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THE HORIZONS OF EMBODIMENT:

Introduction to the Special Issue

1. Enter the body: The corporeal turn in cognitive science

The notion of "embodiment" has been quickly gaining currency in cognitive science and philosophy of mind. Although almost completely absent up until three decades ago, it has now become a staple term in contemporary discussions of the mind, cognition, and consciousness. However, one is immediately confronted with a seemingly obvious question: why has this "corporeal turn" (Sheets-Johnstone 2009) stirred up so much commotion? After all, were not all predominant schools of thought in philosophy of mind and cognitive science in the 20th century decidedly materialist/physicalist, loyally echoing the daring words of the infamous materialist philosopher La Mettrie (18th century): "Let us then conclude boldly that man is a machine, and that in the whole universe there is but a single [material] substance differently modified (La Mettrie 1912: 148)"? Were they not all united in the fierce resistance to the dualist idea of the "ghost in the machine" (Ryle 1949/2000), arguing that mind, cognition, and consciousness are all reducible to, or instantiated in, *our brains* and are therefore ultimately *bodily* states and/or processes? And if this is indeed the case, what is so extraordinary about the idea of the "embodied [conscious] mind" (Varela et al. 1991)?

There are probably several routes one might take in addressing this issue. Here, we intend to explore just two of them. The first, and more "superficial", reason the corporeal turn seems to represent a unique contribution to contemporary debates is that, unlike its predecessors, it puts the body, alongside

with its embeddedness in, and interactions with, its environment, at the very center of its explanatory framework. While most of the classical physicalist approaches (be they of eliminativist, reductionist, or functionalist flavor) paid lip service to the body, they usually conceived it as an un- or underthematized vehicle for the brain, a vehicle that, although admittedly indispensable for the proper functioning of the central nervous system, had, in itself, no crucial role in accounting for the nature and functioning of the mind. To be sure, the brain is "just" a part of the body; but when it comes to the matter of the mind (pun intended), it is said to be *the* part of the body: if my nail gets clipped off , I may feel some pressure or nothing at all; if I hurt my leg, I may experience some pain and discomfort; but if I sustain an injury to my brain, my cognitive capacities, mental states, and qualitative experiences are likely to change (fairly) distinctly and predictably (depending on the nature, severity, location, etc. of the injury).

It was only in the 1990's, with the advent of what is now often collectively called the *4E approach* to cognition, that the classical image of the body gradually started to deteriorate. The 4E approach is a motley of more or less complementary models and theories[1] and is nowadays believed to be the main contender to take on the *classical cognitivist* and *connectionist approaches*, which dominated cognitive science throughout the second part of the 20th century (see, e.g., Thompson 2007: 3–15). The main distinction between the 4E and classical approaches can be summarized as follows: Whereas the latter conceive of cognition primarily as a disembodied, abstract, and "brainy" affair, the former emphasize its corporeal, situated, and dynamic character. More specifically, according to the 4E approach, cognition is no longer construed as (i) (*pace* cognitivism) computational manipulation of mental tokens (*symbolic* neurally instantiated representations of entities in the "outside" world); or (ii) (*pace* connectionism) formation of stable activity patterns among distributed units of multilayered neural networks (*sub-symbolic* neurally instantiated representations of entities in the "outside" world). Instead, it is said to be

1 Lately, it has become increasingly evident that the main protagonists in the "4E revolution" (Menary 2010) form a rather loose coalition, and that the epistemological and metaphysical tenets they endorse are much less congruous as is sometimes believed, which casts doubts on the current talk of the emerging (uniform) scientific paradigm (for an extended discussion of the topic see Vörös et al. 2015).

extended (encompassing processes traversing the brain/body/environment boundaries); *embedded* (situated in the organism's environmental context); *enactive* (dependent on the organism's ongoing interactions with the environment); and – *embodied* (constitutively determined by the organism's corporeality) (Ward & Stapleton 2012). Put differently, cognition is no longer limited to *intra*cranial processes, but involves *extra*cranial dynamics in terms of the on-going, back-and-forth interactions between the brain, the (rest of the) body, and the (natural and social) environment they are embedded in.

Thus, the body, after being relegated to conceptual obscurity for so long, has been finally brought into the limelight again and now forms one of the main pillars of the arguably most promising research program within contemporary cognitive science. However, there is an even deeper reason that embodiment has received so much attention in the past few years, a reason that, as we will see shortly, does not always fully coincide with what has been said so far. To get a better insight into what is at stake here, it might be reasonable to retrace the trajectory of the corporeal turn back to its origins (at least in the domain of cognitive science), which inevitably takes us back to the now classical account of embodied cognition put forward by Varela, Thompson, and Rosch in *The Embodied Mind* (1991).

At the heart of this ground-breaking book lies the same song of discontent: deep dissatisfaction with the prevailing trends in contemporary cognitive science. However, this dissatisfaction is not directed primarily at specific models and theories proposed, but at the *overall attitude* with which they were constructed. Specifically, and most pressingly, the authors feel that cognitive science, in its traditional guise, has been robbed of one of the central features of human existence: the *lived experience* (*Erlebnis*). The term "lived experience", to immediately dispel the fears of a more hard-nosed physicalist, does not denote anything esoteric or otherworldly – it is not some "fluffy stuff", as Varela puts it in a somewhat different context (1996). Instead, it designates the ordinary, lived-through experience that constitutes the distinct, continually changing texture of my ongoing, day-to-day engagements with myself, the world, and other people.

Varela et al. maintain that, by focusing exclusively on *sub*personal and *sub*conscious cognitive processes (Varela et al. 1991: 48–49) enfolding in our

biochemical and neural depths, cognitivist and connectionist approaches have fostered an insurmountable rift between what Ray Jackendoff (1987) termed the *computational* and the *phenomenological* mind (Varela et al. 1991: 52–57), between a mind construed as a plethora of cognitive *subconscious* processes and a mind conceived as a locus of everyday *conscious* experience. In order to bridge this unfortunate gap, they suggest that cognitive science needs to reclaim the now-forgotten domain of lived experience and develop systematic ways of investigating it (ibid.: xv). This, however, does not entail adopting an anti-scientific stance and renouncing methods, norms, and standards of scientific practice. Quite the contrary: What Varela et al. seek to establish, is a theoretical and pragmatic platform for an *ongoing circulation* between "lived experience" and "scientific understanding", i.e. a framework that would enable a continual back-and-forth exchange between *first-person* (phenomenological) and *third-person* (scientific) approaches to mind, cognition, and consciousness (ibid.: 9–14):

> "[T]he new sciences of the mind *need to enlarge their horizon* to encompass both lived human experience and the possibilities for transformation inherent in human experience. Ordinary, everyday experience, on the other hand, *must enlarge its horizon* to benefit from the insights and analyses that are distinctly wrought by the sciences of the mind. (ibid.: xv; our emphasis)"

It is in this context that the notions of *body* and *embodiment* make their appearance. In the 20th century, philosophy of mind and cognitive science were under the strong spell of *analytic philosophy* which, for the most part, harbored a rather dismissive attitude towards both lived experience and the

body, ignoring the former and trivializing the latter (Crane 1999).[2] However, these topics, shunned by the prevailing trends in Anglo-American philosophy, have formed an integral part of, and have received extensive treatment in, the *phenomenological tradition*. Thus, and as attested to by a virtual explosion of studies on the subject in the past two decades, works by classical phenomenological authors, particularly Edmund Husserl (1989) and Maurice Merleau-Ponty (2002), provide a wealth of resources for the study of these two topics. It is this rich wellspring[3] that Varela et al. tap into when attempting to break the shackles of what they feel is an age-old rut in studies of the conscious mind.

2. Phenomenology of embodiment: from lived body to object-body, and back again

How and why can phenomenology be of assistance here? To begin with, it equips us with means for rigorously investigating lived experience. If I

2 Some might object that such a claim is too harsh, as attested by a vast body of literature on the *qualitative aspects* of experience (so-called *qualia*), which has been accumulating in the analytic tradition ever since the pioneering work on the topic by Thomas Nagel (1974) and Frank Jackson (1982). It is undoubtedly true that the analytic philosophy of mind, by loosening the exclusivist grip of the eliminativist, reductionist, and functionalist conceptions of the conscious mind, has made important strides in putting consciousness and (lived) experience back on the exploratory map. However, it should be noted that the conception of qualia, as usually understood in the analytic tradition, differs significantly from "lived experience" as construed in phenomenology. *Qualia* are conceptual descendants of *sense-data*, which means that, for the most part, they tend to be conceived as *quasi-things* with specific *properties* (i.e. they are accessible, atomic, ineffable, etc.) (see e.g. Morris 2012: 19). As such, they *engender* a very specific *attitude* towards experience, coupled with an (implicit) set of *preconceptions* that are normally associated with it, which is, as we will see shortly, precisely what phenomenology calls into question by means of *epoché* and phenomenological reduction.

3 Note that phenomenology is not the only philosophical tradition that Varela et al. turn to when seeking novel (disciplined) ways of investigating lived experience. Another tradition that looms large in their discussion is *Buddhist philosophy* with its rich repertoire of systematic theoretical and practical methods of analysing consciousness. Due to the space allotted, we will not be able to discuss this matter further, but see Thompson (2015) for an interesting exploration into this line of (cross-cultural and interdisciplinary) research.

want to study the contours and contents of my experiential landscape it is important that I have at my disposal some means of differentiating between how phenomena give themselves to me in my experience and what my own presuppositions of, and beliefs about, these phenomena are. Say I want to undertake a phenomenological investigation into how I perceive an apple that I am currently holding in my hand. In doing so, it will not suffice to simply "look and see" what I experience, as my experience of an apple is nuanced and complex (e.g. what I see is a discrete object with a distinct set of properties existing independently of me in the outside world, set against the background of other objects such as books, papers, a coffee mug, etc.), and I need to be able to recognize those aspects of the phenomenon that are motivated by the experienced object itself and those aspects that are the result of numerous unthematized beliefs about, and theory-laden attitudes towards, this particular phenomenon.

The first thing I realize is that, for the most part, my experience does not consist of atomic qualitative (semi)entities, i.e. of private and unspeakable qualia or sense-data, but has a distinct structure: *my* experience is, typically, an experience *of something* (e.g. an apple, tree, unicorn, love, number), and is determined by a specific *mode of intending* (being directed at) that something (e.g. perception, recollection, imagination). This is known as *intentionality* or 'object-directedness', a topic that, traditionally, Husserlian phenomenology has probably been most famous for: in my experience I am intending something in a particular way. Thus, phenomenological investigation is not primarily about hunting after the elusive experiential atoms, but tries to analyze *intentional structures* in and through which experienced objects are given to me. According to the famous "principle of all principles":

> "Enough now of absurd theories. No conceivable theory can make us err with respect to the *principle of all principles: that every originary presentive intuition is a legitimizing source of cognition*, that *everything originarily* (so to speak, in its 'personal' actuality) *offered* to us *in 'intuition' is to be accepted simply as what it is presented as being*, but also *only within the limits in which it is presented there*. (Husserl 1983: 44)"

This is also the crux of the famous phenomenological maxim: "Back to the 'things themselves'!" ("[A]uf die 'Sachen selbst' zurückgehen", Husserl 2001: 168), i.e. back to the way things (phenomena) give themselves to me in my experience.

In its quest to investigate lived experience, phenomenology thus starts by emphasizing the necessity for thematizing our implicitly adopted *attitudes* towards the phenomena of inquiry. More specifically, phenomenological methodology, as envisioned by Husserl,[4] is founded on so-called *epoché*, a procedure that entails the "bracketing" (*Einklammerung*), "suspension" (*Ausschaltung*), or "putting out of play" (*außer Spiel setzen*) of all presuppositions and judgements with which we (in)advertently invest our investigations of phenomena. The most important of these presuppositions, according to Husserl, is the idea of a *mind*- and *experience-independent world* existing "out there" and consisting of entities with predetermined properties that simply wait to be discovered by conscious (human?) beings. Husserl calls this attitude, which pervades both scientific and everyday life, the "natural attitude", and claims that, despite the taken-for-granted status we invest it with, it must be (at least temporarily) *suspended* (not disbanded) in order for us to get to the appropriate understanding of phenomena.

Epoché understood as a means of "bracketing" the "natural attitude" is thus a "gate of entry" (Husserl 1970: 257) into *phenomenological reduction*. By loosening the grip of the naturalist prejudice of an experience-independent world, one becomes aware that a given phenomenon encompasses a rich texture to be further investigated in that it is, as we have said earlier, typically a phenomenon-*of*-something-*for*-someone. This, in turn, moves us away from an unreflective (naïve) way of looking at things through the lens of the "natural attitude" and towards a reflective (phenomenological) way of looking at things through the lens of the "transcendental attitude": away from the (naturalist)

4 What follows is, of course, a rather simplistic rendition of *epoché* and phenomenological reduction. Both have been subject to much debate and close scholarly scrutiny, especially in relation to issues such as what is it precisely they consist of, how they are mutually interrelated, etc. These questions, although highly relevant, will, due to space constraints, have to be bypassed in this paper. For a good introductory overview see Luft 2012, Moran 2000: 124–162, and Zahavi 2003: 45–68.

way of conceiving "things" and "conscious minds" as two separate *types of things* – as objects "out there" and a subjectivity "in here" – towards the (phenomenological/transcendental) way of conceiving "things" and "conscious minds" as fundamentally interrelated and co-constituted. *Epoché* and phenomenological reduction are a means of accessing an epistemically non-dualist *transcendental domain*, whence the epistemically dualist experience that is uncritically endorsed by naturalist approaches is ultimately derived.

Now, how is all this relevant to embodiment?[5] Let us return to our original example, my perception of an apple. Two things seem especially pertinent: the first is that the apple is always given to me *perspectivally*, i.e., it is not given to me in "one fell swoop", but in a series of profiles or, in Husserl's original term, "adumbrations" (*Abschattungen*). The second thing is that, although the apple is given to me perspectivally, I do not perceive it as a series of discrete profiles, but as a *unified object*. The classical Husserlian analysis of perception thus posits a distinction between the *appearance(s)* (the multitude(s) of profiles of the apple) and *that which appears* (the apple). Two further conclusions can be drawn from this: first, in analyzing my experience of the apple one must take into account the *constitutive activity* of my subjectivity, i.e. the activity that somehow construes these different profiles as one (unified) object. The perceived apple is an apple for someone, and this *someone* is not a passive receptacle taking in the qualities of pregiven (external) objects, but has an *active* role in the sense that he/she *(co)constitutes* what he/she experiences.[6] Second, the fact that the apple is given to me perspectivally presupposes that I occupy a given *position in space*. The apple is *not* perceived from *no*where, but from *some*where. However, since perspectivity-cum-spatiality depends on embodiment, spatio-temporal objects (apple included) can appear only to

5 The following account draws from, and owes a lot to, Zahavi's concise and lucid expositions in Zahavi 1994 and 2003 (esp. 98–109).

6 To immediately ward off accusations proclaiming that this smacks too much of classical Kantianism: "Passive" and "active" here should not be confused with how Husserl sometimes uses the two terms (see, e.g., Husserl 2001). That is to say, what we wanted to emphasize is merely that a *subjective element* is involved in the appearance of a (unified) object, even if that constitutive element is *pre*-predicative (''passive'' in the Husserlian sense), and is therefore not the end result of some judgmental activity on behalf of a (transcendental) ego (''active'' in the Husserlian sense).

a *corporeal field of sensitivity*: the constituting activity is *not* the provenance of an abstract, incorporeal, otherworldly Self, but of an *embodied subjectivity*. But how are these two aspects – constitution and embodied subjectivity – interrelated? In other words, what is it that motivates the embodied subject to perceive different profiles as belonging to the same object? The answer is – *movement*. A particular profile of the apple – one that I am currently seeing – corresponds with a specific position of my body; but the *horizon of possible profiles* – profiles that are currently absent but *could* be present *if* I were to turn the apple in different directions – corresponds with a *horizon of possible movements* that I am able to undertake. For every set of (possible) perceptual appearances there is a functionally corresponding set of (possible) kinesthetic sensations: if I move my hand in a certain way, I will see a certain profile of the apple.

As this simple phenomenological analysis suggests, perception of an apple presupposes that I am a situated, thus embodied, thus moving subjectivity. But what can we say about this corporeal field of sensitivity and activity, which constitutes my originary sense of embodiment? Let us try to spell out what has been implicit in our discussion so far. First, this corporeal field is what Husserl calls a "zero point" (*Nullpunkt*) (Husserl 1989: 166), an orientation center of my experiential coordinate system. It is an absolute "here", around which all the 'theres' (other appearances) are arranged. Unlike from other objects, I am unable to distance myself from my body, for it is precisely in and through my body that I am poised towards, and engage with, all other phenomena. Second, my body is a "bearer of sensations" (ibid.: 168). As I trace my fingers along the apple, what I experience is not only the sensed qualities of an apple, e.g., its roundness, smoothness, etc. (sensations; *Empfindungen*), but also the corresponding 'tugs-and-pulls' that are localized in my body, e.g. motion-sensations, touch-sensations, etc. (sensings; *Empfindnisse*). These pre-reflective tugs-and-pulls trace the contours of my body, giving it thickness, form, and depth. Finally, my body is the potentiality for mobility: it is the "I can" and "I do" (ibid.: 159, 228), the complex system of interrelated kinesthetic experiences.

The body as *originally* given to me in my experience – as *that by means of which* I perceive – thus differs significantly from the body as it is normally

construed in natural sciences – as *that which* is perceived (an object among other objects in the world). From the phenomenological perspective, a *lived* body (*Leib*) – conceived as a pre-reflective structure of sensitivity and activity – becomes an *objectified* body (*Körper*) – conceived as a milieu of various physiological processes – only when the *prethematic kinesthetic sensations* are brought to the reflective light of *thematized movements*. It is only when I perceive that certain movements which I can visually perceive correspond with certain kinesthetic sensations which I have when I perform those movements that I start experiencing my body as an object in the world.[7]

However, how does this switch occur? What motivates me to see visual experiences of a certain movement (say, of wiggling with my fingers) and specific kinesthetic experiences (a unique plethora of sensed tensions, tugs, and pulls) as belonging to the same body? For Husserl, as well as for Merleau-Ponty, the key here is the phenomenon of "double-sensation", of two hands touching each other. When my left hand touches my right hand, it is *the same body* that is both *touching* and *being touched*, the same body that is the field of touching sensations (or "sensings") and the sensed object of touch. Moreover, the roles of the two hands are *reversible*: the right hand can assume the role of the touching organ, and the left hand can become the corresponding object of touch. So, if I were to rub my *right* hand against my left hand, the very source of sensation and activity (right hand as *a field of sensings*), the temporary background of my experiential field, could turn into that which is sensed and acted upon (right hand *as a sensed object*) if I decided to rub my *left* hand against my right hand. It is because of this initial self-objectification through touching that what I *visually* perceive as an object involved in a specific arrangement of movements can correspond to what I *tactually* feel as a specific arrangement of kinesthetic experiences: both are two different (external and internal) manifestations of the same action (e.g., of my wiggling with the fingers).

7 Note that this is only the *initial* step in the process of the body's objectification, as it does not entail a full integration into the world of objects; a full-blown reification occurs only by my appropriating another subject's third-person perspective, which regards my body as yet another object among other objects in the world (Zahavi 1994: 72, 2002: 105).

The phenomenon of double sensation discloses the *double-faced nature* of the body: its interiority (*Innenleiblichkeit*) and exteriority (*Aussenleiblichkeit*) are two sides of the same coin. The body conceived as what Husserl calls *Leibkörper* is a "turning point" (*Umschlagspunkt*) (Husserl 1989: 168) between relations that hold among ("external") material objects and relations that hold among ("internal") psychophysical experiences. More precisely, it is a *corporeal betwixt* where causal relations of *Körper* are interrelated with, and transformed into, conditional relations of *Leib*. The body thus provides one way of conceptualizing the elusive *in-between* that precedes and surpasses the subject-object, inside-outside split (Vörös 2014; Vörös & Gaitsch 2015).

Note that this second aspect of the corporeal turn – taking embodiment as a sensorimotor texture of our experience – cuts much deeper than the first one we explored above – taking embodiment as a mere extension of the set of factors that are relevant to explaining the mind and cognition. For whereas the former has profound epistemological and metaphysical consequences in that it radically modifies the overall attitude in which one pursues philosophy and science, the latter stays within the confines of firmly entrenched frameworks and practices, and merely reshuffles the elements that are already contained within them. In other words, the former is on a par to moving from poker to weightlifting, while the latter is more akin to moving from poker to bridge: the type of the game stays the same, only the rules change. However, the two aspects are *not* necessarily *in opposition* to one another: they can be, but need not be. In fact, the first ("top-down"[8]) aspect is what ultimately motivates and justifies the second aspect in that, through a disciplined study of lived experience, it discloses why it is that the classical (skull-encased) accounts of the mind and cognition are problematic. The second ("bottom-up") aspect, in turn, provides the first aspect with concrete content in the form of theoretical models and empirical findings, which can enrich its breadth and

8 The terminological distinction between "top-down/bottom-up" approaches is taken from Welton (2011). Specifically, Welton juxtaposes "top-down" approaches, which start off from phenomenological accounts of experiential structures ("phenomenology of intentional consciousness"), and "bottom-up" approaches, which are phenomenologically-inspired approaches that start off from the analysis of biological systems (as exemplified by e.g. Thompson 2007).

depth. Thus, the two aspects can *effectively complement* each other. On the one hand, the approaches modeled in the top-down attitude are, in a sense, more fundamental and provide the basic "form" for methodologically grounded investigations, but they can easily drift into empty-handed and repetitive conceptual meanderings. The approaches modelled on the bottom-up attitude, on the other hand, are brimming with "content", but they can easily lose their methodological and epistemic grounding.

It is precisely this *mutual enlightenment* (Gallagher 1997) that Varela et al. (1991) had in mind when they put forward their project of the on-going back-and-forth circulation between the 3rd-person (scientific) studies of cognitive processes and 1st-person (phenomenological) analyses of lived experience. To begin with, we have seen that taking lived experience seriously very quickly leads to the disclosure of its *corporeal texture*: *lived* experience is *embodied (corporeal)* experience. Further, because of its amphibious status, spanning the body as a lived, experiential structure (*Leib*) and the body as a milieu of cognitive mechanisms (*Körper*), our embodiment seems to be the preferable "venue" for the posited circulation. The Janus-faced nature of *Leibkörper* cuts through the typical mind-body duality, as it anchors *experience in materiality* and *materiality in experience*: the human being "is a body" (*Leibsein*) and "has a body" (*Körperhaben*), its fundamental mode of being is shot through by vectors of corporeality. Thus, according to Varela et al., it is important to thematize embodiment from both *structural/organizational* ("bottom-up") and *phenomenological* ("top-down") perspectives. As expressed by Colombetti and Thompson:

> "Cognition is thus embodied in both a structural and a phenomenological sense. Cognition is *structurally embodied* in the sense that it is subsumed by neural, bodily, and environmental processes (including other embodied agents). […] Cognition is *phenomenologically embodied*, because cognition – as a subjectively experienced mental activity – involves one's experience of oneself as a bodily subject situated in the world. (Colombetti & Thompson 2008: 57; our emphasis)"

The goal, again, is to find a balanced and synergistic way of approaching the study of the conscious mind by incorporating the methods and findings of both approaches. However, one cannot but wonder: although admirable in theory, with what, if any, success has this goal been implemented in practice?

3. Traps and pitfalls: Of bodifiers, body-snatchers, and body-skeptics

It is probably safe to say that the proposal put forward by Varela et al. has met with *som*e success: while the suggested reconceptualization of the mind in terms of embodiment and embodied action seems to have fallen on fertile ground and has borne some theoretical and empirical fruit (Noë 2004, Shapiro 2011, Stewart et al. 2010, Thompson 2007), its pragmatic counterpart known as neurophenomenology (Bitbol 2012, Thompson et al. 2005, Varela 1996) never really gained widespread acceptance. Our aim here is not to provide an in-depth account of various adaptations, alterations, and attenuations the proposal has undergone since its inception (for a closer scrutiny of these and similar topics see Vörös et al. 2016); instead, we intend to limit our focus on two issues that threaten to dampen and/or undermine its original incentive. The first issue is less challenging, and pertains to empirical matters of how embodied (cognitive) science is predominantly practiced. The second issue is more threatening, and poses an in-principle challenge to the idea of embodiment as such.

Let us start with the first, and less substantive, concern. As already mentioned at the beginning of the paper, the notion of "embodiment" has been slowly seeping out of "the ivory tower [of academia]" and setting up "residence in popular consciousness" (Rowlands 2010: 1). However, it would seem that this *increase in popularity* has found a rather unfortunate correlate in the *decrease* not only *in clarity*, but also *in scope and intensity*. In other words, not only is the meaning of the term "embodiment" becoming progressively vaguer, but its far-reaching implications also seem to have been significantly weakened, if not altogether discarded. On the one hand, one finds approaches that have moved away from *embodiment* as envisioned by Varela et al. towards what we propose to call *bodification*. Ignoring the postulated circulation between

scientific (bottom-up) investigations of *Körper* and phenomenological (top-down) investigation of *Leib*, such approaches focus solely on the *first* part of the equation. Thus, instead of looking for ways that would enable us to implement a radically different attitude towards the (study of) conscious mind, so that we may begin to unearth the *flesh-and-blood* texture of embodied experience, such accounts settle for more *anemic* conceptions, in which paying heed to the body more or less means extending the abstract explanatory substratum that has been at work in classical cognitive science. The *bodified* mind is thus a pale cousin of the *embodied* mind. In words of Vörös et al.:

> "If a brief historical analogy be permitted, it might be claimed that the majority of contemporary 'radical' approaches to [embodiment] are 'radical' in the same sense that this applied to the liberal parties of the 18th and 19th century. That is to say, just as the latter were willing to fight for the more equal redistribution of political power, but not for the modification of the background (social, economic, etc.) conditions that gave rise to inequalities in the first place, so the former are willing to experiment with novel conceptual approaches to the mind and cognition, but do not genuinely seem interested in reflecting upon, and possibly altering, their metaphysical and epistemological presuppositions. (ibid. 2016: 196–7)"

However, the story does not end here. As Gallagher (2015) points out, some theorists have gone even further, and have come up with versions of embodied cognition that seem to leave the body out of the picture entirely! In addition to bodification, there is thus also what Gallagher terms *body snatching*, a phenomenon where bodies have been replaced with "'sanitised' body-formatted […] representations in the brain" (ibid.: 98). In other words, unlike bodified approaches that, even if cut off from their experiential grounding, still entrust the explanatory power to the *body as such*, the body snatching approaches relegate all relevant explanatory force to the *body-formatted representations* instantiated in the specific neural circuits of the brain. In other words, it is *in the brain* that all *the action* lies.

Now, there may be good reasons to believe that such "distortions" are contingent on the socio-historical context of contemporary scientific practice,

and could therefore be easily remedied if the scientific community were suitably motivated to do so. Again, in the final analysis, this is an empirical matter. However, we believe that their prevalence and significance are quite telling, which leads us directly to our second concern, one whose implications may be much more grievous for the whole embodiment movement (at least for its most radical, and thereby philosophically most interesting, currents). To get to the crux of the matter, it may prove worthwhile to consider one of the reasons Heidegger may have been reluctant to deal with the question of embodiment in his philosophical work.

According to one prominent interpretation,[9] the answer goes as follows. We have seen above that the Husserlian *epoché* enables us to get a fresh view of phenomena as they give themselves to us in experience. It 'puts eyes in our head', as Heidegger, who in general was not the one to shy away from criticizing his mentor, once said approvingly of Husserl's phenomenology (in Overgaard 2003: 167). However, if we then try to pour this *new* experiential wine into *old* terminological and conceptual wineskins, serious misconstruals may ensue. The situation is somewhat analogous to attempts at communication between advocates of two different scientific paradigms in the Kuhnian model of science. To use a common example: although an advocate of the phlogiston theory (e.g. Joseph Priestley) and an advocate of the oxygen theory (e.g. Antoine Lavoisier) may use the same word (e.g. "air"), they come from such staggeringly different methodological, conceptual, and theoretical frameworks that any attempt at communication is likely to end up *not* in their *disagreeing*, but in their talking *past* each other. They both assume to know what the other is saying, but are in fact using the same word in radically different (incommensurable) ways. Similarly, Heidegger feels that, when choosing terminology that would authentically convey what was gained by means of *epoché* and transcendental reduction, we must exert utmost caution so that not only we are not misunderstood *by others* but, perhaps even more importantly, that *we ourselves* do not fall into old habits of thinking and speaking.

9 It should be emphasized that the exact reason for said reluctance on Heidegger's part has been a matter of some dispute, and that, in what follows, we focus only on one possible, if quite compelling, interpretation of this observation, as propounded by Søren Overgaard (2003, 2004, 2005).

Now, the main problem with most of the terms that figure largely in Husserlian phenomenology, e.g. "consciousness", "subjectivity", "ego", and – most importantly for our context – "body" and "embodiment", is that they are strongly infused with specific *ontological presuppositions*. That is, they were adopted from the older metaphysical traditions, and are therefore likely to further a particular conception of how we see ourselves and our relationship to the world and others. Overgaard refers to this inherited conception as an 'analytic' conception (Overgaard 2004: 124), because it advances the view of ourselves as composed of different components, layers, and attributes which are all founded on a "pre-given *thing*" (Overgaard 2003: 164). Basically, what this means is that, instead of drawing sustenance from the fresh wellspring opened up by the *epoché* and transcendental reduction we, inadvertently, slide back into the old *reifying* way of looking at phenomena. Thus, the body, instead of being conceived as a metaphysically elusive "turning point", as a *Leibkörper*, is likely to lose its *lived* dimension and become misconstrued as *corps machine* of natural sciences:

> "It is Heidegger's contention that the terminology of 'body' furthers conceptions of the human being as *composed* of a number of different types of entities. Notions such as 'body', 'embodiment', 'corporeality', tend to bring other notions such as 'mind', 'soul', and the 'mental' with themselves. To speak of the human 'body' is already to invoke the complementary notion of the human 'mind' or 'soul'; the notions of 'embodiment' and 'incarnation' seem to suggest that something is embodied or incarnated, and so forth. At least the way we usually speak of the body, it is understood as one side or component of ourselves, referring already to other sides or components. (Overgaard 2004: 124)"

Despite all the talk of the dual nature of our corporeality, of the importance of *Leib*, etc., the notion of "body", on account of its being rooted in our everyday, firmly-entrenched practices of signification, is open to radical misconstrual and may therefore result in the profuse watering down of its original impetus (as attested to by the bodifying and body snatching trends in the present embodiment movement).

So, what Heidegger seems to be suggesting is that, in addition to the Husserlian *epoché*, what we need is another, complementary "epoché-like" move – a conceptual or terminological *epoché* (Overgaard 2002: 170). In fact, it would seem that this is something he himself has tried to develop and implement under the title of "formal indication" (*formale Anzeige*). The central point of this methodological tool, which may be said to lay the foundations for the Heideggerian unique, and sometimes frustrating, terminological and conceptual edifice, is to find concepts that would be appropriate for a genuinely novel philosophical investigation. In other words, the main idea is to find terms that would be new or sufficiently "empty" of content so that they may perform a twofold function:

> "The method of formal indication, then, is supposed [i] to keep undesired connotations at bay, and at the same time [ii] indicate the itinerary we must follow in order to reach the right phenomenological description of the matter at hand. (Overgaard 2005: 152)"

This is why, instead of reverting (*pace* Husserl) to the interpretative recycling of old philosophical terms – trying to modify and broaden their scope of signification –, Heidegger uses terms that are either completely new (e.g. being-in-the-world) or ones that are fairly common but are not impregnated with the unnecessary metaphysical ballast (e.g. *Dasein*), so that he may ward off false interpretations and pave the way towards new (unimpeded) modes of seeing and thinking.

Now, all this seems to put considerable strain on the embodiment movement: is what started out as a revolutionary enterprise bound to end up as *mere rehashing of the same*? Is the notion of embodiment destined to fossilize into a yet another version of the Cartesian body-machine? Or to put it bluntly: were Varela et al. trying to make a silk purse of a sow's ear? Not necessarily. First of all, it should be noted that Varela et al. were not oblivious to the pitfalls that Heidegger seemed to warn against. For instance, they point out that "[c]oncepts such as embodiment […] are concepts and as such always historical"; they do not denote *how things really are* (whatever that may mean), but are *socio-historically pertinent signposts* – i.e. signposts that are meaningful within the specific socio-cultural context in which they appear – that are meant to

lead the inquiry in an appropriate direction (Varela et al. 1991: 228). This, they suggest, holds equally true for their notion of "cognition as embodied action (enaction)" as it does for other (more traditional) concepts such as "consciousness", "subjectivity", and "world". When discussing embodiment as a flesh-and-blood realization of the inescapable "interdependence of mind and world", they do not want to give the impression that, in contrast to the metaphysicians of old who (falsely) argued that mind and/or world themselves exist, it is now "the *relationship* between [them] (the interaction, the action, the enaction)" that is supposed to carry "some form of *independent actual existence*" (ibid.; our emphasis). Quite the contrary: although all conceptual positions tend to gravitate towards becoming a metaphysical "ground (a resting point, a nest)" (why this may be so is something we cannot go into in this paper), it is their hope that concepts such as embodiment and enaction "could, at least for some cognitive scientists and perhaps even for the more general milieu of scientific thought, *point beyond [themselves]* to a truer understanding of [metaphysical] groundlessness" (ibid.; our emphasis), of that which we have termed the "vital betwixt" (Vörös and Gaitsch 2015: 120) that precedes and underlies metaphysical and epistemological dualisms of various types.

In other words, if taken provisionally, i.e. as tools with a certain evocative force within a certain socio-historical framework, the notion of embodiment not only could, but actually *has,* proven to be of use in conveying the elusive "vital betwixt". In fact, it may be said that this was the main reason why Heideggerian terminology very seldom made it out of the narrow bounds of philosophy, and why, perhaps somewhat ironically, it was precisely *through the notion of embodiment* that renewed interest in Heidegger's philosophy has been sparked among many scientists and analytical philosophers. Namely, just as one might argue that words like "consciousness" and "body" are too suffused with metaphysical preconceptions to be useful for getting out of the old philosophical stalemate and initiating a genuine phenomenological investigation, so one may also argue that terms like *Dasein* and *In-der-Welt-sein* are too shadowy, too vague and elusive to be able to truly resonate with the members of the socio-historical context in which they emerged. In other words, it could be maintained that, although perhaps dodging the metaphysical bullet, such terms are not *fleshy* enough to grasp the attention of relevant

research communities (both within sciences and humanities) and therefore fail to do what they were intended to do, and that is open up a fresh path for phenomenological inquiry. What is more, given the (semi-)sacred status of the Heideggerian terminology within certain philosophical circles, one is entitled to wonder whether Heideggerian *Dasein* has truly fared any better than, say, Husserlian "subjectivity" or Merleau-Pontyean "body", i.e. whether it has not fallen victim of the same process of objectification and fetishization that other concepts have been subjected to.

However, we feel that it is not necessary to embrace such a grim, black-and-white view of the situation. On the one hand, we believe that it can be legitimately said that, despite the bodifying and body-snatching tendencies in certain strands of the embodiment movement, the idea of "embodiment" *did* bring a breath of fresh air into philosophy of mind and cognitive science: It not only made some analytically trained philosophers and natural scientists more aware of metaphysical and epistemological presuppositions of certain "common sense" ways of positing what are often termed as the most fundamental questions (relationships between body and mind, mind and world, etc.), but it also made the field of cognitive (neuro)science more open to alternative approaches and models that, for most of the 20th century, were considered by many as useless side effects of unbridled philosophical verbosity. On the other hand, the Heideggerian criticism does make a valid point: We must be more careful in how we use the notion of embodiment, while at the same time keeping an eye on, and experimenting with, other ways of trying to express the elusive "in-between" of being. It is particularly important to be mindful of various tendencies that try to mellow down the far-reaching impetus of the corporeal turn (as originally construed) and drift back into the old unreflective, but cozy, patterns of thinking about the body (mind, consciousness, etc.).

4. Horizons of embodiment: Outline of the special issue and individual contributions

The main idea behind this special issue, which grew out of a small, yet productive conference entitled *Corporeal Animals, Embodied Mind*, organized by Martin Huth and Peter Kaiser in December 2015 at the University of Vienna, is firmly anchored in the preceding deliberations. Its central focus – to analyze, evaluate, and critically reflect upon so-called "horizons of embodiment" – must be understood in a twofold manner. First, in taking the Heideggerian qualms seriously, it purports to examine the scope and applicability of the notion of embodiment in general (De Jesus) and as pertaining to the human (Garstenauer, Demšar, Strle), animal (Huth, Kaiser, Zaietta), vegetative (Gaitsch and Vörös), and even inanimate world (Marder) in particular. Specifically, it aims to investigate to what extent different construals of embodiment might contribute to a better understanding of various life forms – of their unique, if tentative, modes of being, cognizing, and experiencing – and what, if any, are the outer bounds of their epistemic significance. Second, and in line with the Varelian proposal of the on-going back-and-forth circulation between bottom-up and top-down approaches, the special issue purports to examine, by bringing together authors from different fields and backgrounds, various possibilities for engendering a "fusion of horizons" (*Horizontverschmelzung*) between structural and phenomenological approaches to embodiment: How can objective (third-person) and experiential (first-person) aspects of corporeality be combined so as to provide efficient means for studying the living? By following these two lines of thought, it was our intention to strengthen and further the fruitful dialogue between different philosophical traditions in the hope that it may help us shed more light on the intricate questions of life, body, and consciousness.

Our special issue takes off with "Making Sense of (Autopoietic) Enactive Embodiment: A Gentle Appraisal" by Paulo De Jesus. The paper presents the "embodiment revolution" in cognitive science through the lens of *autopoietic enactivism*, which conceives of the living body not only as an autonomous system, but also, in line with phenomenology, as a sense-making agent. In his critical evaluation of this general account of the living body, De Jesus purports

to show that the "sense-making" dimension of embodiment is not well-equipped to meet the challenge of anthropocentrism and anthropomorphism. Furthermore, in his plea against the dyadic picture of the body and for an ontological, yet at the same time sociocultural multiplicity of embodiment, the author criticizes the epistemic notion of "sense-making" for being too abstract and narrow.

This general discussion of embodied cognition is followed by various investigations into a wide range of specific aspects of embodiment, whose different results reflect back on the opening question as to whether phenomenological accounts are well-suited for the study of life. In "Taking Bodily Self-Awareness in Animals Seriously", Peter Kaiser turns our attention to the bodily grounds of self-awareness and its fundamental importance for conceiving of animal life. The author gives a brief overview of the debate about the possibility of prelinguistic and nonconceptual self-awareness in analytic philosophy, emphasizing a considerable convergence with phenomenological insights on the topic. More specifically, Kaiser argues that the notion of bodily self-awareness must be elaborated further with the help of Dan Zahavi and Shaun Gallagher's phenomenological analysis of pre-reflective self-awareness: Every type of consciousness, animal consciousness included, is said to entail a primitive form of bodily self-awareness that must be spelled out as the "for-me-ness" character of experience.

The next paper, "Embodied, Enacted, and Experienced Decision-Making" by Toma Strle, tries to lay new grounds in cognitive science for a more accurate and in-depth understanding of human decision-making. According to the author, decision-making, as conceived in cognitivism, is usually misconstrued as a kind of "calculation" about an objectively given reality, which leaves the sense of decision-making *for the decision-maker* completely out of the picture. As a remedy for this and similar shortcomings, Strle argues for the indispensability of a phenomenological first-person analysis of the dynamics of the decision-making process, and for an enactivist re-interpretation of the phenomenon in question that would creatively incorporate its embodied and experiential dimensions.

Similarly, in "I understand you because I know you: The influence of past embodied encounters on social understanding", Ema Demšar discloses another

serious shortcoming induced by cognitivist presuppositions in cognitive science, this time pertaining to interhuman social understanding, which is often misconstrued as "mindreading". As a more promising alternative, the author presents social understanding as supported by a shared social world established through the unfolding of embodied interaction, which leads Demšar to adopt a modified version of the enactive account of "participatory sense-making". On this ground, the author then goes on to focus on the importance of the pre-reflective character of social understanding, as exemplified by the crucial role of body memory and the feeling of familiarity in establishing and sustaining face-to-face interactions.

The next paper entitled "Temporalization of Touch and its Consequences for Embodiment" by Julia Garstenauer, focuses on an unexpected shortcoming (given Husserl's extensive work on time-consciousness) that seems to haunt the established phenomenological analysis of embodiment: the lack of a more thorough examination of the specific *temporal horizon* of embodiment. Through her critical reflections on Husserl's analysis of touch, Garstenauer argues that the original *tactual* constitution of the lived body as a "bearer of sensations" must be understood not only in terms of localization, but also, and no less importantly, in terms of temporalization. More specifically, Garstenauer reinterprets the notion of embodiment as a temporal manifold of touching and being touched, arguing that, due to the inescapability of time deferral in the constitution of embodiment, the relation between lived body and physical body is not to be understood as "co-presence", but rather as an ineliminable "non-coincidence".

In "Interanimality and Animal Encounters: The Phenomenology of Human-Animal Relations" Martin Huth takes us back to problems faced by phenomenological accounts of nonhuman embodiment when confronted with the nonhuman horizon of animality. The author opts for a relational analysis of our pre-reflective and embodied "inter-animality" with animal beings, which, he claims, is shaped by the social processes of habituation. More specifically, Huth purports to show that human perception of animals is molded by embodied structures of "tacit recognizability", which result in a selective social recognition of different kinds of animals. However, according to the author, this does not mean that these social patterns of normality are

immutable, as they are always at the risk of being undermined and disrupted by frontal, face-to-face encounters with an individual animal (in the vein of Levinasian encounters with the face of the other human being).

The next paper, "Humanity is another corporeity: Animal and human bodies in the philosophy of Merleau-Ponty" by Lucia Zaietta, is also situated in the field of human-animal studies, with a special emphasis on the methodological and ontological strengths of Merleau-Ponty's original contribution to the field. Zaietta argues that the analyses of shared embodiment, as proffered by Merleau-Ponty, reveal a common ontological ground of human and animal life, thereby providing phenomenological support to the view that human embodiment is not exceptional, but rather constitutes one specific gestalt among others. This change of perspective on the matter of embodiment entails a re-conceptualization of some central notions such as "organism", "behavior", "body", and "expression", whose main features Zaietta traces back to Merleau-Ponty, but also to Kurt Goldstein and Viktor von Weizsäcker, two notable influences on Merleau-Ponty's thinking.

The next paper, "Husserl's somatology reconsidered: *Leib* as a methodological guide for the explication of (plant) life" by Peter Gaitsch and Sebastjan Vörös, takes the discussion of embodiment one step further by examining the possibilities of our embodied "empathizing" not with *animal*, but *vegetal* life. The authors feel that, in order to investigate the scope and limits of the phenomenological conception of life, it is essential to get a better view of the full horizon of embodiment. It is on this ground that Gaitsch and Vörös argue that the account of "somatological empathy", as delineated by Husserl in his later writings and work notes, opens up a rich texture of empathy that functions not as a projective mechanism but rather as a "contrast foil", and thus does not succumb easily to the accusations of anthropomorphism.

The final paper, "The Vertical and the Vertiginous: A Phenomenology of the Mountains" by Michael Marder, takes the idea of embodiment to its farthest reaches by engaging in a phenomenological analysis of our embodied relation to the inanimate world of mountains. However, for the author, this analysis is also an occasion to come back to the fundamental issue of human embodiment, which so up to this point remained unaddressed in our special

issue, namely the *verticality of the body*. According to Marder, mountains tend to induce a specific kind of vertical experience, which, alongside the corresponding experience of vertigo, establishes an interesting resonance with spiritual tendencies in human verticality. Thus, in concluding this short introduction to the special issue, we might take Marder's last suggestion as a reminder that the focus on different horizons of embodiment should also leave room for the possible disruptions of corporeality with unforeseeable and existentially vertiginous verticalities.

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