

University of Wollongong

Research Online

Faculty of Law, Humanities and the Arts -
Papers

Faculty of Law, Humanities and the Arts

1-1-2019

Enactive pain and its sociocultural embeddedness

Katsunori Miyahara

University of Wollongong, miyahara@uow.edu.au

Follow this and additional works at: <https://ro.uow.edu.au/lhapapers>



Part of the [Arts and Humanities Commons](#), and the [Law Commons](#)

Recommended Citation

Miyahara, Katsunori, "Enactive pain and its sociocultural embeddedness" (2019). *Faculty of Law, Humanities and the Arts - Papers*. 3987.

<https://ro.uow.edu.au/lhapapers/3987>

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: research-pubs@uow.edu.au

Enactive pain and its sociocultural embeddedness

Abstract

This paper disputes the theoretical assumptions of mainstream approaches in philosophy of pain, representationalism and imperativism, and advances an enactive approach as an alternative. It begins by identifying three shared assumptions in the mainstream approaches: the internalist assumption, the brain-body assumption, and the semantic assumption. It then articulates an alternative, enactive approach that considers pain as an embodied response to the situation. This approach entails the hypothesis of the sociocultural embeddedness of pain, which states against the brain-body assumption that the intentional character of pain depends on the agent's sociocultural background. The paper then proceeds to consider two objections. The first questions the empirical basis of this hypothesis. It is argued based on neuroscientific evidence, however, that there is no empirical reason to suppose that the first-order experience of pain is immune to sociocultural influences. The second objection argues that the mainstream approaches can account for sociocultural influences on pain by drawing on the conceptual distinction between narrow and wide content. In response, the semantic conception of pain underpinning the proposal is challenged. Pain experience can occur in pre-reflective, affectively reflective, or cognitively reflective forms, but the semantic conception at most only applies to the last form. The paper concludes that the enactive approach offers a promising alternative framework in philosophy of pain.

Disciplines

Arts and Humanities | Law

Publication Details

Miyahara, K. (2019). Enactive pain and its sociocultural embeddedness. *Phenomenology and the Cognitive Sciences*, Online First 1-16.

Enactive pain and its sociocultural embeddedness

Katsunori Miyahara miyahara@uow.edu.au

Abstract

This paper disputes the theoretical assumptions of mainstream approaches in philosophy of pain, representationalism and imperativism, and advances an enactive approach as an alternative. It begins by identifying three shared assumptions in the mainstream approaches: the *internalist assumption*, the *brain-body assumption*, and the *semantic assumption*. It then articulates an alternative, enactive approach that considers pain as an embodied response to the situation. This approach entails the *hypothesis of the sociocultural embeddedness of pain*, which states against the brain-body assumption that the intentional character of pain depends on the agent's sociocultural background. The paper then proceeds to consider two objections. The first questions the empirical basis of this hypothesis. It is argued based on neuroscientific evidence, however, that there is no empirical reason to suppose that the first-order experience of pain is immune to sociocultural influences. The second objection argues that the mainstream approaches can account for sociocultural influences on pain by drawing on the conceptual distinction between narrow and wide content. I respond by challenging the semantic conception of pain underpinning the proposal. Pain experience can occur in pre-reflective, affectively reflective, or cognitively reflective forms, but the semantic conception at most only applies to the last form. The paper concludes that the enactive approach offers a promising alternative framework in philosophy of pain.

Keywords

Pain; Enactivism; Intentionality; Internalism; Cultural permeation

Enactive pain and its sociocultural embeddedness

Katsunori Miyahara miyahara@uow.edu.au

“The importance of any human function lies in its ability to fulfil the aim of the organism: namely, to *be*, to resist destructive change from within and without. The same is true of the person, although existence in this case is exposed to threats very, very different from those to which an animal or plant is exposed. In nature, action and reaction affect each other according to *necessary laws*. In the human sphere there is a further factor to be taken into account: the *normative* relationship between the unity of the person and intruding forces.” (Buytendijk 1961, 144-5)

1. Introduction

Pain was once a paradigm of non-intentional experience. While other forms of sensory experience typically exhibit intentionality, it was often claimed that pain is a purely qualitative experience contained in itself. The non-intentional conception of pain, however, makes it hard to account for some prominent features of pain experience. For instance, pains give us reasons to believe that something is wrong with our body; they can also motivate us to take care of our body in certain ways. It is unclear why pains can shape our cognition and action in these ways, however, if they were meaningless, non-intentional sensations.

Accordingly, most agree nowadays that pain experience bears some form of intentionality. At the same time, however, pain exhibits a form of intentionality distinct from other modes of sensory perception: It does not present us with sensible properties of the environment, such as the red color of an apple or the smooth surface of a table, in the same way that sensory experiences like vision or tactile perception does. Philosophical accounts of pain, therefore, must be able to provide a conception of pain that adequately elucidates its unique form of intentionality.

Recent philosophical discussion on pain is centered on an ongoing debate between two main approaches: Representationalism and imperativism. Representationalism considers pain to be an internal representation that indicates that something is the case with one’s body (Tye 1995a, b, 2006;

Dretske 1999; Bain 2003; Cutter & Tye 2011). In illustrating this idea, for example, Tye writes: “[A] pain in the leg [...] is a token sensory experience which represents that something in the leg is damaged, something moreover that is painful or hurts” (Tye 1995a, 228). On the other hand, imperativism holds that pain is an internal representation that commands that one take some bodily action (Klein 2007, 2015; Hall 2008; Martínez 2011; Martínez and Klein 2016). Klein argues, for example, that pains convey a command “to protect a certain body part, in a certain way, with a certain intensity” (Klein 2015, 69).

Despite the significant differences, representationalism and imperativism tend to share basic assumptions about the intentionality of pain. First, they both assume that pain is an *internal* representation that is realized within one’s brain. Feeling pain is essentially considered to be a matter of instantiating a particular neural pattern. For example, Tye writes: “Token experiences, including pains, are themselves located in the brain” (Tye 1995a, 228). On the imperativist camp, Martínez states that when I cut my finger and feel pain, “I token a state which compels the cut to be no more” (2011, 85), while noting that a tokened mental state “is probably a brain state with some biological function” (2011, 68).¹ Accordingly, embodied states and responses are deemed to be nothing more than external causes and consequences of the internal pain. I will call this the *internalist assumption*.

Second, they assume that the intentional character of a pain is fully determined by the causal-informational relationship that holds between the brain and the body. Representationalism holds that pain considered as internal state carries information about bodily states that cause it under normal conditions (e.g., Cutter & Tye 2011). In contrast, imperativism suggests that it carries information about embodied actions that it induces under normal conditions (e.g., Martínez 2011). In both cases, it is thought that the pain is directed beyond itself towards bodily states or embodied actions thanks to these causal-informational relationships and nothing else. Accordingly, environmental factors beyond

¹ Tye also writes: “In my view, pains are patterns of active cells occurring in topographically structured 3-D arrays to which sentences are attached” (Tye 1995a, 232). Similarly, Dretske holds that pain experiences are “exactly in the same category” (1999, 117) as perceptual experiences, which in his account are “identified with internal states having properties (e.g., \mathfrak{P}) that make them awareness, experiences, of the properties (e.g., P) that external objects have” (1999, 115). Imperativists tend to be less explicit on this issue, but that they have no issue with internalism is fairly clear from their writings. For example, Klein explicitly develops imperativism to defend intentionalism about pain, that is, the thesis that the phenomenology of pain is fully explained by the intentional content of mental representations (Klein 2007, 2015).

brain and body are deemed as irrelevant to the intentional character of pain; they can only play external causal roles in relation to pain experience. I will call this the *brain-body assumption*.

Third, they are both committed to what is sometimes called “the *semantic thesis of intentionality*” (Hutto 2012, 42-3). The intentionality of pain is understood exclusively in terms of semantic contents typically associated to linguistic representations, such as sentences and speech acts. For example, Tye writes: “[P]ains have a *complex* representational structure, one component of which is sentential and another map-like” (Tye 1995a, 232, emphasis in original). Klein also points out that representational theories of pain “assume that the content of all sensations is akin to the content of declarative sentences” (Klein 2007, 518). Rather than abandoning the semantic assumption, however, he models pains on “imperative sentences” instead. Similarly, Martínez accounts for pain by comparing it with “the simplest platitudes about the way in which imperative sentences work” (2011, 75). I will call this the *semantic assumption* or the *sentence model of pain*.

In this paper, I argue that philosophical theories of pain had better reject these three assumptions. Why? Since they are not *a priori* truths, these assumptions must be accepted or rejected depending primarily on how well they accord with the phenomenon they are meant to be about, namely, pain experience. I will argue on empirical and phenomenological grounds, however, that the three assumptions fail to pass this test.

Another aim of the paper is to articulate an enactive approach to pain as an alternative to the mainstream approaches. Enactivists approach mind and cognition with an emphasis on embodied action (Varela et al. 1991; Thompson 2007; Gallagher 2017; Hutto and Myin 2017). Perception, for example, is not conceptualized as an internal state of representing reality in one’s head. Rather, perceptual experience is considered to be a crucial aspect of an agent’s embodied engagement with a particular environmental situation. By extension, enactivists would conceive of pain primarily as an aspect of the agent’s embodied engagement with the situation.

Rather than presenting the critical and the positive arguments in turn, I will develop my case by introducing the enactive alternative from the outset. By so doing, I hope to make it clear how the existing approaches fail to appreciate the full implication of the embodied nature of pain.

In the next section, I articulate the enactive proposal that pain consists in embodied and embedded

activity. I will introduce the elements of the enactive approach that matter most to the current discussion. They consist of the following three theses: (i) Cognition consists in embodied action; (ii) Embodied action is embedded in (and coupled to) an environmental context; (iii) Cognition as embodied action, therefore, is culturally permeated. Applied to the case of pain, these theses lead to the *hypothesis of the sociocultural embeddedness of pain*, according to which the intentional character of a pain is determined in part by the sociocultural environment in which the individual agent is embedded.²

Section 3 considers an objection to the hypothesis of the sociocultural embeddedness of pain. The objection states that there is not enough empirical reason to assert that sociocultural factors can affect the first-order experience of pain itself. In response, I will draw on further evidence from neuroscience that contradicts the assumption that sociocultural influences should only work at the level of higher-order interpretation.

Section 4 attends to the semantic assumption by way of responding to a further objection. The objection holds that empirical findings concerning the sociocultural influence on pain can be accommodated to the mainstream approaches by employing the conceptual distinction between narrow and wide content. In response, I will challenge the semantic assumption that underpins this objection. Following Geniusas (2017), I suggest that pain can be experienced in three distinct forms: pre-reflectively, affectively, and cognitively. I then argue that only cognitively reflective forms of pain can be modelled on sentences.

2. Enactive pain and its sociocultural embeddedness

The objective of this section is to introduce the enactive hypothesis of the sociocultural embeddedness of pain. I start by describing a paradigmatic study about sociocultural influences on pain and pain behavior (§2.1). Then, I submit the enactive hypothesis that sociocultural backgrounds can affect not only higher-order interpretations, but also the first-order experience of pain itself (§2.2). I will show

² I primarily discuss the cultural embeddedness of pain in the following, but I would like to use the term “sociocultural” to make it clear that the human environment in which we are embedded is not fully captured by the concept of culture. For instance, there are structures of our environment that can only be described by using social, economical, or political terms.

how this specific hypothesis about pain follows from the core thesis of enactivism that cognition consists in embodied action.

2.1 Cultural influence on pain: a case study

Pain researchers in human and social sciences have argued over decades that pain is experienced differently depending on the sociocultural background of the individual in pain (Zborowski 1952; Lipton and Marbach 1984; Callister 2003). A variety of sociocultural factors, including (but not limited to) nationality (Brena et al. 1990; Nayak et al. 2000), ethnicity (Edwards et al. 2001; Green et al. 2003), gender (Miller and Newton 2006; Fillingim et al. 2009; Alabas et al. 2012), and religion (Rippentrop et al. 2005; Wachholtz et al. 2007), have been suggested to influence how one perceives and responds to pain.

Let us take one research on cultural influence on pain as a case study: Brena et al. (1990) demonstrated that low-back pains associated with medically and physically comparable low-back conditions induce different behavioral responses in Japanese and American patients. Overall, American patients were found to mark significantly higher scores on a behavioral based measure of health status, the Sickness Impairment Profile, which indicated that their daily activities were more affected by the low-back pain than their Japanese counterparts. “Given similar medical-physical findings,” the authors argued, “Japanese low-back pain patients were less psychosocially, vocationally, and avocationally impaired than similar American patients” (Brena et al. 1990, 122).

How should we interpret such results? One tricky question has to do with determining what exactly it is that underwent the cultural influence. Is it the character of the pain itself or the way in which one comprehends the pain that is influenced by the sociocultural environment? Do Japanese and American patients respond to comparable pains differently simply because they interpret them differently? Or does the difference come from how they experience the pain prior to secondary interpretation?

Mainstream and enactive approaches suggest clearly distinct answers to these questions. Mainstream approaches dictate based on the brain-body assumption that the pain itself is immune to sociocultural influences. Thus the sociocultural variation in pain behavior is explained in terms of variations in secondary interpretations of pain. The enactive approach, on the other hand, stress that

pain experience consists in an embodied response always situated in particular sociocultural environments; hence its intentional character may differ depending on the sociocultural features of the environment. It is entirely possible in the enactive framework, therefore, that Japanese and American patients do not just interpret medically and physiologically comparable pains differently, but even that they experience them differently prior to any interpretation. In the next section, I will explain in more detail how this conclusion follows from the general enactivist vision of mind and cognition.

2.2 Enactive pain and the hypothesis of sociocultural embeddedness

The core thesis of the enactive approach always has been that cognition consists in embodied action (Varela et al. 1991, 172). Embodied agents must keep acting in the particular environment in which they happen to be situated to maintain their existence. Perception and cognition, thus, are not computational or intellectual processes that take place inside the head; rather, they are key aspects of the embodied activity of living in an environment. This simple but powerful vision has led to the emergence of a range of theories that emphasize the role of sensorimotor action and interaction for mind and cognition (e.g., Noë 2004; De Jaegher and Di Paolo 2007; Colombetti 2014).

By saying that cognition consists in embodied action, however, Varela et al. (1991) did not just claim that cognition depends on individual sensorimotor capacities. Rather, they also meant to advance the idea that cognition as embodied action is always coupled with particular environmental contexts. In clarifying their notion of embodiment, thus, Varela et al. write:

By using the term *embodied* we mean to highlight two points: first, that cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities, and second, that *these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological, and cultural context*. (Varela et al. 1991, 173, emphasis added)

To see what this means, it is important to notice that embodied action is not only a way for us to adapt to the situation at hand, but also part of an ongoing process of development through which we adapt

better to the more or less invariant environment. The standards of sensorimotor development, therefore, are not efficiency or universality *simpliciter*. Rather, our sensorimotor capacities develop progressively to enable us to adapt more efficiently, appropriately and flexibly to the *particular* biological, psychological and cultural environment in which we happen to exist. In other words, embodied action is always a process of developing *embodied habits*, which in turn form the basis of future execution of embodied action.

On this view, cognition and action is everywhere affected by the sociocultural context. Sensorimotor capacities and the kinds of experience they bring about are shaped through a history of embodied engagement with the sociocultural environment. We gradually learn to do and experience things in certain ways by constantly and repeatedly engaging with other people who already embody habitual styles of doing and experiencing things appropriately for their sociocultural community. Therefore, it is more the rule than the exception of cognition and experience that they are affected by sociocultural factors. In short, from the enactivist standpoint, “Human cognition is not only shaped but utterly *permeated* by the patterned practices in which those practices grow and develop” (Hutto et al. forthcoming).

As an illustration, consider the case of cultural influences on perception. There is a range of scientific evidence showing, for example, that language affects the way people categorize colors (e.g., Winawer et al. 2007): People presented with the same objective color can categorize them differently depending on their linguistic background. Recent neuroscientific evidence further indicates that the scope of linguistic effects is not limited to post-perceptual categorization, but that it extends to the color perception itself (Regier and Kay 2009; Thierry et al. 2009). How can this happen if human creatures with different sociocultural backgrounds are equipped with more or less the same biological capacities for perception. For enactivists, it happens because our perceptual capacities are not only determined by our evolutionary background, but are also shaped through the process of enculturation. Perceiving is an embodied action embedded in particular sociocultural contexts; hence, embodied agents who went through different processes of enculturation can respond differently to the same objective environment in perception.

Let us now consider how these enactive conceptions can be applied to the case of pain. First, in

line with the core thesis of enactivism that cognition consists in embodied action, enactivists will understand pain primarily in terms of an agent's embodied response to its situation. Pain, *contra* the internalist assumption, is not a matter of instantiating a particular neural pattern in one's head. Enactivists would consider the experience of feeling pain as a whole-organism activity, which typically occurs when the agent happens to be in a noxious situation.

It is not true if I said that such conception of pain was never entertained in recent philosophical discussions. In pointing out the importance of broadening the notion of embodiment beyond sensorimotor contingencies, for example, Gallagher insists that "bodily states such as hunger, fatigue, and pain" (2017, 151) must not be neglected to account for the lived body that mediates perception. Fuchs has already developed this line of thought in relation to the current topic, as he suggests: "Pain sensation is the *integral reaction* of the living being to a peripheral stimulus, for which, undoubtedly, the activation of certain neuronal network is necessary" (Fuchs 2017, 51). The implications of such thoughts for recent philosophy of pain, however, are yet to be fully clarified.

Second, in line with the broad conception of embodiment that entails environmental embeddedness, pain as embodied response will be considered to be coupled with environmental contexts. This does not only mean that feeling pain is a way of adapting to the particular situation in which it is embedded. It also means that this embodied activity is a part of a temporally extended process where embodied agents learn to adapt better to their environment or where they develop *embodied habits*. It is important to notice that this is not only a matter of becoming more effective at responding to threatening objects and physical injuries. We live in a sociocultural environment, where social and cultural appropriateness matters just as much as biological considerations. Accordingly, human creatures are in some respect better adapted to their environment when they are able to feel and cope with pain in line with certain sociocultural expectations. In short, enactivists would think that the experience of having pain belongs to the temporally extended process of development, habituation and enculturation just as other forms of sensorimotor experience.

Studies on the cultural influence on pain will then be explained in the same way that the cultural influence on perception is explained in the enactive framework. Enactivists would suggest that people with different cultural backgrounds can respond to medically and physically comparable pains

differently not just because their response is based on different conceptions about pain and pain behavior, but because they experience the pain differently in regard to its intentional character: The experiences of comparable low-back pains in Japanese and American patients were directed towards different kinds of attitudes and actions in virtue of their sociocultural backgrounds.³ This can happen because our nociceptive capacities for feeling pain are not exclusively determined through the evolutionary history, but are also shaped through the process of enculturation. Pain does not occur in a void. It is an embodied, habitual response that takes place in a particular sociocultural context. The enactive approach, therefore, leads to the hypothesis that embodied agents that are enculturated differently can respond to objectively similar noxious situations differently at the first-order level of pain experience.⁴

This approach to pain has a theoretical virtue that is lacking in the other mainstream approaches: It provides a unifying perspective on natural scientific and social/human scientific approaches to pain.⁵ The brain-body assumption dictates that environmental factors can only have external causal relations to pain experience as such. Accordingly, the mainstream approaches can only envisage pain experience as a subject of the natural sciences, which investigate its neural and bodily underpinnings. The enactive approach, on the other hand, conceives of pain experience as being both embodied and embedded. The intentional character of pain experience is determined jointly by neural, bodily, and environmental factors. Accordingly, it is necessary to coordinate both naturalistic and humanistic approaches to understand its underlying mechanism and develop a better method of intervention. In

3. Determining which aspects of the two cultures account for the difference is a tricky issue. Brena et al. (1990) speculates that Japanese patients might be responding to low back pains the way they do because of “the traditional stoicism” characteristic of oriental societies or because of the quantity of “psychosocial support for a chronic pain patient” available in the society (123). Such question can only be resolved empirically, and hence the current proposal is not committed to any specific answer.

4. It has been suggested by one of the reviewers that proponents of the mainstream approaches might draw on the notion of “cognitive penetration” to account for sociocultural effects on pain experience. To my knowledge, no one has attempted so far to develop representationalist or imperativist accounts of pain in this direction, but I believe this will be a fruitful enterprise for the proponents of this view. In the end, however, I am not convinced that this will allow them to accommodate the sociocultural embeddedness of pain. A full treatment of the issue lies beyond the scope of this paper, but briefly, the reason for this doubt has to do with the nature of sociocultural backgrounds. On a standard definition, ‘cognitive penetration’ is a phenomenon in which cognitive states (such as beliefs, desires, and intentions) affect the content of perceptual experience (Macpherson 2012; Stokes 2013). But an individual’s sociocultural background is not exhausted by a network of cognitive states (Searle 1983; Dreyfus 2012). Accordingly, I find it unlikely for the effect of the sociocultural background on pain to be fully explained in terms of cognitive penetration.

5. For more discussion, see Geniusas (2017).

short, pain is treated both as a natural and a sociocultural phenomenon in the scientific disciplines taken as a whole. That it is able to do justice to this fact is a virtue of the enactive approach, which makes a *prima facie* reason to prefer it to the mainstream approaches.

3. Is the experience itself immune to sociocultural influence?

One question that can be immediately raised against the enactive hypothesis of the sociocultural embeddedness of pain concerns the methodological limit of behavioral studies. It must be admitted that most studies on sociocultural influences on pain concern self-reports and behavioral responses, rather than the subjective experience as such. The example of low-back pain discussed above is not an exception. Why must we then believe that sociocultural factors can affect the first-order experience itself, rather than just affecting higher-order interpretations of pain that inform and guide ensuing pain-related behaviors?

There is a range of neuroscientific evidence, however, that works in favor of the enactive hypothesis—not unlike how it was the case for color perception. For example, Wiech et al. (2008) investigated the effects of religious faith on pain. They compared behavioral and neural responses to painful electrical stimulation between a group of practicing Catholics (religious subjects) and a group of atheists and agnostics (non-religious subjects). In the religious condition, the electrical stimulation was administered alongside an image with religious significance (“Vergine annunciate” by Sassoferrato). In the non-religious condition, it was administered with an image without religious connotations (“Lady with Ermine” by Leonardo da Vinci). The behavioral data consisted of subjective ratings of the intensity of the stimulation. Under the religious condition, the religious group, but not the non-religious group, gave significantly lower subjective ratings. Under the non-religious condition, there was no significant difference in the ratings. At the same time, the neuroimaging data confirmed that the brains of the religious subjects showed specific activation in the right ventrolateral prefrontal cortex (VLPFC) when presented with the religious image.

What do these results suggest? It is here important to note that right VLPFC is known from studies on placebo effects to be implicated in top-down cognitive modulation of the experience of pain (Wager et al. 2004; Tracey and Mantyh 2007). Placebo treatments, according to these studies,

bring about analgesic effects by altering expectations about the upcoming pain, which are underpinned by an increased activity in the right VLPFC (though not only in this brain region, see Scott et al. 2007). Based on these earlier findings, Wiech et al. (2008) argues that the religious subjects gave lower ratings to the intensity of the stimulation because they expected some pain relief from the presence of the religious image and this expectation changed the activity of brain regions responsible for the experience of pain. In other words, the suggestion is that religious backgrounds can affect an individual brain's responsiveness to noxious situations in such a way as to transform the first-order experience of pain.

Although this work is specifically focused on religious contexts, there is no reason to think that such effects are specific to religious aspects of the sociocultural background. One might indicate, however, that there is a tension between this conclusion and how the authors of this study understand their findings. According to Wiech et al. (2008), their “findings suggest that, in certain contexts, at least some religious believers can modulate their experience of pain and that such analgesic effects might be based on *cognitive reappraisal* of the negative emotional impact of pain via activity in the right VLPFC” (Wiech et al. 2008, 475, emphasis added). Taken at face value, this suggests that the cultural transformation of pain took place at the level of higher-order interpretation of its meaning: The religious subjects experienced the pain under the religious condition the same way they did under the non-religious condition (and as the non-religious subjects did under both conditions). But they rated the subjective intensity differently because they interpreted the meaning (“the negative emotional impact”) of the pain differently depending on the religious significance of the situation.

Does this mean that the study does not actually support the enactive hypothesis that pain depends on sociocultural contexts at the level of first-order experience? There are two reasons to reject this suspicion. The first reason has to do with a terminological issue. It is not uncommon in pain science to describe pain itself as a form of interpretation. For example, here is how an eminent researcher in pain science defines pain: “Pain is a conscious experience, *an interpretation of the nociceptive input* influenced by memories, emotional, pathological, genetic, and cognitive factors” (Tracey and Mantyh 2007, 377, emphasis added). On this terminology, interpretation is built into first-order experience. In fact, it is just another (somewhat misleading) way of saying that pain is already intentional or

meaningful without relying on further cognition. By saying that the pain experience is modulated by a “cognitive reappraisal” underpinned by activity in the right VLPFC, therefore, it is unlikely that the authors of the current study are indicating that the first-order experience of the religious subjects remains constant under the religious and non-religious conditions.

The second reason concerns the already noted fact that neural activities in the right VLPFC are implicated in placebo effects. Placebo effects are conditioned by the subject’s expectation about the analgesic effect of the placebo treatment. However, this does not mean that it only affects the character of one’s expectation of pain, leaving the expected pain experience itself untouched. Many agree that individuals under placebo conditions do not just interpret their pain less severely, but that they so experience it in the first place (Wager et al. 2004). At the brain level, there is much support to “the concept that prefrontal mechanisms [underpinning higher-order expectations] can trigger opioid release within the brainstem during expectancy *to influence the descending pain modulatory system and subsequently modulate pain perception*”(Tracey and Mantyh 2007, 382, emphasis added). I am not aware of any study that directly investigates whether religious contexts can alter the neural activity of endogenous opioid systems, that is, brain regions known to alter their activity both during opioid and placebo analgesia (Petrovic et al. 2002). The final verdict as to whether the religious background can alter pain experience as such, therefore, depends on future empirical research. Given the current state of knowledge, however, it is more consistent with the findings about placebo effects to interpret the religious effects on behavioral and neural responses identified by Wiech et al. (2008) as suggesting differences at the level of first-order experience of pain, rather than higher-order interpretations about it.⁶

4. Can pains be modelled on sentences?

Suppose we have agreed that pain is not immune to sociocultural influences even at the level of first-

6. Ongaro and Ward (2017) advances an enactive account of placebo effects, which is congruent with the enactive approach to pain advanced in this paper. On their account, placebo treatments can induce changes both in attentional and (even surprisingly) in somatic states, or they “afford healing” (522), because of “the meaning we perceive them to have in virtue of our history of enculturated embodied interaction, and the fact that being intentionally directed towards a meaningful structure in the environment is a bodily and affective relation that entrains specific somatic and attentional patterns” (527).

order experience; sociocultural factors can affect pain at the level of experience prior to any secondary interpretation of its meaning. Does this mean that we have now agreed to give up the brain-body assumption concerning the intentional character of pain as well? Not necessarily. One might think it possible to accept that pain experience is susceptible to sociocultural effects and still insist that there is a sense in which its intentional character is determined independently of these environmental factors.

This thought can be developed by elaborating the sentence model of pain: What a sentence means is not simply determined by its composing elements, but rather depends in part on background contexts. Even simple sentences such as, “The cat is on the mat,” can mean different things depending on the situational context in which they are uttered and understood (Searle 1983, 145). However, many think it possible—although not entirely uncontroversial—to distinguish the context-free, narrow meaning and the context-dependent, wide meaning of a sentence. The narrow meaning of a sentence is determined exclusively by its components, while the wide meaning is determined by the combination of the narrow meaning and the context. By so thinking, it becomes possible to understand why sentences like “The cat is on the mat,” can mean different things depending on the context, while there also is a sense in which they retain the same meaning across different cases of application.

One might then object to the hypothesis of sociocultural embeddedness by asking: Why cannot we apply the same distinction to explain the intentional character of pain? In fact, this proposal appears to achieve a nice compromise between the brain-body assumption and the sociocultural embeddedness hypothesis that follows from the enactive approach. On this hybrid account, the narrow meaning of a pain is determined exclusively by the information relationship between the brain and the body, but its wide meaning that characterizes the overall experience of pain also depends in part on the sociocultural context. Comparable low-back pains in Japanese and American patients, thus, have comparable intentional characters in the narrow sense, which may be elaborated either in representationalist or imperativist terms. Their overall experience of the pain, however, differs in their intentional character because of their different sociocultural backgrounds.

Enactivists, however, are not in a position to accept this compromise, which is still married to the

internalist assumption and hence entails that feeling pain is in essence a matter of instantiating a particular brain state. The enactive approach conceives of pain experience to be a kind of embodied response to a situation. In other words, this approach is externalist not only about the intentional character of pain, but also about the vehicle of the experience of feeling pain. Just as we cannot flick a fly without using our body, on this view, we cannot feel pain without putting our body in use. The compromise position, in contrast, accepts a form of “content externalism” about the intentional character of pain, without conceding the “vehicle internalism” characteristic of the mainstream philosophical approaches. But is there any independent reason to think that the compromise cannot be sustained—that is, any reason that does not appeal to the analysis that it is incompatible with the enactive approach?

There are two reasons to resist the comparison between pain and sentence and thus the explanation of the intentional character of pain in terms of narrow and wide contents. The first reason has to do with the compositional character of sentences. We can ascribe context-independent, narrow contents to sentences, despite the context-dependent character of their overall meaning, only because they are composed of discrete elements, i.e., individual words, which are supposed to preserve their semantic value across different contexts. However, there is no obvious sense in which pains are composed of such context-independent meaningful elements.

Proponents of representational or imperative theories might respond that we can think of phenomenal features of pain, such as its location (L), quality (Q), and intensity (I), as the context-independent elements in question. A representationalist might say, for example, that a pain expresses with these features indicative contents of the form: Body part (B) has some kind of disorder (D) in some degree of severity (S), where B, D, S are each represented by L, Q, I (see e.g., Bain 2003). An imperativist might say, in contrast, that these features express an imperative content of the form: Keep body part (B) from undergoing some event (E) with some level of priority (P), where B, E, P are each expressed in L, Q, I (see e.g., Klein 2015). Then one might suggest that these constitute the narrow contents of pain, which contribute to the wide content of the overall experience of pain embedded in certain sociocultural situations.

Now I will not deny that we probably *can* develop analyses of pain in these directions. In my

view, however, such analyses are already informed by the assumption that pains and sentences have comparable internal structures. Accordingly, they appear to be self-serving reconstructions of the phenomenon at issue, rather than genuine analyses of its structure. The best way to justify this is probably by presenting an alternative analysis that is more congruent with the phenomenon of interest. This brings me to the second reason for resisting the comparison between pains and sentences.

The second reason in question has to do with the diversity of the ways in which we experience pain. Understanding a sentence is a type of activity with an act-object structure. When we understand a sentence, it cannot but figure in our experience as a coherent object that expresses some meaning. The experience of feeling pain sometimes takes a similar form. For example, we can experience a low-back pain as a sign of injury or fatigue in the low-back, that is, as an object of awareness that expresses a meaningful content having to with the state of the body. To this extent, certainly, it is not entirely groundless to consider pain to be structurally comparable to sentences. It is important to notice, however, that this is not the only form in which pain experience can take place.

Saulius Geniusas argues based on a phenomenological analysis, “*pain is a stratified phenomenon that affects the embodied subject and that unfolds on three different levels of experience*” (Geniusas 2017, 346, emphasis in original). The first level is that of pre-reflective experience (Geniusas 2017, 337-8). Suppose you couldn’t concentrate on your work because of a low-back pain you have been having since morning. At some point of the day, you may have your attention drawn to the pain; you may even reflectively observe the pain in an attempt to understand what is going on in your body. Although the pain becomes the object of your attention only after this act of reflection, it is clear that the pain has not only been experienced, but has also been shaping your perception and action since before this reflective act takes place. In general, it seems that we can only reflect on experiences that were already in place prior to the reflective act. Accordingly, pre-reflective experience is arguably the primary form in which we experience pain.⁷

The second level is that of affective reflection (Geniusas 2017, 339-40). This form of pain experience typically occurs with severe cases of chronic pain. Unlike in the first level, in this form of

7. See also Sartre (2003) who discusses this idea of pain prior to reflective act illustrating it with the famous example of the sore eye (331-9).

pain experience, the pain stops guiding and shaping the patient's action; it simply leaves her with nothing but suffering. It does not affect her experience partially, such as by compromising her productivity in work, but by making it extremely difficult even to just continue her ordinary life. Frederik Buytendijk aptly describes the extreme character of this form of pain experience by denoting it as "the greatest pathos of chronic pain" (Buytendijk 1961, 130). In such a predicament, he says, "[w]e are surrendered to [the pain] without any means of defense, so utterly abandoned that we are no longer able to reach an equal footing with our pain, to respond by some act or purposeful expressive movement. We can only be 'brave' and resist collapse or tears when our pain impels us to 'capitulate' before ourselves" (Buytendijk 1961, 131). Finally, the third level is that of cognitive reflection (Genusas 2017, 340-1). In this form of pain experience, the pain is experienced as an object that expresses certain meaningful contents.

Given this phenomenological analysis, it is clear that the analogy between pain and sentence only applies to the cognitively reflective form of pain experience. Accordingly, the conceptual distinction between narrow and wide content, when applied to explain the intentionality of pain, fails to do justice to the pre-reflective and affectively reflective forms of pain experience, where the pain is not experienced as an object expressing some meaningful content.

The phenomenological analysis of the three levels or forms of pain experience does not only allow us to diffuse the objection from narrow and wide content. It also offers diagnoses to the mainstream philosophical theories of pain: In light of the current analysis, the fundamental problem of representationalism lies in its narrow focus on the cognitively reflective form of pain experience. The representational conception of pain as an object of awareness that indicates that something is the case with one's body surely has some footing in this form of experience. Given the stratified character of pain, however, we cannot assume that this conception plausibly applies to all kinds of pain. In contrast, imperativists emphasize the direct motivational link between pain and embodied action. The primary character of pain, according to imperativism, lies in its ability to motivate and guide actions without calling on any reflective deliberation. Accordingly, we can see imperativists as being more focused on the pre-reflective form of pain experience. Imperativists, however, fail to see that the

analogy between pain and sentence no longer holds good at this level of pain experience.⁸

How would the enactive approach account for the three forms of pain experience? For enactivists, they correspond to three distinct modes of embodied engagement with painful situations. The default mode of engagement is pre-reflective: Most of our embodied actions are unmediated by reflective deliberations. In the context of such engagements, pain occur to guide embodied actions without posing threat to the pre-reflective body-environment coupling. My low-back pain, for example, may make me change my posture without making me stop working on my laptop—or even without making me notice that I have changed my posture. These pre-reflective engagements may transform into cognitively reflective ones: We can start to do things by thinking reflectively about the situation or even our own body. In these modes of embodied engagement, pain can (though not necessarily) be experienced in the cognitively reflective form. If my low-back becomes overtired after long hours of writing, for example, the pain may develop its intensity such that my attention becomes strongly drawn to it. This will result in my experiencing the pain cognitively as a sensation telling me that my low-back is getting dangerously stiff or that I must stretch my back immediately. Sometimes, embodied engagements are not only transformed or interrupted, but almost disrupted by a strong affective tone. This is clearly visible in states of anxiety and depression, but it can also happen in relation to severe pain both of pathological and non-pathological kinds. For example, a severe headache may not just interrupt your daily activities in this or that aspect, but paralyze you as a whole making you unable to navigate the day at all. In these modes of engagement (or dis-engagement), pain is experienced in the affectively reflective form.

Determining how best to conceptualize these different modes of embodied engagement, as well as how they involve different forms of pain experience, is a task that cannot be completed in the current article. What I hope is clear is that there is no in-principle difficulty for the enactive approach to accommodate the phenomenological analysis which highlights the diverse forms of pain experience. Embodied engagement with the environment can unfold pre-reflectively or reflectively, and it can break down because of the affective state of the body. Accordingly, it is naturally expected from the enactive standpoint that pain experience should occur in these different forms.

⁸ For more discussion, see Miyahara “Coping with pain and obeying commands” (under review).

5. Conclusion

The mainstream approaches in philosophy of pain, representationalism and imperativism, share three theoretical assumptions, namely, the internalist assumption, the brain-body assumption, and the semantic assumption. I have argued that these assumptions should be rejected. The problem with the internalist and the brain-body assumptions concern the implication that environmental factors only play external causal role in relation to pain experience. This view is in tension not only with empirical studies in the human and social sciences that illuminate different forms of sociocultural effects on pain (§2), but also with neuroscientific evidence for the same effect (§3). The problem with the semantic assumption concerns the fact that it compares the experience of feeling pain with that of comprehending sentences. This comparison turns out to be defective in face of Geniusas' phenomenological study that clarifies how pain experience can take three different forms. At best, the semantic assumption applies only to the cognitively-reflective form of pain experience (§4).

I have also articulated an enactive approach to pain as an alternative. In opposition to the internalist assumption, the enactive approach conceives of pain as an aspect of embodied engagements with the situation (§2). In opposition to the brain-body assumption, it holds that the intentional character of pain is determined in part by the sociocultural background of the agent – a view I called the *hypothesis of the sociocultural embeddedness of pain* (§2). In opposition to the semantic assumption, it stops modeling pain on sentences. In fact, it refrains from reducing the intentionality of pain to any one specific form of intentionality. Rather, it proposes to make sense of the diverse forms of pain experience in terms of the diverse forms of embodied engagement (§4).

Admittedly, there is much more to be said and considered both to elaborate the critical assessment of the theoretical assumptions of the mainstream approaches and to develop the alternative, enactive approach to pain. But I hope enough has been said to demonstrate the necessity of a more thorough examination of the foundations of contemporary philosophy of pain and also to prepare the ground for a more full-fledged treatment of the topic from the enactivist perspective.

Acknowledgements

An earlier version of this paper was presented at the conference “Enactivism: Theory and Performance” at University of Memphis. I thank the audience for the helpful feedbacks on the presentation. I also thank Hayden Kee for reading and commenting on the manuscript. This work was funded by the ARC DP project “Minds in Skilled Performance: Explanatory Framework and Comparative Study” (DP170102987).

References

- Alabas, O., Tashani, O., Tabasam, G., & Johnson, M. (2012). Gender Role Affects Experimental Pain Responses: A Systematic Review with Meta-Analysis. *European Journal of Pain*, *16*(9), 1211-23.
- Bain, D. (2003). Intentionalism and Pain. *Philosophical Quarterly*, *53*(213), 502-23.
- Brena, S. F., Sanders, S. H., & Motoyama, H. (1990). American and Japanese Chronic Low Back Pain Patients: Cross-Cultural Similarities and Differences. *The Clinical Journal of Pain*, *6*, 118-24.
- Buytendijk, F. J. J. (1961). *Pain* (E. O’Shiel, Trans.). London: Hutchinson & Co.
- Callister, L. C. (2003). Cultural Influences on Pain Perceptions and Behaviors. *Home Health Care Management & Practice*, *15*(3), 207-11, doi:10.1177/1084822302250687.
- Colombetti, G. (2014). *The Feeling Body: Affective Science Meets the Enactive Mind*. Cambridge, MA: MIT Press.
- Cutter, B. & Tye, M. (2011). Tracking Representationalism and the Painfulness of Pain. *Philosophical Issues*, *21*, 90-109. doi:10.1111/j.1533-6077.2011.00199.x
- De Jaegher, H., & Di Paolo, E. (2007). Participatory Sense-Making. *Phenomenology and the Cognitive Sciences*, *6*(4), 485-507.
- Dretske, F. (1999). The Mind's Awareness of Itself. *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition*, *95*(1-2), 103-24.
- Dreyfus, H. L. (2012). Introductory Essay: The Mystery of the Background qua Background. In Z. Radman (Ed.), *Knowing without Thinking* (pp. 1-10). London: Palgrave Macmillan.
- Edwards, C. L., Fillingim, R. B., & Keefe, F. (2001). Race, Ethnicity and Pain. *Pain*, *94*(2), 133-7.

- Filligim, R. B., King, C. D., Ribeiro-Dasilva, M. C., Rahim-Williams, B., & Riley III, J. L. (2009). Sex, Gender, and Pain: A Review of Recent Clinical and Experimental Findings. *The Journal of Pain*, 10(5), 447-85.
- Fuchs, T. (2017). *Ecology of the Brain: The Phenomenology and Biology of the Embodied Mind*. Oxford: Oxford University Press.
- Gallagher, S. (2017). *Enactivist Interventions: Rethinking the Mind*. Cambridge, MA: MIT Press.
- Genusas, S. (2017). On Pain, Its Stratification, and Its Alleged Indefinability. *Gestalt Theory*, 39(2/3), 331-48. doi: 10.1515/gth-2017-0023
- Green, C. R., Anderson, K. O., Baker, T. A., Campbell, L. C., Decker, S., Filligim, R. B., et al. (2003). The Unequal Burden of Pain: Confronting Racial and Ethnic Disparities in Pain. *Pain Medicine*, 4(3), 277-94.
- Hall, R. J. (2008). If It Itches, Scratch! *Australasian Journal of Philosophy*, 86(4), 525-35.
- Hutto, D. D. (2012). Exposing the Background: Deep and Local. In Z. Radman (Ed.), *Knowing without Thinking* (pp. 37-56). London: Palgrave Macmillan.
- Hutto, D. D., Gallagher, S., Ilundáin-Agurruza, J., & Hipólito, I. (forthcoming). Culture in Mind - An Enactivist Account: Not Cognitive Penetration But Cultural Permeation. In L. J. Kirmayer, S. Kitayama, C. M. Worthman, R. Lemelson, & C. A. Cummings (Eds.), *Culture, Mind, and Brain: Emerging Concepts, Models, Applications*. Cambridge: Cambridge University Press.
- Hutto, D. D., & Myin, E. (2017). *Evolving Enactivism: Basic Minds Meet Content*. Cambridge, MA: MIT Press.
- Klein, C. (2007). An Imperative Theory of Pain. *Journal of Philosophy*, 104(10), 517-32.
- Klein, C. (2015). *What the Body Commands: The Imperative Theory of Pain*. Cambridge, MA: MIT Press.
- Lipton, J. A., & Marbach, J. J. (1984). Ethnicity and the Pain Experience. *Social Science & Medicine*, 19(12), 1279-98.
- Macpherson, F. (2012). Cognitive Penetration of Colour Experience: Rethinking the Issue in Light of an Indirect Mechanism. *Philosophy and Phenomenological Research*, 84(1), 24-62.
- Martínez, M. (2011). Imperative Content and the Painfulness of Pain. *Phenomenology and the*

Cognitive Sciences, 10(1), 67-90.

Martínez, M., & Klein, C. (2016). Pain Signals Are Predominantly Imperative. *Biology & Philosophy*, 31(2), 283-98. doi: 10.1007/s10539-015-9514-y

Miller, C., & Newton, S. E. (2006). Pain Perception and Expression: The Influence of Gender, Personal Self-Efficacy, and Lifespan Socialization. *Pain Management Nursing*, 7(4), 148-52.

Nayak, S., Shiflett, S. C., Eshun, S., & Levine, F. M. (2000). Culture and Gender Effects in Pain Beliefs and the Prediction of Pain Tolerance. *Cross-Cultural Research*, 34(2), 135-51.

Noë, A. (2004). *Action in Perception*. Cambridge, MA: MIT press.

Ongaro, G., & Ward, D. (2017). An Enactive Account of Placebo Effects. *Biology & Philosophy*, 32(4), 507-33, doi:10.1007/s10539-017-9572-4.

Petrovic, P., Kalso, E., Petersson, K. M., & Ingvar, M. (2002). Placebo and Opioid Analgesia--Imaging a Shared Neuronal Network. *Science*, 295(5560), 1737-40.

Regier, T., & Kay, P. (2009). Language, Thought, and Color: Whorf Was Half Right. *Trends in Cognitive Sciences*, 13(10), 439-46.

Rippentrop, A. E., Altmaier, E. M., Chen, J. J., Found, E. M., & Keffala, V. J. (2005). The Relationship between Religion/Spirituality and Physical Health, Mental Health, and Pain in a Chronic Pain Population. *Pain*, 116(3), 311-21.

Sartre, J.-P. (2003). *Being and Nothingness: An Essay on Phenomenological Ontology* (H. E. Barnes, Trans.). London: Routledge.

Scott, D. J., Stohler, C. S., Egnatuk, C. M., Wang, H., Koeppe, R. A., & Zubieta, J.-K. (2007). Individual Differences in Reward Responding Explain Placebo-Induced Expectations and Effects. *Neuron*, 55(2), 325-36.

Searle, J. R. (1983). *Intentionality: An Essay in the Philosophy of Mind*. Cambridge: Cambridge University Press.

Stokes, D. (2013). Cognitive Penetrability of Perception. *Philosophy Compass*, 8(7), 646-63.

Thierry, G., Athanasopoulos, P., Wiggett, A., Dering, B., & Kuipers, J.-R. (2009). Unconscious Effects of Language-Specific Terminology on Preattentive Color Perception. *Proceedings of the National Academy of Sciences*, 106(11), 4567-70.

- Thompson, E. (2007). *Mind in Life: Biology, Phenomenology, and the Sciences of the Mind*.
Cambridge, MA: Harvard University Press.
- Tracey, I., & Mantyh, P. W. (2007). The Cerebral Signature for Pain Perception and Its Modulation.
Neuron, 55(3), 377-91.
- Tye, M. (1995a). A Representational Theory of Pains and Their Phenomenal Character. *Philosophical Perspectives*, 9, 223-39. doi:10.2307/2214219
- Tye, M. (1995b). *Ten Problems of Consciousness: A Representational Theory of the Phenomenal Mind*. Cambridge, MA: MIT Press.
- Tye, M. (2005). Another Look at Representationalism about Pain. In M. Aydede (Ed.), *Pain: New Essays on Its Nature and the Methodology of Its Study* (pp. 99-120). Cambridge, MA: MIT Press.
- Varela, F., Thompson, E., & Rosch, E. (1991). *The Embodied Mind: Cognitive Science and Human Experience*. Cambridge, MA: MIT Press.
- Wachholtz, A. B., Pearce, M. J., & Koenig, H. (2007). Exploring the Relationship between Spirituality, Coping, and Pain. *Journal of Behavioral Medicine*, 30(4), 311-8.
- Wager, T. D., Rilling, J. K., Smith, E. E., Sokolik, A., Casey, K. L., Davidson, R. J., et al. (2004). Placebo-Induced Changes in fMRI in the Anticipation and Experience of Pain. *Science*, 303(5661), 1162-7.
- Wiech, K., Farias, M., Kahane, G., Shackel, N., Tiede, W., & Tracey, I. (2008). An fMRI Study Measuring Analgesia Enhanced by Religion as a Belief System. *Pain*, 139(2), 467-76.
- Winawer, J., Witthoft, N., Frank, M. C., Wu, L., Wade, A. R., & Boroditsky, L. (2007). Russian Blues Reveal Effects of Language on Color Discrimination. *Proceedings of the National Academy of Sciences*, 104(19), 7780-5.
- Zborowski, M. (1952). Cultural Components in Responses to Pain. *Journal of Social Issues*, 8(4), 16-30.