

# Locating and Representing Pain<sup>†</sup>

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## Abstract

Two views on the nature and location of pain are usually contrasted. According to the first, experientialism, pain is essentially an experience, and its bodily location is illusory. According to the second, perceptualism or representationalism, pain is a perceptual or representational state, and its location is to be traced to the part of the body in which pain is felt. Against this second view, the cases of phantom, referred and chronic pain have been marshalled: all these cases apparently show that one can be in pain while not having anything wrong in her body. Pain bodily location, then, would be illusory. In this paper I shall defend the representational thesis by presenting an argument against experientialism while conceding that the appearance/reality distinction collapses. A crucial role in such identification is played by deictics. In reporting that we feel pain *here*, the deictic directly refers to the bodily part as coinciding with the part as represented. So, pain location is not illusory. The upshot is that the body location is part and parcel of the representational content of pain states, a representation build up from the body map.

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## I. Tackling the Problem of location

Pain, as a representative of the class of bodily sensations, presents us with the puzzle of its location. One way to pose this problem is to ask, as Murat Aydede has done,<sup>1</sup> whether pain is a physical condition or rather an experience or, as more recently reformulated,<sup>2</sup> if pain is to be interpreted in perceptual terms or as the result of introspection. Perception is in order when we consider an “epistemic access to something that is

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1. See Aydede (2005, 2009, 2013).

2. Aydede (2017).

other than one's own mental states or features", while in introspection the mental activity "is internally (mind) directed". Although different, the two can co-occur.

In this paper, I will only consider pain of sensory or bodily origin – leaving aside moral pain, anxiety and the like – and I will defend the thesis that pain is identical to a particular representation of the disturbance of a bodily location. Here is the plan: after presenting two opposing views on pain, I will sketch the metaphysics of pain that many endorse. Then I shall present an argument against so-called experientialism about pain, arguing that taking pain not to be the result of a perceptual relation between a perceiver and a physical condition duplicates the painful contact point. Consequently, I will defend the view that pains are perceptual states synchronized and coordinated with body representations that have bodily part as their direct component. The view I will be proposing satisfies the metaphysics of pain and has the resources to provide an explanation for those cases – phantom, referred and chronic pain – that have been too frequently placed at the centre of the discussion.

## II. First Side of the Divide: Perceptualism and Representationalism

Two views present themselves on the nature of pain, views that diverge on the issue of the location of pain: one is the perceptual/representational view, the other is the experiential view.<sup>3</sup> In this paragraph, I present the perceptual/representational view. According to this view, pain "is to engage in a form of sense perception",<sup>4</sup> a perceptual or representational relation with a physical condition, as tissues damages or bodily discomforts.<sup>5</sup> As I can see my wounded hand, I can feel pain in it. In representational terms, the disturbed body part determines a representation whose content is that a certain body part is disturbed, where the disturbance is bad for the subject.<sup>6</sup>

The idea that pain, as other qualitative conscious states, is representational in character, has been extensively defended by Michael Tye and Fred Dretske, among others.<sup>7</sup> Tye argues that the representational content of a pain experiences *is* the phenomenal character of the

3. Perceptualist theories that tackle also the problem of pain unpleasantness are called evaluativist theories. See Corns (2018).

4. Pitcher (1970: 368).

5. These can be actual or potential, but I leave aside this option.

6. A number of authors are now discussing whether pain is intrinsically bad. See Cutter and Tye (2011), Bain (2013), and the essays in Corns (2017).

7. See Tye (2006a,b, 2016), forthcoming a, and Dretske (2006).

experience itself. Contents, by representing the various damages, are type different in virtue of their phenomenal character and show that the location of pain is a representational location, one that specifies where we represent pain to be.<sup>8</sup> This view, known as *strong representationalism*, has the advantage of considering the phenomenology of pain and, at the same time, of providing an answer to the problem of pain location.

In this vein, David Bain has argued that pain consists in a subject (S) somatosensorily perceiving a body part as having a property – or undergoing some process – P.<sup>9</sup> This property is, *prima facie*, the body part being *disordered*, and somatosensory perception is perception from within. Based on this perceptualist core, a broader view of being in pain is modelled, such that the somatosensory experience of a disordered body part acquires its phenomenal character from the content of the experience itself, i.e. it is determined by what is represented to be the case. Such view of pain meets many of the criteria required by a coherent view of pain: that it must be considered a property at the personal level (people are in pain, not their parts), that it must be possible to experience pain in various locations, and so on.

The issue of pain location is treated into the representation itself. Bain affirms: “The difference between S’s having a pain in one location and in another partly consists in – or, alternatively, constitutes – a difference in the phenomenal character of the experience S undergoes between the two cases”.<sup>10</sup> In a nutshell, the claim is that different locations entail different experiences. However, the contrapositive of this claim, same experiences entail same locations, presents a problem in the case of phantom pain. The reason is the following: if we suppose that hallucinating a pain in a missing toe has the same experiential phenomenology as feeling a pain in an actual toe, this would entail that the two experiences are true of the same location. But, as is evident, one location is missing. So, to hold the claim, the sameness of the two locations should be applied to a representational body part. But how can representations keep track of the different *relata* of the two cases? The problem here is that the same experience may, in one case, be the result of a perceptual relation with a bodily part and, in another case, be the result of a representational relation with a represented body part, and there is no way to distinguish the two cases.

One way this problem has been eluded is by stressing that even if feeling pain is essentially perceptual, the object of this perception is not

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8. See, in particular, Tye (1995) and Cutter (2017).

9. Bain (2007: 175), but see also Bain (2003).

10. Bain (2007: 177).

the body part, rather the perceptual representation we have of the body part: “We say that we have a pain in the hand. The *sensation* of pain can hardly be in the hand, for sensations are in minds and the hand is not part of the mind”.<sup>11</sup> Therefore: “the ‘location’ of pain is [...] an intentional location”.<sup>12</sup>

### III. Second Side of the Divide: Experientialism

Opposing the perceptualist/representational view (henceforth P/R), experientialism stresses that feelings of pain are experiences: “I feel pain in my left toe” could be true even if I don’t have a toe, as long as I have correctly reported what I’m feeling. This intuition is conveyed in the definition of pain provided by the International Association for the Study of Pain, IASP, according to which pain is “[a]n unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage”.<sup>13</sup> The idea is that we can have such experiences independently of any physical condition or damage to our body, as demonstrated by three main cases.

These are phantom, referred and chronic pain. In the case of phantom pain, people continue to feel pain in a limb that has been surgically removed. Referred pain occurs when people report to feel pain in a location where nothing is wrong, that is, from which no nociceptive signal has originated. This may occur when some nerve in the spine is pinched or stimulated and pain is felt in the leg. The case of chronic pain occurs when an original acute pain event has become chronic. To put it simply, the subject still feels pain in an area or spot even if nothing is wrong in that area or spot anymore.

11. Armstrong and Malcolm (1984: 182).

12. Armstrong (1968: 315). The extended mind hypothesis runs against such a view. I won’t consider it in the present discussion. Notice that, for Armstrong, the problem of the location of pain has to be contextualized into his view according to which we should distinguish between transitive *vs.* intransitive sensations: the former being sensations of qualities that exist independently on the existence of minds, the latter being qualities that exist only because minds exist. This distinction, however, is just *prima facie* because also pain, argues Armstrong, is a transitive sensation. To cope with the “distinction between *feeling* that there is a certain sort of disturbance in the hand, and there actually being such a disturbance” we should recur to pain reports along these lines: “‘I have a pain in my hand’ could be rendered as follows: ‘It feels to me that certain sort of disturbance is occurring in my hand, a perception that evokes in me the peremptory desire that the perception should cease’” Armstrong (1968: 314).

13. IASP (1986): 250).

The difference between the two views has been described by Aydede as the contrast between perception and introspection.<sup>14</sup> If the P/R view is preferred, then pain is the object of perception, or the object of the representational content of perceptual activity. If the experiential view is adopted, pains are the objects of our introspection, thus depending on mental awareness. What motivates the origin of these two views? Location is the main culprit. Both parties agree that pain is a state or property that forces us to face the appearance/reality distinction (more on this later), and both are struck by the surprising phenomenon of phantom pain. But they part company when it comes to dealing with pain in a missing location. According to the P/R view, pain is located where we represent it to be; according to the experiential view, we feel pain to be in a location.<sup>15</sup> If the first view is adopted, the location of pain is in *de re* mode, being a perceptual object external to the representation; if the second is endorsed, location is in *de dicto* mode, because the location is part and parcel of the content of the experience.

This difference has been the pivotal point in Aydede's "*initial argument against perceptual views on pain*",<sup>16</sup> an argument intended to highlight the "problem of focus", a problem that afflicts P/R theories. According to Aydede, while a report such as "I see my burnt hand" in general – barring hallucinations and illusions – commits me to the existence of a burnt in my hand, my reporting "I feel pain in my hand" doesn't commit me to anything about the physical condition of my hand. Rather, it reports solely what I am experiencing. The difference is due to perceptual reports entailing *existential exportation*, an entailment not allowed in pain reports. Indeed, from a true statement of the form: "I perceive *x*" one can correctly infer "there is an *x* such that I perceive it". Vice versa, from "I feel pain in *x*" one cannot infer "there is an *x* such that I feel pain in *x*", because of the possibility of phantom cases. Notice, if hallucination or illusion is the case, the perceptual report becomes false, not so the introspective report. This, Aydede argues, is because the concept of pain is applied "only to express or specify the representational content of pain<sub>e</sub> [pain as experience]".<sup>17</sup> The reason why this is the case, continues Aydede, is that we do not use the concept of pain<sub>td</sub> [pain as tissue damage] with a labelling function, to point out the damages to the body, and we do not use it this way because, in the case of pain, the appearance/reality distinction collapses. This collapse marks the metaphysics that lie

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14. Aydede (2017).

15. See Hill (2017).

16. Aydede (2009: 536).

17. *Ibid.*: 549.

behind the experientialist view, a metaphysics that rules the anti-physicalist stance. However, I don't think that endorsing this metaphysical view defeats the P/R theory; so, let's look at such metaphysics in some details.

#### IV. The Metaphysics of Pain Experience

The metaphysics behind the experientialist view is to be found in Saul Kripke's attack on the type-identity theory of the mind.<sup>18</sup> According to Kripke, it is perfectly possible to imagine someone in pain who lacks the relevant physical state (such as physical damages or some corresponding brain state) or someone who has physical damages but is not in pain. Kripke maintains that, when pain is at stake, appearance and reality coincide. An appearance of pain is pain because you cannot mistake a feeling of pain for something which is not pain and, at the same time and with respect to reality, there is nothing in pain which is not in feeling pain, for you cannot take something which is not pain to be a pain experience. This metaphysical picture seems to be reflected in the definition of pain given by the IASP and previously mentioned. On this metaphysical view, pain experiences have three main features.

##### *Privacy*

Pain is a private experience in that no one else has or can have the pain I'm now having and feeling; when I report or vocalize the pain I experience, I'm making public something that, by its nature, is not. Privacy also determines the sense of ownership we have with respect to our experiences: pain cannot be an experience had by no one. Each experience is the private experience of a subject.

##### *Authority*

The pain I'm now experiencing is epistemically accessible only to me. No one else can have my pain as I'm now getting acquainted with it.<sup>19</sup> It may be that privacy and authority (sometimes referred to as *subjectivity*) collapse into each other, but the first is an ontological feature of the experience, while the second is an epistemological feature of it. It is their coupling that makes pain experiences so special. The need to provide

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18. Kripke (1980).

19. I signal that those who favour embodied cognition, like Clark, Gallese, and Goldman, to mention few, may react to this view. A challenge to these features of pain vis-à-vis its location is in Massin (2017).

intersubjective cues on the intensity of pain is results in a scale of comparative description and measures.<sup>20</sup>

### *Incorrigibility*

When I experience pain, no one can correct me on what my experience is, not even I. At most, I can think about my experience again; but it cannot be the case that I'm not feeling pain if I feel it. From a different perspective, this point has been elucidated by Gareth Evans, who has stressed that the self-ascription of bodily properties, like knowing that one has one's legs bent, is acquired by an information link that connects (non-conceptually, and at the personal level) the individual and the information available to one from one's egocentric point of view. The incorrigibility is so deep that "[i]f the subject does not know that *he* has his legs bent (say) on this basis (because he is in the situation described), then he does not know *anything* on this basis (To judge that *someone* has his legs bent would be a wild shot in the dark)".<sup>21</sup> This kind of incorrigibility is now known as the immunity to error through misidentification, and Evans' point is that bodily self-ascription determines such immunity. We can assume that this holds in the case of pain. Pain experiences are therefore private, authoritative and incorrigible, PAI for short.

Kripke's view, however, has been disputed. Some physicalists have stressed that the very idea that unconscious pain is impossible or that pain experiences are incorrigible rests on assumptions about pain that can be challenged. For example, Reuters, Philips and Sytsma recently tested people's reactions to imaginary scenarios involving hallucinatory pain, shared pain and illusions of pain.<sup>22</sup> The results of their survey – in which people were asked to select the most likely scenario from four possible scenarios – support the view that, ordinarily, people accept the idea that we can have pain hallucinations (because of drugs), shared pain (in the case of partially conjoined twins), and the illusion of pain (in the case of phantom pain). These results show that it is possible to distinguish the appearance from the reality of pain.<sup>23</sup>

Other physicalist, such as Hill, have drawn a different conclusion. Accepting Kripke's view that "there is no substantive distinction between the appearance of pain and the corresponding reality" and the view "that

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20. See Hicks *et al.* (2001) and von Baeyer and Spagrud (2007).

21. Evans (1982: 221).

22. Reuters *et al.* (2013).

23. On similar lines one could construe *asymbolia for pain*, a syndrome in which the somatosensory component of pain is intact, allowing subject to detect nocive stimuli, while the affective component is lost, resulting in people not caring about the nocive stimuli, because they do not feel anything. See Grahek (2007) for a philosophical analysis of this syndrome.

awareness of pain is fully perceptual in character” results in a paradox when we consider the location of pain.<sup>24</sup> Hill maintains that pain phenomena determine P-representations that refer to P-states, these being the bodily conditions referred to by P-representations. These representations deal with location and qualitative intensity of pain at the same time. However, those who defend a purely phenomenal view, typically vindicate only intensity, sacrificing the correctness of the location component of the representation. This results in our having to consider the location of most of our bodily sensations to be illusory or hallucinatory. Such a conclusion, Hill argues, is unviable; therefore, the perceptualist view is to be preferred.

Accepting or rejecting the appearance/reality distinction, then, constitutes a significant commitment in this debate. However, those who support an anti-physicalist perspective on qualia and other phenomenal properties<sup>25</sup> are not the only ones who reject this distinction; some physicalists also reject it.<sup>26</sup> Because the proposal I am advancing falls within the physicalist camp, I want to grant my opponent all the points she wants, because I argue that the collapse of the distinction can be handled from a physicalist perspective as well. So, I will assume the PAI features mentioned above to be features of pain and I will reject the appearance/reality distinction in case of pain and other sensory states.

## V. Location

Once we have rejected the appearance/reality distinction and have accepted the PAI features of pain, as expressing a certain metaphysics of sensory states, we can turn to the problem of location. Let me propose the following principle:

### *Location principle*

There is no sensory pain awareness without some pain location awareness.

The principle states that every token of sensory pain is located in some token bodily spot, area or volume. To argue for this view, consider opposing it. To begin with, imagine someone affirming that she feels pain “nowhere”: that would challenge the credibility of the report, apparently contrasting contrast with our pre-theoretical intuitions. Quite different is

24. See Hill (2006: 96, 2017).

25. Chalmers (1996) for one.

26. In particular, Armstrong (1968) and Hill (2004, 2006).



the affirmation that one feels pain “everywhere”, where this can be construed either as a form of exaggeration or as indicating multiple sources of pain. Nor is it possible to have one pain located in two bodily locations. Imagine a headache that begins in the orbital area of the eye and then extends to the teeth and the neck. This is not a multi-located pain, for you cannot have a headache in your teeth or neck, unless you misidentify the head with the teeth or neck. Rather, the volume of the pain is such as to include all the mentioned parts, as having a headache that extends beyond the head.

How about having two pains co-located in the same bodily point? The principle does not exclude this possibility, provided that the location can be multiply accessed. Consider two partially conjoined twins, say, sharing one foot and reporting that they feel pain in the shared foot. Each twin feels his or her own pain, where these pains can be taken as relations that have a coinciding *relatum*, the same source, and a diverging one, their respective points of view. So, the same pain location is perceptually doubly related, in that both twins would point to the same spot by saying that the pain was “here”, but this “here” would be implicitly indexed from each twin’s individual perspective. It seems that the body part is an essential component of the feeling of pain.

How do we characterize such location? I argue that location can be characterized *via* a cognitive pointing or a focal awareness.<sup>27</sup> In case we report our pains *via* sentences, the location we express (the limb, the head, the toe) can always be contextually paraphrased as, “I feel pain *here* [pointing]”.<sup>28</sup> Basically, all sensory pain reports have this structure, a location which is picked out by a gesture, where the gesture points to a spot, an area or volume. The mental side of these reports, however, do not need to be propositional in character, that is, even if the subject of experience doesn’t master a language, she/he/it shows distress, care and gesturing at a body location.

This cognitive pointing or focal awareness can be construed along the interpretation of the deictic “here” in natural languages. According to David Kaplan, “here”, like many demonstratives, has a dual nature: a *character* that is invariable and identifies its logical role, and a *content*, that is variable and depends on contexts of utterance.<sup>29</sup> So, the character of “here” is the location pointed at or where the utterer is in the moment in which she or he utters “here”; the content of “here” is the physical place or location

27. See Kriegel (2009).

28. It should be kept in mind that the use of “I” and “here” I am considering is the one as subjects, not as objects. So, I can err if, embroiled after an accident, I point to a foot believing it to be my foot. For further issues see Tye (2017).

29. Kaplan (1989).

determined by the context in which “here” is uttered. Now, I don’t want to address the linguistic problem of pain reports, rather I consider the cognitive role the spatial pointing has in case of pain.<sup>30</sup> Let’s contrast the significance of this cognitive “here” in two sensory contexts.

When pain location is demonstratively identified, it is identified through a unique spatial relation. The relation can be depicted to occur between the “point of view”, somewhere in the head, and the painful location. The cognitive structure of this relation is not peculiar to pain. Consider auditory experiences: when one points to the source of a sound, a similar relation is established. In case of sound, the source can be detected from many points of view. Of course, the phenomenal quality of the sound may change from different perspectives, but the sound source remains the same and can be accessed from many perspectives, and there is nothing special about locating the source from different points of view. Is there a deep difference between sounds and pain perception?

I think there is not: what changes in the case of sounds and pains is the medium through which the source signal is conveyed: the air in one case, our own body structures in the other.<sup>31</sup> It is a changing medium for perception, but perception nevertheless. Now, the crucial question is: what is the referent of this cognitive pointing or of the demonstrative “here” when it is used to identify the location of pain? I am suggesting that it is the physical damage to, or disturbance of, the body. This view runs against the experientialists’ take on locations as part of our experience of pain. An objection to this view is canvassed in the next section.

## VI. An Argument Against Experientialism

According to experientialists, pains are experiences of subjects. Hence, the location of our pain sensations is a component of the experience. Consequently, our cognitive pointing is directed towards the body part as experienced, and deictics, being parts of the description of the experience, do not refer to actual body parts, but to body parts as experienced. It was one of the crucial points in Aydede’s argument above that pain reports do not allow existential exportation. At the same time, as

30. For extensive analyses of the logic and grammar of pain reports see Brogaard (2011, 2012); for a source see Kenny (1963). For an interesting debate on the logic of the preposition, such as “in” or “on”, as used in pain reports, see Noordhof (2001, 2002) and Tye (2002).

31. The epistemic privilege each of us has on its own pain is not intrinsic: the case of conjoined twins shows that a privileged access to pain does not mean uniqueness, so it is not necessary. The taste sensations show that is not sufficient either, because the stimulus can be literally shared and controlled, contrary to what happens for nocive stimuli.

mentioned in Aydede's argument, perceptual relations and reports, present a non-fictional use of demonstratives: it is possible to provide existential exportation by quantifying over locations. Therefore, the contrast between perception and experience ("see" as a success verb; "feel" as an experiential verb) gives rise to a different treatment of location. Against such a view, consider the following argument.

I intentionally move my finger towards the sharp point of a knife. The finger touches the point. Call "contact point" the location where the knife touches my finger. I see the point of the knife piercing into my skin, and I start feeling pain. I can both affirm: "I see the contact point between the knife and my finger" and "I have pain in the contact point between the knife and the finger". Now, if we apply the existential exportation argument, the following holds: on the one side, the content of the perceptual state is relative to perceived external objects, the knife and the finger. On the other side, the content of the experiential state is relative to the painful feeling of the knife's point piercing the finger. One is a perceptual point, which can be the referent of existential exportation; the other is an experiential point, which cannot be the referent of existential exportation. Therefore, the contact point that one is seeing is not the contact point that one is experiencing as painful. Hence, there is not *one* contact point, but two overlapping contact points, one perceptual and one experiential.

I think this is an unreasonable consequence of the experientialists' view. We do not have two contact points, one experiential and one perceptual. What we have is one contact point that could be taken either *qua* experiential or *qua* perceptual. One may wonder if I am assuming that the two indiscernibles contact points are one, thus accepting the problematic principle of the identity of indiscernibles. No: I am assuming the collapse of the appearance/reality distinction, so there cannot be an appearance of contact point distinguished by the real contact point. The experientialist could reply as follows: since there is no difference between appearance and reality, if it appears to be pain in the finger then pain really is in the *apparent* experienced finger. Basically, everything collapses on the appearance side of the divide, namely the experience.

This view, however, leaves open why the real cause of my pain is in the finger but the experience of it is solely *illusorily* located where it happens to be the case. This is a highly counterintuitive result from a causal point of view, for this reason: the causal relation has an actual contact point for the cause and an experiential contact point for the effect. So, the cause on the contact point has no local, felt effect. Basically, the real body is no sensible. So, why do we feel pain in the first instance? The two contents are thus needed only to back up the experiential view, therefore these are *ad hoc*.

The "knife" argument can be applied by considering the use of "here" in pain reports. Since Aydede's argument – as representative of

experientialists' viewpoint – stresses that perceptual reports are logically different from pain reports, the *content* of “here” must be different in the two cases. Since deictics are completely analysable in terms of content and character, the *character* function *must have* the role of differentiating the two locations. So, the character of a demonstrative used in a perceptual report is different from its use in a pain report. Hence, if the experientialist view is endorsed, “here” is ambiguous in the two cases, contrary to what is usually assumed.

A further consequence should be considered. Among the PAI features of our experiences we have authority and incorrigibility. These are epistemological features. But how are these supposed to be reliable if, on the experientialist's view, they determine “special” meanings for terms as deictics? If the appearance/reality distinction collapses in favour of the appearance side while determining a private language – to borrow from Wittgenstein – all the sceptical worries that gather around internal reports strike the collapse of the distinction itself. Thus, advocating the collapse of the distinction raises difficulties for the collapse itself, self-defeating the experientialists' strategy.

Contrary to the experientialist view, the reading I find most reasonable is the following: the contact point I am perceiving is the same as the contact point I am feeling as the source of my pain experience. I am cognitively pointing to *that* location, to which I refer by saying “here”. I am conscious of my perception as much as I am conscious of my sensation; these two conscious states have, *prima facie*, the same content, that is, they both present me with my finger being painfully touched by the point of the knife. And this content is unique, as is the contact point, represented visually *qua* an “external” object, and representationally *qua* a point of painful contact. Taking the location to be one, runs in favour of taking the content of feeling reports as a perceptual content, constituted, at least in part, by external factors. The content and character of “here” are the usual one, also in case of pain reports.

Applying all this to the issue of existential exportation, the experientialist takes the location in the *de dicto* mode because she takes experiences of pains *as in* the damaged limb. The representationalist has the location, that is the limb, out of the scope of the representation, thinking that there is a damaged limb that one represents as painful. So, the perceptualist has pains physically located on bodily parts if these parts are physically present and perceptually available, while only representationally located if these parts are missing.<sup>32</sup>

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32. Clearly, visceral pain proprioception is perception enough.

One could stress the positive value of having a single account for both physical and phantom pain, as it is the case with the experientialist, who considers the location of pain always in the *de dicto* mode. Against this, I stress the negative value of having crucially different phenomena gathered under the same explanation. After all, the perceptualist may insist that in phantom cases we have hallucinating stimuli, a – sometimes occurring – inward error; the experientialist has to affirm that we always have a mislocated projection, an – always occurring – outward error. Embracing perceptualism avoids assuming that we are constantly under an illusion about pain location. However, how can the perceptualist change of theoretical explanation be motivated in the case of phantom and other surprising phenomena?

## VII. Pain in the Body

So far, I have argued that the location of pain is the physical location of tissue damages as represented. In particular, as Tye stresses,<sup>33</sup> in a representational framework, the content of indexicalized representations includes the very referents of the representations. The same, I suggest, happens in the case of pain representations. In order to clarify this view, it is convenient to use the common assumption among cognitive scientist, neurologists and philosophers as well, that we are endowed with a body map, a representation of our own body.<sup>34</sup> This is in force when we consider the positions, the actions or the conditions of our body when, for instance, it is partially occluded or when we need to pre-represent actions or movements.

I argue that in normal circumstances there is a 1:1 correspondence between perceptual and representational information relative to our body. In pain, the representational content that we form includes, directly and immediately, the part of the body in which we feel pain and, vice versa, the part of the body directly feeds the representation of the body. Basically, the body represents itself. When the 1:1 correspondence doesn't hold, deviant cases ensue. However, rather than pivoting the debate on these cases, I treat them for what they are: deviants. We need to better qualify the 1:1 correspondence.

Let's call this representation of our body the *body map*. This is a general term, meant to cover both the "body image" and the "body schema", as present in the literature. These two latter notions have been distinguished as referring to a non-dynamical perceptual representation

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33. Tye (2014).

34. Gallagher (2005).

(image) vs. an action-oriented representation (schema).<sup>35</sup> However, for my purposes, I prefer to use one term to cover both the representation of the body as a map, in force when one is asked where he/she feels pain, and the representation of the body as the vector of action, as asked what kind of impairment the pain causes or why one is behaving thus and so (hobbling, protecting a bodily part, not stretching a limb, etc.). After all, pointing to one's own body "involves representing the body both as the goal of the action and as the effector of the action",<sup>36</sup> so it would involve both the body image and the body schema. Consequently, I stipulate that the body map covers both these purposes.

There are two basic features of this representation of our own body. First, there is a 1:1 ratio between the representation and the body and, secondly, this representation is continuously synchronized with our movements, that is, it has continuous re-entrant information from our body.<sup>37</sup> It is this 1:1 ratio between our body map and our body that allows us to imagine how to move in a certain situation by making off-line hypotheses (as the rock climber or the dancer do) or to interact dynamically with the surrounding world. Therefore, pointing to some part of our body is *ipso facto* highlighting the corresponding part of the representational body map and vice versa, because, again, the body self-represents itself.

As we know, however, there are pathologies that may lead this synchronicity astray. Let's consider the case of the phantom limb. In such a case the body map and the actual body become discernible because the 1:1 ratio is not preserved. In the phantom case, the allegedly descriptive component of my pain report ("my left arm") doesn't pick out any part of my body. It seems, then, that the cognitive pointing, or its linguistic counterpart, misses the target. However, in such a case, I suggest, reference isn't lost. Since the relevant part of the body is missing, cognitive pointing "hits" the filler of the cognitive role of the missing limb; in this case, it picks the representational component of the content of my pain state, the represented body part. In the phantom case, the underlying metaphysics is something like: "I feel pain where I represent my [arm/leg/...] to be". What we have, then, is a *representational pain*, one that preserves the PAI features of pain, but does not have the damaged body part as an element of its content. The represented arm plays, in the representation, the same functional role that the real arm was playing in the

35. See Gallagher (2005) and de Vignemont (2010).

36. de Vignemont (2010: 674).

37. As Anscombe (1957) used to say, there is "knowledge without observation" about the position of our own body, a point related to Evans' information link that I mentioned above.

real body. So, the cognitive pointing picks it out because of this fulfilment.

This view originates and finds support in the way in which pain in a phantom limb is treated. Neuroscientist Vilayanur Ramachandran has shown that subjects suffering from phantom limb pain are relieved if they “see” an illusion of their missing limb in a semi-reflecting mirror.<sup>38</sup> In giving subject the mirror treatment, Ramachandran is using a representation of a treatment. Basically, phantom pain sufferers get a *representational treatment of a representational pain*. This treatment crucially hinges on the proper integration of visual and proprioceptive information.<sup>39</sup>

Let’s now consider what happens in the case of chronic and referred pain. A pain is chronic if there is an enduring painful condition related to an apparently ceased physical cause. Valerie Hardcastle thinks that there is no sufficient empirical ground for asserting that no physical cause is present in people suffering from chronic pain: “evidence for psychogenetic pains being some sort of mental aberration is weak to nonexistent”<sup>40</sup> and so “[w]e have no other choice but to conclude that there is no solid evidence for alleged psychopathological pains being any different than real pains. It looks as though all pains are created equal, after all”.<sup>41</sup> If Hardcastle is right, there is no need to mark chronic pain as special. However, since pains are complex states, merging somatosensory and affective components,<sup>42</sup> an interesting hypothesis is to use schema – i.e. patterns of concepts – to understand pain. “Just as in the case of classical conditioning . . . simple sensory stimuli can trigger a full-blown meaningful schema . . . Some cognitive or emotional event activates a conscious schema associated with painful experiences”.<sup>43</sup> The hypothesis that chronic pains are the result of classical self-conditioning is now hotly debated.<sup>44</sup> The idea is that after an initial condition of sensory pain, the subject reinforces the pain sensation when she is in a certain position, conditioning herself to feel pain, even when the nocive stimulus is gone. In this case, it is the qualitative feature of the synchronous information feed about the body which is decoupled from the information coming from the representation. So, even if people have been informed that there are no damages to their back, if asked to reconsider whether the

38. See Ramachandran and Rogers-Ramachandran (1996), Ramachandran (1998) and Ramachandran and Hirstein (1998).

39. On the importance of visual perception in bodily awareness, see de Vignemont (2014).

40. Hardcastle (1999: 16).

41. Ivi, p. 21.

42. On the interesting pathology in which the somatosensory component is preserved while the affective is lost, so-called “pain asymbolia”, see Grahek (2007).

43. Hardcastle (1999: 119).

44. Madden *et al.* (2015).

pain is still there or not, people might be reluctant to change their minds. This may sound surprising, because resistance to revision is stronger for beliefs than it is for perception. How can we justify the resistance to change we register in cases of chronic pains? I propose the following hypothesis: chronic pains are believed pains rather than felt pains. They originate from the fact that perceptual evidence of *change* is missing. Seeing that nothing has changed is indirect evidence that the corresponding experience has not changed, so the pain should be there as well. In such cases, we do not report along perceptual lines but along epistemic lines. What is needed is some de-conditioning and some form of education concerning the pain. In the case of chronic pain, we need to de-construct the representational mistake by using the same representational technique, classical conditioning. Again, a representational treatment for a representational pain.

Finally, referred pains are those cases in which the painful part is somehow remote from the origin of pain, as happens with pain in the arm during a heart attack or pain in the back due to a discopathy. Klein insists that referred pains are not mislocated, rather these are maladaptive or mistaken.<sup>45</sup> It seems to me that Klein has hit the target: pains are where they are felt to be, but if there are no nocive stimuli or damages to the relevant body part, then there is no pain in that part, and we should not be worried. There may be (mal)adaptive reasons for feeling pain in the left arm during a heart attack, but that is an illusory condition and should not be taken at face value, as an experientialist must suppose. It should be stressed that in all the cases mentioned, subjects are not considered to be not suffering. Rather, the origin of their suffering is different from the origin of the suffering of people who are not in such predicaments.

Looking back on deviant cases, we observed that the experientialist thinks there is no principled difference between deviant and non-deviant cases. In doing so, the incorrigibility feature, among the PAI features, is under pressure because location reference is always misjudged. But this puts in jeopardy all the PAI features, because the illusoriness of location alone needs a justification. On the other hand, if the proper location of pain is to be identified when the representational and the physical sources are in sync, then the cases in which these are not in sync can be considered as improper, and the pressure put on the PAI features can be limited only to them and does not generalize.

We can see this point by considering the linguistic counterpart of the cognitive pointing, because finding a referent for “here” in pain reports relates to the issue of immunity to error and incorrigibility as well. If a

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45. Klein (2015: 90–1).



subject's ability to use demonstratives were to fail in these contexts, the subject would no longer be incorrigible. If it were possible to correct the subject, the authority that one has about his or her own mental states would be jeopardized or, worse, lost. The only preserved feature would be privacy. But one can imagine that using public language in a private context, where some of the competencies of this language are missing, specifically the use of demonstratives, might jeopardize the correct use of the language as well, along lines analogous to those exposed by Wittgenstein. To give a sense to the PAI features even in the phantom condition, our cognitive pointing, and the deictic "here", should preserve its normal value, that of pointing to a physical location, giving full sense to why the phenomenon is that of a "phantom".

To sum up, the role that deictics and demonstratives have in tackling the location of pain shows the experientialist view to be untenable, favouring a strong representationalist take on pain location, where the physical body part is part and parcel of the content of the representation itself. This view does not violate the phenomenal assumption according to which, in pain as with other sensations, appearance and reality coincide.

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