
FEDERICO ZILIO
University of Padua
federico.zilio@unipd.it

A GHOST IN THE SHELL OR AN ANATOMICALLY CONSTRAINED PHENOMENON? CONSCIOUSNESS THROUGH THE SPATIOTEMPORAL BODY

abstract

Intuitively, we can conceive of the existence of a conscious state as a pure activity that does not necessarily require a body (or even a brain). This idea has found new support in certain recent theories that present the possibility of a totally disconnected and disembodied consciousness. Against this hypothesis, I argue that human experience is intrinsically embodied and embedded, though in a specific way. Using Sartre's phenomenology of the body, I first analyze the concept of consciousness as intentionality and a world-disclosing activity, thus explaining how conscious activity can only be expressed through a body that is spatiotemporally related to the world. Then, I argue that bodily consciousness does not necessarily imply the actual presence of an anatomical body but, rather, a process of spatialization and temporalization (hodological space and temporal synthesis) through the "spatiotemporal body". Finally, I test my thesis by critiquing some cases of apparent disembodied/disconnected consciousness, i.e., dreams, out-of-body experiences, and the brain-in-a-vat scenario.

keywords

Consciousness; Embodiment; Spatiotemporality; Sartre; Dreams; Brain-in-a-vat scenario

1. Introduction: Disembodied and Disconnected Consciousness

The notion of consciousness *prima facie* refers to the familiar sensation of being awake and aware of ourselves and the surrounding world. However, we can theoretically conceive a state of consciousness that is progressively deprived of references to the surrounding environment and the body, eventually imagining a pure state of consciousness that is disembodied and disconnected from the world. This idea is not new. In the history of philosophy, we can find some theoretical attempts to conceive the existence of the mind as being detached from the body and the world. For example, to prove the ontological difference between the soul and the body, Avicenna created the thought experiment of the “floating man”, i.e., a man who is suspended in the air, created at a stroke, perfectly developed and incapable of perceiving his body (his limbs are separated and insensible) or external objects (Avicenna, 1959). Despite this speculative and odd situation, the man would be able to think of himself without any reference to his body or environment, therefore exhibiting signs of self-consciousness. Of course, Descartes’ meditations are another example of a theoretical investigation that questions the validity of an intrinsic connection between thought, the body, and the world (Descartes, 1641/2003).¹ Similarly, Anscombe (1981) introduced the thought experiment of the sensory-deprivation tank to argue that – even in the absence of both exteroception and interoception – consciousness would remain intact as the presence of a thinking Cartesian ego without any reference to the body.

Nowadays, the concept of consciousness seems unavoidably intertwined with the concept of the brain, which is conceived as the center of our mental activity; indeed, the brain–consciousness relation (however it may be defined) seems to be rooted in our common way of thinking, as it seems self-evident – at least, apparently – that our experience strongly depends on our brain but not on the rest of the body (the so-called “brainhood condition”; Vidal, 2009). The intuitive power of thought experiments such as the brain-in-a-vat hypothesis (Putnam, 1981) or the brain transplant (Shoemaker, 1963) confirms this belief. According to these intuitions, our consciousness would inhabit a body, but it would not be intrinsically corporeal; rather, consciousness, in principle, could exist in just a small part of the body, i.e., the brain.

¹ It is important to note that the traditional interpretation of Descartes often overemphasizes the separation of mind and body; however, a clear-cut separation between body and mind is called into question by Descartes himself, who is aware of the strong link between the two ontological dimensions; see, for example, the metaphor of the ship and the pilot in Meditation VI (Descartes, 2003, p. 114). For a unified view of body and mind in Descartes, see Marion (2018).

Interestingly, certain recent theories claim that experience can be generated without any reference to our body, which includes the brain. For instance, one of the most relevant neuroscientific theories, the Integrated Information Theory, argues that the brain is a sufficient but unnecessary condition for consciousness; according to the theory, experience is the capacity of a system to integrate information, i.e., to discriminate between a set of possible states (Tononi, 2017a). In other words, consciousness is identical to integrated information as a measure of the cause-effect power of a physical system (Oizumi et al., 2014); thus, the conscious system can be determined by a physical substrate that is different from the brain, e.g., robots, computers, etc., as long as the same causal structure is maintained (Tononi, 2017b). This means that experience would not require the involvement of the body and world, language, introspection, reflection, attention, or memory and that it would be possible for us to exist without spatial frames of reference or a sense of the body and self (Laureys & Tononi, 2009; Tononi, 2017b).

The conceptual background underlying these hypotheses is the idea that experience can be “purified” of all unnecessary components, including corporeality, until we reach an essential form of consciousness, such as a pure phenomenal experience with a “centerless” point of view. Against these assumptions – although there could be cases of consciousness with a reduced or altered level of corporeality (e.g., due to some physiological conditions or specific states of mind) – I will argue that the idea that the core of consciousness is deprived of every reference to the body and the outside world is wrong. I will discuss how and to what degree the body is involved in consciousness, and, using Sartre’s phenomenological investigation, I will argue that our consciousness is not only embodied but also intrinsically embedded in the world in a pre-reflective way. The body, understood as the “spatiotemporal body”, is the center of reference and orientation that enables interactions with the environment (temporal “original synthesis” and “hodological space”), making our consciousness a constant process of entrainment through our bodily potentialities towards the world. In this sense, my bodily consciousness is not conceived as the constant availability of bodily information or as the mere physical medium for our access to the world but as the spatiotemporal modality of our “embodied-being-in-the-world” (Moran, 2011).

In our daily lives, we do not deal with an abstract concept of consciousness but with a full-fledged and lived experience of the world. First, there is never “consciousness as such”, since consciousness is always and intrinsically “consciousness of something” – i.e., if I am aware, I must be aware of something, and this something can take different epistemic forms, e.g., an object of perception or imagination, a pure sensation or an abstract thought, etc. This intrinsic aboutness or directedness towards an object that characterizes consciousness is called “intentionality”. Thus, when we perceive, believe, think, imagine, etc., we are perceiving, believing, thinking, imagining “something”, and the world is manifesting for us through this process. Our conscious states are characterized from time to time by different objects experienced within a context; hence, we can reasonably say that our consciousness, in a broad sense, consists of a variety of “consciousnesses of something”. If we want to use a metaphor – instead of imagining intentionality as a grasping-and-absorbing activity that the subject performs towards objects – intentionality is more like an explosion bursting towards the world, towards the objects, as Jean-Paul Sartre described it (Sartre, 1939).

There is nothing inside consciousness because intentionality, as “being conscious of something”, is not a process of cataloging objects inside the mind but the openness to and the encounters with the world. This idea of consciousness being devoid of objects, as an activity of pure directedness towards the world, is captured by Rowlands’ (2013; 2018) Intentionality Thesis, i.e., all consciousness is intentional, and No Content Thesis, i.e., any object of

2. Bodily Consciousness

2.1. Intentionality as a Disclosing Activity towards the World

consciousness is necessarily outside the consciousness, which is structured by conscious acts, such as thinking, imagining, remembering, perceiving, etc. Thus, phenomenologically speaking, experience is a revealing or disclosing activity in the sense that the world is revealed to us by way of appearance through the body. Simply put, when I see a red tomato, a portion of the world is revealed or disclosed to me as a red tomato (which is not me, nor is it the yellow lemon next to it). This revelation is realized through the senses of my body – in this case, the action of seeing – and other bodily functions that contribute to being – and not merely having – a body, such as proprioception, vestibular sensation, interoception, kinesthesia, exteroception, and so on. Thus, if intentionality is a revealing act that positions the human being in relation to the world, this relationship must manifest itself through the body.

2.2. *Embodied-being-in-the-world*

Now, we must clarify the meaning of the relation between consciousness/intentionality and the body because one could easily misunderstand it as a relation between the conscious subject and the body-machine. The intrinsic body-consciousness relation does not mean that every single conscious act is actively focused on a body part; indeed, according to Sartre, the lived body, introduced by classical phenomenology (*le corps-existé*, in the words of Sartre), is not something of which I am constantly aware; rather, it is “surpassed towards the world” as the pre-reflective consciousness of the revealing intentionality of the world (Sartre, 1956, p. 309).² This means that, usually, the body is the unperceived condition of the possibility of being-in-the-world – i.e., it is the orientation, the point of view and the permanent structure of the conscious being within the world (Sartre, 1956, p. 328) in such a way that everything I perceive or even imagine does not exist somewhere without any reference to me. The world is not in front of me like an external and detached set of things; I am within it, with a body that gives me the coordinates for the things of the world, so that, “[f]or me this glass is to the left of the decanter and a little behind it; for Pierre, it is to the right and a little in front” (Sartre, 1956, p. 306).

This being-in-the-world condition does not entail that consciousness is “engulfed” in a body that is, in turn, “engulfed” in the world (Sartre, 1981) like separate elements inserted one into the other; rather, the body is the concrete manifestation of consciousness. The body provides the “situation” for my experience, i.e., my possibilities, orientation, and point of view. Therefore, we are not merely embodied; we are also embedded – in the sense that our embodied being expresses itself through and within environmental interactions such that the body, as a point of view, is “surpassed”, “transcended” and “passed by in silence” towards the world, and I cannot have a point of view upon it without creating an additional bodily point of view on my objectified body (Sartre, 1956, p. 329).³ In other words, when we are conscious of the red tomato, we can see it, touch it, taste it, weigh it in our hands, etc. During these conscious acts of intentionality, at no time is the body revealed; the only intentional object is the red tomato. We do not experience our eyes seeing, our fingers touching or our tongue tasting. When I weigh the tomato, I feel nothing but the tomato’s weight in the same way as, when I write, my hand vanishes behind the words I am writing.

Of course, this does not mean that we cannot perceive our own body: while I am weighing the tomato, I can concentrate, at some point, on my hand holding the tomato, but this does not mean that I am perceiving my lived body. At that specific moment, my consciousness

² Regarding the relation between consciousness, the body, and the world in Sartre, see also some previous papers of mine (Zilio, 2020b; Zilio, 2021).

³ See also Husserl’s (1982, p. 42) concept of the body as the zero-point (*Nullpunkt*) or “hereness”, i.e., the center of orientation of experience that is an absolute “here” in relation to a series of “theres” arrayed around it; the moment I try to transform my “here” into a “there”, I have to do it through a new bodily “here”.

is positing my hand from the point of view of the other as a “psychic object” (Sartre, 1956, p. 347) – as a body part among others’ body parts or a tool among a world of tools.⁴ As Moran pointed out, “[f]or Sartre, I cannot see the sensitivity of the hand or even the ‘mineness’ of my hand” (Moran, 2011, p. 275) because the subjectivity of my body is pre-reflectively and non-positionally defined. For example, while weighing the tomato, I am not feeling the effort being exerted by my hand and arm (skin, bones, tendons, muscles, etc.) during that action; I am precisely feeling the weight of the tomato, i.e., the resistance of a thing against me. We always perceive the things in the world (their resistance, hardness, softness, etc.), not the lived body as such, which, instead, is invisible because it is integrated within the world (embeddedness) and can be experienced as an object only in specific situations, such as during reflection, i.e., when we posit ourselves as intentional content, or illness and other psychosomatic conditions, i.e., when the body appears as an obstacle that influences our being-in-the-world condition (Carel, 2016; Costa & Cesana, 2019; Leder, 1990) or when I am seen by the other and “I exist for myself as a body known by the Other” (Sartre, 1956, p. 351).

So far, I have discussed how the body is crucial for our experience in the sense that the body determines the way we experience the world. This means that the body is a relational structure, and its modification is conceived here not only as the cause of a change in the way we perceive our body but primarily as an alteration of our relationship with the world (Costa & Cesana, 2019). The world is an organized system of possibilities for me as a bodily consciousness, and the realization of these possibilities depends on the kind of relationship I have with the world. We are always in a situation, i.e., embodied and embedded in the world; we are not isolated heads/brains or isolated bodies facing the world. Therefore, any damage to the body must be understood as a modification of this situation.

The next step will be to identify the matrix of these concrete forms of experience, i.e., to understand how the experience can be defined as a relationship with the world. In *Being and Nothingness*, Sartre describes how consciousness essentially unfolds in a temporal and spatial sense. Here, time and space do not entail anything close to the physical time and space that are considered the “building blocks” of nature, the homogeneous and pure extension of the Cartesian *res extensa* or the spatiotemporal coordinates within which the objects of the world are situated (e.g., “the house is located to the north of the square, 50 meters away”). A rock is “in-the-midst-of-the-world”, i.e., an inert presence as a passive object among other objects, while consciousness is “in-the-world”, which implies the involvement with a world that must be engaged, revealed, and differentiated. To avoid confusion, it would therefore be better to talk about “temporality” and “spatiality”. Our experience as a spatiality is rendered through the body in relation to the world – not as an abstract, centerless, independent space but as a hodological space, i.e., a lived situation as a field of forces of the experiencers – with its capabilities and needs – in accordance with the potentialities and resistances of the objects of the world.⁵ Similarly, consciousness does not simply exist in time like a thing but is the

3. The Spatiotemporal Body

4 “Thus to the extent that my body indicates my possibilities in the world, seeing my body or touching it is to transform these possibilities of mine into dead-possibilities. This metamorphosis must necessarily involve a complete thisness with regard to the body as a living possibility of running, of dancing, etc. Of course, the discovery of my body as an object is indeed a revelation of its being. But the being which is thus revealed to me is its *being-for-others*” (Sartre, 1956, pp. 304-305).

5 “To come into existence, for me, is to unfold my distances from things and thereby to cause things ‘to be there.’ But consequently things are precisely ‘things-which-exist-at-a-distance-from-me.’ [...] The real space of the world is the space which Lewin calls ‘hodological.’ A pure knowledge in fact would be a knowledge without a point of view; [...] For human reality, to be is to-be-there; that is, ‘there in that chair,’ ‘there at that table,’ ‘there at the top of that mountain, with these dimensions, this orientation, etc.’ It is an ontological necessity” (Sartre, 1956, p. 308). See also Merleau-

temporalization, i.e., the act of relating things to us through temporality. This temporality is not a universal, Newtonian container, nor an extrinsic law of nature; instead, it is how bodily consciousness relates to things in time, i.e., how embodied intentionality acts in a temporal way (Wehrle, 2019). In other words, before cognitively manipulating information and symbols, mentalizing the external stimuli in representation, or even bodily interacting with the environment through action-perception loops, the world is experienced through the temporalization and spatialization of the things that are in relation to us.

Once we phenomenologically analyze the experience in this way, it is not possible to think about a conscious activity without temporality and spatiality. These are different from psychic temporality and spatiality, i.e., the products of impure reflection in which time and space are objectified in the form of duration and three-dimensional space such that they have nothing to do with our cognitive ability to think about things in the quantitative timeline and within a spatial context. The hodological space is a pre-reflective way of transcending ourselves towards the world (our *Umwelt*) relative to our center of reference and our needs (“the glass to-be-grabbed on my left”) (Sartre, 2015), while “original temporality” is the pre-reflective mode of intentionality in which we unify all different appearances of things – not into a series of “now” and “here” (psychic temporality and spatiality) but into an “organized structure” of an “original synthesis” of past, present and future (Sartre, 1956, p. 107). Through this original synthesis, in which the body plays the role of a necessary center of reference, the objects of experience are temporally and spatially extended and embedded into a wider spatiotemporal field. This synthesis is not a container of the past, present, and future contents of consciousness (see the aforementioned “No Content Thesis”) but, instead, a mode in which consciousness manifests itself and the world (“We are the temporalization”; Sartre, 1956, p. 159).

Taken together, our embodied-being-in-the-world is defined according to spatial and temporal modes, as our embodied intentionality always “temporalizes” and “spatializes” the things we apprehend in the world. We can, that is, perceive ourselves as a *Leib*: as being a body, as being spatially engaged with the world and living “inside time” (Fuchs, 2005). Furthermore, we can perceive ourselves as being spatiotemporally situated in the world, that is, as a *Körper*: as having a body, as perceiving it in space and time.

It is important to stress that the idea of bodily spatiality and temporality presented here is not identical with nor constrained to the biological and/or physical limits and conditions of the body per se. As I will show below with some examples, the embodied and embedded consciousness is far from being bounded anatomically; rather, what one might call the “spatiotemporal body” the spatial and temporal reference center that enables the embodied-being-in-the-world condition. Therefore, the question is not whether a body is necessary for consciousness at the biological/physical level but whether it is necessary for consciousness in the spatiotemporal sense, i.e., whether the body as a spatiotemporal structure in relation to the objects of the world is required for consciousness. In other words, the question focuses on whether and how consciousness necessarily acts in a spatiotemporal way: “Can there be thought about consciousness which does not involve thinking of it in bodily terms?”, where “body” refers to the organization of the experienced objects according to a situational spatiotemporal structure.

Ponty’s (2013, p. 102) idea of the body as “situational spatiality” rather than a mere “positional spatiality” (a mere thing located at a spatial point), i.e., the body, on the basis of the close relationship between sensation and action, gives form to spatiality, which is understood as a kinaesthetic interaction with the surrounding environment.

As a final point, I would like to present certain questions regarding a possible counterargument to consciousness as an embodied-being-in-the-world. Someone could identify instances of experience that are disconnected from the environment and the body, i.e., dream states (Loorits, 2018), altered states such as out-of-body experiences (Blanke & Dieguez, 2009) and brain-in-a-vat scenarios (McKinsey, 2018).⁶ I will argue that even these cases do not imply the existence of a consciousness completely deprived of corporeality in a spatiotemporal sense.

4. Cases of Disembodied/Disconnected Consciousness

When we are dreaming, we are somehow conscious of something even though it is not actually in front of us and our bed, and we can also experience our body in different ways than usual. Generally, the dream state is considered one of “disconnected consciousness” (Nir & Tononi, 2010; Tononi & Koch, 2008) in which the brain can still produce conscious experiences on its own (Tononi, 2009), undermining the idea of the necessity of the relation to the body and world. The case of out-of-body experiences is similar to the dream state, as it seems to be a genuine case of a disembodied point of view, as the subject perceives himself and the surrounding environment from a location outside their physical body, with an elevated visuospatial perspective (Blanke & Dieguez, 2009). From a phenomenological perspective, these states are particular cases of consciousness during which the relationship with the world is altered, as our embodied-being-in-the-world changes considerably; but this does not imply disembodied/disconnected consciousness. It is perhaps possible that during dreams or out-of-body experiences, the brain can produce consciousness in the absence of regular stimulation from the rest of the body and the environment;⁷ however, this does not mean that consciousness can be developed without an embodied and embedded phenomenological structure. Even in the foggiest of dreams or out-of-body experiences, the experience never ceases to be expressed through the hodological space and temporal synthesis of the experienced objects, which can acquire meaning only from a bodily point of view. In particular, out-of-body experiences are characterized by a loss of geometrical self-location, where the subject might feel detached from their physical body; nevertheless, they still perceive it from an “autosopic body”, i.e., a projected perspective that resembles the phenomenological structure of the actual body. Fingelkurts et al. (2021) have recently collected and classified reports of altered states of selfhood (ASoS) during mental exercises, many of which were characterized by an alteration of bodily awareness.⁸ The study suggests that many components of the phenomenal structure of experience can be modified in a specific altered state of consciousness: for example, body image, body perception, and body orientation can change with

4.1 Dreams and Out-of-body Experiences

6 Interestingly, one could criticize the concept of embodiment and embeddedness without evoking odd experiences and bizarre mental experiments, by proposing simple examples of cognitive activity that seems to be independent of the body, for example, mathematical calculation. Although mathematical calculation is an abstract mental process, this does not mean that it is independent of a bodily spatiotemporality; indeed, mental calculation (e.g., an equation to be solved mentally) is an imaginative process in which mathematical elements are shifted and modified in a spatiotemporal way from a point of view (I need to imagine the equation in front of me to solve it). In any case, my aim here is not to analyze such abstract cognitive processes, but whether experience as such can be completely disembodied.

7 As I have discussed in Zilio (2020a, pp. 319-321), it should be noted that not all stimulus–interaction is suppressed during sleep and dreaming, and the brain is not completely disconnected from the environment (see the concept of the “vigilant sleeper” in Andrillon and Kouider 2020). Also, the rest–stimulus interaction within the body is still present, suggesting that interoception plays the role of exteroception when dreaming. See also Northoff (2011).

8 “I observed my body from outside”; “Different parts of my body disappeared completely”; “My boundaries expanded into a whole room and street”; “I was both in my body and outside it”; “I raised and felt the space around”; “The experience of my life history disappeared”; “My thoughts stopped”; “Bodilessness with no location or time”. Regarding the latter report, the authors say, “[d]espite the fact that the participant reported an absence of ‘Location’ and ‘Time’, the slight increase in the functional integrity of the Self-module signifies that some phenomenological self-location was still present in this ASoS” (Fingelkurts et al., 2021, p. 12).

respect to the size and position of the physical body; the phenomenal center, the first-person perspective, the epistemic certitude, and the witnessing observer can move and expand beyond the physical body towards the environmental context. In other words, our spatiotemporal perspective spreads and the body – rather than “disappearing” – becomes the new environment and, thus, the embedment itself in both temporal and spatial terms.

As argued before, these excellent examples of altered states of (dis)embodied consciousness suggest that consciousness can go beyond the boundaries of the anatomical body while maintaining a minimum level of “dynamic proprioception”, “phenomenological center of gravity”, and “phenomenological self-location”. This is completely consistent with the concept of the spatiotemporal body as a hodological space and original synthesis, which is characterized by the range of bodily possibilities defined by the spatial and temporal context of the environment. Following Sartre’s phenomenological analysis, consciousness transcends into the world not only through the body but also through objects such that bodily consciousness always represents a world–body connection.⁹ Surely, the aforementioned states are different in their phenomenological structure than the normal perception of the world because the usual body and environment that offer a stable spatiotemporal background for our experience do not exist. For example, when we are dreaming, we usually recognize places, things, and people from individual details and not from a rich environmental context that we reconstruct through reflection after waking up instead (“I remember I was in my bedroom, at least I remember that I was in front of my bed and my desk”). Similarly, temporal synthesis is modified, and we experience greater or shorter times and durations than we would expect in the real world (e.g., during a dream it might take us “hours” to leave a room, then, the sky might go from day to night in a second). Furthermore, during specific states such as OBEs and ASoS, there is a disruption of the normal environment–body and world-self coupling that, on a phenomenological level, implies a change in the structure of our spatiotemporal body and, consequently, of our embodied-being-in-the-world. Nevertheless, the phenomenal reality created during dreams or altered experiences is still structured through a hodological, embodied and embedded perspective that constitutes the experience as such. Altogether, the spatiality and temporality of consciousness necessarily depend on the fact that the experience is intrinsically corporeal, which implies that every experienced object is manifested through bodily temporalization and spatialization regardless of whether it is physical or mental. In other words, dreams and altered experiences differ from the usual perception precisely because the body changes its spatiotemporal relations with the world.

4.2 *Brain-in-a-vat Thought Experiment*

Perhaps the most radical attempt to conceive of a disembodied consciousness is the brain-in-a-vat thought experiment. As is well known, it involves imagining a brain, without the rest of the body, that is inserted into a vat of nutrients, whose nerves are connected to a supercomputer that sends electrical impulses to stimulate it in the same way as brains are normally stimulated by the perception of external objects; the result is that the brain’s conscious experiences are qualitatively indistinguishable from those of a normal human

⁹ “My body is everywhere: the bomb which destroys my house also damages my body in so far as the house was already an indication of my body. This is why my body always extends across the tool which it utilizes: it is at the end of the cane on which I lean and against the earth; it is at the end of the telescope which shows me the stars; it is on the chair, in the whole house; for it is my adaptation to these tools.” (Sartre, 1956, p. 325). See also Mirvish (2010, p. 74): “[W]hen considered as an intentional agent, embodied consciousness, far from being bounded anatomically, must instead be understood as extending as far as the scope of its field of force. This view of active, goal-seeking, embodied consciousness is what Sartre terms a *Leib* or ‘lived body’”.

being (McKinsey, 2018).¹⁰ The thought experiment has been discussed, proposed and criticized by many authors (for example, Putnam, 1981). Here, we are not discussing the logical or semantic validity of the experiment but its phenomenological consistency. In this regard, it seems that the brain-in-a-vat is an instance of completely disembodied and disembedded consciousness. However, interestingly, Thompson and Cosmelli (2010; 2011) argue that the brain-in-a-vat scenario provides no evidence for the possibility of such consciousness; rather, it shows that the experience is intrinsically embodied and embedded even in the case of a surrogate body such as that virtually produced by the supercomputer and sustained by the vat system that mimics the vital functions of a biological body. Indeed, if the brain-in-a-vat needs a synthetic body (the vat and the supercomputer) that provides it with a virtual body and world (simulated by the supercomputer) to produce consciousness, then the thought experiment shows that it is not possible to conceive of an experience other than the one as the embodied-being-in-the-world condition. Hence, although it is possible to conceive of an experience as being biologically produced by only a brain or a disembodied system, it does not seem possible to conceive the phenomenological structure of experience as being deprived of a spatiotemporal corporeality in relation to a (virtual or actual) world.

Finally, we can try to make the thought experiment even more extreme. Suppose we hack the supercomputer and change the simulation parameters so that the brain is devoid of its virtual body entirely, without even body schema, body orientation, self-location, a bodily center of gravity, etc. – i.e., without the hodological body related to the world. How would it experience the virtual world? According to what has been claimed so far, it would experience the virtual world as long as the process of spatialization and temporalization occurs. Without the hodological body, it would lack the spatiotemporal coordinates within which to locate itself in the world and the situational structure that would allow the “vatted” brain to direct itself towards things in the virtual world. Therefore, it would be devoid of consciousness as it has been described so far. On the other hand, if it were able to experience any object (even if only imagined), then the brain would not be completely deprived of a bodily space-time relationship, since any object of experience must be located in a system of coordinates that are linked to a point of view. This would, therefore, confirm the phenomenological necessity of the spatiotemporal body even in extreme cases.

In this article, an attempt has been made to examine the phenomenological possibility of a completely disembodied and disembedded consciousness. Consciousness is the activity of disclosing the world through the body. Thus, it constantly depends on the conditions of interaction between the body and the world such that being embodied and embedded

5. Conclusion

¹⁰ One might propose the sensory deprivation tank as a concrete example – not a thought experiment – of a consciousness deprived of the body and the world. Phillips argues that the sensory deprivation tank does not eliminate consciousness (this is a fact) but reveals it as pure time in the Bergsonian sense. Darkness and suspension of the body would produce a consciousness devoid of spatiality, like a state of pure time (Phillips, 2021) (this raises the question of whether the process of spatialization can be reduced to temporalization, which could be understood as quantified time through action-perception loops). Leaving aside the fact that the subject in the sensory deprivation tank still has interoception and can still produce imaginative acts and hypnagogic states with eyes closed, probably induced by phosphenes, glows, and muffled sounds of the water, this experience is characterized by an extension of one’s spatiality and temporality and by an accentuated self-expansion that replaces the external world, rather than an elimination of space in favor of a pure temporal experience. Indeed, the spatiotemporal bodily structure dissociates from the anatomical body, loosens up and mixes with the darkness and the water of the tank (if my foot touches the side of the pool, I am again thrown back inside my anatomical body). In no case (also for Phillips) does my consciousness completely lose its temporality and spatiality in the sensory deprivation tank; nevertheless, it is a fascinating instance of altered spatiotemporality and self-transcendence.

means being in a spatiotemporal orientation and perspective in relation to the objects being experienced. However, consciousness does not seem to require an anatomical body per se but its spatiotemporal structure; even in cases where there may be experience without the anatomical body, there should be something in the subject's way of experiencing that plays a role analogous to the role that the spatiotemporal body – not just the anatomical body – performs for normal experience. This does not mean that the way the world is disclosed to consciousness cannot change, even radically, as the structure of the spatiotemporal body changes. This spatiotemporal body is indeed what provides the reference center and the interactions that enable the embodied-being-in-the-world condition of our experience.

REFERENCES

- Andrillon, T., Kouider, S. (2020). The Vigilant Sleeper: Neural Mechanisms of Sensory (De) Coupling during Sleep. *Current Opinion in Physiology*, 15: 47-59.
- Anscombe, G.E.M. (1981). The First Person. In Id., *The Collected Philosophical Papers of G.E.M. Anscombe* (Vol. 2: Metaphysics). Oxford: Blackwell, 21-36.
- Avicenna. (1959). On the Soul. In F. Rahman (ed.), *Avicenna's De Anima. Being the Psychological Part of Kitāb al-Shifā'*. London: Oxford University Press.
- Blanke, O., Dieguez, S. (2009). Leaving Body and Life Behind: Out-of-Body and Near-Death Experience. In S. Laureys & G. Tononi (eds.), *The Neurology of Consciousness*. Amsterdam: Elsevier, 303-325.
- Carel, H. (2016). *Phenomenology of Illness*. Oxford: Oxford University Press.
- Cosmelli, D., Thompson, E. (2010). Embodiment or Envatment?: Reflections on the Bodily Basis of Consciousness. In J. Stewart, O. Gapenne, & E.A. Di Paolo (eds.), *Enaction: Towards a New Paradigm for Cognitive Science*. Cambridge (MA): MIT Press, 361-386.
- Costa, V., Cesana, L. (2019). *Fenomenologia della cura medica. Corpo, malattia, riabilitazione*. Brescia: Scholé.
- Descartes, R. (2003). *Discourse on Method and Meditations*. (E.S. Haldane & G.R.T. Ross, Eds.). Mineola (NY): Dover Publications.
- Fingelkurts, A.A., Fingelkurts, A.A., Kallio-Tamminen, T. (2021). Self, Me and I in the Repertoire of Spontaneously Occurring Altered States of Selfhood: Eight Neurophenomenological Case Study Reports. *Cognitive Neurodynamics*, 16: 255-282.
- Fuchs, T. (2005). Implicit and Explicit Temporality. *Philosophy, Psychiatry, and Psychology*, 12(3): 195-198.
- Husserl, E. (1982). *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy*. (F. Kersten, Ed.). Berlin: Springer.
- Laureys, S., Tononi, G. (2009). The Neurology of Consciousness: An Overview. In S. Laureys & G. Tononi (eds.), *The Neurology of Consciousness: Cognitive Neuroscience and Neuropathology* (1st ed.). Amsterdam: Elsevier, 375-412.
- Leder, D. (1990). *The Absent Body*. Chicago: University of Chicago Press.
- Loorits, K. (2018). The Location and Boundaries of Consciousness: a Structural Realist Approach. *Review of Philosophy and Psychology*, 9(3): 523-537.
- Marion, J.-L. (2018). On Descartes' Passive Thought, The Myth of Cartesian Dualism. Chicago: University of Chicago Press.
- McKinsey, M. (2018). Skepticism and Content Externalism. In E.N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*. <https://plato.stanford.edu/archives/sum2018/entries/skepticism-content-externalism/>.
- Merleau-Ponty, M. (2013). *Phenomenology of Perception*. (D.A. Landes, Ed.). London: Routledge.
- Mirvish, A. (2010). Negation, Self-awareness, and Hodological Space. In K.J. Morris (ed.), *Sartre on the Body*. New York: Palgrave Macmillan, 67-83.

- Moran, D. (2011). Revisiting Sartre's Ontology of Embodiment in Being and Nothingness. In V. Petrov (ed.), *Ontological Landscapes: Recent Thought on Conceptual Interfaces Between Science and Philosophy*. Heusenstamm: Ontos Verlag, 263-294.
- Nir, Y., Tononi, G. (2010). Dreaming and the Brain: From Phenomenology to Neurophysiology. *Trends in Cognitive Sciences*, 14(2): 88-100.
- Northoff, G. (2011). *Neuropsychanalysis in Practice: Brain, Self, and Objects*. New York: Oxford University Press.
- Oizumi, M., Albantakis, L., Tononi, G. (2014). From the Phenomenology to the Mechanisms of Consciousness: Integrated Information Theory 3.0. *PLOS Computational Biology*, 10(5): 1-25.
- Phillips, M.T. (2021). The Sensory Deprivation Tank – A Time Machine. *Anthropology of Consciousness*, 33(1): 63-78.
- Putnam, H. (1981). *Reason, Truth and History*. Cambridge: Cambridge University Press.
- Rowlands, M. (2013). Sartre, Consciousness, and Intentionality. *Phenomenology and the Cognitive Sciences*, 12(3): 521-536.
- Rowlands, M. (2018). Disclosing the World: Intentionality and 4E Cognition. In A. Newen, L. De Bruin, & S. Gallagher (eds.), *The Oxford Handbook of 4E Cognition*. Oxford University Press, 334-352.
- Sartre, J.-P. (1939). Une Idée Fondamentale de la Phénoménologie de Husserl: l'Intentionnalité. *La Nouvelle Revue Française*, 304: 129-131.
- Sartre, J.-P. (1956). *Being and Nothingness*. (H.E. Barnes, Ed.). New York: Philosophical Library.
- Sartre, J.-P. (1981). An Interview with Jean-Paul Sartre: Interview by M. Rybalka, O. Pucciani, and S. Gruenheck (Paris, May 12 and 19, 1975). In P.A. Schilpp (ed.), *The Philosophy of Jean-Paul Sartre*. LaSalle (IL): Open Court, 3-51.
- Sartre, J.-P. (2015). *Sketch for a Theory of the Emotions* (Vol. 13). London: Routledge.
- Shoemaker, S. (1963). *Self-Knowledge and Self-Identity* (Vol. 15). Ithaca (NY): Cornell University Press.
- Thompson, E., Cosmelli, D. (2011). Brain in a Vat or Body in a World? Brainbound versus Enactive Views of Experience. *Philosophical Topics*, 39(1): 163-180.
- Tononi, G. (2009). Sleep and Dreaming. In S. Laureys & G. Tononi (eds.), *The Neurology of Consciousness: Cognitive Neuroscience and Neuropathology* (1st ed.). Amsterdam: Elsevier, 89-107.
- Tononi, G. (2017a). Integrated Information Theory of Consciousness. In S. Schneider & M. Velmans (eds.), *The Blackwell Companion to Consciousness*. Hoboken (NJ): John Wiley & Sons, 621-633.
- Tononi, G. (2017b). The Integrated Information Theory of Consciousness: An Outline. . Schneider & M. Velmans (eds.), *The Blackwell Companion to Consciousness*. Hoboken (NJ): John Wiley & Sons, 243-256.
- Tononi, G., Koch, C. (2008). The Neural Correlates of Consciousness: An Update. *Annals of the New York Academy of Sciences*, 1124: 239-261.
- Vidal, F. (2009). Brainhood, Anthropological Figure of Modernity. *History of the Human Sciences*, 22(1): 5-36.
- Wehrle, M. (2019). Being a Body and Having a Body. The Twofold temporality of Embodied Intentionality. *Phenomenology and the Cognitive Sciences*, 19(3): 499-521.
- Zilio, F. (2020a). *Consciousness and World. A Neurophilosophical and Neuroethical Account*. Pisa: Edizioni ETS.
- Zilio, F. (2020b). The Body Surpassed Towards the World and Perception Surpassed Towards Action: A Comparison between Enactivism and Sartre's Phenomenology. *Journal of French and Francophone Philosophy*, 28(1): 73-99.
- Zilio, F. (2021). The Paradoxical Body. The Tensegrity of Corporeality in Sartre's Phenomenology. *Teoria*, 41(1): 169-187.