



The Bodily Theory of Pain

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Abstract

One use of the noun ‘pain’ is exemplified in sentences like ‘There is a pain in my foot’. According to the Experiential Theory, ‘pain’ in this context refers to an experience located in the mind or brain. According to the Bodily Theory, it refers to an extra-cranial bodily occurrence located in a body part. In this paper, I defend the Bodily Theory. Specifically, I argue that pains are proximal activations of nociceptors that cause experiences of pain. This view is preferable to the Experiential Theory, because it accords better with common sense and offers a better interpretation or semantics of ordinary pain reports.

1 Introduction

The noun ‘pain’ is used in many different ways. One use of the word is exemplified in sentences like ‘There is a pain in my foot’ and ‘I have a pain in my toe’. I call the referent of ‘pain’ in this use of the word ‘pain in the locatable sense’, because this is a use of the word that is naturally followed by a phrase specifying a bodily location like ‘in my foot’ or ‘in my toe’. This is not to say that one *needs* to specify a location. One may just say e.g. ‘I have a pain’. But this use of ‘pain’ is naturally followed by a phrase specifying a bodily location, which is why I call the referent ‘pain in the locatable sense’.

Some philosophers believe that pains in the locatable sense are (extra-cranial) bodily occurrences located in body parts (Newton 1989; Byrne 2001; Hyman 2003; Massin 2017; Reuter and Sytsma 2020; Bradley 2021). Others believe that pains in the locatable sense are experiences or intentional mental states, which are typically taken to be located in the mind or brain (Armstrong 1968; Tye

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1995, 2002, 2005, 2017; Hall 2008; Klein 2015). Call these views the Bodily Theory (BT) and the Experiential Theory (ET) respectively.¹

This paper is about what pains in the locatable sense are, i.e. what ‘pain’ refers to in sentences like ‘There is a pain in my foot’. Because experiences are taken to exist in the brain, and bodily occurrences exist almost anywhere in the body but the brain, what one takes to be the answer to this metaphysical question has consequences for where one takes pains to be located, and a theory of what pains are is simultaneously a theory of where they are. In what follows, I defend BT on the grounds that it accords better with common sense and offers a better interpretation or semantics of ordinary pain reports.

Even though there are defenders of the view that pains are bodily occurrences in the literature, the majority do not attempt to say which bodily occurrences accepted by physiology pains are. Are pains tissue damages, C-fiber stimulations, or something else? This paper aims to remedy that and to develop BT as a compelling theory of pain. To this end, I put forth the hypothesis that pains are proximal activations of nociceptors that cause experiences of pain. The claim is that actual human pains (in this world) are activations of nociceptors, not that pains are necessarily (in all possible worlds) activations of nociceptors, as the latter claim would conflict with the possibility of multiple realization, i.e. the implementation of pain in something physically different from our bodies. Besides the above hypothesis, my contribution is threefold. Firstly, I develop BT systematically by showing how the above hypothesis accommodates acute pain, chronic/neuropathic pain, phantom limb pain, and referred pain. Secondly, I provide a novel argument in favour of BT – the Common Sense Argument. Thirdly, I provide objections to the common arguments for ET.

§2 distinguishes different senses of ‘pain’ and argues that the debate between BT and ET is non-verbal. §3 develops BT and shows how it accommodates acute pain, chronic/neuropathic pain, phantom limb pain, and referred pain. §4 offers two arguments in favour of BT – the Common Sense Argument and the Semantic Argument. §5 argues that the common arguments in favour of ET are unconvincing. §6 concludes.

2 Different Senses of ‘Pain’ and Why the Debate Is Non-Verbal

This section distinguishes different senses of ‘pain’, which is important in order to identify the target phenomenon and show that the debate between ET and BT is non-verbal.

¹ This debate about *pain* is not the same as the debate about the *concept of pain*, where some argue that there is one bodily concept (Reuter and Sytsma 2020), others argue that there is one concept with both bodily and mental aspects (Borg et al. 2020), and yet others argue that there are two concepts – one mental and one bodily (Liu 2021). Still, as I discuss in §§4-5, facts about the concept or common sense conception of pain may have consequences for the debate about pain, because accord with common sense is one thing that might count in favour of a theory of pain.

2.1 Different Senses of 'Pain'

I said above that pain in the locatable sense is what 'pain' refers to in sentences such as 'There is a pain in my foot' and 'I have a pain in my toe'. BT is only a claim about pain in this sense, not a claim about pain in other senses of the word.

Firstly, BT is not a theory about pain in the *phenomenal* sense, which is often referred to as 'painfulness' or 'unpleasantness' as well as 'pain'.² Pain in the phenomenal sense is commonly taken to be a property of experiences, i.e. sensory states with intentional content. But this property of experiences is not what ET holds is an experience itself and BT holds is a bodily object of experiences. Even though pain in both the locatable and the phenomenal senses of the word may be related, they are commonly taken to be dissociable. For example, several theorists believe that subjects with pain asymbolia have pain in the locatable sense, but no pain in the phenomenal sense (e.g. Grahek 2007; Corns 2020). And eliminativists about phenomenal properties believe that we have pains in the locatable sense but that there is no pain in the phenomenal sense (e.g. Frankish 2019: 92). If we did not distinguish pain in the locatable sense from pain in the phenomenal sense, then we would beg the question against both these views, which would be unnecessarily strong for a view about pain in the locatable sense. Moreover, it is controversial whether lay people believe in or have the concept of phenomenal properties (Sytsma 2014; Sytsma and Ozdemir 2019), so it is controversial whether they believe in or have the concept of pain in the phenomenal sense. But they clearly have the concept of and seem to believe in pain in the locatable sense. So in order not to beg any questions in the debate about whether lay people believe in and have the concept of phenomenal properties, we must distinguish pain in the locatable sense from pain in the phenomenal sense.³

Secondly, BT is not a theory about pain in the *experiential* sense. Many scientists and philosophers call the sensory state with intentional content (often called the feeling, awareness, or experience of pain) associated with pain in the locatable sense 'pain'. This is arguably not a common use of the word among lay people. But since philosophers and scientists commonly use 'pain' to refer to what I refer to as 'the experience of pain', there is a sense in which 'pain' refers to an experience. On my view, the experience of pain is the experience of a bodily occurrence, so there is a distinction between pain (in the locatable sense) and the experience of pain. According to ET, by contrast, pain (in the locatable sense) is an experience, so on this view, there might not be any distinction between pain and the experience of pain (unless one thinks that the

² Chalmers (1996) makes a similar distinction between pain in a functional sense and pain in a phenomenal sense (1996: 17).

³ Aydede (2017, 2020) holds the unusual view that pain in the locatable sense *is* pain in the phenomenal sense and says that: 'When I correctly report a pain in my elbow, I am introspectively reporting pain (a certain phenomenal quality) as literally being in my elbow' (2017: 228). On this view, pain in the locatable sense is neither an experience nor a bodily occurrence, but a phenomenal property. Given my defence of BT, I think this view is mistaken. But I do not have space to discuss it further here.

experience of pain is a higher-order state representing the lower-order state pain). In any case, the present point is that BT is only a theory about the referent of ‘pain’ as it is used in contexts like ‘There is a pain in my foot’ and ‘I have a pain in my toe’, it is not a theory about the referent of ‘pain’ as it is used in contexts where it clearly refers to an experience. There are several examples of the latter. For example, in Byrne’s (2001) talk about ‘the distinction between pains-as-experiences and pains-as-objects-of-experiences’ (2001: 229) the first occurrence of ‘pains’ refers to experiences. And when Aydede (2017) says that ‘there is no serious alternative to identifying pains with experiences’ (2017: 224) ‘pains’ refers to experiences, because Aydede distinguishes between pain in the experiential sense (which he believes is an experience) and pain in the locatable sense (which he does not believe is an experience, but a phenomenal property).⁴ BT is not a theory about the referent of ‘pain’ in these cases where it refers to an experience.

This shows that the string of words ‘Pains are experiences’ is ambiguous, as this might *either* mean that pains in the experiential sense are experiences, *or* that pains in the experiential sense *and* pains in the locatable sense are experiences. Only the latter claim is in competition with BT. I suspect that many theorists who say that ‘Pains are experiences’ are not clear about which claim they are making, which makes it difficult to judge whether they defend ET, understood as a theory of pain in the locatable sense, or whether they are just concerned with pain in the experiential sense.

Of course, it may be confusing that the term ‘pain’ is used in so many different ways (at least by philosophers). But this is the linguistic reality we face, so the best one can do when discussing pain is to be clear which use of the word one has in mind. It is therefore important to note that theorists like Aydede (2017, 2020) and Byrne (2001) are not experientialists as I use that word, because they do not claim that pains in the locatable sense are experiences, they only claim that pains in a different (experiential) sense of the word are experiences, and that is perfectly consistent with BT. My target is not *everyone* who say that ‘Pains are experiences’, it is only those who claim that pains in the *locatable* sense are experiences. For BT, which is only a claim about pains in the locatable sense, is consistent with the claim that pains in a *different* sense of the word are experiences.

2.2 Why the Debate Is Non-Verbal

Given that ‘pain’ is used in so many different ways, one might think that the contrast I drew between ET and BT is superficial, and that experientialists are only concerned with pain in the experiential sense, not pain in the locatable sense. But experientialists are not just concerned with the referent of ‘pain’ in contexts where it clearly refers to an experience. They really believe that ‘pain’

⁴ Aydede (2017, 2020) is not explicit about this ambiguity, but has confirmed this in personal communication.

refers to an experience in sentences like ‘There is a pain in my foot’. In order to see this, I must first elaborate a little on ET.

ET comes in two versions: representationalism and imperativism. Representationalists believe that pains represent something in the world, such as bodily disturbances or tissue damage (Armstrong 1968; Tye 1995, 2002, 2005, 2017). Imperativists hold either that pains have imperative content only – conveying a command to protect a body part (Klein 2015) – or that pains have *both* representational *and* imperative content (Hall 2008). With the distinction between representationalism and imperativism in mind, consider the following passages where it is clear that experientialists are concerned with pain in the locatable sense:

[T]he location of the pain in the hand is an intentional location, that is, that is simply the place where a disturbance feels to be [...] The pain itself will be the perception of these disturbances [...] and will be contingently identified, not with a physical happening at the ‘place of the pain’, but with an event in the central nervous system (Armstrong 1968: 316, 319-320).

[A] pain in the leg, I suggest, is a token sensory experience which represents that something in the leg is damaged (Tye 1995: 228).⁵

The difference between a mild burning pain in your foot and a mild burning pain in your hand, then, is that the former commands you to protect your foot, whereas the latter commands you to protect your hand (Klein 2015: 90).

The sharp pain in your lower back when you’re lifting something heavy tells you to stop doing that. The pain in your hand when you grasp something hot or sharp tells you to stop doing that – withdraw (Hall 2008: 534).

It is clear that these authors are concerned with pain in the locatable sense, and not just pain in a different sense of the word.⁶ The pains they identify with experiences – regardless of representational or imperative content – are pains in the locatable sense. They therefore believe that pains in the locatable sense are not located in the body but in the mind or brain. As Klein puts it: ‘[P]ains *themselves* are located, if they’re located anywhere, somewhere in the head. This is a general feature of intentionalist accounts [...] Representational accounts of pain have a similar structure: pains are in the head, but they represent some damage or disturbance at a bodily location, and that location corresponds to the felt location of pain’ (2015: 88).⁷

⁵ In Tye (2005), Tye says that ‘a pain in a leg (viewed as an experience) represents that a certain quality is tokened in the leg’ (Tye 2005: 101). He thinks the quality represented is tissue damage and confusingly calls tissue damage ‘pain’ (2005: 101). But note that this cannot be pain in the locatable sense, given his claim that pain in that sense is an experience. In Tye (2017) he regrets calling tissue damage ‘pain’ and calls this use of the word ‘confused and wrong-headed’ (2017: 483n6).

⁶ Though some experientialists also aim to offer a theory of the painfulness of pains in terms of the content of the experiences they identify with pains, so their versions of ET are about *both* pain in the locatable sense *and* pain in the phenomenal sense.

⁷ See Armstrong (1968: 316, 319-20) and Tye (1995: 229) for similar claims about the location of pain.

This theory is my target: the theory that ‘pain’ refers to an experience in the mind or brain in sentences like ‘There is a pain in my foot’. But again, my target is not everyone who says that ‘Pains are experiences’. Nor is my target necessarily everyone who identifies as a representationalist or imperativist. Some philosophers might only be representationalists or imperativists about the experience of pain, i.e. pain in the experiential sense, and not about pain in the locatable sense. Other philosophers might not be clear what sense of ‘pain’ we should associate with their representationalism or imperativism. But the philosophers cited above are clearly representationalists or imperativists about pain in the locatable sense.

The fact that experientialists are concerned with pain in the locatable sense shows that the dispute between BT and ET is non-verbal. If experientialists were talking about pain in a different sense of the word, then this dispute would be merely verbal, and ET would not seem immediately relevant to the question of what pains in the locatable sense are. But since both theories are about the referent of ‘pain’ in the same sense of the word, there is a genuine disagreement about the metaphysics of pain.

3 The Bodily Theory

According to BT, pains are bodily occurrences. But which bodily occurrences? Given both that physiology offers the best account of our bodies and occurrences in them, and that BT says that pains *are* bodily occurrences located in our bodies, a defender of BT should be able to say which bodily occurrences accepted by physiology pains are. For I take it that defenders of BT do not want to claim that they – through philosophical reflection – have discovered some occurrences in our bodies of which physiologists – who use the best empirical methods – are ignorant. The question is then: is the pain in my foot tissue damage, C-fiber stimulation, or something else accepted by physiology?

This question is rarely addressed by advocates of BT. Byrne says that pains are ‘objects-of-experiences’ in body parts (2001: 229). Hyman (2003) says that pains are ‘states of a body part’, located in a body part, and consist in the body part hurting (2003: 15). Massin (2017) says that pains are ‘non-intentional bodily episodes’ that are not necessarily experienced but are necessarily bad or disagreeable (2017: 321, 323, 329-330). Reuter and Sytsma (2020) say that pains are ‘bodily states’ and ‘qualities of bodily disturbances’ (2020: 1778, 1783). Finally, Bradley says that pains are ‘constitutively mind-dependent properties instantiated in part of the subject’s body’ (2021: 719) and that ‘a pain is nothing other than a body part’s *hurting* or *having a pain in it*, which is its instantiating the property PAIN’ (2021: 725).

These authors tell us where pains are, but they do not tell us which of the bodily occurrences (or ‘states’, ‘episodes’, or ‘properties’) accepted by physiology pains are. In this section, I aim to remedy this. My hypothesis is the following:

A pain is a proximal activation of nociceptors that causes an experience of pain.⁸

§3.1. discusses the identification of pains with activations of nociceptors, §3.2. discusses the experience-dependence of pains, and §3.3. addresses some objections.

3.1 Pains as Proximal Activations of Nociceptors

By ‘nociceptors’ I mean neurons located in the peripheral nervous system that respond to a variety of stimuli – including noxious stimuli like extreme heat and cut, and innocuous stimuli like light pressure and small temperature changes. These receptors involve both A δ -fibers and C-fibers and are active when one has a pain, but also in everyday contexts unaccompanied by pain (Baliki and Apkarian 2015: 474-476). In contrast to this, some scientists seem to hold that instead of there being one kind of receptors that respond to different stimuli, there are two kinds of receptors – one that responds to innocuous stimuli, and one that responds to noxious stimuli, and that only the latter are nociceptors (e.g. Lee et al. 2011: 2). But as the former view seems to be the most common (see e.g. Baliki and Apkarian 2015 and references therein), I follow this and understand nociceptors as receptors that respond to both noxious and innocuous stimuli, the activity of which may occur with and without pain.

BT is sometimes associated with the view that pain is tissue damage, since standard cases of acute pain involve noxious stimulus and tissue damage. As several authors rightly point out, however, it would be implausible to identify pain with tissue damage, since neither chronic/neuropathic pain (pain resulting from disorder of the somatosensory system), nor phantom limb pain (pain reported in an amputated, non-existent limb), nor referred pain (pain reported as being located in a different place from where the injury is) need involve tissue damage (Aydede 2017: 223, 2020: 146, Borg et al. 2020: 32n9, 36). Still, as I am about to explain, all these kinds of pain involve activations of nociceptors.

⁸ This formulation is close to both that of Hill (2017) and that of Newton (1989). According to Hill (2017), pain is ‘a type of disturbance that generally involves actual or potential damage, and that is grounded principally in the activity of nociceptive neurons known as C-fibers and A δ -fibers’ (2017: 61). This is close to my claim that a pain is a proximal activation of nociceptors but misses the qualification that it must cause an experience of pain. As I argue in §3.2., however, the qualification is necessary. Another difference between Hill’s view and mine is that Hill’s view is disjunctive: acute pains are bodily occurrences, but chronic pains and phantom limb pains are experiences in the brain (2017: 67). On my view, by contrast, all pains are bodily occurrences (see below).

Regarding Newton’s (1989) view, I suspect that the differences are mainly verbal. At one place, Newton says that pains are ‘powers in parts of our bodies to produce sensations of pain in us’ (1989: 576). At a different place, however, she says that ‘a person has a pain if and only if there is nociceptor stimulation’ (1989: 590). But given what Newton says elsewhere, I believe the latter biconditional is a slip of tongue. It should have been a conditional, since (as I discuss in §3.2.) the experience (or ‘sensation’ in Newton’s terminology) of pain is necessary for pain.

In *chronic/neuropathic pain*, nociceptors transmit signals to the brain – sometimes after innocuous stimulus and sometimes without being preceded by any stimulus – which, due to neural disorders, causes an experience of pain (Alles and Smith 2018, Baliki and Apkarian 2015: 482). The relevant neural disorders may be central mechanisms, so central mechanisms are part of the *explanation* of chronic/neuropathic pain. But the *phenomenon* chronic/neuropathic pain always involves an activation of nociceptors that can be identified as the pain.⁹ In cases that do not involve phantom limbs, the pain is where the patient reports it as being. For example, in chronic back pain the pain is really in the back and in chronic headache the pain is really in the extra-cranial head, because there are activations of nociceptors in the back and extra-cranial head that cause experiences of pain.

In *phantom limb pain* – which is a type of chronic/neuropathic pain – nociceptors are activated in a different place from where the patient reports the pain as being located, namely in the residual limb or stump. The nerves in the residual limb were damaged during amputation, and pain scientists consider it likely that those nerves play an important role in phantom limb pain. More specifically, there is an upregulation of voltage-sensitive sodium channels in the nociceptors, which increases spontaneous afferent input to the spinal cord. In other words, the nociceptors of the damaged nerves become hypersensitive and transmit signals to the central nervous system, even in the absence of stimulus, which causes an experience of pain. There can also grow neuromas from the damaged nerves, i.e. enlarged endings of C-fibers and A-fibers that send signals to the central nervous system and cause an experience of pain (Coppes and Sang 2018: 2, Flor 2002: 184).

Pain scientists also appeal to central mechanisms in the explanation of phantom limb pain. For example, scientists hypothesize that amputation leads to a cortical reorganization in the brain such that the cortical areas of the amputated body part are taken over by adjacent zones of the body, which could explain why stimulation of those body parts results in phantom limb pain (Coppes and Sang 2018: 2). But even though these central mechanisms are part of the *explanation* of phantom limb pain, the *phenomenon* phantom limb pain always involves activations of nociceptors that can be identified as the pain, namely those of the damaged nerves in the residual limb. These nerves were previously connected with the nerves in the limb where the patient reports feeling pain, so activity in these nerves can thus both be the pain the patient feels and contribute to cause the patient to misidentify the location of the pain.

In *referred pain* too, nociceptors are activated in a different place from where the patient reports the pain as being located. Somatic referred pain, for example, is produced by noxious stimulation of spinal structures, while the pain is referred to and reported as being located in lower limbs. Scientists believe that

⁹ The question of what pains are is not the same as the question of what explains the existence of token pains, and the claim that pains are activations of nociceptors is consistent with explanations of pains appealing to other mechanisms in addition to activations of nociceptors, such as central mechanisms, cognitive states, external events that influence the psychological state and well-being of a patient, and much more. See Corns (2020) for more on the explanation of pain.

nociceptors connected to both the lower limbs and the injured tissue around the spine converge in the spinal cord and that this causes the referral (Bogduk 2009: 17). That is, neurons in the central nervous system receive convergent inputs from various tissues at different locations in the body and this leads higher centres to misidentify the actual input source (Arendt-Nielsen and Svensson 2001: 11, 15-17). It is also possible to induce referred pain to limbs with complete sensory loss due to anaesthetic block, i.e. limbs where nociceptive signals are blocked from travelling to the brain (Arendt-Nielsen and Svensson 2001: 14). In that case, there is no causal connection between the activation of nociceptors in the referred location and the experience of pain, which I claim is necessary for pain. Thus, my version of BT is committed to the pain having the location of the injury, not the referred location where the patient reports the pain as being located. Just as the location is illusory for phantom limb pain, so it is illusory for referred pain. Interestingly, this prediction seems to accord with what many people believe, as indicated by Kim et al.'s (2016) studies, in which there were more subjects holding that referred pains are located where the injury is than there were subjects holding that they are located where the patient reports the pain as being located (2016: 147, 154).

The upshot is that there are no pains without activations of nociceptors. Acute pain involving tissue damage obviously involves the activation of nociceptors, but this is also true of chronic/neuropathic pain, phantom limb pain, and referred pain. In lack of other bodily occurrences with which BT can plausibly identify pains, a defender of BT should hold that the activation of nociceptors is necessary for pain. The *argument* that it is necessary is the argument for BT, offered in §4.

The final point I want to make about the identification of pains and proximal activations of nociceptors concerns the qualification 'proximal'. This qualification is needed because there can be activations of nociceptors that cause experiences of pain without being pain. As explained above, nociceptors are not just active when one is exposed to a noxious stimulus or has a pain but are continuously active in everyday contexts unaccompanied by pain, for example, as the result of light pressure or small changes in temperature. However, an activation of nociceptors unaccompanied by pain may cause a different event, which may cause a different event (etc.), which may eventually cause an experience of pain. By transitivity of causation, it follows that the original activation of nociceptors is a cause of the relevant experience. But it is not pain, because it is not the *proximal* activation of nociceptors, but rather, a distal one. For example, the activation of nociceptors in my back may cause me to move my hand to scratch my back, and my moving my hand may cause the book to fall down from the desk to my toe, which eventually causes an experience of pain in my toe. In that case, the original activation of nociceptors in my back is a cause of the experience of pain in my toe, but it is not pain, because it is distal, not proximal.

3.2 The Experience-Dependence of Pains

According to my formulation of BT, a pain is not just any proximal activation of nociceptors. The reason is the fact just mentioned, namely that nociceptors can be activated without being accompanied by pain. Despite this, it does not follow, as some scientists claim, that pains are not activations of nociceptors (Apkarian 2017: 74, Baliki and Apkarian 2015: 474).¹⁰ Pains can still be identified with activations of nociceptors, it is just that they are not activations of nociceptors *simpliciter*. This is why I qualified the above hypothesis by saying that a pain is a proximal activation of nociceptors ‘that causes an experience of pain’. Put differently: being a pain is not an *intrinsic* property of activations of nociceptors, but an *extrinsic* one, because only those activations of nociceptors that cause experiences of pain are pains.

This idea of pains is in several ways similar to Dretske’s (2003: 5) idea of crocks – rocks that you experience. Not all rocks are crocks but crocks really *are* rocks and ‘inherit’ the properties of rocks, such as their location. And crocks depend on your experience: if your experience were absent there would be no crocks, only rocks. Similarly, not all proximal activations of nociceptors are pains, but pains *are* proximal activations of nociceptors and ‘inherit’ the properties of activations of nociceptors, such as their location. And pains depend on experience: no experience, no pain.

To depend on other things without being those other things is not peculiar to crocks and pains. A rock star depends on his fans in order to be a rock star. Without the fans he would just be a guy with a guitar, not a rock star, but it is the guy with the guitar, not the fans, who is the rock star. A widow depends on the death of her husband in order to be a widow, but it is the woman, not the death of the husband, who is the widow. A £5 note depends on the Bank of England in order to be £5, but it is the paper note, not the Bank of England, which is the £5. Similarly, my version of BT claims that pains depend on experiences without being experiences.

This view differs substantively from ET. The claim that pains are bodily occurrences located in the body that depend on experiences in the brain (my version of BT) is not the same as the claim that pains are experiences located in the brain (ET).

3.3 Objections/Clarifications

I think there are three potential worries with this view that are worth addressing. The first is that if being a pain is an extrinsic property of activations of nociceptors, then it has no location, because properties are abstract objects and abstract objects have no location. But my claim about location is not about the *property* of being a pain, but about *instantiations* of that property, i.e. token pains. Rockstarhood, widowhood, and being £5 are extrinsic properties of guitar players, women, and paper notes respectively. If properties are abstract objects (which I am neutral about here), then these properties may have no location. But rock stars, widows, and £5 notes do have locations. Similarly, pains have bodily locations, even though the property of being a pain may have no location.

¹⁰ Though they seem to use ‘pain’ and ‘pain perception’ synonymously, so perhaps the claim is just that experiences of pain (i.e. pains in the experiential sense) are not activations of nociceptors, which is consistent with BT.

The second worry is that pains cannot be activations of nociceptors because activations of nociceptors do not figure in the content of experiences of pain, but pains *do* figure in that content. But BT is not meant to be an account of the *de dicto* content of experience. It is a theory of what pains are – the *de re* content of experience. The claim is not that experiences represent anything else than pains *de dicto*, but that the pains that experiences represent are identical with proximal activations of nociceptors.

The third worry is that BT is circular: in my formulation expressing the hypothesis that pains are proximal activations of nociceptors that cause experiences of pain, ‘pain’ occurs on both sides of the identification. I think two responses to this worry are available. The first is to deny that there is any circularity.¹¹ Even if one accounts for pain in terms of the experience of pain, one need not account for the experience of pain in terms of pain. Rather, one can account for the experience of pain in terms of ostensive definition. Thus, there is no circularity. The second response is to deny that there is any problem even if there is a circularity.¹² It is one thing to put forth a hypothesis about the identity of pains and activations of nociceptors, and a different thing to explain what pains are to someone who is entirely ignorant of it or give a synonym of pain terms. Explaining what pains are in terms of experiences of pain would not help someone who has absolutely no idea what pains are. And given reasonable assumptions about meanings, ‘pain’ cannot be synonymous with a complex phrase containing ‘the experience of pain’. But these worries are not relevant here, because BT is a view about the metaphysics of pain and only makes a claim about the identity of token activations of nociceptors and pains. Though circular in the sense that ‘pain’ occurs on both sides of the formulation expressing this identification, the identity claim is neither viciously circular nor trivial, but legitimate and informative.

4 Arguments for the Bodily Theory

The previous section outlined what I take to be the best version of BT. But why should one believe that BT is true? This section offers two arguments: the Common Sense Argument and the Semantic Argument.

4.1 The Common Sense Argument for the Bodily Theory

The first argument in favour of BT is that it accords better with common sense than ET. The argument can be spelled out thus:

(P1) If a theory accords better with common sense than another theory, then the former is more plausible than the latter, unless there are independently good reasons to adopt the latter.

¹¹ Menzies and Price (1993) make this point about dispositional accounts of colour and causation (1993: 194).

¹² Byrne and Hilbert (2011) make this point about dispositional accounts of colour (2011: 342–343).

- (P2) BT accords better with common sense than ET.
 (P3) There are no independently good reasons to adopt ET.
 (C) BT is more plausible than ET.

(P1) says that we should prefer a view that coheres better with our pre-theoretical beliefs than a view that demands more revision of our beliefs, unless the more revisionary view is independently more plausible. This is at least supported by pragmatic considerations, perhaps also the historical success of less revisionary theories.

(P2) is supported by empirical studies. In Sytsma's (2010) study, the majority of subjects held that acute pains are located in body parts rather than the mind, and in Kim et al.'s (2016) study, the majority of subjects held that referred pains are located in a body part rather than the mind (2016: 152). My version of BT agrees with these common sense beliefs about the location of pains, but according to ET, they are strictly speaking false.

It should be noted that Borg et al. (2020) and Salomons et al. (2021) claim that their experimental findings are in tension with BT, which may seem to threaten (P2). There are two findings that are relevant. The *first* finding is that the subjects in their studies judged that there is *no* pain in cases where a patient has bodily damage but denies pain, such as for athletes distracted from injuries and patients with congenital insensitivity to pain (Borg et al. 2020: 39-40, Salomons et al. 2021: 10-11). The *second* finding is that subjects judged that there *is* pain in cases with reported pain but no bodily damage, such as in chronic/neuropathic stomach ache and referred pain caused by electric shock to the brain (Salomons et al. 2021: 10-11).

But neither of these findings are in tension with my view. Setting aside the fact that the subjects in Reuter and Sytsma's (2020) studies judged the opposite to Borg et al.'s and Salomons et al.'s subjects about cases where patients have bodily damage but deny pain, the first finding above arguably conflicts with a version of BT on which experience is not necessary for pain. This is because this version of BT would arguably count bodily damage as pain, even if the patient denies having pain.¹³ But the first finding of Borg et al. and Salomons et al. does not conflict with my version of BT, on which the experience of pain is necessary for pain.

Regarding the second finding of Salomons et al., it is true that this conflicts with a version of BT on which bodily damage is necessary for pain, because this version of the theory predicts that there is no pain in cases with no bodily damage, even if the patient reports pain.¹⁴ But the second finding of Salomons et al. does not conflict with my version of BT, since on my view, it is the activation of nociceptors, not

¹³ Perhaps this is Massin's (2017) view, as he claims that pains are 'bodily episodes' that are not necessarily experienced but are necessarily bad or disagreeable (2017: 321, 323, 329-330). If Massin thinks that bodily damage is bad or disagreeable – in whatever non-experience-involving sense Massin understands these terms – then bodily damage is (on Massin's view) sufficient for pain, which conflicts with the first finding of Borg et al. and Salomons et al.

¹⁴ Perhaps this is Reuter and Sytsma's (2020) view, as they claim that pains are 'qualities of bodily disturbances' (2020: 1783). If what Reuter and Sytsma mean by 'bodily disturbance' is bodily damage, then bodily damage is (on their view) necessary for pain, which conflicts with the second finding of Salomons et al.

bodily damage, which is necessary for pain. So none of the findings of Borg et al. and Salomons et al. are in tension with my version of BT. Given the findings of Sytsma and Kim et al. mentioned above, (P2) stands.

(P3) is supported by the discussion in §5, where I argue that the common arguments for ET are unconvincing. Thus, there is reason to believe (P1), (P2) and (P3), in which case we can infer that BT is more plausible than ET.

4.2 The Semantic Argument for the Bodily Theory

The second argument in favour of BT is that it provides a better interpretation or semantics of ordinary pain reports than ET.¹⁵ According to BT, the semantics (i.e. truth-conditions) of ordinary pain reports are simple and intuitive. ‘There is a pain in my foot’ really means (i.e. has the truth condition) that *there is a pain in my foot*. Pain reports may sometimes be false, as in the case of phantom limb pain and referred pain, but at least BT requires us to take them at face value, such that when they are true, they are *literally* true. While it is right that BT requires the existence of experience for these pain reports to be true, what makes ‘There is a pain in my foot’ true is that there *is* a pain located in my foot.

With ET things are different, because there is no pain in my foot that makes ‘There is a pain in my foot’ true. One option is to say that pain reports are false. On this view, no one (except experientialists themselves) have ever been right about the location of their pains and people assert falsehoods all the time when they report the location of their pains. But this interpretation of ordinary pain reports is very uncharitable, and therefore less plausible than the interpretation offered by BT. The other option for the experientialist is to say that pain reports are true, because ‘There is a pain in my foot’ does not really mean (i.e. does not have the truth-condition) that there is a pain in my foot. On an experiential-friendly semantics, ‘There is a pain in my foot’ means that I have a pain representing a bodily disturbance in my foot (representationalism), or that I have a pain informing me to protect my foot (imperativism). But this is a more complex and less intuitive semantics than that offered by BT. Thus, we should prefer BT.

5 Arguments for the Experiential Theory and Why They Are Unconvincing

The previous section offered two arguments for BT. Given these arguments, there is reason to believe that pains are bodily occurrences. Since the best candidates for bodily occurrences are proximal activations of nociceptors that cause experiences of pain, there is reason to believe that pains are proximal activations of nociceptors that cause experiences of pain. However, if there were equally strong arguments in support of ET, then we would have no reason to prefer BT, as there would be reasons to

¹⁵ A similar argument is made by Hyman (2003: 9), Hill (Hill 2014: 168-169) and Aydede (2019).

believe both that pains are bodily occurrences and reasons to believe that pains are experiences. This section evaluates the arguments for ET put forth by experientialists and argues that they are unconvincing. Thus, we should prefer BT.

5.1 The Common Sense Argument for the Experiential Theory

The first argument in favour of ET is due to Tye (1995, 2002, 2005, 2017) and draws on what (according to Tye) is common sense about pain. According to Tye, the following three claims are part of the common sense conception of pain:

PRIVACY: Only I can have my pains – they belong to one person only and cannot be had by other people (Tye 1995: 228, 2002: 151, 2005: 100, 2017: 478).

INCORRIGIBILITY: If I feel a pain, then I have a pain. Sometimes this idea is referred to as ‘epistemic authority’, ‘first person authority’, or ‘no appearance/reality distinction’, but the idea is the same: feeling a pain implies having a real pain (Tye 2017: 478).

SUBJECTIVITY: If I have a pain, then I feel a pain. There are no unfelt pains, i.e. pains that escape one’s experience or awareness (Tye 2002: 151, 2017: 478).

There are two ways in which one can take these claims to support ET. On a *weak* version of the argument, the idea is that ET accords better than alternatives with PRIVACY, INCORRIGIBILITY and SUBJECTIVITY, which gives ET a theoretical advantage over BT, because we should prefer a view that demands less revision of our pre-theoretical beliefs (common sense) to a view that demands more revision. On a *strong* version of the argument, the idea is that ET offers the best explanation of the properties described by PRIVACY, INCORRIGIBILITY and SUBJECTIVITY. This version assumes not only that PRIVACY, INCORRIGIBILITY and SUBJECTIVITY are part of the common sense conception of pain, but that common sense is true and thus that PRIVACY, INCORRIGIBILITY and SUBJECTIVITY describe genuine *explananda*. This assumed link between common sense and metaphysics makes the strong version of the argument more controversial than the weak version.

It seems to me that Tye has the strong version of the argument in mind (see Tye 1995: 228, 2002: 151, 2005: 100, 2017: 478), so one could object to his argument by denying the link between common sense and metaphysics. However, Tye (or other experientialists) could obviously adopt the weak version of the argument instead. I shall therefore argue that both the weak and the strong version of the argument fail independent of any link between common sense and metaphysics. They fail partly because empirical studies suggest that Tye’s account of common sense is mistaken, and partly because my version of BT actually accords with what Tye takes to be common sense. Let’s look closer at PRIVACY, INCORRIGIBILITY, and SUBJECTIVITY in respective order.

With regard to PRIVACY, data from experimental philosophy suggest that Tye is wrong about common sense. The majority of the subjects in Sytsma’s (2010) studies allowed for shared pains when two patients share a body part, e.g. for Siamese twins

joined at the torso who injure their shared foot. Thus, PRIVACY, which does not allow for shared pains, is plausibly not part of the common sense conception of pain.

As Sytsma's studies indicate what is common sense about privacy, one may think that experientialists can modify the appeal to privacy. For example, experientialists could argue that private pains are pains representing disturbance in or conveying a command to protect a body part belonging only to oneself, while shared pains are pains representing disturbance in or conveying a command to protect a shared body part. In other words, experientialists could argue that shared pains are pains with the *same content*. To say that two people 'share' or have the 'same' pain is not to say that there is one token state or experience belonging to two people. Rather, it is to say that two token states or experiences belonging to different people have the same content, analogous to two people having the same belief, i.e. there being two token states of believing that have the same content.

But there is no reason to believe that this experientialist account of private and shared pains is better than the one offered by BT. Only I can have the pain in my foot, because only I and no one else has that foot as a body part and only my brain and no one else's brain receives nociceptive input from that foot. The alleged cases of shared pains where privacy does not obtain are cases where people *share* body parts, which BT accommodates by the pain – i.e. the proximal activation of nociceptors that causes an experience of pain – being in that shared body part.

So appeal to (lack of) privacy indicates no advantage of ET over BT. Nevertheless, this brings out an interesting difference between the two theories: ET is compatible with PRIVACY, but BT is not. When two people (e.g. Siamese twins) report pain in a shared body part there is only one relevant activation of nociceptors, but, according to PRIVACY, two pains. Thus, BT contradicts PRIVACY, because it predicts that there is only one pain. By contrast, ET predicts that there are two pains, because there are two experiences.

With regard to INCORRIGIBILITY, the empirical data again suggest that Tye is wrong about common sense. The majority of the subjects in Reuter et al.'s (2014) studies allowed for feeling of pain without real pain, for example, as the result of taking a drug (2014: 84-88). So INCORRIGIBILITY – the claim that if I feel a pain, then I have a pain – is plausibly not part of the common sense conception of pain. This means that even if experientialists think there is no distinction between pain and the experience of pain, which entails INCORRIGIBILITY, the appeal to INCORRIGIBILITY indicates no advantage of ET over BT.

With regard to SUBJECTIVITY, the empirical data are more difficult to interpret than for PRIVACY and INCORRIGIBILITY. On the one hand, the majority of the subjects in Reuter and Sytsma's studies judged that patients distracted from injuries (e.g. soldiers and athletes) have pains they do not feel (2020: 1787-1798), so these subjects believed that pains can occur without experience. But on the other hand, the majority of the subjects in Borg et al.'s and Salomons et al.'s studies judged that patients distracted from injuries have no pain (Borg et al. 2020: 39-40, Salomons et al. 2021: 10-11), suggesting that these subjects did not believe that pains can occur without experience. Moreover, Aydede found that the majority of pain scientists and clinicians take pains to be experience-dependent (2020: 154n27). Given these ambiguous data, it is difficult to judge what is common sense about

subjectivity. But regardless of this, ET does not accord better with SUBJECTIVITY than BT. Gate control theory suggests that in cases where people distracted from injuries deny having pain, the peripheral signal does not travel to the central nervous system (Melzack and Wall 1965: 976). And my version of BT says that the activation of nociceptors located peripherally must cause an experience of pain (plausibly located centrally) in order to be pain, so on this view, people distracted from injuries who deny having pain have no pain. In fact, my version of BT entails SUBJECTIVITY. So even if experientialists think there is no distinction between pain and the experience of pain, which entails SUBJECTIVITY, the appeal to SUBJECTIVITY does not indicate an advantage of ET over BT, contrary to what Tye suggests.

Summing up, while the evidence suggests that neither PRIVACY nor INCORRIGIBILITY are part of common sense, subjects are ambivalent about SUBJECTIVITY. But my version of BT is not only compatible with SUBJECTIVITY, it entails it. Therefore, the appeal to PRIVACY, INCORRIGIBILITY and SUBJECTIVITY indicates no advantage of ET over BT.

5.2 The Phantom Limb Argument for the Experiential Theory

The second argument in favour of ET is that it provides the best account of phantom limb pain (Hill¹⁶ 2017: 67; Tye 2017: 480). The idea is that since there is no real limb, but given INCORRIGIBILITY, still a real pain, the pain cannot be in the limb. There cannot be a real pain in a non-real limb. Hence, the pain must be an experience in the mind or brain.

This argument is unconvincing, because there is no reason to think that the experientialist account of phantom limb pain is the best account. In §3.1. I argued that the pain can be located in the residual limb or stump, where signals from nociceptors are transmitted to the spinal cord. Contrary to what experientialists claim then, it is not true that the pain *must* be in the mind or brain. BT can accommodate phantom limb pain as pain with an illusory location. Thus, ET does not provide the best account of phantom limb pain.

5.3 The Scientific Argument for the Experiential Theory

The third argument in favour of ET is not explicitly stated as an argument but is something Tye (2005) gestures towards – namely, that ET accords with pain science, on the ground that the International Association for the Study of Pain (IASP) defines pain as ‘An unpleasant sensory and emotional experience [a] associated with actual or potential tissue damage, or [b] described in terms of such damage’ (IASP 1979, cited by Tye 2005: 100).

¹⁶ As noted above, Hill’s (2017) view of pain is disjunctive: chronic pains and phantom limb pains are experiences in the brain, but acute pains are bodily occurrences.

This is unconvincing taken as an argument, for two reasons. Firstly, it is not obvious that the IASP definition is about pain in the locatable sense rather than pain in the experiential sense. If it is intended to be about pain in the experiential sense, then it is not clear that it has any relevance for the question of what pain in the locatable sense is, since pain in the experiential sense may be distinct from pain in the locatable sense. Secondly, even if the IASP definition is about pain in the locatable sense, the appeal to the IASP definition is an appeal to authority, not an appeal to evidence. It is an appeal to the opinion of scientists, not their reasons for having this opinion. It may of course be argued that a view that coheres with the opinion of scientists is more plausible than an alternative view that does not cohere with such opinion, unless there are independently good reasons to adopt the alternative view. But in this case, *there are* independently good reasons to adopt the alternative view (i.e. BT), as argued in §4.

6 Conclusion

What are pains? All pains – acute pains, chronic/neuropathic pains, phantom limb pains, and referred pains – involve activations of nociceptors, which are bodily occurrences located in the body. Given that there are (I have argued) no convincing reasons to adopt ET, and that there are two reasons to adopt BT, I hold that pains most plausibly *are* these bodily occurrences located in the body, not experiences or mental states located in the mind or brain, and that what makes ‘There is a pain in my foot’ true is that there *is* a pain in my foot.

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