

Pain, Perception, and the Appearance-Reality Distinction

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Abstract

I argue that pain sensations are perceptual states, namely states that represent (actual or potential) damage. I defend this position against the objection that pains, unlike standard perceptual states, do not allow for an appearance-reality distinction by arguing that in the case of pain as well as in standard perceptual experiences, cognitive penetration or malfunctions of the underlying sensory systems can lead to a dissociation between the sensation on the one hand, and what is represented on the other hand. Moreover, I refute the objection that the allegedly weak correlation between pain and bodily damage forces intentionalist accounts of pain to postulate so many malfunctions (misrepresentations respectively) that such accounts become implausible. I also rebut Murat Aydede's objection that our linguistic practice supposedly shows that there is a conceptual difference between standard perceptual experiences and pain sensations by challenging Aydede's premise that we always withdraw standard perceptual reports in case of counterevidence, while we never do that with pain reports. At the end, I propose an explanation as to why we do not express perceptual reports of (potential) bodily damage in objectivist, but in mental terms.

Key words

pain, perception, appearance-reality distinction, nociception, Murat Aydede, sensation, intentionalism, representationalism, representation

1. Bodily damage as something we interoceptively perceive

When we get hurt, sick or suffer from problems like cavities, we often feel an unpleasant sensation in a certain part of our body. When we thus feel *bodily*¹ pain, this experience is on a par with perceptual experiences created by sense modalities such as vision or olfaction. Why should we accept such a perceptual account of pain sensations? Experiences of pain share with visual, olfactory and other standard perceptual experiences that what is perceived stimulates subject *S*'s sensory receptors which cause electrical signals that are transmitted to *S*'s central nervous system. Moreover, this enables *S* to discriminate what is perceived, and to adjust his/her behavior in an adequate way, that is, in a way that is beneficial to its reproduction and/or survival. I believe that something like this constitutes the necessary and sufficient conditions for perceptual experiences. But whether there are exceptions to these conditions is not important as long as the exceptions not only apply to pain sensations, but also to the experiences of our other senses.

In detail, experiences of (potential) damage fulfill these conditions, given that, first, we have sensory receptors that are stimulated by (potential) bodily damage caused by heavy pressure on, heat close to, or tissue-damaging chemicals in contact with our bodies (Perl & Kruger 1996). The stimulation of such “nociceptors” causes electrical signals which are, when not inhibited, transmitted to the central nervous system and usually cause an experience with distinct qualitative properties, viz. pain.² Second, this enables us to discriminate (potential) bodily damage, and to adjust our behavior in an adequate way, viz. such that we prevent harm or further

¹ Here I focus on what I call “bodily” pain in contrast to “emotional” pain, the latter designating suffering due to disappointment, loss, and the like.

² Even though Melzack and Wall (2008, pp. 155) as well as Jennifer Corns (2014) argue that we should not call nociceptors “pain receptors” – mostly because stimulation of nociceptors does not always elicit pain –, these authors do not deny that nociceptors are specialized in such a way that they respond only to particular stimuli, and that such a stimulation evokes characteristic patterns of neural signals that usually leads to pain sensations (Melzack & Wall 2008, pp. 81, 86, 154-5). Hence, the existence of nociceptors and their connection to the CNS is uncontroversial.

harm to our bodies. That pain normally makes us react in a way that is beneficial to us is evident in those persons who are congenitally insensitive to pain. Such persons often die young because of injury, accident, or inflammation of joints due to their failure to change positions, in particular during sleep (Melzack and Wall 2008, pp. 4-5).

According to the perceptual account, nociception, usually defined as the detection and neural processing of noxious stimuli which usually yields pain sensations, is the sense modality by means of which we interoceptively perceive (potential) damage to our own bodies, and pain is the phenomenal state which comes to represent such damage.

2. The appearance-reality objection

Some philosophers argue that pain cannot be a perceptual state because it does not allow for a distinction between appearance and reality, whereas we can have illusionary or hallucinatory experiences with our standard senses. When subject to illusion or hallucination, the world appears in a different way than it actually is. For example, a stick half-immersed in water may appear to be bent even though it is straight. By contrast, if it appears to me that I am in pain, then I *am* in pain (M. R. Bennett & Hacker 2003, pp. 121-122, 126; Block 2005, pp. 140-141; O'Callaghan 2013). Critics like Hacker conclude that there is a fundamental difference between the awareness of pain and standard sense perception, so that we should not construe the former as a kind of the latter.

I agree with the critics that it cannot appear to me that I am in pain, while not really being in pain, at least after careful consideration (Tye 1995b, pp. 192-193). However, even if we grant that there are no such pain illusions and hallucinations, the appearance-reality objection is based on a category mistake. It falsely assumes that pain is an *object* of perception, and thus on a par with objects seen, heard, smelled, etc. Pains are intentional states that represent certain states in the world, namely (potential) bodily damage. The intentional objects of standard perception (such as sticks or explosions) are on a par with bodily damage, *not* with the pain sensations

which represent it. What is analog to pain sensations are the visual, auditory, etc. experiences (or sensations) which represent things like sticks. And in the same way that there is no discrepancy between how pain sensations appear to me and how they “really” are, likewise there is no discrepancy between how visual, auditory, olfactory sensations appear to me and how they “really” are.

By contrast, in the same way that a seen stick might look bent while actually being straight, a part of my body may feel as if being (potentially) damaged, while actually being intact. Chronic pain or phantom limb pain are famous examples. Bodily damage and pain can dissociate also in the opposite way: some humans are congenitally unable to feel any pain in spite of their bodies getting harmed. Some do not feel pain in certain situations despite physical damage to their bodies due to cultural norms, to specific expectations, or to distraction (see Melzack and Wall 2008, pp. 4-5, 9-11, 15-17, 22-27, 75-16, 137, 171, 188).

3. The dissociation of bodily damage and pain

These dissociation phenomena show that pain is not simply the passive noticing of noxious stimuli detected by nociceptors, but that pain sensations partly depend on one’s cognitive states, including one’s (conscious or subconscious) beliefs about what to expect in a certain situation. According to Melzack and Wall’s gate control theory of pain, the central nervous system *actively* manipulates the signals coming from nociceptors, depending *inter alia* on one’s memories of prior experiences and the meaning of the current situation.³

³ As M.D. Shelley A. Cross states in her review article from 1994, it is uncontroversial that that the transmission of nociceptive neural signals is inhibited both within the spinal cord (“segmental modulation”) as well as from the cortex and the hypothalamus (“descending modulation”) (1994, pp. 380-381). Stokes would argue that the existence of neural top-down mechanisms alone is not sufficient to prove that experiences of pain causally depend on cognitive states, because such “inference would require a relatively uncontroversial mapping from mental functions or states onto neural structures, and neuroscience is far from achieving this.” (Stokes, 2013, p. 654). But even though neuroscience has not been able to establish such a mapping, I assume that the cognitive states that apparently influence our (pain) experiences as well as those experiences themselves are realized by neural states.

Hardcastle (2015) claims that such cognitive influence militates against perceptual approaches to pain, assuming that perceptual states are cognitively impenetrable. In this section I will therefore defend my perceptual account of pain by arguing that both our standard perceptual experiences and our pain sensations are penetrated by cognition.

Assessing the empirical research on cognitive penetration, Dustin Stokes concludes that even though the empirical evidence is not conclusive, the cognitive penetrability thesis according to which our perceptual experiences are sometimes penetrated by cognitive states is more plausible than the thesis that only perceptual *judgments* or *beliefs* are (sometimes) affected by (other) cognitive states (2013, pp. 657-658). Focusing on cognitive penetration of *visual* experience, Albert Newen and Petra Vetter (2017) likewise conclude that in the light of

1. cortical brain areas being heavily interconnected (not only to adjacent areas, but also to other processing areas further away),
2. higher level processes occurring much faster than previously thought, and therefore capable of influencing visual (or other) processing before a stable perceptual experience occurs⁴,
3. functional evidence for categorical top-down influences to the early vision cortex⁵,
4. studies that show that activated memorized visual templates change our perceptual experiences⁶, and

⁴ For example, there is empirical evidence for feedback loops from higher level processing in motion area V5 to early level processing in visual processing area V1 that occur in 80 ms or less (Newen & Vetter 2017, p. 30).

⁵ For example, the early visual cortex of blind folded test subjects who listened to sounds from naturalistic environment was active (depending on the *semantic* category. such as animate vs. inanimate sounds, the sound belongs to) even though the subjects have not been visually stimulated. The neural activity in the early visual cortex hence cannot stem from feedforward visual stimulation, but must stem from feedback loops from other parts of the brain (ibid. pp. 30-31).

⁶ Newen and Vetter refer *inter alia* to a study by Hansen, Olkkonen, Walter & Gegenfurtner (2006) which suggests that activation of abstract concepts or so-called visual templates such as the template of yellow bananas modifies how subjects experience the color of these objects (Newen & Vetter 2017, p. 32). In the case of seeing an impoverished black and white image *as* an image with a dog once one's concept of a (Dalmatian) dog is activated, Newen and Vetter further argue that this effect cannot be explained only by a change of attentional processing. Newen and Vetter refer to the neuroscientific study by Frith & Dolan (1997) which suggests that the effect is more plausibly explained as involving processes of cognitive integration of the black and white dots, that is, as involving

5. hypnosis studies that refute the attempt to explain away the modification of perceptual experiences (as suggested by (4)) as being merely the effect of long-term changes *within the perceptual module* due to associative learning⁷

the most plausible explanation of the relevant phenomena is to assume that higher cognitive processes (such as beliefs, desires or concepts) can change perceptual experiences.⁸ Accordingly, it is reasonable to assume that what we see and hear does not depend merely on the stimulation of the relevant receptor cells, but also on so-called top-down processes of the brain. What we are interested in, what we desire (here construed as cognitive states) can apparently affect how we perceive the world. Applied to the case of pain, this means that higher cognitive processes will influence whether and how (actual or potential) damage to a part of one's body is experienced by the subject as pain. This is nicely illustrated by an experiment conducted by Leknes et al. (2013). Their test subjects saw a red screen with white text saying "Heat stimulus coming up ..." and then were exposed either to a thermal stimulus they have rated as moderately painful or to one they have rated as intensely painful. When exposed to the former, the participants rated the moderate thermal stimulation within the *pleasant* range of a

higher-level processing. In the study, Frith and Dolan showed impoverished black and white image of a banana on some background to their test subjects. "Usually, hardly anyone recognizes the banana but perceives a pattern of black and white patches that cannot be integrated into any meaningful image. Later on, participants are presented with a clear image of the banana before viewing the impoverished image again. Contrasting the fMRI signal of the perception of the impoverished image before and after it was paired with the clear image resulted in a significant activation of the medial parietal lobe. The medial parietal lobe cannot be regarded as a candidate for early visual processes; it is thus most plausibly a candidate for higher-level processing. Therefore, changes of the perceptual experience of impoverished images are best explained as a result of cognitive penetration from a high-level area." (Newen & Vetter 2017, p. 33).

⁷ Newen and Vetter refer to Cohen Kadosh, Henik, Catena, Walsh & Fuentes (2009) whose experiment suggests that non-synaesthetic test-subjects can be influenced by posthypnotic suggestion so that they see digits as colored. Newen and Vetter claim that this study shows that the semantic content of a short-term and reversible posthypnotic suggestion, as opposed to the long-term processes involved in perceptual learning, caused a change in perceptual experience.

⁸ Newen and Vetter thus reject the thesis shared by Pylyshyn (1999) and Raftopoulos (2014) that there is an encapsulated and impenetrable visual module in the brain. Newen and Vetter stress that even though brain area "V4 [...] mainly processes color information [...], it does not follow at all that V4 cannot be influenced by higher cognitive contents. Functional specialisation of brain areas by itself does not imply cognitive impenetrability. We suspect that this unjustified implication is based on the fact that Fodor (1983) defined modules with several main criteria combining domain-specificity, impenetrability and being innate. But this definition of combined module criteria should not mislead us. Without further evidence the definition is just not well chosen: domain-specificity and impenetrability need not go together." (Newen & Vetter 2017, p. 28).

sensation hedonics scale. By contrast, the same moderate thermal stimulation was rated as *unpleasant* in the “control session” in which a visual cue – a green screen and white text (“Warm stimulus coming up ...”) – was followed either by a thermal stimulus they have rated as moderately painful or one they have rated as non-painfully warm. Given that the test subjects were able to rate their experience on a scale ranging from “very painful” to “very pleasant”, and given that they rated the experience as pleasant (in the proper session), they implicitly rated the experience as *not* painful (and hence as *not* unpleasant).⁹ This experiment thus shows that the subjects’ expectations affect whether a (potentially) noxious stimulus is experienced as pain or not.

Besides cognitive penetrability, malfunctioning of the nociceptive system too will account for certain cases in which pain and bodily damage dissociate. For example, subjects who suffer from congenital insensitivity to pain do not feel pain despite (potential) bodily damage because their nociceptive system is not working properly. As Nagasako, Oaklander, and Dworkin point out, in subjects with such a condition at least one kind of those peripheral nerve fibers which are sensitive to noxious stimuli are completely absent or heavily reduced (2003, p. 215).

Conversely, headaches such as migraine or cluster headaches are cases in which pain occurs even though the bodily part where the pain is felt is not (potentially) damaged. Rather than correctly indicating bodily damage at some part of the head, such headaches occur due to some kind of neurovascular disorder, that is, malfunctioning of neuronal processing and of

⁹ It is for this reason that I disagree with Peter Carruthers who construes the experiment by Leknes et al. as demonstrating that “moderate pain that is lesser than expected can even be experienced as *pleasant*” (Carruthers 2017, pp. 2-3). This interpretation is false because the test subjects implicitly denied that their experiences were unpleasant in the non-control session. As written above, the test subjects were able to rate their experience on a scale ranging from “very painful” to “very pleasant”, and given that they rated the experience as pleasant, they implicitly rated the experience as *not* painful (and hence as *not* unpleasant). It is therefore more appropriate to conclude that the moderate thermal stimuli (in the non-control session) did not result in pain experiences rather than to conclude that they resulted in pleasant pain experiences. This is in accordance with the scientists own verdict, who, unlike Carruthers, merely conclude that “in a context of intense pain, a moderately noxious stimulus can elicit positive hedonic feelings.” (Leknes et al. 2013, p. 407).

intracranial extracerebral vessels (Goadsby 2009, p. 860).¹⁰ This is in accordance with my intentionalist thesis that pain experiences interoceptively represent a certain part of one's body as actually or potentially damaged because headaches and other pains caused by malfunctions of the nociceptive system can be explained as *misrepresentations* of the nociceptive system.

4. Pain and bodily damage only weakly correlated?

Jennifer Corns (2014, pp. 368-369) and Sabrina Coninx¹¹ have recently objected that instances of pain which do not correlate with bodily damage are so common that proponents of intentionalist accounts of pain have to treat *many* cases of pain as misrepresentations of bodily damage. And assuming that misrepresentations of (standard) sensory systems are rare, Corns and Coninx conclude that intentionalist accounts of pain become implausible.

Their argument rests on three assumptions that can be contested:

1. Pain and bodily damage are weakly correlated.
2. Misrepresentations of (standard) sensory systems are rare.
3. A weak correlation of pain and tissue damage excludes (potential) bodily damage as being represented in pain experiences.

Even though I believe that (2) and (3) can be challenged too¹², it will be sufficient to show that (1) is not justified in order to undermine the argument by Corns and Coninx. Regarding (1),

¹⁰ Even though the exact cause of such headaches are still unknown, various findings more precisely suggest that migraines “might be part of the spectrum of diseases known as channelopathies, or now ionopathies: disorders involving dysfunction of ion channel fluxes.” (Goadsby 2009, p. 861).

¹¹ Coninx presented this argument in her talk “Challenging the Representational Approach to Pain” held on June 9th 2017 at the Rudolf-Carnap-Lectures at the Ruhr-Universität Bochum (Germany).

¹² I do not have any specific argument against (2), but it is worth noting that neither Corns nor Coninx refer to any empirical studies that support (2) either. Given that (2) is an empirical hypothesis, it should be corroborated by empirical results rather than intuitions. – As for (3), it becomes questionable because a teleological account of intentional content does not presuppose that a perceptual state perfectly covaries with the worldly property it represents. The crucial question is not what the perceptual state actually covaries with, but what it is supposed to covary with, that is, its function. Millikan, for example, illustrates with the eyeblink reflex that a mechanism (or “token”) can have a proper function even though the mechanism may *often* be triggered by what turns out to be a false alarm (1995, p. 187). Intentionalists can likewise argue that some pain experiences which have not been caused by any kind of bodily damage (at the site of the felt pain) can be explained as false alarms of the nociceptive system, thus insisting that the proper function of pain experiences is to interoceptively represent actual or potential

Corns (2014, p. 368) argues that it is supported by what we know *inter alia* about headaches, lower-back pains, the thermal grill illusion¹³, and chronic pains. Given that it is widely accepted in the medical as well as the philosophical community that chronic pains are *disorders* which prevent the nociceptive system from working properly (such that the resulting pains are plausibly construed as *misrepresentations* even if there are more and more patients who suffer from chronic pains), I will focus on acute pains here.¹⁴ The first thing to note is that leading figures in medical science state that acute pains are caused either by injury, disease or abnormal function.

Invariably, acute pain and these associated responses are provoked by noxious stimulation produced by injury or disease of skin, deep somatic structures, or viscera or abnormal function of muscle or viscera. [...]

That acute pain of peripheral origin is usually caused by injury or disease of the skin, subcutaneous tissue, or deep somatic structures, spasm of skeletal muscles or smooth muscles of the hollow viscera, or disease or abnormal function of the viscera is well known. Acute pain involving peripheral-central mechanisms is caused by injury, disease, or inflammation of the peripheral nervous system, whereas acute pain of central origin is caused by disease of the neuraxis. (Coda & Bonica 2001, p. 222; italics added)

Intentionalists will take this as evidence that pain either represents a certain part of one's body as actually or potentially damaged (due to injury or disease) or that it misrepresents such bodily damage due to some malfunction of the nociceptive system. John D. Loeser, a M.D. and neurologist to whom Corns (2014, p. 368) herself refers in order to make her point, makes the quantitative judgment that *in most cases* the cause of acute pain is some kind of bodily injury or some disease (rather than some malfunction of the nociceptive system):

In most patients with acute pain, the region of tissue damage is obvious and the patient's complaints clearly stem from the injured region. In patients with pain associated with cancer, the search for an etiology of the patient's pain usually reveals disease, such as

bodily damage in a part of one's body. A case which can be plausibly explained in this way is the pain resulting from the thermal grill illusion (see my next footnote) because it is plausible to assume that the nociceptive system misconstrues innocuous stimuli for noxious ones in such cases, analog to the false alarms of the eyeblink reflex.

¹³ The thermal grill illusion is produced by an interlaced grill of warm (~40°C) and cool (~20°C) bars. When you touch both kinds of bars at the same time, you experience burning pain in your hand. For a plausible explanation of this phenomenon, see my previous footnote.

¹⁴ Acute pains are, at least in the case of acute low back pain, defined as pains that have not persisted for longer than three months, or, when opposed to "subacute" pains, not longer than five to seven weeks (McGuirk & Bogduk 2009, p. 1094).

metastasis to bone or tissue damage from the attempts to cure the malignancy, such as radiation-induced fibrosis or chemotherapy-induced neuropathy. (Loeser 2001, p. 265)

This suggests that dissociative cases are, at least for acute pains, rare. If this is true, then (1) is false, and Corns's and Coninx's argument does not get off the ground. Unfortunately, Loeser does not present any exact quantified data. By contrast, in a talk given at a workshop Coninx has presented some figures in order to support her argument. She referred to review articles by Leadley, Armstrong, Lee, Allen, and Kleijnen (2012) and by Burch, Loder, Loder, and Smitherman (2015). The former write that "the general adult population [in the EU] reported an average chronic pain prevalence of 27%" (Leadley et al. 2012, p. 310). And the latter state that, according to publicly available US summary statistics from 2005-2012, on average 14.9% of US adults eighteen or older reported having had migraine or severe headache in the previous three months (Burch et al. 2015, p. 21).

Do these figures corroborate (1)? In order to render a judgment we first have to define what counts as *weakly* correlated or, correspondingly, as *well* correlated. Neither Corns nor Coninx do that, but in medical science a rule of thumb says that a correlation coefficient of 0.70 to 0.90 (−0.70 to −0.90 respectively) counts as a high (or strong) correlation, while one of 0.30 to 0.50 (−0.30 to −0.50 respectively) counts as a low (or weak) correlation (Mukaka 2012, p. 71). Applied to pain and bodily damage, I suggest that we speak of a *strong correlation* if we find bodily damage in more than 70 % of the cases in which a subject feels pain, and of a *weak correlation* if we find bodily damage in less than 50 % of the cases in which a subject feels pain. If we stick to this definition, then the numbers presented by Coninx do not corroborate (1). (1) would require a representative survey which assesses how many pain experiences are (apparently) not caused by any (potential) damage to one's body. If it turned out that more than 30% of all pain experiences consist in such pain experiences, then pain and bodily damage would not strongly correlate. If 50% or more consist in such pain experiences, then pain and bodily damage would correlate weakly. But we do not have such figures. Accepting Burch et

al.'s result that 15% of the population sometimes suffer from migraine or severe headaches (while assuming that such headaches are not caused by any bodily damage) does not tell us anything useful about the relationship of pain and bodily damage. For example, we cannot infer that 85% of the population have only pain experiences which are caused by some kind of actual or potential bodily damage. Nor does the figure tell us that 15% of all pain experiences are not caused by some kind of actual or potential bodily damage. The figures presented by Coninx are thus insufficient to support (but likewise insufficient to falsify) (1). Given the lack of relevant statistical data, we have to rely on such estimations as given by Loeser. And these rather militate against (1).

Hence, even though pain and bodily damage can come apart, such disassociations are apparently seldom enough not to render intentionalists/perceptual accounts of pain implausible.

5. Murat Aydede's argument from focus

Murat Aydede has offered another influential argument against intentionalist accounts of pain. The difference between pain and uncontroversial perceptual experiences is supposed to be manifest in our ways to talk about instances of illusion or hallucination. Whereas we withdraw perceptual reports when faced with evidence to the contrary, Aydede claims that we do not do that in the case of pain "reports". I will illustrate Aydede's argument by comparing cases of visual and auditory misrepresentations with an alleged case of nociceptive misrepresentation. Imagine you enter a bus and see what looks like a flag outside the window. You utter

(i) I see a flag on my left side

and you tell your friend to look at it. But he tells you that there is no flag. You look again and notice that the colors of the flag-like object are unusually faded. It turns out that this is only a reflection of a flag to your right. You withdraw (i), and might tell your friend that *it appeared to you as if* there was a flag to your left.

Now imagine that you want to buy a pair of jeans. You ask an employee about the price and the employee replies “fifteen dollars”. If somebody had asked you to describe your auditory experience, you might have said

(ii) I heard the words “fifteen dollars”.

You cannot believe that the jeans are so cheap, and ask again. When the employee repeats his words, this time you hear “fifty dollars”, and conclude that you have misheard what he had said the first time. You might explain your second request by saying that you *thought you heard* him saying “fifteen dollars”. Given that you believe you understood him correctly the second time, you would withdraw (ii) if asked about your past experience.

Let’s compare these two dialogues with a scenario in which you suffer from phantom limb pain. If asked about your current state, you might utter

(iii) I feel pain in my left foot.

Aydede argues that if utterances such as (iii) were about the supposed intentional object of pain experiences, that is, about the (potential) damage in a certain part of one’s body, then in the last scenario you would and should withdraw (iii) if, say, we reminded you that you do not have a left foot anymore (and hence cannot be damaged there). However, Aydede claims that most people hold that you can and will keep on claiming (iii). Accordingly, you will not (and do not have to) say “*I thought I had pain in my foot*” or “*I made a mistake. It appeared to me as if my foot hurts.*” Aydede maintains that we do not withdraw our pain reports in cases like phantom limb pain because pain reports are not meant to be statements about whatever pain supposedly represents. They are about the experience itself. And this is supposed to be a fundamental difference to our perceptual reports (Aydede 2009, pp. 536-537).

Put differently, Aydede’s “argument from focus” proceeds in the following way. If feeling pain amounts to perceiving a physical disturbance in a certain part of one’s body on a par with seeing a (material) flag or hearing “fifty dollars”, then we would expect the grammatical objects in

pain reports to refer to physical disturbances, and not to subjective pain experiences. But this is not the case. Whereas the grammatical objects in

- (i) I see a flag on my left side
- (ii) I hear the words “fifteen dollars”

refer to non-mental, public objects or states of affairs, the grammatical object in

- (iii) I feel pain in my left foot

must refer to an experience. Aydede takes this to be evinced by the difference in our linguistic practice. The fact that we do not withdraw our pain reports even in cases where it is absurd to claim that one suffers from a certain physical disturbance of one’s body, as is the case in phantom limb pain, is construed as revealing that there is a conceptual difference between standard perceptual experiences and pain sensations. Aydede claims that when I look at a red tomato my experience of redness will (in normal conditions) prompt me to apply the concept RED to the tomato (ibid., p. 549). By contrast, pain experiences prompt me to apply the concept PAIN not to some kind of tissue damage, but to the experience itself (ibid., p. 553). In Aydede’s words, the difference in our linguistic practice shows that the “semantic “focus” [of the concept pain] is different from the focus of genuine sensory concepts.” (ibid.). This is why Aydede chose to label his reasoning “argument from focus”.

I am going to show that Aydede’s argument rests on several false assumptions. As stated above, Aydede assumes that we always withdraw perceptual reports when faced with evidence to the contrary. But what counts as a perceptual report? Are all statements of the form “I perceive (see, hear, smell, etc.) _____” perceptual reports? It will be helpful to distinguish between four kinds of statements that *might* count as perceptual reports:

- (a) There is a red cube in front of me
- (b) I see a red cube
- (c) It seems to me that there is a red cube in front of me

(d) The cube in front of me looks red.

In statements such as (a), we presumably make claims about particular objects or objective states of affairs in the world. Reports such as (c) or (d) are presumably about our subjective experiences, at least if “seems” and “looks” are used in a phenomenological as opposed to an epistemic way.¹⁵ We will deal with (b) below. Now, whereas philosophers such as Berit Brogaard count all four statements as perceptual reports¹⁶, Aydede does not. He believes that only (a) and (b), and these merely in most, not in all cases, amount to reports of one’s perceptual states. His judgment is based on his requirement that the verb in perceptual reports is used as a success verb, that is, based on the requirement that the utterer thereby commits him-/herself to a factual claim about an objective property (characterizable in physical terms).¹⁷ According to Aydede, this requirement is manifest in our practice to withdraw perceptual reports in the face of counterevidence. Accordingly, those statements which we do not withdraw in spite of counterevidence are not perceptual reports. Hence, when (c) and (d) are used in a phenomenological sense, they are not perceptual reports.

The problem with Aydede’s narrow understanding of perceptual reports is that it is supposed to reflect how we *use* terms like “perceive” or “see” in statements like (b), not merely how we ought to use them. However, Aydede’s understanding does not do justice to our actual linguistic

¹⁵ Berit Brogaard illustrates this distinction well by means of two examples. If I say “It looks like the road is wet” and mean it in a phenomenological, as opposed to an epistemic sense, “a defeater is not going to change how things look. If I am told that the city has painted the roads to make them look wet as part of their drive-safe campaign, it will still look to me as if the roads are wet.” (2015, p. 239) Likewise, “[e]ven if I am told that the lines in the Müller-Lyer optical illusion have the same length, it will still look to me as if they have different lengths.” (ibid., p. 242).

¹⁶ Berit Brogaard can be said to consider (a)-(d) to be perceptual reports, since she defines perceptual reports as “utterances of sentences that contain a perceptual verb” (Brogaard 2015, p. 237), and since she defines not only “sound”, “feel”, “taste”, “smell”, “see”, “hear”, and “perceive”, but also “look” (in the phenomenological sense) as a perceptual verb (ibid.).

¹⁷ According to Aydede, “experiences that are intuitively of the same phenomenal kind [...] are genuinely perceptual only if their report normally/dominantly uses success verbs, that is, takes the form exhibited by the likes of (1) [“I see a dark discoloration on the back of my hand”] and (3) [“I see a red cube partially occluded by a green ball to its left”], *read transparently*.” (2009, p. 545). By a “transparent reading” Aydede means that rendering such reports implies an existential (or factual) claim about an objective property characterizable in physical terms. For example, in the case of Aydede’s example (1) it implies the claim that *there is a dark discoloration in the back of my hand that I am seeing* (ibid., pp. 543-4).

practice. Some experimental philosophers show that Aydede's appeal to it as well as to "our ordinary concept of pain" (Aydede 2009, pp. 533, n. 2, 534, 535, n. 6, 545, 546 ...) is unwarranted.¹⁸ My criticisms consists in showing that statements such as (b) are not always withdrawn in the face of counterevidence, partly because they are not always meant as factual claims about objective properties. Statements like (b) can be construed *either* as being about particular objects in the world, viz. a particular red cube, *or* my subjective experience of it. This is supported by the way we talk about illusionary or hallucinatory experiences. For example, even though in the flag example above we will hesitate to say that I have *seen* a flag on my left side (given that there was no flag there), I might insist that I have *seen* some flag-like thing to my left. If used in a phenomenological sense, statements like (b) are thus not always withdrawn. The same applies even to ordinary non-illusionary cases. Consider a situation in which Sylvia experiences the smell of a lasagna. There is no lasagna nearby. The only potential source is a spaghetti restaurant next door. Now, even if her interlocutors tell her that she probably confuses the smell of spaghetti with the one of lasagna, she may still insist that it is lasagna which she smells. Breathing in and out, she keeps on having that particular smell of a carrot lasagna in her nose. She may admit that there is probably no actual carrot lasagna around, and still believe that what she now smells is nothing but such a lasagna.

Which report is it exactly that she would not withdraw? Compare

¹⁸ Based on online surveys, Reuter, Dustin & Sytsma (2014) refute Aydede's claim that "our ordinary concept of pain" is such that pain cannot consist in a physical feature or condition of a part of one's body. Targeting certain statements they attribute to Aydede (2005, pp. 123-124), Reuter *et al.* use an empirical study to show that, *pace* Aydede, a majority of people think that the statement "I see a dark discoloration on the back of my hand" can be correct even if the subject in question hallucinates, viz. even if the subject sees a (phantom) hand that does not exist. Hence, "see" is not used as a success verb here, that is, not as picking out existing objects in the environment (Reuter, Dustin & Sytsma 2014, pp. 93-94). Conversely, more than half of the survey participants stated that a person who takes an antidepressant with potentially strange side effects can hallucinate a pain, which implies that that the participants distinguish between real pain and illusionary pain. When asked about the possibility of hallucinations merely in one sense modality (in a second study), even 64.5% of the participants endorsed the possibility of pain hallucinations (*ibid.*, pp. 84-6). Of course, we may reject such folk intuitions as wrong, but the point of Reuter *et al.* is that Aydede cannot appeal to folk intuitions ("our ordinary concept of pain") in order to justify his claim.

(a*) There is a carrot lasagna somewhere close by

(b*) I smell a carrot lasagna

(c*) It seems to me that there is a carrot lasagna somewhere close by.¹⁹

I think we will all agree that Sylvia would withdraw (a*), but not (c*). She can insist that she has the olfactory experience of a carrot lasagna smell even if she believes that there is actually no such lasagna around. Because (b*) can be interpreted as (a*) or (c*), she does not have to withdraw (b*). In the case of smell, there is another particular reason why we may allow that she keeps on asserting (b*), namely the ambiguity of “carrot lasagna” in this situation. She might take “carrot lasagna” to refer to the objective chemical compounds in the air around me (the odor) whereas my interlocutors might have thought that she refers to the source of the odor (here: an actual carrot lasagna). What is more, even if she makes explicit that she refers to an odor, it will be difficult for her interlocutors to make her withdraw (b*) because ordinary people do not have the possibility to falsify that no such chemical compounds are in the air nearby. Of course, they can use their own noses and sniff in order to verify whether there is such a smell in the air. But I believe that if Sylvia persists in her viewpoint, the others will simply comment that *they* do not smell any lasagna.

We can find similar insistence in cases where we disagree about flavors. For example, if the flavor of a wine reminds me of strawberries whereas its flavor reminds you of peaches, it will be difficult for you to convince me that the wine tastes like peaches. Hence, I may not only insist on

¹⁹ An analog statement to (d) “The cube in front of me looks red” is omitted because we do not have an appearance verb for olfaction which has the same function as “looks”. We might construe “The odor (or air) around me smells as of lasagna”, but terms like “as of” are technical terms used in philosophical circles, not something non-philosophers would say to describe their experiences. An alternative is “The odor (or air) around me smells like lasagna”, but how “smell” is used in this statement will be as controversial as suggestions about the usage of “smell” in (b*). I therefore omit a forth way to express one’s olfactory experience.

(c**) It seems to me that this wine tastes like strawberries,

but also to

(b**) This wine tastes like strawberries.

Aydede probably did not consider such examples because he compared nociception mainly to vision and audition. In case of seeing and hearing we readily correct statements in which we have mistakenly claimed that the content of our visual or auditory experience corresponds to some object or objective state of affairs in the world because such statements can often be easily falsified by others, and/or by our other senses.²⁰ By contrast, perceptual reports about smells or tastes cannot be easily falsified by others.

To sum up, two assumptions in Aydede's argument are false, namely that

- (I) all our perceptual reports (taking the form of (b) from above) imply factual claims about non-mental objects and/or their objective properties, and
- (II) we always withdraw standard perceptual reports in case of disagreement or counterevidence.

To be fair, at times Aydede writes as if he does not claim that *all* reports which take the form of (b) are perceptual reports, but only those in which the utterer factually uses the verb in question as a success verb, that is, those in which he/she would withdraw his/her report in the face of counterevidence. However, such a reading has the corollary that in cases where a person *S* is subject to an illusory experience without knowing it, *S* will assume that his/her statements regarding this experience are perceptual reports whereas Aydede will deny that.

²⁰ Another reason seems to be that smell, unlike vision, does not pick out the particular object that is responsible for the smell (Batty 2011, pp. 166-167). Clare Batty defends such a thesis, *and* argues that smells nevertheless *represent* objects as thus and so, even though not particular objects, but merely indefinite objects: there is something that smells thus and so (ibid., pp. 165-172).

²¹ This does not mean that all perceptual reports based on vision or audition are withdrawn in the case of counterevidence. As I argued above, I believe that we can retain such statements as (b) even when we ourselves believe that there is no flag to our left, because the object of "see" can also refer to the subjective experience itself.

What counts as a perceptual report would thus not be determined by the content of the actual utterance, but only by appeal to counterfactuals. Aydede could insist that in such cases we should not use “perceive” and its cognates in order to describe our experiences. However, then his argument would be a *normative* one. But as I understand Aydede’s argument from focus it is supposed to be an argument based on *factual* linguistic practice. Aydede claims that pain sensations are not perceptual states because reports about pains are (*factually*) *used* in a different way than reports about standard perceptual states, not that they *should be used* in such-and-such way. Hence, I reject this reading.

Let’s turn to Aydede’s assumption that, unlike in standard sense modalities, there are no cases in which we withdraw pain reports. I will present two cases that are supposed to refute also this thesis of Aydede. Consider, first, a case of phantom limb pain. If *S* says

(iii) I feel pain in my left foot,

but does not have a left foot anymore, (iii) is falsified simply by the fact that *S*’s left foot has been amputated. *S* cannot feel pain (and thus perceive some (potential) bodily damage) in his left foot if he does not have a left foot. For David Bain, such cases are examples of somatosensory hallucinations (Bain 2007, p. 178). Bain does not deny that *S* is in pain, but merely denies that *S* feels pain *in his left foot* (ibid., p. 173).

Critics will object that only parts of the pain report have been withdrawn, not the report *per se*. So let’s consider a case in which the whole pain report is plausibly taken back. The second example is based on a case imagined by philosopher Dorit Bar-On in which a subject believes that she is in pain even though she is not.

I sit in the dentist’s chair. Having a long history of dental work, I dread what is to come. The dentist puts a sharp-looking instrument in my mouth, and I wince, or grunt. If I could speak, I might say (something which I may in fact *think* to myself), “Ow, that tooth!” or, more explicitly, “My tooth hurts so much!” (Bar-On 2004, p. 322)

If the dentist puts down the drill, and explains that he has not touched any tooth yet, the subject might realize that it was just her fearful expectation that made her think that her tooth hurts, and she might admit that she was not really in pain.

It is sufficient that we can merely conceive of such a case. Since Aydede (2009, p. 563) argues that there is a *conceptual* difference between standard perception and feeling pain, his thesis is falsified by it being *conceivable* that we withdraw pain reports in such cases.

I believe that rejecting assumptions (I), (II), as well as Aydede's denial that we could withdraw pain reports are sufficient to refute his argument from focus.

6. Reasons for the use of mentalistic terms in case of pain

One question that remains though is why, if nociception is a sense modality, our perceptual reports are about pain, and not about the bodily harm pains are said to represent. For example, why do we say

(iii) I feel *pain* in my left foot

rather than

(iii*) I feel harm (or damage, a cut, a disturbance, etc.) in my left foot?

I think that this way of talking is partly due to the inability of laymen to identify the cause of their pains in many cases. If, for example, pain were always the result of easily identifiable cuts, then our pain reports might have looked like (iii*). This is supported by the fact that we do express pain reports in objective terms where we are confident about the cause of our current pain. For instance, we say that we feel our sore muscles after a long hike. However, there are many cases in which the specific cause of a pain is unknown or difficult to determine. If we suddenly feel a stabbing pain in our chest, we will often not know whether this is due to some cardiac problem, muscle overuse, or other reasons. The same goes for the myriad variants of headaches or back pains. We merely come to believe that there is (probably) *something* wrong

with the bodily part in question, but we do not know what the problem is. Sometimes an appeal to a certain condition of one's body is therefore not possible.²²

In his unpublished PhD thesis, Bain too ponders on the reason why we use mentalist concepts, viz. *pain* or *hurt*, in order to describe our pain experiences rather than ascribing an appearance to ourselves. Why do we say “It seems to me (visually) as though this apple is red”, but not “It seems to me (somatosensorily) as though this foot is damaged”? Bain conjectures that

the sentence “I am somatosensorily perceiving my left foot as disordered” is a bit of a mouthful; and since what is often most urgent when one has a pain experience is *that* one has the experience, rather than whether it is veridical, we have adopted “hurts” as a convenient shorthand for its self-ascription. (1999, pp. 152-153)

In other words, pain talk might have evolved for practical reasons, that is, not in order to let others know that there is something wrong with a certain part of one's body, but in order to inform others that one is undergoing an unpleasant experience – one that the subject (normally) wants to get rid of – and thus either make them *suddenly* stop what they are doing (say touching a sensitive body part) or to ask them for help (say lifting a heavy load that jams one's hand). Hence, according to Bain, it is not so much our ignorance of the kind of damage that happened to us, but more the importance of quick appropriate behavior that led to the use of concepts such as *pain* or *hurt*.

Another plausible explanation is inspired by what Manolo Martínez writes. Against Tye's strong representationalism, Martínez first takes sides with Aydede and argues that there seems to be an asymmetry between standard perceptual states and pain. For example, when we see something, “we are first and foremost *interested* in the features of the external world which the experience represents and only secondarily in the experience itself.” (Martínez 2011, p. 69; italics added). By contrast, when we feel pain, “our main object of *interest* seems to be the experience itself.” (ibid., p. 70; italics added). Martínez suggests that the reason for our interest

²² For a similar response, see Ritchie & Carruthers (2015, p. 358).

in the pain *experience* (as evinced by our practice to use “pain” and thus refer to our experience rather than to bodily damage, or whatever it is that pain represents) is that “pain feels awful, regardless of its success at representing the external world. This is why we want, first and foremost, to avoid this awfulness, independently of whatever it may [...] represent.” (ibid., p. 71). If we follow such a suggestion, then it is the unpleasantness of pains that lets us focus on and talk about “pain” rather than the intentional object pains represent. I assume that all three suggested reasons affected (and still affect) the way we talk and think about pain and the bodily damage it represents.

7. Conclusion

I have argued that pain shares enough with standard perceptual experiences that it makes sense to construe them as perceptual states, too. I have proposed that pain sensations are states which interoceptively represent (actual or potential) damage. I defend this intentionalist account against the objection that pains, unlike standard perceptual states, do not allow for an appearance-reality distinction, and that our linguistic practice shows that there is a conceptual difference between standard perceptual experiences and pain sensations. I show that the objection consists in a category mistake, and that in the case of pain as well as in standard perceptual experiences, cognitive penetration or malfunctions of the underlying sensory systems can lead to a dissociation between the sensation on the one hand, and what is represented on the other hand. Moreover, I refute the objection that the allegedly weak correlation between pain and bodily damage forces intentionalist accounts of pain to postulate so many malfunctions (misrepresentations respectively) that such accounts become implausible. In the last section, I proposed that the *difficulty to identify* the causes of pain, our desire to get rid of pain given that it is *unpleasant*, and the importance of *quick* appropriate behavior is probably responsible for our linguistic practice to express perceptual reports of (potential) bodily damage not in objectivist, but in mental terms.

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