defines a more general aspect of aesthetical submergence of performers in the environment (ibid: 18). In contrast, emersion touches the sphere of output of such practices and is defined in terms of processes of activation of the body through

its ecologization (ibid: 18, 25). Therefore, the proposed model of ecologization of the body concerns its sensorics in the context of environmental enactment and proposes the practice of "micro-micro – situations," where each natural element is related with the production of an internal effect in the body (Andrieu 2018: 19). The method of sensing the living body through emersive leisures (Andrieu & Loland 2017; Nobrega et al. 2017) is based exclusively on first-person methodology and explores involuntary body actions, promoting "immersions into bodily experiences with effects that are not controlled by conscious awareness" (Nobrega et al. 2017: 39–40).

Neurophenomenology's need for a pragmatic dimension: Pragmatics of experiencing

« 31 » It is no mystery that, historically, the relation between pragmatism and phenomenology has been complicated if not hostile (Rosenthal & Bourgeois 1980). Regarding the notion of the body, the image of encounter is well established, thanks to Shusterman's (2008) critique of Maurice Merleau-Ponty's concept of embodiment. However, today, a much-addressed issue is that of the synergy between those two philosophical standpoints, exactly in the case of embodiment, and some authors even treat them as complementary (Ihde 2016; Scott 2010). At the same time, the so-called "pragmatist approach" is becoming popular among many researchers coming from the field of neurophenomenology (Berkovich-Ohana et al. 2020; Bockelman, Reinman-Jones & Gallagher 2013), but is also present in works of Varela himself (Varela 1999). Varela's drive for pragmatism can be observed on at least two levels. The first, basic level concerns his search for pragmatics in neurophenomenological inquiry: "it becomes clearer if we look at VTR's critique of phenomenology. Although the authors were inspired by phenomenology, they were displeased with its lack of pragmatic dimensions ([TEM]: 19)" (Martiny 2017: 61). However, Martiny also highlights that pragmatism had a direct impact on Varela's thought:

> The aim of embodying cognition requires a 'radical paradigm shift' in our understanding of

knowledge within cognitive science, to 'situate knowledge' and include an overlooked dimension of knowledge that is 'concrete,' 'embodied,' 'incorporated' and 'lived.' The aim is not to dismiss the abstract form of knowledge, but to understand the role and relevance of abstract and concrete forms of knowledge. To do so, Varela includes the famous distinction from John Dewey (1922: 177) between explicit and propositional knowledge, a knowing that, and a tacit, experiential and pragmatic knowledge, a knowing 'how' (ibid: 19)."
(Martiny 2017: 64)

« 32 » This drive to include the pragmatic dimension results in establishing the research program of "phenomenological pragmatics" (Froese & Spiers 2007; Varela & Shear 1999) and finally leads Varela to define the field of pragmatics of experiencing in neurophenomenology, which can be explored through interdisciplinary studies and practices of self-observation and mindfulness (Depraz, Varela & Vermersch 2003; Schiphorst 2009a: 60f). How does it relate to the pragmatic approach found in somatics, somaesthetics and emersiology?

The pragmatic dimension of somatics, somaesthetics and emersiology within neurophenomenology's constant refinement process

« 33 » To begin with, it would be useful to differentiate the modes and aims of somatic attention, which define certain styles of inquiry in the pragmatics of experiencing, represented by the disciplines of somatics, somaesthetics and emersiology. As stated above:

- Somatics's procedures belong mainly to the sphere of prophylaxis and focus on the disclosure of somatic problems and their prevention;
- Somaesthetics works in the sphere of melioration of an aesthetic experience and its goal is set by the criteria of improvement and enhancement;
- Emersiology concentrates on exploring the processes of immersion and emersion of the living body and aims at its environmental ecologization. Thus, it is a technique drawn out from body ecology, a "discipline derived from philosophical naturism, deep ecology and holistic body-mind practices" (Andrieu,

Nobrega & Sirost 2018: 17). Body ecology describes "how the implicit information processing below the threshold of consciousness determines the action modality, emotions and ecologisation of our body with nature, with others and with space" (ibid: 18).
It appears that the area of the "pragmatics of experiencing" described by Depraz, Varela and Vermersch (2003) is even wider than the range of all three of the disciplines discussed above. However, the project itself promotes the inclusion and absorption of other discourses and disciplines as "this model allows for the sharing of knowledge and insight through observational strategies and techniques, supporting radical interdisciplinary dialogues" (Schiphorst 2009a: 61).

Pragmatics of somatics

« 34 » Somatics seems to stand closest to the core understanding of first-person methodologies as techniques of self-observation (Varela & Shear 1999). In this regard, Varela and Shear described procedures of introspection, phenomenology and meditation, respectively as "attention" and "reduction-suspension," for the first two, and states of "sustained attention," "uncontrived awareness" and "suspension of mental activity" for different kinds of meditation (ibid: 7). We find this "suspension-awareness" complex of states also built into somatics methodology. Following Hanna, Thecla Schiphorst (2009a: 63) presents somatics as a historically shaped form of self-knowledge, overworking the state of "sensory-motor amnesia." The state can be described in terms of a partial loss of agency and knowledge in a group of muscles due to the process of habituation (Hanna 2004). There, the somatics method also encompasses the practice of suspension, which can be performed through certain exercises of "de-mechanization" (Schiphorst 2009a: 65). Those exercises are accompanied then by practices of awareness as somatic practitioners "are encouraged to 'listen' to the messages of their flesh; to 'embrace' their breathing patterns; to 'follow' their styles of moving; and to pay attention to the insights which emerge within the movement itself" (Johnson 1994: 2). Those processes find their extension in "somatic learning,"

which can be understood quite similarly to Varela's idea of bracketing the explored experience. Thus, somatic learning involves critical reflection as a form of reflection on experience or reflection-in-action, in the sense that "bodily tacit awareness becomes knowledge when articulated in words. In this sense of cognition deriving from bodily knowledge, somatic learning encompasses both body and mind" (Rigg 2017: 8). This corresponds with the Varelian understanding of *qualia*, where "even a conscious introspection only leads to a 'feel': a metaphor and tacitly recognised patterns" (Dörfler & Stierand 2020: 4).

« 35 » This kind of "phenomenal filling-in," has also been put into practice. The somatic method can, for instance, provide training in what is called "bridging the perception gap" in VR experience (Thomas et al. 2019). First-generation VR headsets were designed in accordance with the culturally dominant sense of sight, thus providing a limited kind of experience in regard to haptics, which was recognized as the VR perception gap (Cheng, Marwecki & Baudisch 2017; Parisi 2018). However, haptic training using somatic practices performed by dance artists interfacing with VR technology has now been developed and is working both for enhancing VR experience and in reverse, provides better cognition and understanding of haptic qualities among users. It is possible as VR technology makes it possible to maximize the haptic response in a "challenge to skill" kind of situation, however, unlike the natural, unpredictable environment, it parallelly provides a stable and safe setting for its training and repetition.

Pragmatics of somaesthetics

« 36 » In her revision of first-person methodologies, Schiphorst puts Shusterman at the end of a line of other "countless somatic practitioners" (Schiphorst 2009a: 63). It seems, however, that Shusterman's somaesthetics deserves to be distinguished as an independent discipline in the field of pragmatic approaches to first-person methodologies. First of all, somaesthetics is an offspring of the core of non-dualist, pragmatist philosophy. It is a way that pragmatist aesthetics can be done, as it blends studies on bodily performance with a pragmatic approach coming from the field of classic

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philosophical pragmatism. However, Shusterman himself states that "pragmatism philosophy, for several reasons, was not an attractive option for cognitive science" (Shusterman 2013: 49), but the state has changed with the arrival of the 4E paradigm, where "somaesthetics, which emerged from pragmatism and develops (in theory and practice) these six dimensions of cognition, can contribute to contemporary cognitive research" (ibid).[4]

« 37 » With regard to the pragmatics of experiencing, Shusterman's somaesthetics reveals a similar "suspension/awareness" complex-based methodology to that of neurophenomenology and somatics. For the suspension part it is worth noting Shusterman's (2012: 36) critique of ignoring "sensory-motor amnesia," which condemns the instrumentalization and mechanization of the body, understood as a tool. Also, his critique of Merleau-Ponty's notion of embodiment, revealed in Chapter 2 of Shusterman (2008), as the chapter's title, "The silent, limping body of philosophy," suggests, can be understood as concerned with ignoring the role of quality in the tuning of the body instrument. Shusterman puts it in the form of a question: "if every action requires bodily means and control, should not heightened somatic awareness be helpful in some way for improving action, and should not somaesthetic reflection or introspection in turn be useful for improving somatic awareness?" (Shusterman 2008: 134). This process of heightening somatic awareness corresponds to somatic learning and neurophenomenological bracketing, and what is also extremely important, it echoes the concept of constant refinement. Shusterman states that:

❝there is also need for critical self-attention after the learning process is considered finished. This is because the learning process is never entirely complete. […] Learning is never over because not only there is room for further refinements and extensions of the acquired skill, but also because we so often lapse into bad habits of performance or face new conditions of the self

(through injury, fatigue, growth, aging, and so on) and new environments in which we need to correct, relearn, and adjust our habits of spontaneous performance.❞ (Shusterman 2008: 138)

« 38 » As for the role of awareness, it has to be stressed that Shusterman (2013: 67) directly builds somaesthetics as a project of "cultivating heightened skills of body awareness." However, this procedure is different from those used in somatics, as it appeals to spheres of improvement and enhancement. It encompasses acts of reflective thoughts to bodily feelings, which distinguishes it from the phenomenological tradition fueling neurophenomenology:

❝Varela and his disciples, for example, propose Neurophenomenology as one such method, deriving it from the phenomenological tradition of Husserl and Merleau-Ponty. Somaesthetics instead builds on the embodied pragmatist tradition; and in contrast to Merleau-Ponty (who opposed reflective attention to our bodily feelings as interfering with the effective flow of our spontaneous conduct), it insists that a key method for developing improved skills of self-observation (and consequent improved use of the self in conduct) is the cultivation of heightened abilities of somatic awareness. Such enhanced sensitivity to the bodily feelings involved in our perception, action, and thought involves not only feelings of strong affect but also the ordinary (and normally unnoticed) feelings that typically accompany our sensory perceptions and movements, including subtle proprioceptive feelings dealing with posture, tension, breathing, body temperature, energy level, etc.❞ (ibid)

« 39 » The neurophenomenology–somaesthetics tension, revealed on the theoretical level, can be bridged through a dialogue embracing arts, philosophy and cognitive studies, i.e., human–computer interaction (HCI). This dialogue brings somatic practices, techniques of self-observation and sustained learning strategies, and incorporates them into design processes – proposing conceptual frameworks blending phenomenology, pragmatism (including the project of somaesthetics) and embodied cognition (Candau, Schiphorst & Françoise 2018). An interesting example of such collaborations comes from a response to the general lack of sufficient attitude

training among HCI researchers. It concerns possible application of first-person disciplines' methods in an experimental setting – informing HCI design (Mah, Loke & Hespanhol 2021). Somaesthetics appears there as one of several promising disciplines "to foreground bodily inquiry in order to create more intimate and subtle interactions in the HCI design process" (Desjardins et al. 2021: 37: 5). Researchers concentrate on both more general aspects, such as perception of movement (Alaoui et al. 2015; Höök et al. 2016; Höök 2020), and more specialized discourses concerning certain senses, e.g., touch (Schiphorst 2009b), in a quest to develop the poetics of interaction.[5]

Pragmatics of emersiology

« 40 » In relation to the pragmatics of experiencing, the emersiology movement stands out because its attention is directed on research on involuntary aspects of body movement during outdoor activities. However, its methodology reveals some common features with the already-mentioned methodologies of Varelian neurophenomenology, somatics and somaesthetics. We observe the same suspension phase, when emersiology channels into the sphere of involuntary movements, as those can be a basis for the process of "recosmizing" the body. The process can be understood as a form of reconnection, in some way similar to the somatics of "de-mechanization":

❝To make a reconnection with our living body, we can recosmise through body ecology to produce emersive leisures: this fully awakening implies a deepening of living through non-representationalist techniques for emergence. The immersive scheme that can be deliberately organised produces involuntary emersive effects outside of the subject's control. Emersion is here an awakening of consciousness by involuntary movements, reflexive thrusts and direct feeling.❞ (Andrieu, Nobrega & Sirost 2018: 25)

« 41 » In the context of the pragmatics of experiencing, emersiology is to some

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4| Shusterman (2013) extends the 4E paradigm (cognition as embodied, embedded, enacted and extended) with "emotive" and "esthetic" dimensions.

5| Such research is helpful for designers, artists or performers in developing a proper linguistic framework for expression and intersubjective validation.

extent supported by the phenomenological tradition, however, it reveals a similar kind of dissatisfaction with phenomenological methodology with regard to the first-person experienced living body to Varela's. It follows the same path of suspending conscious control in the quest to activate body knowledge and support its re-ecologization process:

❝ The passage from phenomenology to cosmotic emersiology is a new step in describing the internal activation of the living body. The methodological difficulty and yet the interest of this research arises in great part from the need for a language of the living body: the emersion of internal sensation without conscious control is produced involuntarily through interactions with our environment and contact with other people. It might be better to rein the mind in, so that we can wholeheartedly welcome the activation of our brain and the ecologisation of the living body. ❞ (Andrieu, Nobrega & Sirost 2018: 25)

« 42 » Notable applications of emersiology address activities like climbing, surfing and other adventure-sports training, where it is used to provide a metatheoretical frame for specific bodily states connected with experiencing movement, such as "flow," "fullness," "balance" or "slowness," in a quest to enhance the state of emersive awareness (Andrieu & Nobrega 2020; Domelevo & Andrieu 2016; Zimmermann & Saura 2017; Zimmermann, Ito & Saura 2021). Additionally, it provides a theoretical platform for cognitive examination of the relationship between the physiological data from subjects and their reported sensory experiences, given during training (L'Hermette et al. 2020). Thus, its orientation addresses precisely the neurophenomenological imperative of gap bridging.

« 43 » As for awareness techniques, emersiology stands out due to its notion of interactive processes. Contrary to self-observation and meditation techniques performed in isolation, body ecology promotes the deepening of self-awareness through movement activities performed interactively. Its immersion-emersion pattern serves as a tool for the environmental ecologization of the body:

❝ The ecology of sport (Andrieu & Loland 2017), along with body ecology and emersive leisures, is a new way of using bodily techniques when immersed in nature, in the elements, and inside one's body through the power of awareness. Leisure becomes emersive when it involves the production of new emotions in the body – new emotions are induced by emersive leisures. ❞ (Andrieu, Nobrega & Sirost 2018: 18)

This approach, geared toward recosmizing, thus optimizing and enhancing the environmental net of body connections, appears similar to the pragmatic, meliorative attitude of somaesthetics, where somatic activity and cultivating self-awareness are understood as a method of enhancing aesthetic experience.

Conclusion

« 44 » In the first half of the article we argued that the split between radical and mild neurophenomenology does not stem from a "misinterpretation" of Varela's initial proposal. Instead, we took this distinction as an inevitable reaction to the challenges neurophenomenology had brought about. Its incompatibility with the present sociocultural body of science led to its "mistreatment," underlying the radical–mild split. Further radicalization of neurophenomenology (or rather, accounting for its original radicality) requires an alternative approach, which we referred to as constant methodological refinement. It concerns dissolving the subjective–objective dichotomy as possible only through destabilizing the hard "core" of (cognitive) science with its pre-assumptions about the subjective-objective split, inherently built into our lived experience. During the constant refinement process, new standards and methodological procedures are established, creating new "frames of reference" for the intersubjective validation of data stemming from first-person methods.

« 45 » Due to neurophenomenology's pluralistic nature, we argued that constant refinement works in a sectoral manner. For this reason, limiting the neurophenomenological first-person "frame of reference" to just (Husserlian) phenomenology is counterproductive, but also contradicts the

open-ended principle of neurophenomenology. Thus, in the second half of the article, we discussed three disciplines: somatics, somaesthetics and emersiology, which offer unique perspectives on the lived body and embodied pragmatics, promising for the future development of neurophenomenology. In this concluding section, we wish to highlight some of their advantages, which neurophenomenologists may find attractive.

« 46 » Somatics presents a long and well-established tradition of cultivating practices of awareness and self-observation with special focus on an ameliorative approach: "somatic learning is an activity expanding the range of volitional consciousness" (Hanna 1986: 6). It also shares a common ground with neurophenomenology and other disciplines described here (for a recent appearance of somatics in the embodied cognition paradigm, see Candau, Schiphorst & Françoise 2017). Somaesthetics serves as a well-articulated theory, based on philosophical pragmatism, which recently received a lot of attention in post-cognitivist approaches (e.g., Heras-Escribano 2021). Its focus on the enhancement of aesthetic experience offers insight into this particular "sector" of lived experience. Additionally, Shusterman's notion of "transactional inquiry" mirrors what we mean by the constant refinement of neurophenomenological methodology. Somaesthetics also offers another possible method of reflective analysis: "integrating third person data about behaviour and first person data about subjective experience" (Shusterman on Chalmers's question: "how can we construct a science of consciousness?"; Shusterman 2013: 67). Finally, emersiology explores movement disciplines and sports, focusing on involuntary body actions. It paves the way for directing awareness to these involuntary actions that lead to meliorations of the body. Similar to neurophenomenology, it shares the issue of developing proper linguistic descriptions susceptible to intersubjective corroborations, as these concern new "internal activations" of the living body. With this in mind, we remind the reader that we do not take these three disciplines to be all-encompassing solutions, but rather treat them as available robust approaches (that are yet "to be explored"), which can structure possible sectors of research.

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