We are embodied, and we are aware of our bodies ‘from the inside’ through different forms of bodily awareness. But what is the relation between these two facts? Are these forms of bodily awareness types of self-consciousness, on a par, say, with introspection? In this paper I argue that bodily awareness is a basic form of self-consciousness, through which perceiving agents are directly conscious of the bodily self.

The first two sections clarify the nature of bodily awareness. We are aware of our bodies in many different ways. Some are conscious; others non-conscious. Some are conceptual; others nonconceptual. Some are first-personal; others third personal. The first section of this paper
taxonomizes these different types of bodily awareness. Some philosophers have claimed that we have a “sense of ownership” of our own bodies. In section II I evaluate, and ultimately reject, a strong reading of this claim, on which the sense of ownership is a distinct and phenomenologically salient dimension of bodily awareness.

In sections III to V I explore how bodily awareness functions as a form of self-consciousness. Section III discusses the significance of certain forms of bodily awareness sharing an important epistemological property with canonical forms of self-consciousness such as introspection. This is the property of being immune to error through misidentification relative to the first person pronoun. I explain why having the immunity property qualifies those types of bodily awareness as forms of self-consciousness (subject to two further requirements that I spell out). In section IV I consider, and remain unconvinced by, an argument to the effect that bodily awareness cannot have first person content (and hence cannot count as a form of self-consciousness). Finally, section V sketches out an account of the spatial content of bodily awareness and explores the particular type of awareness of the bodily self that it provides.

* * *

I Types of bodily awareness

Normal subjects have many different ways of finding out how things are with their bodies. Unfortunately, there is little consistency in the philosophical, psychological, or physiological literatures on how to label and conceptualize them. This section offers a general taxonomy and explains how it relates to discussions of proprioception within psychology and physiology.
The body is a physical object and we can be aware of it in much the same ways that we can be aware of any other physical object. The body can be the object of vision, smell, or touch, for example. I will call these third person forms of bodily awareness. These forms of bodily awareness involve the normal exercise of our ordinary, outward directed sensory modalities.

On the other hand, we have special ways of finding out how things are with our bodies – ways that do not extend to any other physical object. Each of us is aware of their body “from the inside”, as it is standardly put. There are several different forms of awareness here. I will term them collectively first person forms of bodily awareness.

As I am using the terms, “awareness” is synonymous with “consciousness”. Both first and third person bodily awareness are conscious phenomena, although they may of course be recessive. We have many ways of finding out about our bodies that are not conscious. Successfully executing most actions, for example, depends upon constantly updated and very fine-grained information about the position of the relevant limbs and often the orientation of the body as a whole. This updating, and the information upon which it is based, typically takes place below the threshold of consciousness.

This type of information falls on the first person rather than the third person side of the distinction. The systems that generate this type of information operate only within the confines of one’s own body. So, the general category of body-relative information needs to be organized as in Fig. 1.
In the first decade of the twentieth century the physiologist Charles Sherrington introduced the concept of proprioception (Sherrington 1907). Sherrington distinguished proprioception both from *exteroception* (the five, outwardly directed sensory modalities) and from *interoception* (our awareness of the internal states of our bodily organs, as in the sensations of hunger, thirst, and subcutaneous pain). For Sherrington, the function of proprioception is to provide information about limb position and movement and, through the vestibular system, about balance and related whole-body properties.
Proprioception, in Sherrington’s sense, has both conscious and non-conscious elements. The vestibular system, which monitors balance and spatial orientation, is typically non-conscious (although disturbances of the vestibular system, such as motion sickness, certainly make their presence felt within consciousness). In contrast, we typically do have conscious awareness of how our limbs are distributed and whether they are moving. This awareness is coarser-grained than the non-conscious information exploited in the online control of action.

Sherrington’s reasons for separating out interoception and proprioception are primarily physiological. Interoception and proprioception are subserved by different neural systems. From my perspective, however, interoception counts as a form of first person bodily awareness. Bodily sensations certainly provide one of the ways in which we are aware of our bodies from the inside. So interoception needs to be added to the taxonomy of body-relative information – under the first person, conscious branch.

The non-conscious branch needs to include information about body morphology – information about the overall shape and size of the body. This sort of information is indispensable for planning and executing action. It is constantly changing during childhood and adolescence and remains plastic during adulthood. It can be modified by tool use (Cardinali et al. 2009), and also changes in response to drastic changes in the body (such as amputation) as well to neuropsychological disorders such as hemispatial neglect (when patients ignore one side of their body).
Let me draw attention to a form of first person conscious bodily awareness that has not received as much attention from philosophers as the somatosensory varieties. The psychologist J. J. Gibson gave the name *visual proprioception* to forms of self-specifying information that can be derived from the visual field of view. Vision presents the world in a fundamentally egocentric and perspectival way. The embodied self appears in visual perception as the origin of the field of view. This is secured through several features of the phenomenology of vision, including self-specifying structural invariants (such as the property one’s limbs have of only being able to subtend a narrow range of visual solid angles); visual kinesthesis (the way in which changing patterns in the optic array specify the perceiver’s movement through the environment); and the perception of affordances (higher-order invariants in the visual field that specify the organism’s possibilities for acting in the environment). For more details on how visual proprioception counts as a form of bodily awareness see Gibson 1979 and Bermúdez 1998.

There are various additional ways in which the body is represented at the conscious level. People have an awareness of their body with strong evaluative and affective dimensions, for example. I will term this the affective body image. Disorders such as bulimia and anorexia seem to be pathologies of the affective body image. The affective body image is a paradigmatically first person phenomenon. But it has a third person analog in the general beliefs that many people have both about the structure and function of different body parts. Some of these beliefs, particularly those tied to emotions such as shame, have a strong cultural dimension. A related but distinct type of body-relative information is semantic – semantic knowledge of the names of body parts. This is also third person, rather than first person.
I have organized the taxonomy of body-relative information up to now in terms of two distinctions – the first person/third person distinction and the distinction between conscious and non-conscious information. There is a further distinction to take into account. This is the distinction is between conceptual and nonconceptual information about the body. The distinction between conceptual and nonconceptual content is not easy to pin down precisely (see Bermúdez 2007 and Bermúdez and Cahen 2008 for reviews of the extensive literature), but for present purposes I use it simply to mark the difference between representations of the body that are integrated with the propositional attitude system (and hence with reflection, planning, and emotional responses), on the one hand, and representations that are more closely tied to the online control of action, on the other.

In the light of all this I propose the taxonomy of body-relative information depicted in Figure 2. There is much more to be said about the different elements of this taxonomy. It would be useful to map out the different sources of each type of body-relative information. What is the source, for example, of non-conscious information about body morphology? Where in the brain does it get processed? How is it integrated with other types of body-relative information in the control of action? But fortunately answers to these questions (which are a long way from being settled) are not required to explore how bodily awareness counts as a form of self-consciousness.
II A “sense” of ownership?

Many of the types of body-relative information identified in section 1 form part of our conscious experience. We are consciously aware of our bodily sensations (through interoception) and of the general disposition and limbs of our limbs. These forms of bodily awareness are all, one might say, phenomenologically salient. This section explores the relation between these
phenomenologically salient forms of bodily awareness and what is often called the “sense of ownership” of one’s own body.

There are two rather different conception of the sense of ownership current in the literature (although they are often not clearly distinguished). I will call them the deflationary and inflationary conceptions. They differ according to whether or not they make the sense of ownership phenomenologically salient – according to whether or not they hold there to be a positive phenomenology of ownership.

Here is a statement of the deflationary conception from Jérôme Dokic:

   Bodily experience gives us a *sense of ownership*. Whatever property we can be aware of ‘from the inside’ is instantiated in our own apparent body. Bodily experience seems to be necessarily short-sighted, so to speak, since it cannot extend beyond the boundaries of one’s body. The very idea of *feeling* a pain in a limb which does not seem to be ours is difficult to frame, perhaps unintelligible.

   (Dokic 2003, p. 325. Italics in the original.)

As presented in this passage, the sense of ownership is really just a label for a higher-order property of somatosensation – the fact that the objects of proprioception and interoception are experienced within the confines of the body. This is a descriptive fact about the phenomenology of bodily awareness – a descriptive fact that a number of authors have partially analyzed in terms of the content of bodily sensations (Martin 1995, Bermúdez 1998, for example, as well as Dokic himself). If, as these authors maintain, bodily sensations are experienced as representing the state
of the body at particular locations, then it is not surprising that they should have this higher-order property.

And one would expect, as Dokic points out, that this feature of somatosensation would lead to people finding bizarre the idea of feeling a pain in someone else’s limb – and to other fairly standard features of how we think about the body and bodily sensations. On the deflationary conception of ownership the sense of ownership consists, first, in certain facts about the phenomenology of bodily sensations and, second, in certain fairly obvious judgments about the body (which we can term judgments of ownership).

Certainly, it is a long way from these basic phenomenological facts and judgments of ownership to what I term the inflationary conception of the sense of ownership. Here is a statement of the inflationary conception from Shaun Gallagher..

In non-observational self-awareness I do not require the mediation of a perception or judgment to recognize myself as myself. I do not need to reflectively ascertain that my body is mine, or that it is my body that is in pain or that is experiencing pleasure. In normal experience, this knowledge is already built into the structure of experience. (Gallagher 2005, p. 29. My italics.)

As I read this passage, it states that bodily awareness incorporates a specific feeling of “myness”. For Gallagher this feeling of “myness” is present both in bodily awareness and in introspection. Later on in his book he describes the sense of ownership as “a sense that it is I who am experiencing the movement or thought” (p. 173) and emphasizes that this is a “first-order phenomenal aspect of experience” (p. 174, n.1).
One possible way of thinking about the relation between the deflationary and inflationary conceptions of the sense of ownership would be to hold that the basic facts about bodily awareness highlighted in the deflationary conception are what ground the feeling of “myness” identified in the inflationary conception. This view has in fact been canvassed by Frédérique de Vignemont (de Vignemont 2007), who claims both that there is a positive phenomenology of the sense of ownership and that this positive phenomenology is grounded in the spatial content of bodily sensations.

Certainly, if there were a phenomenologically salient sense of ownership, then this could be a plausible way to try to explain where it comes from. But are there any reasons to accept the inflationary description of the phenomenology?

One strategy would to argue from pathological cases of “disownership”. In alien hand syndrome, for example, patients deny that their hand is their own (Feinberg et al. 1998). This “disownership” is certainly phenomenologically salient. Perhaps what patients with alien hand syndrome are experiencing is the absence of the normal feeling of ownership? I suspect that something like this reasoning is behind the inflationary conception of ownership. It is not very compelling, however. There are all sorts of reasons why a patient might report that their hand does not feel their own. There is no particular reason for understanding a feeling of disownership as the absence of a feeling of ownership – at least, not without prior reasons for thinking that there is such a thing as the feeling of ownership.
de Vignemont offers two arguments. One is derived from the normal case.

Imagine the following situation. You close your eyes and someone takes your hand. Nothing in your experience tells you who is holding your hand. Yet, you feel this anonymous hand holding your own hand and nobody else’s hand. There seems to be a phenomenological difference between your experience of someone else’s hand and your experience, which could be explained by a sense of ownership. (de Vignemont 2007)

I am not sure that is very clearly expressed, however. A basic starting-point here is that we do not experience someone else’s hand. So it is not clear what the phenomenological difference is that the sense of ownership is being called upon to explain. Do we need a feeling of myness to explain what is going on when I feel the pressure of someone else’s hand upon mine? If we do, then we need it to explain what is going on when I feel the pressure of the table on my hand. But I am not sure that we have anything here beyond the descriptive fact emphasized in the deflationary conception of ownership – namely, that sensations are typically experienced within the confines of the body.

A second argument comes from introspective reports of amputees wearing prostheses. Some amputees feel their artificial limb as their own. Others do not. We can make sense of this difference, according to de Vignemont, by assuming that the first group has a sense of ownership, while the second does not. This is not very convincing, however. The sense of ownership, on the inflationary view, is phenomenologically salient. It is a feeling of “myness”. So we are entitled to ask: Where do amputees with prostheses feel this feeling of myness?
There are three possibilities. It might be felt in the prosthesis. It might be felt at a determinate location elsewhere in the body. Or it might be a non-localizable feeling (comparable to the feeling of depression, for example). None of these is very plausible. It seems unlikely that they feel a feeling of myness in their prostheses. This would contravene the descriptive fact that feelings and sensations are experienced only within the confines of the body. And it is most unclear how either of the other two would work. What would it be like to have a feeling of myness in my elbow, say, that made it the case that I felt my prosthetic leg to be my own? It would presumably have to be a feeling that my prosthetic leg is part of me. This seems to be a suspiciously determinate content for a feeling (as opposed to a judgment, for example). But even assuming that there could be such a feeling, it is hard to imagine what it would like to feel it in one’s elbow – or somehow diffused through one’s whole body. I find it hard to make sense of this proposal.

So, the arguments in support of the inflationary conception of the sense of ownership are not convincing. But are there any good arguments against it? I think that a line of argument canvassed by Elizabeth Anscombe in her paper ‘On sensations of position’ (Anscombe 1962) can be adapted to show that the inflationary view is not sustainable.

Anscombe argues for the thesis that our knowledge of how our limbs are disposed and whether or not they are moving (position sense and movement sense) is “knowledge without observation”, on a par with our knowledge of our own actions and intentions. The claim here is not simply that position sense and movement sense are forms of what I am terming first person bodily awareness. That would hardly require argument. Nor is she denying that there are sensations of position and movement. That would quite simply be false. Her position, rather, is that our knowledge of limb position and movement is not based on proprioceptive and
kinesthetic sensations. That is, we do not have proprioceptive and kinesthetic sensations and then, on that basis, arrive at conclusions about how are limbs are disposed and whether or not they are moving.

Anscombe is prepared to grant that we can speak of having the sensation of one’s legs being crossed, but she thinks that this way of talking is ambiguous.

If we are considering an expression of the form 'sensation of X', we need to ask whether the words 'of X' are a description of the sensation content, or whether the sensation has some different content and X is what produces or always goes with it, etc. The sensation of going down in a lift is a sensation of sudden lightness and as it were of one's stomach's lurching upwards; 'of going down in a lift' is not the internal description of the sensation. (Anscombe 1962, p. 56)

According to Anscombe, if proprioceptive and kinesthetic sensations ground knowledge of limb position and movement, then this can only be because their internal description stands in the right relation to the knowledge that they are being claimed to ground. And this, in turn, depends upon the internal description being suitably independent of (or, as she puts it, separable from) the description of the fact known. We can know, through having the sensation of going down in a lift, that we are in fact going down in a lift because the sensation can be described in a way that makes no mention of lifts or downward motion – and, moreover, the occurrence of that sensation is a good (although not infallible) guide that one is going down in a lift.

The problem Anscombe identifies is that the vast majority of proprioceptive and kinaesthetic sensations are not like the sensation of going down in a lift. They can only be internal described in very general terms, if at all – in terms of sensations of contact, muscle stretch, and so on.
These internal descriptions completely undeterdetermine any conclusions that might try to draw from them about how one’s body is configured. They are simply not reliable guides in the required sense. Alternatively, bodily sensations can be, as she puts it, non-separably described (as, for example, the sensation of having one’s legs crossed). But under the non-separable description they cannot ground our knowledge that our legs are crossed.

The issue here is not one of vocabulary, it should be emphasized. She is not claiming that we lack the descriptive tools to characterize a perfectly determinate sensation. We can capture the spirit of Anscombe’s position without talking about descriptions at all. The claim, rather, is that there is really nothing interesting in common between all the different sensory experiences that we might have when our legs are crossed say—other than that they are the sensations of having our legs crossed. There is no distinctive “my legs are crossed” qualitative feel that we might use as a sign that our legs are crossed. There is simply the sensation of one’s legs being crossed, which might or might not be accompanied by any one of a whole range of “qualitative feels”.

However it is formulated, I find this argument that proprioception and kinesthesia give us knowledge without observation very compelling. But be that as it may, the argument is completely devastating against the inflationary conception of the sense of ownership. According to the inflationary conception, there is a feeling of myness that explains some of the judgments that we make about the body—what I have termed judgments of ownership. Anscombe’s argument shows us that this view is fatally flawed.

To the best of my knowledge nobody has claimed that the feeling of myness can be internally described in Anscombe’s sense. As emphasized, this is not a vocabulary issue. It is not that we lack the conceptual or linguistic apparatus to describe the feeling of myness. What I (and, I think,
everyone else) is denying is that there is a perfectly determinate “quale” associated with the feeling of myness that we can identify and consider independently of the myness that it is communicating.

Given this, what work can the feeling of myness do? It is called upon to do the job of grounding and underwriting what I have called judgments of ownership. But I think that Anscombe would be exactly right to object that a feeling of myness that can only be characterized or experienced in those very terms, is not suitable for that job. It is not sufficiently independent of the fact that it is being claimed to justify.

The upshot of all this, I submit, is that the inflationary conception of the sense of ownership is neither supported by the considerations offered on its behalf, nor capable of doing the work it is called upon to do. We would be most unwise to go beyond the deflationary conception. There are facts about the phenomenology of bodily awareness (about position sense, movement sense, and interoception) and there are judgments of ownership, but there is no additional feeling of ownership. The remainder of this paper will focus on exploring the relation between the phenomenology and the judgments, in order to elucidate how bodily awareness qualifies as a form of self-consciousness.

III Bodily awareness as a form of self-consciousness: Immunity to error through misidentification

Why should we think that (first person) bodily awareness is a form of self-consciousness? In The Paradox of Self-Consciousness (Bermúdez 1998) I discussed what I termed the simple argument.
The self is embodied

First person bodily awareness provides perceptions of bodily properties

First person bodily awareness is a form of self-perception

Therefore, first person bodily awareness is a form of self-consciousness

The crucial step here is the step from (3) to (4) – although there are some interesting issues concerning the precise relation between bodily awareness and the exteroceptive sense modalities (see Shoemaker 1994 and Bermúdez 1998 section 6.3 for further discussion). The simple fact that bodily awareness involves perceiving something that happens to be the self is plainly not enough for it to count as an interesting form of self-consciousness. Self-perception falls short of self-consciousness, since one can perceive oneself without being aware that it is oneself that one is perceiving.

How do we get from self-perception to self-consciousness? One popular strategy, pioneered by Gareth Evans (Evans 1982), is to stress that first person bodily awareness shares an important epistemological property with canonical forms of self-consciousness, such as introspection and autobiographical memory. This is the property, originally highlighted by Wittgenstein and subsequently labelled and explored more systemetically by Sydney Shoemaker, of being immune to error through misidentification relative to the first person pronoun (Shoemaker 1968) – henceforth the IEM property.¹

¹ There has been much discussion of the precise way to formulate the IEM property. See, for example, Pryor 1999, Campbell 1999, Peacocke 1999, and the essays in Prosser forthcoming.
The IEM property is a property of judgments – of the judgment, for example, that my legs are crossed. It holds relative to the information on which those judgments are made. A particular judgment can have the IEM property when based on one type of information, while lacking the property when based on a different type of information. The information-sources that give rise to judgments with the IEM property all have the following feature. They provide information only about the self. These sources of information are such that, if we know from them that somebody has a particular property, we *ipso facto* know that we ourselves have that property. For the remainder of this paper I will say that an information-source has the IEM property when it gives rise to judgments that have the IEM property.

Introspection is an example of such an information-source. If I know through introspection that someone is currently thinking about Southern Arizona, then I know that I am thinking about Southern Arizona. Introspection cannot provide information about anybody other than me. This does not mean that introspection (and other comparable sources of information) cannot be mistaken. They certainly can be mistaken. I might really be thinking about Eastern New Mexico, for example. But there is a certain type of error that they do not permit. Judgments made on the basis of them cannot be mistaken about who it is who has the property in question. It wouldn’t make sense, for example, to think: Someone is thinking about Southern Arizona, but is it me?

In Chapter 7 of *Varieties of Reference* Gareth Evans observed that certain types of first person bodily awareness give rise to judgments with the IEM property. He concluded that position sense, interoception, and movement sense all count as primitive forms of self-consciousness. I have argued elsewhere that the same holds for visual proprioception (Bermúdez 2003). So, all
four of the nonconceptual first person types of body-relative information have the IEM property.\footnote{Anyone skeptical about this is directed to Chapter 2 of Cassam 1997, particularly sections 6 and 7.} Can we conclude from this that they are types of self-consciousness?

Everything depends upon the importance attached to the IEM property as an index of self-consciousness. It is certainly true that judgments with the IEM property are typically self-conscious. But that may simply be because they are typically expressed with the first person pronoun – as opposed to reflecting special characteristics of the information-sources from which they are derived.

It is also true that judgments with the IEM property play a foundational role in our thoughts about ourselves. Judgments with the IEM property reflect ways of finding out about ourselves that are exclusively about the self and that do not require identifying an object as the self. Self-conscious judgments that are susceptible to error through misidentification must ultimately be grounded in judgments that do have the IEM property. This is because judgments lacking the IEM property involve identifying an object as the self, and any such identification must be immune to error through misidentification on pain of regress.

But again we are not entitled to draw conclusions from this about information-sources with the IEM property. Some of these information-sources are plainly forms of self-consciousness. It would be hard to deny that introspection is a form of self-consciousness, for example. But there are enough differences between introspection and bodily awareness to cast doubt upon any quick extrapolation from the former to the latter.
A more plausible approach is via functional role. The distinctive functional role of self-conscious thoughts is relatively well understood thanks to the work of Castañeda (1966, 1969) and Perry (1979), among others. As these authors have brought out, a thought expressed with the sentence “I am F” has immediate implications for action not necessarily present in a thought expressible as “a is F”, even when “I” and “a” are co-referential (pick out the same individual). Castañeda and Perry make a powerful case that these implications for action are (partly) constitutive of self-conscious thought. The absence of any gap between thought and action is an important part of what make self-conscious thought self-conscious. It is, moreover, ultimately grounded in the IEM property, since there will always be a potential gap between thought and action whenever thoughts are identification-involving in a way that is not ultimately discharged in a thought with the IEM property.

This gives a powerful reason for thinking that first person bodily awareness is a form of self-consciousness, because it has similarly immediate implications for action. This is true of self-directed actions. There is no gap between feeling an itch in a certain place and knowing where to scratch. It also holds for actions whose target is not the body. There tends not to be a gap between knowing how one’s limbs are distributed and knowing which reaching movement to make to a particular extra-bodily location. It is true that visual calibration is typically required in order to fix the end-point of the movement. But this itself reflects a form of bodily awareness, since the perspectival nature of vision provides relational information about the world on an egocentric coordinate frame. This is part of visual proprioception, as analyzed by J. J. Gibson and his colleagues and students.
There are two further respects in which visual proprioception has immediate implications for action. The first is the phenomenon of *looming* (of particular interest to Gibson, much of whose research into vision was inspired by his service as head of the Air Force Research Unit during World War II). Imagine that you are a pilot landing an airplane. You are looking ahead at the point on the runway where you anticipate landing. As you approach, the landing point remains stationary, but the magnification of the visual solid angle it subtends accelerates. At the same time, the field of view contains textured surfaces around the stationary aiming point. These surfaces radiate outwards in what Gibson calls patterns of optic flow, expanding in a lawlike manner as the landing point approaches. These perceptual invariants give the pilot direct feedback and in effect control the adjustments that he makes to the landing pattern. Looming and optic flow are key determinants in the control of almost every type of movement.

Affordances are another aspect of visual proprioception with immediate implications for action. The theory of affordances is a key part of Gibson’s theory that the fundamentals of perceptual experience are dictated by the organisms need to act in the environment. Affordances are forms of information in the field of view that specify the organism’s possibilities for action and reaction. They are properties that objects and surfaces have relative to the organisms that perceive them. According to Gibson, they are directly perceived, rather than learnt or inferred.

Nonetheless, while having immediate implications for action seems necessary for something to count as a form of self-consciousness, it cannot be sufficient (even in conjunction with the IEM property). If it were sufficient then we would have the puzzling result that there are non-conscious forms of self-consciousness. This is because the workings of the vestibular system, for
example, both have the IEM property and have immediate implications for action – but are typically non-conscious (except in cases of motion sickness, and so forth).

So, what else is required for self-consciousness? We could, of course, simply stipulate a consciousness requirement. But this would be unsatisfactory without some principled reason for imposing the requirement. Here is one suggestion, developing the earlier discussion of information-sources with the IEM property. We have seen that information-sources have the IEM property derivatively. They derive it from the IEM status of the judgments derived from them. The notion of a judgment being based on an information-source has been left unexplained up to now. There are several forms the basing relation can take. One way of thinking about it is in terms of the thinker taking the deliverances of the information-source as evidence for the judgment.

It seems clear that the basing relation does not always work like this. I might judge that I am in balance without that judgment being based on evidence. This could be a case where the deliverances of my vestibular system issue directly in thought (as opposed to my feeling in balance, through some sort of sensation of equilibrium). In this sort of circumstance we might say: I just know that I am not in balance. I claim that this is not based on evidence because there is no aspect of my conscious life to which I can point as the source of the judgment.

I would suggest, then, that body-relative information-sources only count as forms of self-consciousness when they generate conscious phenomenology that can be taken as evidence for first person judgments with the IEM property. This immediately generates a consciousness
requirement and produces the required result that all forms of bodily self-consciousness do indeed have to be conscious. It is a corollary that, for these purposes, we will have to separate out the conscious deliverances of the vestibular system from the non-conscious deliverances. Both can give rise to first person judgments with the IEM property, but only the former qualify as instances of self-consciousness.

IV Objections?

Some authors have objected to thinking of different types of bodily awareness as forms of self-consciousness. Not all of these criticisms are directly relevant to the line of reasoning that I have been canvassing. Anne Newstead, for example, has taken issue with Evans’s insistence that a proper understanding of bodily awareness is, as he puts it, “the most powerful antidote to a Cartesian conception of the self” (Evans 1982, 220). She interprets Evans as trying to argue directly from the IEM status of bodily awareness to the truth of some form of materialism about the self (Newstead 2006). Unsurprisingly, she thinks that any such line of argument would be question-begging. The argument hinges upon the IEM nature of bodily self-ascriptions, but this requires assuming that bodily self-ascriptions are immune to error through misidentification relative to “I”. But this of course is precisely what is at issue between the materialist and the Cartesian. The Cartesian will accept that bodily self-ascriptions are IEM, but deny that they are IEM relative to “I” (as opposed to being IEM relative to “my body”, say).

Newstead seems to me to be right in thinking that the prospects are dim for a direct argument from bodily awareness to materialism about the self (but see Cassam 1997, particularly Ch. 2, for
a more subtle argument to the effect that self-conscious thinkers have to be intuitively aware of themselves *qua* subjects as physical objects. Like almost everyone else (including, I think, Evans), I am simply taking it for granted that Cartesianism about the self is false – and hence that bodily awareness is awareness of the embodied self. The question I am interested in is whether this counts as a self-conscious awareness of the embodied self.

Joel Smith has argued that bodily awareness cannot be self-conscious awareness of the self in this sense. His argument is unusual in resting neither upon the metaphysics of the self or the epistemology of self-consciousness. Instead he argues (rather imaginatively) from the nature of imagination. Smith claims that it follows from two theses about imagination that the experiential content of bodily awareness is not first personal – or, to put it another way, that bodily awareness does not present the body to me as my bodily self, and so cannot count as a form of self-consciousness.

The first thesis on which Smith’s argument rests is:

*The dependency thesis* When I imagine a bodily sensation (or other instance of bodily awareness) I imagine experiencing that sensation.

The dependency thesis stands opposed, on the one hand, to the view that one cannot image a bodily sensation without having that sensation and, on the other, to the view that imagining a bodily sensation is a cognitive achievement rather than an experiential one. According to the dependency thesis, to imagine some form of bodily awareness is to imagine an experience. This
is something that one can do without undergoing that experience, but nonetheless is sufficiently close enough to undergoing the experience that one can derive conclusions about experiential content from imaginative content – and vice versa.

The second thesis is:

_The imagination thesis_ When I imagine something about someone else I am not imagining anything about myself

The imagination thesis rests upon a positive account of what it is to imagine someone else S having an experience \( \psi \). This imaginative project has two components

(a) I (experientially) imagine \( \psi \) from the inside

(b) I (suppositionally) imagine that the subject of the experience is S

Smith introduces the distinction between experiential and suppositional imagining with an example from Christopher Peacocke. (Peacocke 1985). There is no difference in experiential imagination between imagining a suitcase and imagining a suitcase with a cat behind it. But there is a difference in suppositional imagination – in the second case but not the first we suppositionally imagine a cat behind the experientially imagined suitcase.

Smith ingeniously applies these two theses to bodily awareness. I can imagine someone else having a particular bodily sensation – feeling a pain in their tooth, for example. By the
imagination thesis, I imagine the experience of toothache from the inside. The other person only enters the imaginative project at the level of suppositional imagination. As far as the experiential content of the imagining is concerned there is just the toothache. This means that the imagined experience has to be impersonal, because otherwise we could not imagine someone else having it. But, by the dependency thesis, the content of the imagining is structurally analogous to the content of the original experience (namely, the toothache). Since the imagined experience is impersonal, the original experience must be impersonal also.

The argument is summarized in the following passage:

When I imagine being Napoleon having a pain, the very same piece of sensory imagination would serve equally well to imagine being Goldilocks having a pain. The difference between the two is a difference in what is suppositionally imagined, i.e. whose experience it is. This means that the occurrence of the experience in the imagination leaves open, fails to determine, the identity of the imagined experiencer. But this means that the imagined experience does not have first person content, for the first person concept serves precisely to determine the identity of the experiencer. First personal states have as their object the subject whose states they are. Once again, the conclusion is that neither imagined, nor actual, bodily awareness has first person content. My body is not presented to me as myself. (Smith 2006, 57)

The argument depends critically upon how Smith interprets the consequences of applying the dependency thesis to imagining someone else’s bodily awareness. The dependency thesis
requires that, if the relevant bodily experience has a first person content, then that first person content will carry over to the content of imagining. He thinks that there are two ways in which this might occur.

(i) “I imagine myself having a pain and then suppose that I am identical to Napoleon.” (p. 58)

(ii) “The occurrence of the first person in the imagined experience has, not me, but Napoleon as its object.” (p. 58)

He is quite right to reject (i). We need to look more closely at the discussion of (ii), however.

Smith rejects (ii) on the grounds that it conflicts with the following principle.

(*) “If I am in a state that has first person content, then that state has me as its object” (p. 58)

Principle (*) seems to be an analog at the level of thought of the token-reflexive rule governing the first person pronoun. And so it inherits the (considerable) plausibility of the rule.

An initial reaction to (*), however, might be that it is incompatible with the concept of quasi-memory (q-memories) introduced by Sydney Shoemaker (Shoemaker 1970). Shoemaker observes that it is at least conceptually possible (and, for all we know, perhaps nomologically
possible) for a thinker’s apparent memories to be causally derived from someone else’s experiences.\(^3\) We can imagine, in fact, a situation in which this is a widespread but intermittent practice, so that a thinker confronted with an apparent memory cannot immediately determine whether it is a genuine memory or a \(q\)-memory.

Shoemaker claims that in this sort of situation autobiographical memory would no longer be an information-source with the IEM property. He is surely right in this (although wrong, I suspect, to extend this claim to autobiographical memory in the normal case \(^4\)). But we should not follow Parfit in drawing the further conclusion that the possibility of \(q\)-memory shows that autobiographical memories do not have first person contents (Parfit 1971).\(^5\) \(Q\)-memories are first person states. The \(q\)-remembering subject has an apparent memory of she herself doing something. The problem that she faces is working out whether or not to take that apparent memory at face value – or, to put it in Smith’s terms, whether or not she herself is the object of the first person content.

So, principle (*) seems questionable in the case of quasi-memory. But it would certainly be unwise to extrapolate from quasi-memory to bodily awareness. Quite part from any doubts about the ultimate coherence of \(q\)-memories, there are significant disanalogies between memory and bodily awareness as information-sources. The content of memory remains poorly understood, but

\(^3\) The discussion here is confined to what psychologists would typically call autobiographical episodic memories.

\(^4\) For further discussion see Evans 1982 section 7.5.

\(^5\) Parfit writes: “When I seem to remember an experience, I do indeed seem to remember having it. But it cannot be a part of what I seem to remember about this experience that I, the person who now seems to remember it, am the person who had this experience. That is something I automatically assume. (My apparent memories sometimes come to me simply as the belief that I had a certain experience.) But it is something that I am justified in assuming only because I do not in fact have \(q\)-memories of other people’s experiences.” (Parfit 1971, p. 15). Evans rebuts this view convincingly (1982, pp. 246-248).
it might be thought to contain a significant doxastic element that it is lacking in bodily awareness. Are there any more directly experiential apparent counter-examples to principle (*)?

Vision seems to me to fit the bill. The first step in seeing why is to appreciate how deeply figurative it is to talk about the first person occurring in an experience. Neither the first person pronoun nor the first person concept appear in an experience. It would be more accurate to say that experiences have certain features that warrant certain types of first person judgment. Experiences are properly described as first person when they have those features. In the case of vision, these are the features that collectively make it correct to describe visual experiences as perspectival. We have already looked at some of them in the context of Gibson’s notion of visual proprioception. The important point for the moment, though, is simply this. To say that the content of vision is perspectival is not to say that the content of visual experience specifies whose perspective it is. That is an external fact about the experience, rather than an internal fact about the content of the experience. By analogy, the meaning of the first person pronoun specifies that it refers to the person responsible for a particular token utterance. It does not specify who that person actually is – which is a feature of the utterance’s context, rather than of its meaning.

So, it is not just the possibility of quasi-memory that casts doubt upon principle (*). It is also suspect in the case of vision. This surely weakens Smith’s argument significantly. But it will not be conclusive to anyone who thinks that are enough disanalogies between vision and the types of bodily awareness that Smith is considering for principle (*) to apply in the latter cases, even if

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6 The issues here are, I take it, orthogonal to discussions over whether the content of experience is conceptual or nonconceptual. A conceptualist about the content of experience can (and should!) deny that the first person concept features in the conceptual content of experience.
not in the former. I end this section by arguing that the argument does not go through even if principle (*) is accepted.

The problem emerges when we ask: To which state does principle (*) apply? Smith’s argument rests upon applying principle (*) to the imagined bodily sensation – to the experience that Napoleon (or Goldilocks) are imagined to be undergoing. This, he thinks, is what forces the choice between (i) and (ii) above. But, by his own lights, we do not ourselves experience bodily sensations that we imagine. And so there is no sense in which we are in the state of pain, say, that we are imagining Napoleon being on. Hence there is nothing in the domain of bodily awareness to which principle (*) can apply.

So, what state are we in? The answer is obvious. We are in a state of imagining – the state of imagining that Napoleon is in pain. Is this a first person state? I can see arguments both ways, but for present purposes it doesn’t really matter. The state of imagining is either first person or not. If not, then there is plainly no problem and principle (*) falls completely out of the picture. But if it is first personal, on the other hand, there are no difficulties accommodating principle (*) – the state of imagining, construed first personally, certainly has me as its object.

I conclude, then, that Smith’s argument fails. The thesis that bodily awareness can serve a form of self-consciousness is still standing. More needs to be said, though, about exactly how we are aware of ourselves in bodily awareness. We turn to this in the next section.

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7 We need to distinguish the state of imagining that Napoleon is in pain from the state of imagining oneself as Napoleon in pain. The latter is definitely first personal, but (as we have seen from the discussion of the dependency thesis) Smith is focusing on the former and here the issues are less clear.
V  The content of bodily awareness

The upshot of the discussion so far is that we should think about bodily awareness as a form of self-consciousness. The nonconceptual, first-person forms of body-relative information identified in section 1 have two key features in virtue of which they qualify as forms of self-consciousness. They have the IEM property in a way that allows the outputs of those information-sources to serve as evidence for first person judgments. And they have the immediate implications for action characteristic of self-consciousness. But we have so far said little about the sort of awareness of the bodily self that bodily awareness provides. That is the subject of this final section.

Let me begin by mentioning two very general ways in which bodily awareness counts as a form of self-consciousness. The first is that bodily awareness offers a direct, experiential way of grasping the structure and limits of the embodied self – and, as a direct consequence, of the boundary between self and non-self. The second is that several different types of bodily awareness are directly implicated in the control of action, thereby offering a way of grasping the body as the unique object that is directly responsive to the will. But how exactly do these emerge from the structure of bodily awareness? And what other forms of consciousness of the bodily self does bodily awareness provide?

I begin tackling these questions with the observation that bodily awareness is a form of spatial awareness. It is spatial awareness because it provides information about the properties of the
spatially extended body. This seemingly trivial observation holds the key to many of the
distinctive properties of bodily awareness. As a spatially extended thing, the body is a physical
object just like any other physical object. From the point of view of the embodied self, however,
the experienced body is a very peculiar type of object. The distinctiveness of embodied
experience has led some philosophers to drastic conclusions. Merleau-Ponty, for example, often
seems to describe the experienced body (or, as he puts it, the phenomenal body) as standing
outside the physical world – see, in particular, Part One of Merleau-Ponty 1962.

Considered from the perspective of metaphysics, this approach is unlikely to garner much
support. But, an epistemological point of view, it seems an accurate description of the relation in
which we stand to our bodies ‘from the inside’. The challenge, then, is to provide an account of
the spatiality of bodily awareness that does justice both to the distinctive phenomenology of
bodily awareness and to how it provides information about the spatially extended body. In
previous work I have proposed an account that tries to do this (Bermúdez 1998, 2003). I sketch
the basic framework here.

Since, bodily awareness is a form of spatial awareness, we must be aware of our bodies relative
to a particular frame of reference. I claim that much of what is distinctive about the
phenomenology of bodily awareness is directly derived from the distinctiveness of that frame of
reference. Our experience of bodily space is fundamentally different from our experience of non-
bodily space. Spatial awareness always requires a frame of reference and we are typically aware
of objects in non-bodily space relative to egocentric frames of reference. When we perceive
objects we perceive them in terms of their distance and bearing from a point of origin (on what
mathematicians call a system of polar coordinates).\textsuperscript{8} There are many different egocentric frames of reference. These vary according to the point of origin. An egocentric frame of reference might have its origin in the eye, for example, or in the hand. Different frames of reference will be useful for different tasks and much of the computational challenge of acting within the world is coordinating and integrating these different frames of reference.

This challenge is made all the greater because acting within the world requires coordinating information about the spatial layout of the world with information (derived from bodily awareness) about the spatial layout of the body. And, I claim, the frame of reference for bodily awareness is of a fundamentally different type. We do not experience our bodies on an egocentric frame of reference. There is no privileged point in the body that counts as \textit{me}, serving as the point of origin relative to which the distance and bearing of, say, bodily sensations are fixed. We experience events within our bodies as spatial events, but the spatiality of bodily experience is fundamentally different from the spatiality of our experience of the world.

So, how do we experience bodily space? There are, I suggest, two different ways of thinking about locations in bodily space, which I term A-location and B-location respectively. Imagine the following two cases

(i). I have an itch at a point in my right ankle when I am standing up and my right foot is resting on the ground in front of me.

(ii) I have an itch at the same point in my ankle when I am sitting down and my right ankle is resting on my left knee.

\textsuperscript{8} For a helpful tutorial on frames of reference in a cognitive context see Klatzky 1998.
The itch is experienced at the same A-location in (i) and (ii) – that is, it is experienced in the same bodily location (my right ankle). But it is experienced at a different B-location, because my right ankle has moved relative to other body-parts. Neither A-location nor B-location can be mapped on to location in objective space, since body are body-relative. The itch’s B-location, for example, would be the same if my body were located at a different point in space.

A-location and B-location are fixed relative to similar frames of reference. The frame of reference is given by the body’s articulation into moveable and immovable body-parts. The human body is an immovable torso to which are appended moveable limbs – the head, arms and legs. Within the moveable limbs there are small-scale body-parts that are moveable (such as the fingers, the toes and the lower jaw) and others that are not (such as the base of the skull). A joint is a body-part that affords the possibility of moving a further body-part, such as the neck, the elbow or the ankle. In the human body, the relatively immovable torso is linked by joints to five moveable limbs (the head, two legs and two arms), each of which is further segmented by means of further joints. These joints provide the fixed points in terms of which the particular A-location and B-location of individual body-parts at a time can be given.

A particular bodily A-location is given relative to the joints that bound the body-part within which it is located. A particular point in the forearm is specified relative to the elbow and the wrist. It is the point that lies on the surface of the skin at such-and-such a distance and direction from the wrist and such-and-such a distance and direction from the elbow. This ensures that a
given point within a given body-part will have the same A-location irrespective of how the body as a whole moves, or of how the relevant body-part moves relative to other body-parts.

A-location and B-location often coincide for points within the relatively immovable torso (although not in the parts of the torso that can be bent, for example). But in any case B-location is fixed relative to A-location, in the following way. If a sensation, say, has an A-location within a moveable limb, then its B-location is fixed recursively relative to the joints that lie between it and the immovable torso. The B-location is given by the angle of the relevant joints, which might be rotational (as in the elbow) or translational (as in the knee).

So, there are fundamental differences between the frame of reference relative to which we experience our bodies and the frames of reference exploited in perceiving every other physical object. These differences go a long way towards explaining what is so distinctive about our experience of our own bodies – both the general sense of distinctiveness that led Merleau-Ponty to claim that the phenomenal body is not part of the objective world, and certain specific features of the phenomenology of bodily awareness.

So, for example, it explains what was earlier described as the descriptive fact underlying the sense of ownership (in its deflationary construal). It is part of the phenomenology of bodily awareness that sensations are always experienced within the limits of the body. This is exactly what one would expect given the coding in terms of A-location and B-location. There are no points in (non-pathological) body-space that do not fall within the body. In contrast, it would be mysterious if we thought about the spatial content of bodily awareness in terms of distance and
bearing from a point of origin. Such way of representing the location of bodily events provides no basis for the distinction between bodily space and extra-bodily space.

Moreover, it explains the phenomenological fact that we do not experience body parts in isolation, but rather as attached to other body-parts. Part of what it is to experience my foot, say, as located at a particular place is to experience the disposition of leg-segments in virtue of which it is at that place. This is exactly what one would expect, if the B-location of the foot were part of the content of bodily awareness. Again, it would be mysterious, if the spatiality of bodily awareness were given in terms of coordinates relative to an origin.

So, by way of summary, let us return to the two modes of self-consciousness identified at the beginning of this section. I suggested that bodily awareness (a) provides a direct, experiential way of grasping the structure and limits of the embodied self, and (b) presents the body as the unique physical object that is directly responsive to the will. I hope to have made clear how closely connected (a) and (b) are with the distinctive spatial content of bodily awareness.
References


