

## Are there degrees of self-consciousness?

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### Introduction

Many philosophers, psychologists and neuroscientists appear to be sympathetic to the claim that the ordinary conscious experience of human beings involves a form of self-consciousness<sup>1</sup>. As such, this claim requires qualification. Thinking of oneself is a paradigmatic example of self-consciousness; but it is dubious that human beings are normally thinking about themselves whenever they are conscious. In response to such concern, it is often emphasized that the kind of self-consciousness deemed ubiquitous in ordinary experience is *minimal* – more minimal than thinking about oneself. A number of authors have suggested that it is possible in principle to isolate “the simplest form of self-consciousness”<sup>2</sup> or “the simplest form of self-experience”<sup>3</sup> that accompanies most if not all conscious states. Moreover, some wonder whether “the most basic level of self-consciousness” is disrupted by psychopathologies such as schizophrenia<sup>4</sup>, or whether “infants do exhibit a rudimentary form of minimal self-awareness”<sup>5</sup>. These formulations suggest that self-consciousness comes in degrees, and that individual subjects may differ with respect to the degree of self-consciousness they exhibit at a given time. In this article, I will critically examine this assumption. I will consider what the claim that self-consciousness comes in degrees may mean, raise some challenges against the different versions of the claim, and conclude that none of them is both coherent and particularly plausible.

### 1. Self-consciousness as a gradable property

At a first pass, the claim that there are levels or degrees of self-consciousness means that creatures can be *more* or *less* conscious of themselves. Specifically, it means that a creature may be *more* or *less* conscious of itself at one time than it is at a later time, and that it may be *more* or *less* conscious of itself than another creature at some time. Thus, the claim under consideration is that self-consciousness is a gradable property of conscious creatures that can vary along a single dimension, both across time (for a particular creature) and across creatures<sup>6</sup>. Is this claim plausible? To start addressing this question, it is informative to consider a similar debate regarding consciousness in general. In the clinical literature on disorders of consciousness, the claim that creature consciousness – consciousness as a property of creatures – comes in degrees is often explicitly endorsed<sup>7</sup>. Patients in a vegetative state, for example, are said to be *more* conscious (or to have a *higher* level of consciousness) than patients in a minimally conscious state. The underlying

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<sup>1</sup> See for example Chalmers (1996, p. 10), Damasio (1999, p. 19), Metzinger (2003, p. 158), Kriegel (2009, p. 177), Zahavi (2014) and Strawson (2011, p. 8). By “self-consciousness”, I mean the subject’s consciousness of herself (also called “self-awareness” or “sense of self”). Although I do not focus on this issue here, strictly speaking the relevant notion of self-consciousness refers to a consciousness of oneself *as oneself*, to exclude cases in which one is accidentally conscious of oneself *as something other than oneself* (e.g. if I think about the lottery winner without realising that *I myself* am the lottery winner).

<sup>2</sup> Blanke & Metzinger (2009, p. 12).

<sup>3</sup> Windt (2015, p. 565).

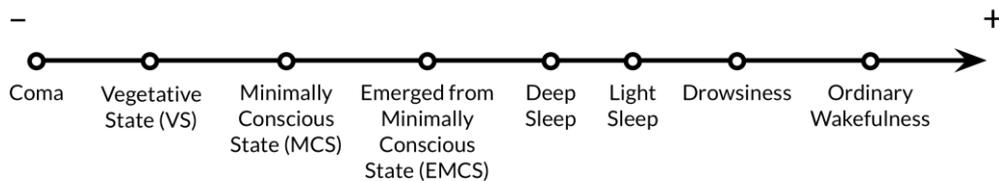
<sup>4</sup> Sass & Pienkos (2013, p. 117).

<sup>5</sup> Hutto & Ilundáin-Agurruza (2018, p. 3).

<sup>6</sup> Note that the notion of self-consciousness is occasionally used to refer to a *dispositional* property of conscious creatures, namely their *capacity* to be conscious of themselves. Accordingly, one could understand the idea that self-consciousness comes in degree in terms of an ordering of dispositions for self-consciousness; one might argue, for example, that the members of a certain species of rodent are *less self-conscious* than human beings. However, the idea that self-consciousness is gradable as a dispositional property is often premised upon the assumption that the corresponding categorical property it itself gradable. For example, the claim that rats are *less self-conscious* than human beings might mean that whenever a rat is self-conscious, it is *less self-conscious* than a human being typically is when he or she is self-conscious. For this reason, I will leave aside the dispositional use of self-consciousness in what follows.

<sup>7</sup> See for example Laureys (2005), Giacino et al. (2002), Overgaard & Overgaard (2010), Boly et al. (2013)

assumption is that all global states of consciousness can be ranked in principle on a consciousness scale, ranging from the most minimal or basic level of consciousness to the highest level attainable by conscious creatures<sup>8</sup> (see fig. 1).



**Fig. 1. Alleged levels of consciousness**

However, the plausibility of this assumption has been challenged on the ground that the concept of consciousness does not typically refer to a graded property<sup>9</sup>. Indeed, a creature is commonly said to be conscious if and only if it has a subjective experience; but the property of having a subjective experience is not gradable – either one has such experience or one does not. A similar issue seems to arise with respect to self-consciousness. Presumably, either one is conscious of oneself or one is not, so it is not obvious that the property of being conscious of oneself is a gradable property.

It is sometimes suggested that levels of consciousness should be defined with reference to the degree to which mental contents are conscious, as opposed to global states of a creature<sup>10</sup>. While a creature can be in only one global state of consciousness at any given time, it may be in several specific conscious mental states at the same time – for example by having both a visual experience of an apple and a bodily experience of stomach pain simultaneously. If specific mental states can be more or less conscious, then a creature’s level of consciousness could be equated with how conscious its most conscious mental state is. Similarly, one may attempt to make sense of the hypothesis that self-consciousness comes in degree by focusing on specific mental states rather than global states of an organism. Let us call a conscious mental state *M* a *state of self-consciousness* if its subject is conscious of herself by virtue of being in *M*. As previously mentioned, conscious *de se* thoughts – conscious mental states of thinking about oneself – are paradigmatic examples of such states. The question is whether states of self-consciousness can be ranked along a single scale determining how self-conscious their subject is. One suggestion is that states of self-consciousness differ with respect to their salience or vividness, and that such difference is the relevant metric to rank them on a “self-consciousness scale”. For example, a creature’s level of self-consciousness at a given time could be equated with how vivid its *most vivid* state of self-consciousness is at that time.

This alternative proposal raises a number of issues. Firstly, the “vividness” or “salience” of a conscious mental state is a fuzzy concept. Suppose that you have a visual experience of an apple and a bodily experience of stomach pain; how are you meant to assess which of the two experiences is the most vivid? The same worry applies to states of self-consciousness. Consider two distinct *de se* thoughts, such as the thought that I am a human being and the thought that I live on planet Earth. If you entertain these thoughts successively (in the first-person), you will go through two distinct states of self-consciousness; but there is no obvious criterion to determine whether one is more vivid than the other<sup>11</sup>. As a general point, reports of “degraded” or “faint” contents could

<sup>8</sup> It has been recently suggested that there is a “higher” level of consciousness than the ordinary waking state, namely exemplified by the kind of global state of consciousness induced by psychedelic drugs, using spontaneous MEG signal diversity as the index for levels of consciousness (Schartner, Carhart-Harris, Barrett, Seth, & Muthukumaraswamy, 2017).

<sup>9</sup> Bayne et al. (2016).

<sup>10</sup> Overgaard & Overgaard (2010). See Bayne et al. (2016) for a critical discussion of this proposal.

<sup>11</sup> One might report a difference between concentrating on one thought and absent-mindedly entertaining another, but this could be explained by a difference in the sense of cognitive effort that may accompany a thought, as opposed to a difference in the “vividness” of the thought itself.

also be interpreted as expressing uncertainty about whether or not the relevant contents were really experienced, rather than a lower degree of vividness of the experience itself<sup>12</sup>. Even if we assume for the sake of argument that “vividness” is a gradable property of conscious mental states that can be reliably assessed and reported, it is debatable whether the degree of vividness of a creature’s most vivid state of self-consciousness at a given time could be equated with the creature’s alleged level of self-consciousness. Vividness is a generic property of all mental states that is unrelated to the self-representing nature of states of self-consciousness. The hypothesis that states of self-consciousness can be ranked on a scale with respect to their putative vividness does not necessarily entail that their subjects can be more or less conscious of themselves.

In response to these concerns, one might argue that the vividness of states of self-consciousness is not the right metric to rank levels of self-consciousness adequately. Perhaps the right criterion should be some gradable property of mental states that is directly related to their self-representing content. For example, one could suggest that states of self-consciousness can be more or less “self-involving”, and that a creature’s overall level of self-consciousness is determined by the degree of self-involvement exemplified by its most self-involving conscious mental state at a given time. This strategy does not seem very promising, however, because the notion of self-involvement seems even vaguer than that of vividness. Presumably, a *de se* thought is “self-involving” in so far as it involves *de se* content, which is another way to say that its content includes the first-person concept and is suitably expressed by a statement using the first-person pronoun. It is unclear how a *de se* thought could be more self-involving than another, given that the property of involving the first-person concept is not gradable<sup>13</sup>.

So far, I have challenged the claim that the putative “vividness” or “self-involvement” of states of self-consciousness gives us a grasp on the proposal that self-consciousness is a gradable property of creatures. I suspect, however, that many proponents of a graded view of self-consciousness would contend that its plausibility crucially turns upon a distinction between several ways of being conscious of oneself. In what follows, I will explore this idea and critically examine the resulting account of levels of self-consciousness.

## 2. Modes of self-consciousness

There seems to be an intuitive distinction between *what* one is conscious of and *how* one is conscious of it. Consider the difference between seeing an apple and seeing a pear; these two experiences differ with respect to their intentional object, namely what they represent. Consider now the difference between seeing, touching, imagining and thinking of a particular apple. These experiences share the same intentional object – they are all about an apple<sup>14</sup>. However, they do not share the same phenomenal character: what it is like to see a particular apple does not resemble what it is like to touch it or think of it. Some have argued that this phenomenal contrast is at least partly determined by the *way* in which the object is represented, which has been called “intentional mode” (Searle, 1983; Crane, 2003, 2009), “manner of representation” (Chalmers, 2004) and “attitude” (Kriegel, 2015). On this view, the experience of thinking about Barack Obama does not

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<sup>12</sup> See Bayne et al. (2016) on this point. It should also be noted that talk about the “vividness” of thoughts appears to rest on a questionable analogy between thought and (visual) perception or imagination. It is certainly not obvious that the same notion of “vividness” can apply to both perceptual and cognitive mental states.

<sup>13</sup> With respect to thoughts in particular, there is perhaps an intuitive sense in which some *de se* thoughts are more “self-centred” than others. If I wonder what I will have for dinner, or realise that I will be late for a conference, there is a sense in which the primary objects of my thoughts, as it were, are the dinner meal and the conference rather than myself. Contrast these examples with the thought that I am a human being or Descartes’ *ego sum, ego existo* (“I am, I exist”); the latter are explicitly about my existence or the kind of thing that I am, and to that extent might be said to be “self-centred” in a way that goes beyond the mere deployment of the first-person concept. This proposal is very impressionistic and would have to be developed more precisely to carry any weight in this discussion. In any case, it is of limited interest for proponents of the claim that self-consciousness comes in degree, since it applies specifically to *de se* thoughts rather than self-consciousness in general.

<sup>14</sup> In this toy example, I am assuming that these experiences are all about the *very same* apple rather than some arbitrary apple.

represent Barack Obama in the same way as the experience of seeing Obama, because thought and visual perception are two distinct intentional modes.

My purpose here is not to engage in a general discussion of intentional modes<sup>15</sup>. Rather, I want to consider the suggestion that the distinction between different ways of being conscious of something also applies to self-consciousness. The idea is that states of self-consciousness may broadly speaking represent the same intentional object – the self – and yet differ with respect to the way in which they represent it. Accordingly, there are different ways in which one may be conscious of oneself, which I will now refer to as *modes of self-consciousness*. Many philosophers and psychologists endorse this pluralistic view of modes of self-consciousness, arguing that thinking about oneself is only one of such modes<sup>16</sup>. For the sake of clarity, I will refer to thinking about oneself as *cognitive self-consciousness*. A number of authors claim that bodily awareness constitutes a non-cognitive mode of self-consciousness<sup>17</sup>. This claim is often motivated by arguing that our awareness of certain bodily sensations grounds first-person judgements that are immune to error through misidentification with respect to the first-person, such feature being heralded as a hallmark of self-consciousness<sup>18</sup>. Some authors also argue that bodily awareness normally comes with a sense of body ownership by virtue of which we experience our body as our own<sup>19</sup>. I will refer to the mode of self-consciousness underlain by bodily awareness as *bodily self-consciousness*.

Another candidate for a distinct mode of self-consciousness is the subject's conscious awareness of her spatial location with respect to her perceived environment<sup>20</sup>. Perceptual experiences, and visual experiences in particular, represent spatial properties of objects within an egocentric frame of reference<sup>21</sup>. This means that the location of environmental landmarks is represented with respect to a specific point of origin, which roughly coincides with the centre of the subject's head for human beings. Correlatively, the relative location of the point of origin of the visuospatial perspective is itself represented with respect to surrounding objects. Many authors have suggested that in normal perceptual experience, the location of the point of origin of the subject's visuospatial perspective is represented as *the subject's location*. Perceptual (visual) experience is self-locating, meaning that it represents the location of the self with respect to the perceived environment. In so far as self-locating perceptual content is associated with a specific phenomenology – a sense of being located with respect to one's environment – it may be said to constitute a form of self-consciousness. This claim is further supported by the idea that self-locating perceptual content grounds self-locating judgements (such as “I am in front of this table”) that are immune to error through misidentification with respect to the first-person<sup>22</sup>. I will refer to the mode of self-

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<sup>15</sup> For a defence of the claim that intentional modes are non-representational features of mental states, see Crane (2003, 2009) and Kriegel (2015). For a critical discussion, see Bourget (2017).

<sup>16</sup> See for example Gallagher (2000, 2013), Bermúdez (2001), Zahavi (2014) and Peacocke (2014).

<sup>17</sup> Among philosophers, see Strawson (1966), Evans (1982), Sutton Morris (1982), Ayers (1991), Brewer (1995), Cassam (1995, 1997), Bermúdez (1998, 2011), Legrand (2006) and De Vignemont (forthcoming). Among psychologists and neuroscientists, see for example Blanke (2012), Seth (2013), Serino et al. (2013), Tsakiris (2017) and Salomon (2017).

<sup>18</sup> For an example of this strategy see Bermúdez (2011). A judgement of the form “I am F” is said to be immune to error through misidentification with respect to the first-person if it is impossible that its utterer be right that something is F and wrong that *she herself* is F. The notion of immunity to error through misidentification was coined by Shoemaker (1968). For a critical discussion of whether bodily self-ascriptions are immune to error through misidentification, see De Vignemont (2011).

<sup>19</sup> For an example of this strategy see De Vignemont (2007; 2013; forthcoming). For a critical perspective on the sense of body ownership, see Bermúdez (2011, 2015) and Alsmith (2014).

<sup>20</sup> Among philosophers, see Evans (1982), Cassam (1997, pp. 52–53), Hurley (1998), Bermúdez (1998; 2001; 2011), Peacocke (1998), Noë (2005) and Schwenkler (2014). Among psychologists and neuroscientists, see for example Serino et al. (2013), Maselli & Slater (2014), Guterstam et al. (2015), Maselli (2015). For critical discussions see Campbell (1994), Schellenberg (2007) and Alsmith (2017).

<sup>21</sup> See Klatzky (1998) on the notion of egocentric frames of reference.

<sup>22</sup> See Evans (1982), De Vignemont (2011) and Bermúdez (2011). Some multisensory illusions such as the “body-swap illusion” (Petkova & Ehrsson, 2008), in which the visuospatial perspectives of two people are artificially swapped by feeding a live streams from stereoscopic cameras to head mounted displays, present an interesting challenge to the claim that self-locating judgements (in an egocentric frame of reference) are always immune to error through

consciousness underlain by the subject's awareness of her egocentric location as *spatial self-consciousness*.

I have introduced three ways of being self-conscious, or modes of self-consciousness: cognitive, bodily and spatial self-consciousness<sup>23</sup>. Can the distinction between different modes of self-consciousness shed any light on the idea that self-consciousness comes in degrees? One option would be to attempt ranking modes of self-consciousness in a definite order, from “lower” to “higher” forms of consciousness. I see two issues with this proposal. First, there is no obvious property of modes of consciousness that could serve as the criterion for such ranking. Admittedly, there is a difference between thinking about oneself on the one hand, and experiencing one's body or egocentric location on the other. Indeed, while *de se* thoughts engage the first-person concept (the concept of self), a number of authors have argued that the two other forms of self-consciousness do not. Most conscious animals and infants, for example, presumably feel their body and location in egocentric space without possessing a concept of self. Consequently, it has been suggested that these forms of self-consciousness are rooted in *nonconceptual de se* content, rather than in the involvement of a full-blown concept of self<sup>24</sup>. This proposal does support the idea that modes of self-consciousness come in two flavours: they can be conceptual or nonconceptual. But it does not yield a ranking between certain modes of self-consciousness, such as bodily and spatial self-consciousness, nor does it warrant the claim that there is a “simplest form of self-consciousness”<sup>25</sup> – since bodily and spatial modes of self-consciousness are both nonconceptual.

There is a deeper issue with the suggestion that ranking modes of self-consciousness on a particular scale will make sense of the claim that self-consciousness comes in degrees. Indeed, if there are distinct modes of self-consciousness, we can assume that any particular state of self-consciousness belongs to one of such modes. For example, a *de se* thought is an instance of cognitive self-consciousness, a proprioceptive sensation an instance of bodily self-consciousness, and a self-locating visual experience an instance of spatial self-consciousness. But if this is the case, creatures are often in more than one state of self-consciousness at a given time. A subject can simultaneously have a visual experience of a table whose content represents her as being *in front of a table*, a proprioceptive experience whose content represents her legs as crossed, and think at the same time “my legs are crossed”. In this situation, which does not seem particularly far-fetched, the subject is simultaneously conscious of herself in three different ways – cognitive, bodily and spatial.

However, the fact that one can be in several modes of self-consciousness at any one time allows for an intriguing idea that appears to have some support in the literature: the hypothesis that modes of self-consciousness are systematically related in such a way that one can trace one-way

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misidentification. In this setup, someone might judge based on their visual experience “I am in front of a table”, when in reality *someone else's* body is front of a table. One way to fend off this worry is to argue that the kind of self-locating judgements that is immune to error through misidentification is not about the location of the subject's *body*, but merely about the location of the subject's visuospatial perspective. See Millière (2017a) for a discussion of this issue.

<sup>23</sup> There are a few other candidates for distinct modes of self-consciousness, such as the sense of agency or the first-person perspective, although they are arguably more contentious. The sense of agency refers to the experience of one's action as one's own (Haggard, 2017). However, the hypothesis that there is a *sui generis* phenomenology of agency is controversial (Grünbaum, 2015; Grünbaum & Christensen, 2017; Parrott, 2017), and the sense of agency is not easy to disentangle from bodily awareness. As for the “first-person perspective”, it is an umbrella-term whose use often conflates several notions, including (a) the experienced location of the origin of the egocentric frame of reference structuring the visual field (equivalent to self-location), (b) the experience of one's absolute orientation in space with respect to gravitational cues (where is “up” and “down”) and (c) what Alsmith (2017) calls “limitation structure”, namely the fact that in (visual) perceptual experience things can only be perceived within a certain bounded region in space and may be occluded. See Millière (2017) for a disambiguation of the notion of first-person perspective as it is used in the scientific literature on full-body illusions and autoscopic phenomena. In this article I will leave the sense of agency and the first-person perspective aside.

<sup>24</sup> For a discussion of the relationship between nonconceptual *de se* content and self-consciousness see Bermúdez (2011) and Peacocke (2014, 2015). The hypothesis that perceptual and bodily might carry nonconceptual content has generated a lot of debate, which I cannot go into here.

<sup>25</sup> Blanke & Metzinger (2009, p. 12).

dependence relations between them. I will now examine how this idea can be developed to justify the claim that self-consciousness comes in degree, before arguing that it is challenged by empirical evidence.

### 3. The scaffolding model of self-consciousness

The proposal that modes of self-consciousness are systematically related builds upon the broad idea that self-consciousness is a multi-layered phenomenon, which frequently involves more than one mode of self-consciousness at any given time. The crucial claim is that some modes of self-consciousness are more fundamental or basic than others, and that more sophisticated modes can only occur concurrently with more basic modes. Specifically, a subject cannot be self-conscious in some way A unless she is *also* self-conscious in a more basic way B at the same time, unless A is the most basic mode of self-consciousness. On this view, self-consciousness is akin to a scaffolding: each floor or layer requires the floor below in order to stand, unless it is the first and lowest layer of the structure. Drawing on this analogy, I will refer to this view as the scaffolding model of self-consciousness (Fig. 2).

Bermúdez evokes a similar idea when he writes that “there are many distinct layers of self-consciousness”, each of which is “parasitic on a more primitive and already-existing form of self-consciousness” with the exception of the bottom layer. Indeed, “it seems plausible that all these layers must eventually be grounded in a form of self-awareness primitive enough not to depend on a more basic self-awareness”<sup>26</sup>. There is, however, an important caveat to consider: Bermúdez appears to claim that one-way dependence relations hold between *capacities* for different modes of self-consciousness, and are determined by the order in which these capacities appear during the development of an organism. Importantly, this ontogenetic claim does not necessarily entail that an organism may be *more* or *less* self-conscious than another at a given time. To draw upon the analogy with consciousness, the hypothesis that capacities for various intentional modes may unfold in a particular order during development (e.g. the ability to entertain thoughts emerges after the ability to have visual experiences) does not entail that consciousness comes in degrees, nor does it entail that one cannot exercise a capacity acquired at a later developmental stage without exercising at the same time all the capacities acquired at earlier stages. The same line of reasoning applies to a phylogenetic perspective on modes of self-consciousness; while interesting in its own right, the claim that the capacities for modes of self-consciousness appear in a particular order in the evolution of a species does not support the idea that self-consciousness comes in degrees for individual members of the species at any given time. By contrast, the scaffolding mode of self-consciousness holds that modes of self-consciousness are parasitic on each other in actual global states of consciousness, such that any mode of self-consciousness must co-occur with more basic modes of self-consciousness in the overall experience of a subject at any given time, with the exception of the most basic mode of self-consciousness.

The scaffolding model often rests upon the assumption that there is a single mode of self-consciousness that a subject can be in without being in any other mode of self-consciousness, and that must also occur when all other modes of self-consciousness occur<sup>27</sup>. This assumption seems to show through in a number of publications in philosophy and psychology. For example, Blanke and Metzinger defined “minimal phenomenal selfhood” as “the simplest form of self-consciousness” in an influential paper<sup>28</sup>. On their view, the simplest form of self-consciousness has to be both minimally sufficient and necessary for a creature to be self-conscious at all at any given

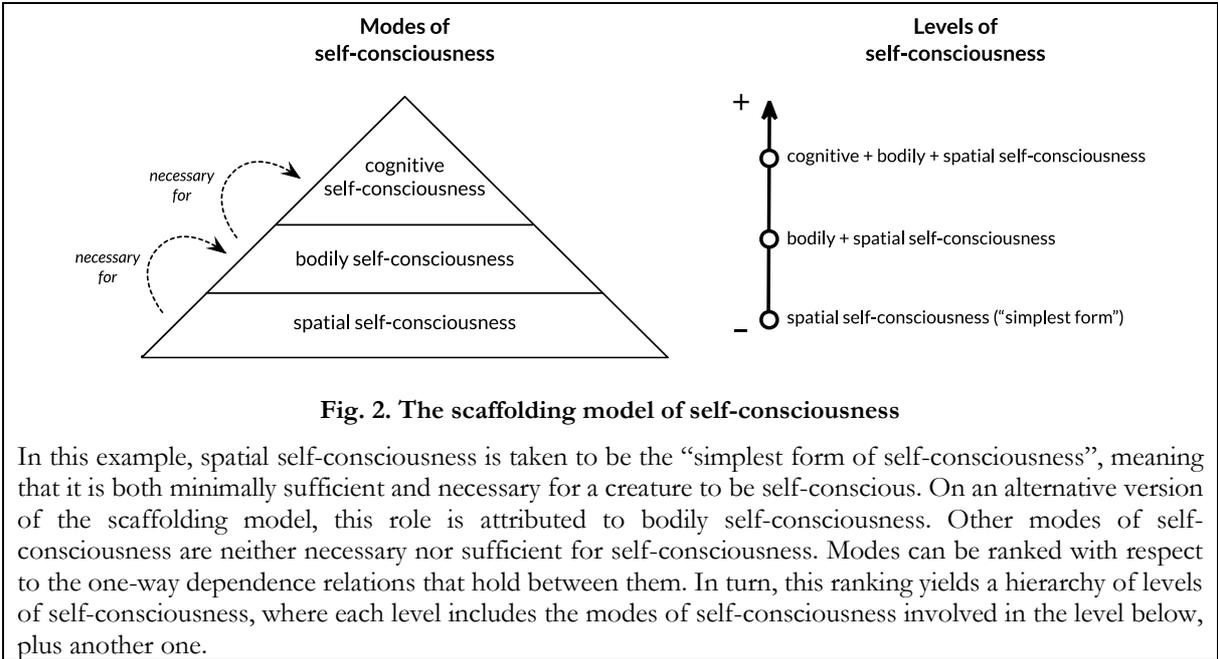
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<sup>26</sup> Bermúdez (1995, p. 153).

<sup>27</sup> One could conceive of a scaffolding model in which there no single simplest mode of self-consciousness, but several modes of self-consciousness which are jointly necessary for all other modes to occur. For example, one could claim that bodily and spatial self-consciousness always co-occur with one another, and are necessary for cognitive self-consciousness to occur at a given time. The empirical evidence discussed in the next section also challenges this version of the scaffolding model.

<sup>28</sup> Blanke & Metzinger (2009, p. 12).

time. There are two main candidates for the simplest form of self-consciousness in the literature, namely bodily self-consciousness and spatial self-consciousness<sup>29</sup>. If bodily self-consciousness is the simplest form of self-consciousness in the relevant sense, then being conscious of one’s body must be both sufficient and necessary to be conscious of oneself. This entails that any subject who is conscious of herself in some way (e.g. through *de se* thoughts or self-locating content) must also be conscious of her body. Similarly, if spatial self-consciousness is the simplest form of self-consciousness, then being conscious of one’s location in egocentric space must be sufficient and necessary to be conscious of oneself. This entails that any subject who is conscious of herself in some way (e.g. through *de se* thoughts or bodily awareness) must also be conscious of her egocentric location (Fig. 2). In the next section, I will challenge both of these positions by discussing counterexamples to their empirical predictions. I will suggest that spatial self-consciousness can occur without bodily self-consciousness, that bodily self-consciousness can occur without spatial self-consciousness, and that cognitive self-consciousness can occur without either bodily or spatial self-consciousness.



<sup>29</sup> Here are few passages supporting one or the other of these options: “Bodily self-awareness seems to be one of the most tempting and attractive candidates for the basic level of self-awareness that might be at the core of a comprehensive account of the manifold forms of self-consciousness.” (Gallese & Sinigaglia, 2011, p. 118); “Self-awareness at its most basic level is a presence to oneself as a conscious, bodily orientation towards the world” (Wider, 2006, p. 82); “[P]ure spatiotemporal self-location suffices for a robust sense of self” (Metzinger, 2013, p. 12); “Spatiotemporal self-location is sufficient for the simplest form of self-experience” (Windt, 2015, p. 565). In their original paper, Blanke and Metzinger (2009) suggested that body ownership and self-locating content *jointly* constitute the simplest form of self-consciousness. Metzinger has since revised his position, rallying to the weaker claim that self-locating content underlies the simplest form of self-consciousness (Metzinger, 2013). Note that Windt and Metzinger talk of spatiotemporal self-location rather than merely spatial self-location. In this context, temporal self-location refers to the sense of duration (Windt, 2014). This association seems premised upon the assumption that spatial self-location is always accompanied by a sense of duration, although the opposite might not be true (Windt, 2014; Windt, Nielsen, & Thompson, 2016). I have suggested elsewhere that some global states of consciousness may lack any sense of duration (Millière, Carhart-Harris, Roseman, Trautwein, & Berkovich-Ohana, 2018), and I believe this holds also true of some global states involving spatial self-locating content. There are also independent reasons to argue that having sense of duration is not sufficient for being self-conscious (Windt, 2014). For these reasons, I will focus here on spatial self-location rather than “spatiotemporal” self-location.

## 4. Dissociations between modes of self-consciousness

### 4.1 Spatial self-consciousness without bodily self-consciousness

There is converging evidence that it is possible for a subject to be aware of her spatial location within an egocentric frame of reference without being aware of her body, casting doubt on the hypothesis that bodily awareness is necessary for self-consciousness. Some might argue that this even occurs in rather mundane situations when one does not pay any attention to bodily signals, for example when one is mind-wandering or absorbed in a task or stimulus. Consider the experience of being enthralled by a captivating novel. This involves a visual experience of the book which presumably has self-locating content: it represents the book as being *in front of me*, and conversely represents me as being at a certain distance from the book. Assuming that the reader stands still, it is less obvious that her overall experience would necessarily include tactile, proprioceptive or interoceptive sensations. The assumption that bodily sensations are constantly present in the background of conscious experience might simply be an instance of the refrigerator light fallacy: bodily signals are experienced as soon as one focuses on them, but this does not warrant the conclusion that they are ubiquitous in all conscious experience<sup>30</sup>.

In any case, there are altered states of consciousness that clearly involve self-locating content without bodily awareness. In a subset of out-of-body experiences (OBEs) known as “asomatic”, subjects have the experience of being disembodied, without having the illusion of seeing their own body from the outside<sup>31</sup>. In fact, a recent study with a large sample size of both healthy participants and vestibular disorder patients who reported OBEs suggests that only 10% to 30% of such experiences feature the hallucination of one’s “own” body in extracorporeal space<sup>32</sup>. As experiences of disembodiment, asomatic OBEs presumably do not involve bodily awareness. Interestingly, reports of asomatic OBEs sometimes mention the experience of being an extensionless point in space, which coincides with the origin of one’s visuospatial perspective. These experiences do involve visual scenes with spatial properties, and there is no reason to believe that they lack spatial self-consciousness. In the general population, there is also evidence that a small subset of dreams are “bodiless”, meaning that the dreamers do not experience themselves as embodied within the dream<sup>33</sup>. In bodiless dreams, some subjects report that they “experienced themselves as a disembodied point or freely moving center of awareness”<sup>34</sup>.

There is also converging evidence that certain drug-induced states may involve a complete loss of bodily awareness<sup>35</sup>. Early studies with mescaline and LSD already reported depersonalization-like effects which occasionally involved a loss of bodily awareness<sup>36</sup>. On the psychometrically validated 5D-OAV questionnaire<sup>37</sup> commonly used to assess the subjective experience of altered states of consciousness, healthy participants score high on the “disembodiment” factor, which includes the item “it seemed to me as if I did not have a body anymore”, after administration of ketamine<sup>38</sup>, psilocybin<sup>39</sup> and LSD<sup>40</sup> compared to placebo. There is also anecdotal evidence from narrative reports that psychedelics can radically disrupt bodily awareness: “There was purely my

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<sup>30</sup> See Schwitzgebel (2007) for an interesting discussion of this point. Schwitzgebel used experience sampling with an auditory cue to probe the experience of participants at random times. While most participants reported visual experiences, tactile experiences were reported less often, and the results did not conclusively show that bodily awareness is a ubiquitous feature of ordinary experience.

<sup>31</sup> Alvarado (2000). See Metzinger (2013) for a discussion.

<sup>32</sup> Lopez & Elzière (2017, p. 6)

<sup>33</sup> Cicogna & Bosinelli (2001), LaBerge & DeGracia (2000), Occhionero & Cicogna (2011).

<sup>34</sup> Windt (2010, p. 301)

<sup>35</sup> See Millière (2017b) and Millière et al. (2018) for a detailed discussion of the relevant data.

<sup>36</sup> Guttman & Maclay (1937), Savage (1955), Sedman & Kenna (1964), Von Mering et al. (1955).

<sup>37</sup> Studerus, Gamma, & Vollenweider (2010).

<sup>38</sup> Schmidt et al. (2012; 2013).

<sup>39</sup> Bernasconi et al. (2014), Kometer et al. (2012), Preller et al. (2016), Pokorny et al. (2017).

<sup>40</sup> Schmid et al. (2015), Carhart-Harris, Kaelen, et al. (2016), Carhart-Harris, Muthukumaraswamy, et al. (2016), Kraehenmann et al. (2017), Liechti, Dolder & Schmid (2017), Preller et al. (2017).

sensory perception of my environment... I felt disconnected from my physical being, my body”<sup>41</sup>. In a recent neuroimaging study of DMT, a drug whose short lasting subjective effects are more intense and immersive than those of psilocybin or LSD, almost all participants reported a loss of awareness of their body for several minutes during the peak of the experience in *post-hoc* micro-phenomenological interviews<sup>42</sup>. This transitory experience appears to be lacking not only tactile and proprioceptive sensations, but also awareness of interoceptive signals, such as cardiorespiratory and visceral signals<sup>43</sup>. Interestingly, DMT induces complex and vivid hallucinations of three-dimensional visual scenes that appear to have self-locating content. For example, subjects were able to report about their position with respect to environmental landmarks in the hallucinatory scene. Thus, drug-induced states offer additional evidence that spatial self-consciousness can occur without bodily self-consciousness.

Taken together, these findings strongly suggest that bodily awareness is not necessary for self-consciousness, and that bodily self-consciousness is not a suitable candidate for the simplest form of self-consciousness. I will now turn to the question of whether subjects can have bodily self-consciousness when they lack spatial self-consciousness.

#### **4.2 Bodily self-consciousness without spatial self-consciousness**

Although it is more difficult to find evidence for bodily self-consciousness without spatial self-consciousness than for the opposite dissociation, at least three cases seem to exemplify this possibility. The first comes from the experience of deafblind people, namely individuals who have little to no ability to hear or see<sup>44</sup>. Because they lack distal perceptual capacities, one can expect deafblind people to lack the kind of self-locating content that hearing and sighted individuals normally have. Nonetheless, tactile, proprioceptive and vestibular signals can provide some information about one’s location with respect to one’s environment. In order to shed light on this matter, I conducted a written interview with a deafblind individual (MVS) recruited online. MVS was born profoundly deaf with no residual ability to hear (unless she uses cochlear implants), and later became legally blind as a result of Usher Syndrome Type 1, which eventually reduced her visual field to a mere 5° in the left periphery. MVS mentioned that in ordinary experience, she relies on a mental “picture” of her environment. Since she only started losing sight as a teenager, she has kept the ability to mentally visualise the approximate distance and location of objects relatively to herself both in familiar and unfamiliar environments, by touching reference points around her and/or with the help of a support worker describing the scene in tactile sign language. However, MVS did describe a commonly occurring experience in which she appears to completely lose awareness of her spatial location, when she takes a relaxing bath after removing her cochlear implants:

Doing nothing but relaxing in the bath I always found I became lost as in relation to where I was... It is a feeling of being there but not there... You are here but not here. You are just existing... [I]f only for a short time I do lose the spatial awareness of the bath... [S]lowly the whole world vanishes... I have no sense of being present in any environment, the disconnect from all is like unplugging from the world... It is like being in a void, a nothingness that is just outside our reality, and I slip into the void when I have a bath... Your sense of where you are... just disappear[s] to nothingness, the world becomes nothing... It is as if the subconscious decides that location is now not needed and turns off the GPS area of the mind.<sup>45</sup>

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<sup>41</sup> Report from online survey, quoted in Millière et al. (2018).

<sup>42</sup> Timmermann et al. (in preparation). I conducted these interviews for the experiment, following the method outlined in Petimengin (2006).

<sup>43</sup> For example, some subjects report temporarily regaining awareness of internal bodily sensations only when they remember to breathe, that is when they make a voluntary effort to take a deep breath.

<sup>44</sup> See Dammeyer (2014) for an overview of deafblindness.

<sup>45</sup> Unpublished data from written interview.

Interestingly, when this happens, MVS does not completely lose awareness of her body (“I am aware of my body and limbs in this situation”), although bodily sensations are impoverished and mostly reduced to occasional twitches<sup>46</sup>.

The second relevant example comes from artificial sensory deprivation. Indeed, it is likely that the kind of experience described by MVS may also occur for hearing and sighted individuals in sensory deprivation environments, such as flotation tanks, in which visual, auditory, tactile, proprioceptive, thermal and vestibular signals are extremely attenuated. The combination of the lack of distal information, minimal tactile stimulation and minimal gravitational cues achieved through floating in the dark at body temperature should in principle yield an experience lacking self-locating content. Moreover, it has been suggested that bodily awareness may not completely subside even in these conditions<sup>47</sup>. In fact, a recent study of the therapeutic outcomes of sensory deprivation found that participants immersed in a flotation tank reported a significant increase in the intensity of cardiorespiratory sensations compared to controls<sup>48</sup>. This suggests that interoceptive awareness can subsist in the absence of spatial self-consciousness.

Another candidate for bodily self-consciousness without spatial self-consciousness is provided by certain meditation practices. There is preliminary evidence that expert practitioners of mindfulness meditation may be able to achieve an altered state of consciousness in which they lack self-locating content<sup>49</sup>. In a recent study, a highly experienced meditator (subject S) with around 20,000 hours of practice described such a state in terms that are reminiscent of MVS’s report: “I don’t have any kind of sense of location... I have no idea where I am... I’m not there basically, just world, so there’s no real location”<sup>50</sup>. Another study of long-term mindfulness meditation practitioners found that some of them were able to induce what was described as a state of “spacelessness”<sup>51</sup>. Yet given the focus of meditation on monitoring bodily sensations, it is unlikely that such states completely lack bodily awareness. For example, subject S reported that “there is a kind of very light sense of body in this experience”<sup>52</sup>. At the very least, it is plausible that some form of interoceptive awareness remains present in the background of the experience, even when the sense of self-location is lost.

In conclusion, I believe there is credible evidence that bodily self-consciousness may occur in the absence of spatial self-consciousness. This casts doubt on the claim that being aware of one’s location in egocentric space is the simplest form of self-consciousness, if this is meant to entail that it should both sufficient *and necessary* for self-consciousness. However, the arguments of this sub-section (4.2) and the previous one (4.1) do not yet rule out a ‘disjunctive’ version of the scaffolding model, according to which the first level of self-consciousness involves *either* bodily *or* spatial self-consciousness, while the second level involves cognitive self-consciousness *in addition* to either of the other modes. I will now turn to empirical evidence that challenges this possibility.

### 4.3 Cognitive self-consciousness without bodily or spatial self-consciousness

In light of the cases I have already discussed, it seems possible to think about oneself without being aware of one’s body. During asomatic OBEs, for example, subjects do not lose the ability to think

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<sup>46</sup> See the next section for a more detailed discussion of the waxing and waning of bodily awareness in MVS’s experience.

<sup>47</sup> “[B]odily signals of interoceptive, vestibular, or proprioceptive origin are never completely disrupted, even in... sensory deprivation” (Faivre, Salomon, & Blanke, 2015, p. 25). While these signals themselves might never be completely disrupted, the subject’s conscious awareness of them might subside in some cases – see for example my discussion of certain drug-induced states above. I do suspect that awareness of bodily signals (including interoception) can disappear, if only temporarily, in sensory deprivation environment (see sub-section 4.3 for a discussion). In other words, sensory deprivation might be able to induce states *with or without* bodily awareness, depending on a number of factors such as the duration of the deprivation and the attentional focus of the subject.

<sup>48</sup> Feinstein et al. (2018).

<sup>49</sup> See Millière et al. (2018) for further discussion.

<sup>50</sup> Ataria et al. (2015, supplementary material).

<sup>51</sup> Berkovich-Ohana et al. (2013).

<sup>52</sup> Ataria et al. (2015, supplementary material).

of themselves and self-ascribe certain properties. In fact, in one of the earliest reports of OBEs, the neurosurgeon Wilder Penfield recounts that a patient whose temporal lobe he was electrically stimulated suddenly screamed “Oh God! I am leaving my body”<sup>53</sup>. There is no reason to believe that cognitive self-consciousness is impaired during such phenomena. Admittedly, the cases of bodiless dreams and drug-induced states are more complex. Although I am not aware of actual reports of lucid bodiless dreams, this certainly seems to be a possibility; a lucid dreamer should be able to entertain *de se* thoughts within a bodiless dream. In drug-induced states, the ability to think about oneself can be impaired concurrently with impaired bodily awareness<sup>54</sup>. This does not have to be the case however: some instances of drug-induced experiences of disembodiment, induced for example by ketamine<sup>55</sup>, do not seem to necessarily impair the ability to have *de se* thought. Overall, these different cases suggest that the occurrence of cognitive self-consciousness does not depend on that of bodily self-consciousness. It also seems possible to think about oneself without being aware of one’s location in egocentric space. Cases of extreme sensory deprivation are likely candidates for the occurrence of *de se* thoughts in the absence of self-locating content. Indeed, there is no evidence that the loss of self-locating content in such states impairs the ability to think about oneself. Similarly, there is no reason to think that the kind of experience described by MVS in deafblindness is incompatible with the occurrence of *de se* thought, such as the ability to wonder where one is located with respect to one’s environment.

In order to rule out a disjunctive version of the scaffolding model, however, one needs to motivate the claim that cognitive self-consciousness may occur when *neither* spatial *nor* bodily self-consciousness occurs. This project can be traced back to the so-called “Flying Man” thought experiment conceived by the Persian philosopher Ibn Sīnā (c. 980-1037), also known as Avicenna in the Christian world. In an influential passage from his psychological treatise *On the Soul*, Ibn Sīnā asks the reader to imagine what it would be like to be flying in the void without any kind of sensory input<sup>56</sup>. He goes on to speculate that one would still be conscious of oneself in such conditions, through an intellectual form of self-consciousness. In a recent article, Dainton imagines a similar scenario with a deaf and blind puppy “in outer space, floating mid-air, weightless, in a well-heated chamber”<sup>57</sup>. He suggests that the fictional puppy would lack any sense of its location with respect to its environment. As he acknowledges, however, the animal would arguably still be conscious of its body through interoception. Ibn Sīnā does insist that the limbs of the Flying Man should not be touching, to avoid the occurrence of tactile sensations; but one can similarly hypothesise that the Flying Man would not lack the ability to feel internal bodily sensations. As previously mentioned, actual sensory deprivation in flotation tanks – which can be seen as an attempt to emulate Ibn Sīnā’s thought experiment in the real world – may not only preserve awareness of interoceptive signals, but even temporarily *increase* it<sup>58</sup>.

Nonetheless, I believe there are reasons to think that bodily awareness and self-locating content can both be missing in certain cases. Firstly, as I have already suggested, it is not obvious that bodily awareness is as pervasive as it might seem even in ordinary experience, during mundane episodes of mind-wandering or task-related absorption. If bodily awareness dynamically waxes and wanes as a function of the allocation of attention, it is reasonable to suppose that a subject deep in thought in a flotation tank might, if only for a short time, lose any awareness of her body. Even if one remains unconvinced by the hypothesis that mind-wandering does suppress bodily awareness, there is not enough data about the experience of sensory deprivation to rule out the existence of states in which both self-locating content and bodily awareness are missing – including interoception<sup>59</sup>.

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<sup>53</sup> Penfield (1955)

<sup>54</sup> See Millière et al. (2018) for discussion.

<sup>55</sup> Muetzelfeldt et al. (2008).

<sup>56</sup> Ibn Sīnā, *Shifāʾ: Fi al-naḥs* 5.7. For a historical discussion see Kaukua (2015, p. 35).

<sup>57</sup> Dainton (2016, p. 139).

<sup>58</sup> Feinstein (2018).

<sup>59</sup> Incidentally, there is anecdotal evidence from online narrative reports suggesting that subjects can indeed lose awareness of their body in flotation tanks, especially during long sessions. Several users describe this experience as

Secondly, it seems that experiences lacking both spatial and bodily modes of self-consciousness may occur for deafblind people in certain conditions. When I asked MVS to elaborate about her experience of disconnection when taking a relaxing bath, she qualified her statement that she could feel her body during this experience:

Thinking more about this – where I say that I can feel my body – it’s more of a split second of awareness, it is also only if some part of my body twitches... [I]t is a passing moment of awareness. You’re not there in your body anymore... till your body does a natural twitch... The boundaries of my body vanish when [I am] cocooned in the water, the only time I become aware is when I twitch.<sup>60</sup>

While occasional twitches are enough to make MVS aware of her body when she takes a bath, these are only transitory episodes of bodily awareness. It seems that most of her experience of disconnection involves neither awareness of her location with respect to her environment, nor awareness of her body. Does it remain possible for someone who undergoes such an experience to think about themselves? While evidence is scarce on this point, I see no good reason to presume otherwise. For example, MVS appears to retain some ability to think about what is happening to her when the feeling of disconnection occurs (“I am aware of what happens to some degree”), which should include the ability to form *de se* thought. Likewise, there is no reason to think that artificial sensory deprivation necessarily disrupts the ability to think about oneself once one’s body and location have faded away, especially if mind-wandering – which frequently involves *de se* thought – potentiates the suppression of bodily awareness and self-location. In an influential paper on the first person, Anscombe considers what would happen if she was immersed in a flotation tank. She speculates that even if she lost awareness of her body, she would still be able to form *de se* thoughts such as “I won’t let this happen again!”. She adds that “if the object meant by ‘I’ is this body, this human being, then in these circumstances it won’t be present to my senses; [but] I have not lost my ‘self-consciousness’” – precisely because she would still be thinking about herself<sup>61</sup>.

There are perhaps a few other cases in which *de se* thoughts might occur without either bodily or spatial self-consciousness. There is some evidence that episodes of conscious thought might occur during dreamless sleep, without the sensory phenomenology characteristic of dreaming<sup>62</sup>. In this phenomenon, known as “sleep thinking”, the kind of sensory information needed to be aware of one’s body or location in egocentric space is simply not available. Nonetheless, it seems that subjects in these states can form reportable thoughts *in abstracto*, without the sensory background of ordinary experience. While there is no evidence, to my knowledge, regarding the specific occurrence of *de se* thought in dreamless sleep, it cannot be ruled out if sleep thinking does occur. Finally, certain drug-induced states might also involve cognitive self-consciousness without either bodily or spatial self-consciousness. There is converging evidence that certain psychedelic drugs such as 5-MeO-DMT can suppress both one’s awareness of one’s body and one’s awareness of one’s location in egocentric space<sup>63</sup>. Moreover, anecdotal evidence from narrative reports suggests that in some cases, *de se* thoughts might occur in these states, such as the thought that one is dying<sup>64</sup>.

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intermediate between wakefulness and sleep. As I mentioned in note 47, the experience of sensory deprivation can be modulated by a number of factors, and it is possible that interoceptive awareness remain present in some cases and completely subside in others (e.g. for prolonged sessions in flotation tanks, when subjects stop attending to their body). However, more credible data from controlled experiments is needed to draw stronger conclusions on the full spectrum of experiences that can be induced through sensory deprivation.

<sup>60</sup> Unpublished data from written interview.

<sup>61</sup> Anscombe (1975, p. 57). Although Anscombe does not discuss spatial self-consciousness in this example, one could similarly imagine thinking “I won’t let this happen again!” after losing awareness of one’s body *and* location in a flotation tank.

<sup>62</sup> See Windt et al. (2016).

<sup>63</sup> See Millière et al. (2018) for a discussion.

<sup>64</sup> Here are two examples from a curated database of narrative reports of drug-induced states (retrieved from Erowid.com): “[I]t felt as though there was, at that point, no longer any difference between me and the room... I was suspended in space, surrounded by emptiness infinite in all directions. I began to think about the cliché routine of asking myself about the imminence of my own death.” (report #88358 from a user of 5-MeO-DMT); “I finally lose

Overall, these data points raise a serious challenge to the disjunctive version of the scaffolding model.

#### 4.5 Beyond the scaffolding model

The upshot of these dissociations between modes of self-consciousness is that the idea that there is a “simplest form of self-consciousness”, namely a feature of experience both sufficient and necessary for self-consciousness, is challenged by empirical evidence. Bodily self-consciousness is not necessary for self-consciousness, since both spatial and cognitive self-consciousness can occur in its absence; neither is spatial self-consciousness, since bodily and cognitive self-consciousness can occur when it is missing<sup>65</sup>. Unless there exists some other mode of self-consciousness that can be shown to be both sufficient and necessary for self-consciousness, there is simply no reason to believe that there is a simplest form of self-consciousness in the relevant sense. In addition, the empirical dissociation between cognitive self-consciousness and both bodily and spatial self-consciousness also raises a serious challenge to the weaker disjunctive version of the scaffolding model. Overall, this suggests that the scaffolding model does not offer a credible account of levels of self-consciousness<sup>66</sup>.

This does not bode well for the idea that global states of consciousness can be ranked linearly according to the degree to which their subjects are self-conscious. Admittedly, my criticism of the scaffolding model does not rule out the weaker claim that there are *relative* degrees of self-consciousness following a partial ordering between global states. For example, one could claim that the more modes of self-consciousness a subject is in at a particular time, the more self-conscious she will be overall. Accordingly, a subject who is conscious of herself in *one* way would be less self-conscious than a subject who is conscious of herself in *two* ways, the latter would herself be less self-conscious than a subject who is conscious of herself in *three* ways, etc. While this proposal is coherent, it seems *ad hoc*. It is not obvious to me why a subject who is aware of her location in egocentric space and thinking about herself during an out-of-body experience should be said to be *less* self-conscious than a subject who is aware of her body *and* location in space while having a *de se* thought. By analogy, it is unclear why someone who sees a particular apple would be less conscious of that apple than someone who sees and touches it at the same time.

#### Conclusion

It is not easy to make sense of the claim that self-consciousness comes in degrees. The most interesting account of self-consciousness as a gradable property is arguably the scaffolding model, according to which one-way dependence relations hold between different ways of being self-conscious. The scaffolding model allows for a linear ordering of global states of consciousness

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consciousness of my surroundings... I can remember in my mind continuing to say to myself, ‘just let go’... until there was pure darkness. At that moment, I thought I was dead. I had no senses for these few seconds.” (report #94141 from a user of 5-MeO-DALT). These are of course anecdotal reports and should be treated with caution.

<sup>65</sup> Although I have not discussed this possibility here, there is also evidence that cognitive self-consciousness is not necessary for self-consciousness. There is evidence that flow states (Csikszentmihalyi, 1990) and meditation (Millière et al., forthcoming) may exhibit bodily self-consciousness without cognitive self-consciousness, while certain drug-induced states may exhibit spatial self-consciousness without cognitive self-consciousness (Millière et al., forthcoming; Timmermann et al., in preparation).

<sup>66</sup> One could object that the various empirical cases I have discussed only show that spatial self-consciousness or bodily self-consciousness (depending on which is taken to be more fundamental) can be strongly “disrupted” or “diminished”, rather than altogether missing. I see two issues with this proposal. First, it seems *ad hoc*, given that the interpretation I have given is the most straightforward. For example, MVS’s description of her experience of disconnection is unambiguous regarding the loss of any awareness of her location with respect to her environment, and is consistent with the lack of relevant sensory signals from visual, auditory, vestibular and tactile cues in this situation. Secondly, if the scaffolding model was correct, one would expect the “weakening” of the bottom level of the scaffolding, as it were, to have an effect on the top level. In other words, it is unlikely that the profound disruption of bodily or spatial self-consciousness would have no consequence on one’s ability to form *de se* thought. And yet, as I have suggested, there are reasons to believe that cognitive self-consciousness may occur in sensory deprivation, deafblindness, sleep thinking and drug-induced states in which bodily and spatial self-consciousness are thoroughly impaired.

according to the degree to which their subjects are self-conscious, which is determined by the modes of self-consciousness they instantiate. However, I have argued that this model does not sit well with empirical evidence from a variety of conditions in which different modes of self-consciousness are not instantiated. Rather than thinking of self-consciousness as graded on a single scale, it seems preferable to think of it as a multidimensional construct, where each mode of self-consciousness constitutes a different dimension<sup>67</sup>. Future research could assess to what extent these different dimensions are themselves gradable, whether the relevant scales are discrete or continuous, and what kind of psychometric tools could be used to measure them.

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<sup>67</sup> See Millière et al. (2018) for a development of this proposal grounded in empirical data from the study of drug-induced states and meditation.

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