Pain as Perception
- A Representational-Imperative Account of Pain Sensations -

지각으로서 고통

2018 년 02 월

서울대학교 대학원

철학과 서양철학 전공

Thomas Park
For my wife
Abstract

Pain as Perception.
- A representational-imperative account of pain sensations -

Thomas Park

Department of Western Philosophy
The Graduate School
Seoul National University

The main claim of my PhD thesis is that bodily pain sensations are perceptual states on a par with perceptual experiences created by sense modalities such as vision or olfaction. By means of pain experiences we gain some objective information about our own body. Pain thus does not consist merely in a subjective phenomenal quality which allegedly tells us nothing about the world. I adopt a strong intentionalist view, and reason that especially the ability to locate pain sensations militates in favor of the claim that pains at least represent that something is happening at a certain place of one’s body. Defending that (actual or potential) bodily damage and pain are well correlated, and that pains are always unpleasant, I moreover argue that we can best explain phenomena associated with pain if we ascribe to our pain sensations the representational content that a certain part of one’s body is actually or potentially damaged, and the imperative content not to have this bodily state (with such and such urgency). While the unpleasantness of pain may seem to exclude pain from being a perceptual state, I argue that such an impression is based on the false belief that our standard perceptual states have no inherent hedonic tone to them, and are
thus motivationally inert. I argue against such an externalist account by showing that many of our standard perceptual states are experienced as either pleasant or unpleasant. I defend my representational-imperative account against alternative accounts suggested by Tyler Burge, Murat Aydede, David Bain, Colin Klein, and Richard Gray.

Keywords: Pain, Perception, Representationalism, Intentionalism, Unpleasantness, Perceptual Content, Imperative Content, Appearance-Reality Distinction

Student Number: 2010-31282
# Table of Contents

Abstract ................................................................................................................................. i

Introduction ............................................................................................................................. 1

Chapter 1: How to define pain and sense perception ............................................................. 5

1. The affective, intensive, and perceptual accounts of pain ............................................. 5
2. The adopted definition of pain ......................................................................................... 12
3. The common phenomenology of pain sensations ......................................................... 15
4. Pain as an experience with two components ................................................................. 21
5. Defining sense perception ............................................................................................... 26
6. Defending the conditions for sense perception ............................................................ 32
7. Strong intentionalism as a way to naturalize phenomenal consciousness... 37
8. Summary of chapter 1 ..................................................................................................... 43

Chapter 2: Pain sensations are perceptual states ............................................................... 46

1. Bodily damage as something we interoceptively perceive ........................................... 46
2. Bodily damage is not always experienced as pain ......................................................... 50
3. The appearance-reality objection .................................................................................. 59
4. Murat Aydede’s argument from focus ......................................................................... 60
5. Summary of chapter 2 ..................................................................................................... 72

Chapter 3: Defending the perceptual account of pain against Burge’s qualms................. 74

1. Burge’s criteria for perceptual representation ............................................................... 77
2. When to attribute representational states ...................................................................... 81
3. Human olfaction as a perceptual system ...................................................................... 87
4. The localization of pain ................................................................................................. 101
5. Summary of chapter 3 ..................................................................................................... 115
Chapter 4: The unpleasantness and motivational force of pain

1. The necessity and the universality thesis ........................................... 121
2. Alleged counterexamples to the universality thesis .................................. 125
   2.1. Spiciness............................................................................................. 125
   2.2. Episodic analgesia................................................................................ 127
   2.3. Lobotomy pain, morphine pain, and motivation.................................. 129
   2.4. Pain asymbolia...................................................................................... 147
3. Affect in standard perceptual experiences.................................................... 154
4. Summary of chapter 4.................................................................................. 159

Chapter 5: Pain and its representational-imperative content

1. Pain as experiences with two kinds of contents......................................... 163
2. How to determine the contents of (pain) experiences .................................. 165
3. Accounting for the unpleasantness of pains................................................. 168
4. Why pains do not have only one kind of content........................................ 179
5. Still, could we do without imperative content?............................................ 189
6. Summary of chapter 5.................................................................................. 193

Conclusion........................................................................................................ 194

References......................................................................................................... 196

한국어 초록 ....................................................................................................... 207

Acknowledgements .......................................................................................... 209
Introduction

When we get hurt, sick or suffer from problems like cavities, we often feel an unpleasant sensation in a certain part of our body. The main thesis in this work is that when we thus feel bodily\(^1\) pain, this experience is on a par with perceptual experiences created by sense modalities such as vision or olfaction. Saying that pain sensations are perceptual states *inter alia* entails that we thereby gain some objective information about the world rather than undergoing merely a subjective feeling which, by itself, does not tell us anything about the world.

That pain is a perceptual state has been advocated *inter alia* by Karl Dallenbach (1939) in the late 30s, David M. Armstrong (1962, 1968) and George Pitcher (1970b) in the late 60s of the last century, and recently by Richard Hall (1989, p. 644), Sydney Shoemaker (1994, p. 302), Michael Tye (1995a), Christopher Hill (2005), Moreland Perkins (2005), and David Bain (2007). However, philosophers like H.P. Grice (1962), Peter Hacker (1990, 2003, 2007), Murat Aydede (2009), Tyler Burge (2010, 2014), Arthur David Smith (2011), and Richard Gray (2014) directly criticize the perceptual view, and as far as I know, most of their arguments have not yet been countered in a satisfying way. I will deal with most of their objections, and argue that the representational-imperative view I adopt is superior to recently proposed

---

\(^1\) In my thesis I focus on what I call “bodily” pain in contrast to “emotional” pain, the latter designating suffering due to disappointment, loss, and the like. Giving an overall account of pain which includes cases of emotional pain is something I might take up in the future. But this would make this PhD thesis even longer, so I will not go further into this.
alternative accounts of pain, such as those of David Bain (2003, forthcoming-a, forthcoming-b) and Colin Klein (2015).

This work consists of five chapters. Chapter 1 deals mainly with issues concerning the definition of pain and sense perception. Based mostly on empirical findings concerning the neural systems which are responsible for producing our pain sensations, I argue that we should reject affective and intensive accounts of pain, and focus on perceptual accounts and how they define pain. I adopt Murat Aydede’s modified version of the IASP definition of pain, and defend its assumption that pain sensations share a common phenomenology. In the fourth section of chapter 1 I present neurological studies which suggest that pain sensations are processed in two different neural pathways, that they consist in a sensory-discriminatory component and an affective-motivational component, and that activation of both components is necessary and sufficient to produce sensations which we identify as pain sensations on a phenomenological basis. I also propose necessary and sufficient conditions for perceptual experiences, and defend my proposal. At the end I will explain what motivates me to adopt an intentionalist account of pain, and why I commit myself to a strong version of intentionalism.

In chapter 2 I show that pain is not simply the passive noticing of noxious stimuli detected by the respective sensory receptors, but partly depends on higher cognitive processes. This does not exclude pain sensations from being perceptual states because the same happens in traditional perceptual modalities (a phenomenon called cognitive penetration). Other cases where pain and bodily damage dissociate will be accounted for as malfunctions of the nociceptive system. In sections 3 and 4 I counter two popular objections to a perceptual account of pain. Many philosophers think that
pain cannot be a perceptual state because there is no appearance-reality distinction regarding pain. I will demonstrate that this objection is based on a category mistake, and that there is an appearance-reality distinction regarding pain, namely between the appearance of (actual or potential) bodily damage, viz. pain, on the one hand, and the actual damage (or threat therefore) on the other hand. In section four I argue that the verb “perceive” and its particular instances (“see”, “hear”, etc.) are ambiguous, and that this is why, pace Aydede, our perceptual reports do not always imply factual claims about non-mental objects and/or their objective properties. Sometimes we merely refer to our subjective experiences. Accordingly, our (standard) perceptual reports are not always withdrawn in the face of counter-evidence. Pace Aydede, I moreover argue that there are cases in which we even withdraw pain reports. At the end I offer a (speculative) explanation of why we do not express perceptual reports of (potential) bodily damage in objectivist, but in mental terms.

Chapter 3 deals with Tyler Burge’s influential representational account of perception and his reasons to deny that pain sensations provide objective information about the world. I give the most plausible interpretation of what Burge at times merely indicates, and thus work out his criteria for attributing a representational (and thus perceptual) status to certain experiences. I argue that Burge is wrong in excluding olfactory experiences as well as pain sensation from being perceptual states. In particular, I argue that the fact that pain sensations, unlike for example emotions, are located strongly militates in favor of a perceptual view of pain.

Chapter 4 will pave the way for the intentionalist account of pain I adopt in chapter 5, and at the same time reject another objection to perceptual accounts of pain, namely the objection that pains cannot be perceptual states because they are
inherently unpleasant and inherently motivate appropriate behavior. I will discuss in length the various abnormal pain phenomena that have been used to show that there are pains that are not unpleasant, and reject them as inconclusive. But despite the fact that pains are always unpleasant, pains can nonetheless be treated as perceptual states because it will turn out that a lot of our traditional perceptual states too are inherently pleasant or unpleasant, and motivate us to act accordingly. Rather than excluding pains from being perceptual, it will thus be shown that we have to overcome some stereotypes about (standard) perceptual states.

In chapter 5 I will present and defend my representational-imperative account of pain according to which pain sensations have the representational content that a certain part of one’s body is actually or potentially damaged, and the imperative content which consists in a desire-like state that tells you not to have this bodily state (with such and such urgency). Such a view has already been introduced, but my contribution consists in spelling out why this view is superior to single content views, how the contents are determined, and why we should attribute exactly these contents to pain sensations.
Chapter 1: How to define pain and sense perception

1. The affective, intensive, and perceptual accounts of pain

In the first chapter I lay the groundwork for my account of pain sensations. This and the following two sections will deal with the definition of pain. The definition I aim at is a so-called real definition as opposed to a nominal (or conceptual) one (see Gupta 2015). That is, in defining pain, I am interested not in what the term “pain” means, but in what pain consists in. Accordingly, I will not conduct a conceptual analysis of “pain”, partly because “pain” is used for all kinds of unpleasant events (see chapter 4 section 1). Adopting a definition suggested by pain scientists I will rather investigate whether this definition can do justice to the various phenomena associated with pain.

Very broadly, philosophers and physiologists came up with three very different conceptions of pain. The affective account of pain has been ascribed to Aristotle (Dallenbach 1939, p. 331; Perl & Kruger 1996, p. 179; Bonica & Loeser 2001, pp. 4-5). According to this view, pain is not a perceptual state on a par with the five traditional senses, but a passion opposite to pleasure. This account fell out of favor after specific nerves for noxious, that is, tissue damaging stimuli which ordinarily correlate with pain sensations have been found (see below), while physiologists failed to discover distinct nerves for pleasure. Thereafter, contemporary theories of affection contrast pleasure with unpleasantness (or displeasure) rather than pain (see for example Carruthers 2017).

---

2 I am grateful to Jinho Kang for pointing to the distinction inter alia made by Gupta.
The second account is the *intensive* account of pain, advocated *inter alia* by Erasmus Darwin (1794), Wilhelm Erb (1874, pp. 13-14), and Richard Gray (2014). According to the early proponents of this view, pain is a concomitant of a sufficiently intense stimulation of the sensory receptors of the *standard* senses. This account was based mainly on the finding that we usually experience pain if we are exposed to tactile or thermal stimuli which exceed a certain intensity, for example 45° C in the case of thermal stimuli. However, such an account of pain has been empirically falsified. As written above, it is now established that there are *specific* sensory receptors for noxious stimuli.

Among the many fibers that innervate the skin, Burgess and Perl identified relatively fast conducting (<30 m/sec), myelinated A fibers which respond to strong mechanical stimuli (heavy pressure, touch, or stretch). A fibers also respond to heat and chemical stimuli, and therefore count as polymodal. Likewise around half of the unmyelinated, and therefore more slowly conducting (~2 m/sec) C fibers respond either to strong mechanical, heat or chemical stimuli, or only to strong mechanical stimuli, but *not* to innocuous cooling and gentle mechanical stimuli. Moreover, it is

---

4 Some proponents of the intense theory of pain assumed that the stimulation of standard sensory receptors above a certain *frequency* could also result in pain. For example, in 1889 internist and pathologist Bernhard “Naunyn found, in cases of tabes dorsalis, that a mechanical stimulus (a hair for example) that was below the threshold for touch or pain, when applied repeatedly from 60-600 times a second, yielded in a few seconds (from 6-20) a pain which soon became unbearable. Since he obtained similar results with other stimuli (electrical for example), he concluded that pain was the result of summation.” (Dallenbach 1939, p. 339) – However, such pain seems partly to depend on the *tabes dorsalis* (a slow degeneration, specifically demyelination, of the nerves primarily in the dorsal columns of the spinal cord – the portion closest to the back of the body – as an effect of an advanced syphilis infection), and is therefore better classified as pain due to malfunctioning nerves rather than the effect of a functioning sensory system.
5 Nociceptors respond also to *cold* stimuli. Whether and how A and C *cutaneous* nociceptors encode stimuli that induce pain due to coldness is controversial. Some of these nociceptors possess a cation channel that has an activation threshold (17.5°C) comparable to the cold pain
now widely held that cutaneous receptors that respond to non-noxious stimuli, including the low-threshold C fibers that react to innocuous mechanical stimuli, do not transmit information indicative of noxious stimulation (Perl & Kruger 1996, p. 192). Against the hypothesis that information about noxious stimuli is processed by the same nerves that process tactile stimulation, physiologist Moritz Schiff showed as early as 1858 that pain sensations can occur independently from tactile sensations, and vice versa. In the 30s of the last century, American experimental psychologist Karl M. Dallenbach states that the pains resulting from extreme heat or pressure are caused by the co-excitation of other nerves rather than those of the standard senses:

contrary to the views of the intensive theorists, excessive stimulation of the special senses does not yield pain when the effect is limited to the organ concerned [for example, to the warmth, cold, or pressure receptors]. For example: if the retina is stimulated, however intensely, it yields not pain but light [sensations]. If proximal regions are stimulated simultaneously, pain results, but only because those extra-retinal regions are themselves capable of yielding pain. As with vision so also with audition, smell and taste. Excessive stimulation of any of the special senses does not yield pain unless the effects involve tissues that are themselves supplied with pain nerves. (Dallenbach 1939, p. 341)

In the light of these findings, the original version of the intense theory of pain became untenable. Nonetheless, Richard Gray (2014) has advanced a Neo-Intensive Theory threshold (~14°C on hairy skin) which might be responsible for signaling cold pain sensations. However, there is also some evidence that cold pain sensations might be evoked by vascular nociceptors rather than by nociceptors in the superficial layers of the skin. A study showed that cold pain sensations can be generated by cold stimuli applied within the veins of human subjects, and that these sensations vanish if a local anesthetic is applied within the vein, but not in the overlying skin (see Ringkamp, Raja, Campbell & Meyer 2013, pp. 10-11; Klement & Arndt 1992).

6 “Noting the effects of various incisions in the spinal cord [of dogs], he [Schiff] found that pain and touch were independent. When he cut through the gray matter, pain could not be aroused below the level of the incision while touch was left intact; when he cut through the white matter, but not the gray, touch was lost, but pain remained.” (Dallenbach 1939, pp. 336-337). – Shortly after Schiff, Brown-Séquard (1860) found “[s]imilar dissociations in people and animals […], including alterations in the reaction to light touch compared to pin prick in advanced cases of syphilis.” (Perl & Kruger 1996, p. 181).
of Pain. He accepts that we possess specific nociceptors, but denies that this is sufficient to make the nociceptive system a sense modality. As will be seen further below in this chapter, I agree that specific sensory receptors are (necessary, but) not sufficient for perception. However, Gray makes another, more controversial claim. According to him, the function of perception is

to process information from the specific stimuli to which they are receptive in order to inform us about related properties of other things. Vision processes information from electromagnetic waves in order to inform us about the colour and brightness of the things we see around us. Audition processes information from pressure waves in order to inform us about the pitch and loudness of the sounds we hear around us. However, [...] nociception contrasts with paradigmatic sensory modalities in being receptive to several different types of stimuli and nociceptive experiences contrast with paradigmatic perceptual experiences in having diverse causes. These differences indicate that it is not the primary function of nociception to process information from physical stimuli in order to inform us about related properties of something else, as it is of the paradigmatic senses. [By contrast, t]he intensive theory holds that nociception detects a single aspect of the various types of physical stimuli themselves” (2014, p. 93, italics added),

namely the fact that they exceed a certain intensity.

If we analyze Gray’s argument, we can see that his rejection of perceptual accounts of pain rests on two claims. First, Gray implicitly claims that

(i) paradigmatic sensory modalities are only receptive to a single type of (proximal) stimulus

and implicitly infers that
a neural system with specific sensory receptors is a sensory modality
only if the system is receptive to a single type of (proximal) stimulus.\(^7\)

Gray’s argument thus goes like this: because nociceptors respond to three different
types of (proximal) stimuli, namely strong mechanical, heat and certain chemical
stimuli, nociception, that is, the detection and neural processing of noxious stimuli
which usually yields pain sensations, does not satisfy (ii). Hence, nociception is not
a sense modality, and perceptual accounts of pain get it wrong.

Second, Gray distinguishes between the stimuli which activate the sensory receptors
of a sense modalities and the properties we thereby detect, that is, the properties a
sense modality informs us about. This is a common distinction often expressed in
terms of “proximal” and “distal” stimulus. The proximal stimulus consists in
whatever it is that directly stimulates the sensory organ (for example electromagnetic
or pressure waves), whereas the distal stimulus consists in the object or event which
the subject thereby perceives (for example a seashell or a sound) (see Macpherson
2011, p. 9).\(^8\) Another necessary condition for perception implicit in Gray’s argument
then is:

\(^7\) Maybe Gray got inspired by John Heil who suggests these conditions for sense modalities,
and argues, similar to Gray’s challenge of a nociceptive sense modality, that proprioception
does therefore not seem to be a distinct sense modality (1983/2011, p. 153).
\(^8\) The definition of “distal stimulus” is non-substantial though because different parties will
identify different things with the object or event which the subject thereby perceives. For
example, it is controversial whether the object we perceive by vision is, for example, the
seashell or its surface, or whether the object/event we perceive by audition is a sound or its
sound source. Those philosophers whose verdicts are based on their (phenomenological)
experiences tend to say that we see surfaces and hear sounds. By contrast, philosophers who
hold a realist view and assume that our senses evolved in order to detect mind-independent
objects and events will say that we see three-dimensional substances (with the notable
exception of rainbows, shadows, and other pure visibilia) and hear events (that is, the sources
of sounds).
Moreover, at least for some sense modalities, it does not seem to be the case that a proximal
stimulus is a medium by means of which we perceive something else. Consider for example
(iii) a neural system with specific sensory receptors is a sensory modality only if the system informs us about the properties of a distal stimulus.

Hence, even though one could construe Gray’s account of pain as saying that nociception does inform us about a property, namely the property of exceeding a certain intensity, this would be a property of proximal stimuli, not a property of distal stimuli. The nociceptive system thus does not satisfy (iii). Consequently, nociception is not a sensory modality, and pain is not a perceptual state which tells us something about the world.

I believe that Gray’s assumption (i) and (ii) are problematic. For example, if touch is a paradigmatic sensory modality, then (i) is false because touch is receptive to various kinds of stimuli, such as pressure, vibration, or distention. In hairless mammalian skin there are four main types of mechanoreceptors, and these respond to different kinds of stimuli.\(^9\) Of course, Gray might deny that what we traditionally call “touch” consists in one sense modality, and argue that is a multimodal sensory system which subsumes various sensory modalities. But even if we ponder on the paradigmatic sense modality, viz. vision, (i) might turn out to be false. This depends on how we individuate proximal stimuli. For what counts as a single type of stimulus is much less evident than Gray’s argument presumes. According to Gray, the

---

touch. When you touch a wall or squeeze a rubber in your hand, pressure is a proximal stimulus by means of which you perceive the texture of the wall, or the elasticity of a rubber, that is, properties of external objects. By contrast, when you are touched on your arm, you perceive pressure on your arm, that is, a property of your body (your arm being pressed). Matthew Fulkerson classifies the former experiences as object directed, and the latter as body directed (2014, pp. 8-9). It is questionable whether the distinction between proximal and distal stimulus can be applied to body directed tactile experiences.

\(^9\) The lamellar corpuscles (Pacinian corpuscles) detect rapid vibrations, tactile corpuscles (Meissner corpuscles) respond to light touch, and adapt rapidly to changes in texture, bulbous corpuscles (Ruffini endings) detect tension deep in the skin and fascia, and Merkel nerve endings (Merkel discs) detect sustained pressure.
(proximal) stimuli of our visual sense are electromagnetic waves, but waves of which spectrum? Does Gray consider the whole spectrum of electromagnetic radiation to constitute one kind of stimulus, including gamma rays, X-rays, UV, IR, microwaves, and radio waves? Or does he want to limit the proximal stimulus of (human) vision to the portion of the electromagnetic radiation spectrum that is visible to human beings, that is, to electromagnetic waves roughly between 380 and 750 nanometers? In the latter case, electromagnetic waves between 380 and 750 nanometers are one kind of stimulus, waves between, say, 700 and 100000 nanometers (infrared radiation, short “IR”) are another. Prima facie, the latter position seems counterintuitive because it divides stimuli within a continuous scale into portions based on how these portions are processed. However, it turns out that indeed this is how we sometimes individuate stimuli. For example, the fact that some snakes have two sense organs, namely one which is sensitive to IR and a different one for “vision” (viz. their eyes), suggests that they receive information from two different kinds of stimuli. But if we allow that electromagnetic waves of different wavelengths constitute different kinds of stimuli based on how the corresponding information is used, the criterion of particular types of (proximal) stimuli cannot be used for deciding whether a neural system is a sense modality. Assumption (ii) would beg the question because what counts as a particular type has been determined based on considerations about what counts as a sense modality, for example, based on assumptions about sense organs.

In addition, (ii) can be directly challenged. Why should we a priori rule out that a neural system informs us about an object or event if that object or event correlates well (or used to correlate well) with various proximal stimuli? If, for example,
(actual or potential) tissue damage stands in such a relation to the strong thermal, mechanical, and chemical stimuli that stimulate nociceptors, then it is not implausible to construe (actual or potential) tissue damage as the distal object that nociception informs us about (by means of pain sensations). If this is on the right track, and I believe that it does, then we can vindicate a perceptual account of pain according to which the experience of pain is realized by a system of specific nerve fibers which informs us about something in the world (including our own bodies).

2. The adopted definition of pain

Now that we made clear why a perceptual account of pain is to be preferred over an affective or intense account, we can focus on defining pain. I will first present three standard definitions suggested by pain scientists, highlight what they have in common, and adopt a modified version of the most established one.

Among the following three definitions of pain, definition (A) is offered by the International Association for the Study of Pain (IASP) committee, while definitions (B) and (C) are given by some leading neurologists working on pain and its underlying neural mechanisms.

(A) [Pain is a]n unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.

Note: Pain is always subjective. Each individual learns the application of the word through experiences related to injury in early life. Biologists recognize that those stimuli which cause pain are liable to damage tissue. Accordingly, pain is that experience we associate with actual or potential tissue damage. It is unquestionably a sensation in a part or parts of the body, but it is also always unpleasant and therefore also an emotional experience. Experiences which resemble pain but are not unpleasant, e.g., pricking, should not be called pain. Unpleasant abnormal experiences (dysesthesias) may also be
pain but are not necessarily so because, subjectively, they may not have the usual sensory qualities of pain.

Many people report pain in the absence of tissue damage or any likely pathophysiological cause; usually this happens for psychological reasons. There is usually no way to distinguish their experience from that due to tissue damage if we take the subjective report. If they regard their experience as pain and if they report it in the same ways as pain caused by tissue damage, it should be accepted as pain. This definition avoids tying pain to the stimulus. Activity induced in the nociceptor and nociceptive pathways by a noxious stimulus is not pain, which is always a psychological state, even though we may well appreciate that pain most often has a proximate physical cause. (IASP Committee on Taxonomy 1979, p. 250)

(B) Pain is an acute signal of impending or actual tissue damage, which impels protection of an injured site and other behaviors that foster healing and functional restoration. (Portenoy 1996, p. 343)\(^{10}\)

(C) Pain is a distressing experience associated with actual or potential tissue damage with sensory, emotional, cognitive, and social components. (Williams and Craig 2016, p. 2420)

These definitions have in common that pain is defined as “a signal of” or as “associated with” (actual or potential) tissue damage. Moreover, pains are defined either directly as having a negative valence (“unpleasant”, “distressing”) or indirectly, if my hypothesis UNM is correct (see chapter 4 section 2.3), when described as motivating (“impels”) protective behavior. Which definition should we adopt? I adopt Aydede’s modified version of the IASP definition according to which pain is an

(D) unpleasant sensory […] experience that […] results from actual or impending tissue damage, or is sufficiently similar to one such. (Aydede 2017, p. 454; square brackets are mine)

\(^{10}\) Neurologist Russell K. Portenoy later adds that pain is “the perception of nociception, which may or may not be proportionate to the conscious sensory experience of tissue injury. Similar to other perceptions, pain is determined by more than the activity induced in the sensorineural apparatus by external or internal stimuli” (1996, p. 345).
Aydede (2017) considers phenomenology to be the crucial feature in the pain definition offered by the IASP committee. Accordingly, we can find (phenomenological) similarity playing an important role in Aydede’s reformulation of the IASP definition of pain. The reference to (actual or impending) tissue damage plays (only) the role of reference fixing. Because we can communicate to others what we experience only by reference to things that are accessible through a third-person perspective, we fixed the reference of “pain” by defining pain sensations as those experiences which are the result of actually or potentially tissue damaging stimuli. “Pain” is thus first defined as the sensory experience that occurs when one gets, say, injured, and once it is clear what kind of subjective experience we call “pain”, the concept of pain is applied to all those experiences that are phenomenologically similar to it (with the possibility of border cases in which the subject cannot confidently say whether the experience resembles canonical cases of pain in a sufficient way\textsuperscript{11}). The primacy of (phenomenological) resemblance accounts well for the fact that pain can occur in the absence of (actual or potential) tissue damage (at the location where the pain is felt to be).

\textsuperscript{11} “It is safe to assume that all token pains are localized (even if vaguely or diffusely) in or on one’s body or in represented body schema. To the extent an experience is unpleasant and sensory, the question to be settled is: how much does it need to \textit{resemble (be similar)}, in terms of its relevant phenomenology, to the canonical pains captured by the first disjunct [of the IASP definition of pain, that is, “associated with actual or potential tissue damage”] so as to count as genuine pain? In rare occasions, there may be no fact of the matter whether the resemblance is good enough and of the right kind for an experience to count as pain—possibly further complicated by lack of relevant descriptors. Even the patient may not be able to tell. If this is correct, it means that there is a certain amount of indeterminacy in the very nature of pain itself. But if this [is] correct, we cannot capture the phenomenon with an on-and-off definition that will treat pain as an on-and-off phenomenon. A certain amount of indeterminacy in our definition, in other words, may be the correct thing to incorporate” (Aydede 2017, p. 454).
3. The common phenomenology of pain sensations

Our definition of pain thus relies on (phenomenological) resemblance. It presupposes that there is a common phenomenology of pain sensations. But as with many other claims in philosophy, there is a disagreement about the question whether all pain sensations actually share a common phenomenology. Whereas Armstrong (1968, p. 314), Grahek (2007, pp. 95-98), Martínez (2011, p. 84, n. 14), Klein (2015, pp. 10, 54-55, 87), and Aydede (2017, pp. 442, 461, n. 37) claim that all bodily pains share a common feel and thus have a distinctive phenomenology, Hall (1989, p. 646), Nelkin (1994, pp. 329-330), Korsgaard (1996, p. 148), and Corns (2014a, pp. 357, 364, 375-377) deny a common phenomenology of pain sensations. Those who deny a common phenomenology usually point to the phenomenological differences we can become aware of when introspecting on the qualities, say, of stabbing pains in contrast to dull aches.

If it is correct that physical pains do not share a common phenomenology, then (D) fails to individuate pains correctly, and we would have to reject our adopted definition of pain, and look for a new one. However, those who deny a common phenomenology ignore that the difference in fine-grained quality (such as sharpness vs. dullness) is compatible with a coarse-grained similarity that lets us group together all physical pain sensations. Compare the striking differences between yellow, red, and blue. Despite this difference, we group them together as belonging to the class of colors. And even when we focus on one particular color, we can distinguish various shades of it (which differ in their phenomenology), but still consider them to be shades of the same color. One way to explain our classification is to say that all these different shades are determinates of one and the same determinable. Nikola
Grahek plausibly suggests that we should likewise think of pain sensations as determinables which appear in form of different determinates (being either dull, sharp, etc.), that is, as different kinds of the same genus (2007, pp. 97-8, 105). Grahek argues that this point is corroborated by the fact that differences between sharp and dull or between stinging and burning sensations do not occur only in nociception, but also in touch or thermoreception (ibid., p. 106). Moreover, “[p]atients suffering from congenital analgesia […] can discriminate the sharp, pricking qualitative character of noxious mechanical and thermal stimuli, but they do not feel pain” (ibid., p. 100).

I believe that Grahek’s account plausibly explains in which sense pains have a common phenomenology, and that together with Aydede’s definition of pain, we can make sense of our practice of individuating pain sensations. Still, one may wonder why the common phenomenology of one’s pain sensations is more controversial than the common phenomenology of, say, one’s color sensations. I conjecture that there are three reasons for this.

First, we are not particularly good at comparing interoceptive sensations. This is nicely illustrated by studies on the effect of expectation on the felt intensity of a painful stimulus. In a recent study, Leknes et al. (2013) first determined three temperatures corresponding to verbal pain intensity ratings of “non-painful warm”, “moderate pain”, and “intense pain” for each participants. In the actual experiment,

---

12 It should be evident that this is a question about the similarity of intrapersonal sensations, not about the similarity of interpersonal sensations. Regarding the latter, Block refers to many empirical studies that suggest that the phenomenal character of color experiences varies widely even among normal humans (see Block 2003, pp. 189-194). Hence, if the phenomenology of pain sensations varies among different humans, this will not be an extraordinary property of pain sensations.
in a session of 24 trials (the “relative relief session”) participants were presented with a “predictive” visual cue – a red screen and white text (“Heat stimulus coming up ...”) – in order to make them expect an intensely painful stimulus. The participants were told that most of the time the cue is indeed followed by an intensely painful stimulus, but that sometimes they get a lower temperature stimulus instead, as indicated by a (further) visual cue in form of a white arrow pointing down. Nine seconds after the offset of the thermal stimulus, the test subjects had to rate the sensation on a scale ranging from very unpleasant to very pleasant. The experiments show that

(1) A moderate thermal stimulus of 48.9 ± 2.6°C can be assessed as pleasant when it is milder than expected.

However, as it stands (1) cannot be true in general because earlier studies showed that

(2) A thermal stimulus about 48.9 ± 2.6°C can be assessed as (even more) unpleasant when it is milder than expected.

The experimenters hold that different settings are responsible for the varying results. In particular, they believe that result (2) is “possibly due to participants’ difficulty in quickly assessing the identity of the thermal stimulus” (Leknes et al. 2013, p. 408).

Leknes et al. therefore helped the test subjects to correctly identify the intensity of the thermal stimulus by providing correct visual information about the nature of the stimulus in the form of the white arrow. Hence, in general (1) is true only in the modified form:
(1*) A moderate thermal stimulus of 48.9 ± 2.6°C can be assessed as pleasant when it is milder than expected, and when the moderateness of the stimulus is made evident by another (e.g. visual) stimulus.\textsuperscript{13}

Besides the relevance of these studies for our topic (see chapter 4 section 2.2), the point here is that we are quite bad at assessing the intensity of normally painful thermal stimuli in absence of any further information about its intensity. I assume that the same applies to the phenomenal quality of pain sensations.

Second, another reason for the disagreement is that philosophers’ judgments about the phenomenal similarity of pain sensations will typically be based on memories rather than on the introspection of current sensations. Most philosophers, me included, will not be willing to hurt themselves (let alone hurt themselves in different ways within a short period) or to get ill on purpose in order to test what kind of sensations this will prompt. So we rely on our memories in order to assess how being burnt, how headaches, how the fracture of one’s ankle feels (or rather felt) like, and whether these (memories of the) experiences resemble each other or not. But we are quite bad at making judgments about the phenomenology of experience in their absence. And even if we are currently in pain, it will often be difficult to make a confident judgment about whether our current pain sensation is similar to a pain that we do not feel at that time. This is why scientific studies are so important. In such studies, experimenters can expose test subjects to various noxious stimuli within a short interval, and thus provide a setting that enables a comparison of different

\textsuperscript{13} In personal communication, Siri Leknes confirmed that to achieve the results stated in (1) two things are necessary: first, a contrast or comparison to something much worse; and, second, correct information that the "something much worse" has been avoided.
sensations based mostly on introspection. I write “mostly” because different pains will naturally occur after one another rather than simultaneously, and thus reliance on memories cannot be totally avoided.

Third, the concept of pain, like many other concepts which are based on similarity relations, is a vague concept, and might thus include cases in which it will be difficult to decide whether a sensation is a pain or not. But the existence of borderline cases does not prove that it is inappropriate to describe such cases as falling under a common phenomenology. It will simply depend on the context whether we judge a borderline case of pain to be an instance of pain or not. Compare the phenomenology of pain with the looks of shades of red. While most of us accept that the shades in figure 1 are shades of red, and hence presumably share a common look, a skeptic might insist that the various shades are really quite different. For example, the skeptic might suggest that the shades called “Candy Apple Red” and “Dark Cherry Red” are so different that it would be appropriate to describe them as distinct colors. Does the shade called “Dark Cherry Red” not resemble brown more than it resembles “Candy Apple Red”? In absence of contrast colors, we might be talked into believing that the shade called “Dark Cherry Red” is so different that calling it similar to “Candy Apple Red” seems unwarranted. However, this strategy is easily refuted if we put the shade called “Dark Cherry Red”
right next to shades of brown. In figure 2 the background is filled with the “Dark Cherry Red” shade. With this contrast, we can more confidently state that “Dark Cherry Red” too is similar to other shades of red, and not (as) similar to shades of brown.

However, this does not mean that we cannot create a color patch which will be judged to be similar to shades of red if placed adjacent to these, and which will be judged to be similar to shades of brown if adjacent to those. I think the existence of borderline cases (due to the vagueness of pain, red, brown, and other concepts that are based on similarity) is another reason for the disagreement about the common phenomenology of pain sensations.

In spite of these difficulties, I believe that the thesis that pain sensations share a common phenomenology can be justified, especially by means of psychophysical studies with short intervals between different sensations. Indeed, if one pays attention to a typical pain sensation caused, say, by a pinprick one can notice that one’s pain consists in a sharp, well-localized sensation a few milliseconds after one has been exposed to the noxious stimulus, and a delayed dull sensation thereafter.

There is also neuroscientific evidence for the existence of these two different kinds of pain sensations. It turned out that they are caused by the activation of different nociceptors, namely relatively fast conducting A fibers, and slow conducting F fibers.
Experiments show that these fibers are activated by stimuli of different strength (Perl and Kruger 1996, pp. 185-186, 193-194). In a review article, M.D. Shelley A. Cross calls these different pain sensations “first pain” and “second pain”, and states that besides their phenomenal differences, they vary because the first pain lasts only as long as the nociceptors are stimulated, whereas second pain persists beyond such stimulation (Cross 1994, p. 376).¹⁴ Still, I am convinced that it is not a coincidence that both kinds of sensations are called “pains”. Again, their fine-grained differences do not rule out that they are similar enough to be grouped together in the same class of sensations. Besides the judgment which we can render based on introspecting these pain sensations (ideally within a short interval), another reason for believing that both sensations (or, in general, pain sensations that typically occur when get injured and the sensations we have when being subject, say, to headaches) are similar is that all pain sensation have two kinds of components, and that their phenomenology is determined by these components. In the next section I argue that neurological results support the thesis that pain sensations have two components.

4. Pain as an experience with two components

Neurological studies suggest that pain sensations are complex in the sense that they consist in a component that is responsible for their sensory-discriminatory aspects¹⁵, and another component that is responsible for their affective-motivational aspects. This composition thesis is supported by the fact that the nociceptive information that

---

¹⁴ Accordingly Cross states, “In acute pain of cutaneous origin, the concepts of first pain and second pain apply. In chronic pain and pain of visceral origin [i.e. deep tissue], second pain predominates.” (1994, p. 376).

¹⁵ The sensory aspect refers to the ability to have sensations caused by the stimulation of sensory receptors, while the discriminative aspect refers to one’s ability to thereby extract information about the world. Personally, I will often use “sensory” in a broad sense that includes the discriminative meaning.
usually results in pain sensations is processed in two different neural pathways. It seems that our pain system has two, largely segregated subsystems: a phylogenically younger, lateral subsystem which computes the location, intensity, duration, and nature (stabbing, burning, prickling) of noxious stimuli, and a phylogenically older, medial subsystem which “gives rise to the unpleasant character of painful sensation” (Cross 1994, p. 375). Even though this model is mostly based on neurological studies on animals, and therefore might not have been applicable to humans (ibid., pp. 375-6), neuroscientific studies done by Ploner et al. seem to vindicate that humans too have a lateral and a medial pain subsystem. Ploner et al. examined one human subject whose two out of three main constituents of the lateral pain system were damaged. Using a laser that stimulates only nociceptive neurons (without simultaneously stimulating low-threshold mechanoreceptors, that is, tactile afferent neurons), Ploner first applied a thermal stimulus to test the subject’s unaffected right hand. The test subject characterized the occurring sensation as a pinprick-like pain sensation he was able to localize well. By contrast, when Ploner et al. applied a thermal stimulus to the patient’s affected left hand, he described a ‘clearly unpleasant’ intensity dependent feeling emerging from an ill-localized and extended area ‘somewhere between fingertips and shoulder’, that he wanted to avoid. […] However, he was completely unable to further describe quality, localization and intensity of the perceived stimulus. Suggestions from a given word list containing ‘warm’, ‘hot’, ‘cold’, ‘touch’, ‘burning’, ‘pinprick-like’, ‘slight pain’, ‘moderate pain’ and ‘intense pain’ were denied (Ploner, Freund & Schnitzler 1999, p. 213).

Ploner et al. conclude that (parts of) the lateral pain system plays an essential role for the sensory-discriminative aspects of pain experiences in humans, too.

Nonetheless, it is not the case that the neural paths and the brain states allegedly responsible for pain sensations have been accurately identified. For example, even
though neuroscientists assume that the pathway for the discriminative information terminates in the somatosensory cortex in the parietal lobe, that the pathway for the affective-motivational information terminates in the frontal cortex in the frontal lobe, and that both pathways also terminate in different regions of the thalamus, it is disputed in which regions exactly they terminate (Perl & Kruger 1996, p. 198). Moreover, the transmission of pain signals is not a straightforward path from cutaneous fibers to certain regions in the brain. It involves activity in descending pain pathways which inhibits ascending nociceptive transmission, various sensitization effects, as well as activity from neurons that have not been activated by noxious stimuli. For example, the two subsystems both project into so-called “wide-dynamic range” (WDR) neurons in the spinal cord, and these receive inputs not only from A and C fibers, but also from fibers that are stimulated by gentle, that is, non-noxious stimuli such as touch (Cross 1994, pp. 378-9). The involvement of non-noxious stimuli as well as the multiplicity of neural mechanisms has prompted the view that there is no specific neural system responsible for pain sensations at all (Corns 2014a, p. 373; 2016, p. 2950). However, such a conclusion seems rash. The current failure to identify the exact brain states that are responsible for pain sensations does not mean that there are no such brain states.16 As the neuroscientists

16 Authors who deny that there is a neural system which enables the perception of actual or potential bodily damage by means of pain sometimes refer to a review article from 2011 by neuroscientists Valery Legrain et al. in order to corroborate their claim. However, Legrain et al. nowhere provide evidence for such a thesis. All they do in this article is to argue that those brain regions that have been dubbed the “pain matrix”, among which SI, SII, the insula and the cingulate cortex are often considered to constitute the core regions, “cannot be considered as a direct correlate of the conscious perception of a somatosensory stimulus as painful” (Legrain, Iannetti, Plaghki & Mouraux 2011, p. 115) because (most of) the “pain matrix” neurons respond to a sudden variance not only in noxious stimuli, but also in non-noxious tactile, auditory and visual stimuli. The authors propose that the function of the “pain matrix” is to provide “all sensory systems, including the nociceptive system, […] with” the ability to detect and to orient selectively attention to significant sensory events, in particular those that
Perl and Kruger note, even if indeed it turns out that no particular cortical area is solely responsible for the experience of pain or the recognition of noxious stimuli, this seems to be the case for the generation of any perceptual experience or action (Perl & Kruger 1996, p. 180). And philosopher Valerie Hardcastle stresses that it is not as if we only have difficulties to accurately identify the neural pain system, while having fully understood the neural correlates of our other sensory systems. Regarding the difficulties to identify core brain regions responsible for pain sensations, she states,

> Once we move beyond the spinal column, discrete computational streams [, that is neural pathways that are active only during a certain kind of experience,] become difficult to identify and trace. What counts as the process proper and what counts as merely an influence on the process? What marks the end of one process and the beginning of another? There are no principled answers for pain. But again, this problem also appears in our other sensory systems as well […], so pain is not special in this regard. (Hardcastle 1999, p. 108)

I therefore assume that, inconclusive as the neuroscientific results are, they still suggest that pain sensations have two components, a sensory-discriminatory component and an affective-motivational component. The distinction of these two components makes especially sense if we keep in mind that empirical dissociation experiments seem to show that subjects can have experiences resulting from one activated subsystem alone. The experiment by Ploner et al. mentioned above shows
that unpleasant feelings can be evoked without identifying them as pain sensations if the subject’s lateral pain system is damaged while the medial pain system is intact. Conversely, it seems to be the case that the “pain” sensations lobotomized and morphine patients have (see chapter 4 section 2.3) are due to inhibition of the medial pain system. What they classify as “pain” sensations might be experiences that lack an unpleasant component, but share some fine-grained phenomenal qualities (such as sharpness or dullness) with ordinary pain sensations. But if both components of pain sensations come together, our experiences acquire the phenomenology that lets us qualify them as pains. The fact that the sensory-discriminative component is necessary is nicely demonstrated by the experiment by Ploner et al., given that the test subject did not classify his sensations (in the affected left hand) as pain sensations. In chapter 4 section 2 I will present cases which are plausibly construed as showing the converse, namely that (nociceptive) experiences that lack the affective-motivational component are not classified as pain sensations either. In chapter 5 I will argue that the two components of pain sensations can be accounted for by ascribing a hybrid content to pain sensations.

---

17 In chapter 4 section 2.3 I am going to argue that the “pains” of lobotomized and morphine patients are not examples of pain experiences which are not unpleasant. Hence, I disagree with Valerie Hardcastle who claims that the possibility to dissociate our discriminative pain processing from our affective-motivational pain processing demonstrates there can be “sensations of pain without a sense of suffering” (1999, p. 104). For the reasons I present in chapter 4, I am convinced that we should not classify such sensations as pain sensations. Even if each of the two components of pain experiences can occur in experiences without the other component, it does not follow that we should consider such experiences to be pain experiences. Compare this to a car. A car consists of an engine, wheels, and many other components. The possibility of an engine to exist without the other parts does not make the engine a car.
5. Defining sense perception

Given that the main claim of this work is that pain sensations are perceptual states, it will be important to define not only what pain is, but also what sense perception is. The necessary and sufficient conditions for perception I am going to propose here will help us to evaluate the various, partly contradicting intuitions we have regarding pain. Defining sense perception will also partly clarify what is entailed by treating pain sensations as perceptual states. I say “partly” because other consequences will be disclosed in the process of defending the thesis that pain sensations are perceptual states, especially in chapters 2, 3, and 5.

Given that my opponents and me debate about the perceptual status of pain sensations, and that both parties take pain sensations to be conscious sensations, I will focus on the necessary and sufficient conditions for conscious perception rather than for perception in general. This will make things less complicated. All my following statements about perception or perceptual states are thus, unless otherwise noted, statements about conscious perception or conscious perceptual states.

There is a long debate about the necessary and sufficient conditions for perceiving in general, or seeing in particular. For example, David Lewis (1980) convincingly

---

18 For example, it will enable us to exclude homeostatic regulation mechanisms from being counted as forms of sense perception. Mohan Matthen deals with this problem in his paper *The Individuation of the Senses*. According to him, sensory states do not, unlike homeostatic regulation mechanisms, control action directly, but only indirectly. They guide actions only in accordance with other sensory as well as motivational states (Matthen 2015, p. 570). Matthen also presents another criterion by means of which he excludes homeostatic regulation mechanisms from counting as perceptual states. According to Matthen, humans (and other animals) can be conditioned in such a way that they respond to a stimulus P in the same way they responded to stimulus Q if and only if P and Q co-occur, and if (at least) Q has been experienced (ibid. pp. 571, 586, n. 4). Since subjects cannot be conditioned by means of states resulting from homeostatic regulation mechanisms, such states are not experienced (not “sensed”).
argued that the fact that my visual experience $E$ is *caused* by the scene in front of me is not sufficient for seeing because $E$ might be merely a hallucination that has been accidentally caused (or triggered) by what is in front of me. Lewis ruled out his own counterexamples by making it a condition of seeing that your experience $E$ is *counterfactually dependent* upon the scene in front of you. However, Michael Tye’s (1982) Tom and Tim robot thought experiment shows that there is a case in which what I experience counterfactually depends on the scene in front of me, and nonetheless does not count as an example of seeing.¹⁹

What Lewis and Tye dealt with are the sufficient conditions for *successful* perception. They wanted to clarify what must be the case in order for it to be true that the subject veridically sees what he/she seems to perceive. Interesting as this debate is, I will not engage in it because the question right now is not whether the pain experience I have is a veridical one. Such a question would already presuppose that some instances of pain experiences are perceptions, and based on that presupposition one would reflect upon what must be the case in order for a particular pain to count as veridically representing the world as it is. But since my opponents deny that pain experiences are perceptual states in the first place, we are here rather interested in the more fundamental question whether pain experiences fulfill the necessary (and sufficient) conditions required for them to count as perceptual states (veridical or not).

¹⁹ Note that Lewis has not claimed to be able to provide a definition that excludes all counterexamples. He assumed that the difference between veridical hallucination and genuine seeing is fuzzy, that his criterion only works in ideal conditions, and hence must allow for exceptions (Lewis 1980, pp. 245-246). Lewis might have said that the scenario described by Tye is such an exception.
Now, it might be objected that I try to do something impossible here. My attempt to look for a definition of perception which supposedly differs from the attempt to define veridical perception is, critics might claim, confused because “to perceive” is, like “to know”, a success verb. In the same way that I cannot falsely know something (as opposed to falsely believe something), I likewise cannot falsely perceive something (as opposed to render a false judgement from the way things appear to me). I could offer a definition of perception simpliciter (as opposed to veridical perception) only if there were non-veridical cases of perception. But there are no such cases. Hence, my attempt is futile, or so the critics argue.

The objection is helpful because it gives me the opportunity to clarify the concepts involved. First of all, I do not agree that “perceive” or its cognates (such as “see”, “hear”, “smell”, etc.) are always used as success verbs. As I will argue in chapter 2 section 4, these verbs are not always used to make a factual claim about mind-independent things, but sometimes also to make a claim about our subjective experiences. Hence, our linguistic practice in itself does not show that there cannot be cases of non-successful, or non-veridical perceptions. It rather suggests that there are such cases.

Second, if we follow our actual linguistic practice, then we might claim that in all cases in which the world phenomenologically appears to be a certain way – that is, in all cases of sensual experience – we perceive (see, hear, smell, etc.) something. This would entail that we even classify hallucinations as perceptual states, given that, for example, when having after-images, there seems to be a colored patch in my...

20 Thanks to Jinho Kang who made me aware of this issue, and who suggested the comparison with “know”.
visual field. Among philosophers of perception, there is no consent about this
classificatory issue. Indirect realists such as Frank Jackson (1977) claim that we
perceive something both in cases in which we become aware of a physical object as
well as in hallucinatory cases in which there is no such objects. In the latter case
there is, by definition, no relevant physical object we could perceive\(^\text{21}\), but Jackson
insists that this does not rule out that we might perceive a mental object. And indeed
he claims that, say, in the case of visual hallucination, we see mental images, or
sense-data (1977, pp. 50-51, 86). Coming from a different account of perception
some intentionalists likewise claim that hallucinations are cases of perception
because our experience allegedly represents one and the same thing in veridical as
well as in non-veridical cases. Both sense-data theorists and these intentionalists will
claim that their classification is supported by the fact that a veridical perception of \(x\)
and a hallucinatory experience of \(x\) may be indistinguishable to the subject. Why,
they ask, should we treat two experiences differently if they are phenomenologically
identical?

My reply is that not everything which looks the same is the same. Even though I do
not endorse a naïve realist account of perception, I agree with disjunctivists that
hallucinations are not cases of perception. My main reason for this denial is that this

\(^{21}\) Depending on one’s conception of the content of perception, one could claim that in some
cases of hallucination there is a relevant physical object. For example, Lewis (1980), and
following him Macpherson (2013, p. 7), imagine cases in which the subject accidentally has
an hallucinatory experience of something that is qualitatively identical to something in front
of him and construes such cases as cases of “veridical hallucination”. By contrast, Burge
assumes that the representational content of perceptions constitutively has a singular element
and therefore denies that Lewis’s cases are veridical. For Burge a perceptual state is only
veridical if it picks out the particular which it indicates (and if this particular is correctly
characterized). But since in such cases the content of the hallucinatory experiences does not
pick out the numerically identical particular, the experience is not veridical (Burge 2010, pp.
381-382). – Note that despite such cases as described by Lewis, Macpherson characterizes
hallucination in contrast to, that is, not as a case of perception (Macpherson 2013, p. 7).
does justice to our concept of perception as something by means of which we acquire (concrete) knowledge of the world. In cases of hallucinations we do not acquire any such knowledge. For example, what kind of (concrete) knowledge about the world does Macbeth acquire when he hallucinates that he sees a dagger? The definition of hallucination entails that there is no physical or material dagger in this case. So he cannot acquire knowledge about there being an actual dagger. It is also absurd to assume that Macbeth thereby acquires the knowledge that he hallucinates because he might not know that he hallucinates (at least at the beginning). Hence, even though we do sometimes say that we see, hear, or smell something in hallucinatory cases, I take such statements to be parasitic on cases in which we acquire knowledge about the world by means of our senses. Such statements are thus best construed as saying that we have experiences which are phenomenologically indistinguishable from (or at least very similar to) cases in which there is an equivalent physical object or event.

In spite of rejecting hallucinations as cases of perception (including non-veridical cases of perception), I do believe that there are cases of non-veridical perception, namely illusions. In contrast to hallucinations, we do perceive something existing in the case of illusions. For example, we do perceive the stick that is half-immersed in water. But we do not perceive it in an accurate way. We misperceive the properties of the object. In the case of the stick, the stick looks bent even though it is straight. But since the object that is presented to the subject exists, illusions are cases of perception, viz. non-veridical cases. I thus disagree with William Fish who suggests to treat illusions as a special case of veridical perception. Fish believes that otherwise veridical perception would be very rare, namely occur only in cases in which a thing appears exactly as it is (2010, p. 104). Fish has a point, and it might indeed be true
that cases in which a perceptual state perfectly matches the worldly state of affairs in question are rare. But this would only show that a perceptual state does not have to be a perfect match in order to be considered a veridical perception. Relative accuracy is enough. Conversely, if my perceptual experience of an object or event is inaccurate enough, we will classify it as a non-veridical experience. Like in the case of “bold” or “heap” there might be no fixed boundary which would determine when a perceptual state is sufficiently accurate, or inaccurate respectively.

I therefore suggest that we include perceptual states and hallucinations in the category of experiences, and distinguish between veridical and non-veridical cases of perceptual states, where illusions are cases of non-veridical cases of perceptual states. As noted in the last paragraph, this distinction is an idealized one because there will be controversial cases where it is unclear whether a perceptual state is sufficiently accurate in order to count as veridical or not.

All these considerations contribute to my attempt to define sense perception. We can define it as a way to gain information about the world (including the state of one’s body) through the stimulation of sensory receptors; information the organism can be aware of, and which can, and often does, affect the organism’s behavior. Focusing on conscious perception, that is, on perceptual experiences, the definition consists in the following:

22 Relatively to what? Probably relative to our intentions: If my perceptual state enables me to get or do what I desire, then we seem to consider the perceptual state as veridical. For example, if I intend to climb on a tree, it does not matter whether I see every small insect (or bacteria) on its surface for me to perceive the tree (or the relevant part of the tree). As long as I am able to climb the tree, we can grant that I successfully saw the tree, its parts respectively. By contrast, failure to do so grasp the stick half-immersed in water will prove that I saw the stick in an inaccurate way.
Organism $O$ has a perceptual experience of distal stimulus $X$ if and only if

(1) $X$ causally covaries with the stimulation of $O$’s sensory receptors which cause electrical signals that are transmitted to $O$’s central nervous system (CNS),

(2) $O$ is able to discriminate $X$, and to adjust its behavior in an adequate way, that is, in a way that is beneficial to its reproduction and/or survival.

Defining perceptual experiences is a means by which I want to demonstrate that nociception is a sense modality which enables us to perceive a part of our body as being actually or potentially damaged. Pain sensations are the mental states that interoceptively represent such damage. In the next section I am going to defend conditions of (1) and (2) as necessary and sufficient conditions for perception.

6. Defending the conditions for sense perception

Why do we need both conditions? Condition (2) is necessary for sense perception because it is plausible to assume we perceive stimulus $X$ only if the neural processing of $X$ has the evolutionary acquired function to detect $X$. Brian Keeley has nicely illustrated why a condition like (1) is not sufficient for granting that $O$ perceives $X$: the electrical charge of a nine-volt battery reliably causes electrical signals that are transmitted to a human’s CNS when his/her tongue is connected to the battery, but nonetheless we tend to deny that humans can perceive natural electrical stimuli (Keeley 2002, p. 16). Keeley suggests that we attribute a sense modality to an organism only if the neural processing involved is (regularly) used in order to fulfill biological functions such as foraging, mating, and avoiding dangers (ibid., p. 17). And indeed it stands to reason to believe that there is a tight connection between the
ability to perceive something and the ability to adapt to it in a beneficial way. Fred Dretske stresses that a (perceptual) system can naturally acquire the function of delivering information only if the information provided makes a positive causal contribution to the fitness of the species in question (1995, p. 166). In other words, in order for a state of the (perceptual) system in question to represent something, the state must be, or must have been, beneficial for the organism. According to this approach, a perceptual system has been selected for the purpose of detecting a certain kind of (distal) stimulus. Hence, our intuitions regarding the attribution of perceptual states seem to support the thesis that a causal correlation between certain experiences and certain stimuli is not sufficient to make an experience a perceptual state.

Condition (1) is necessary because it matters how the organism has been enabled to make the relevant adjustment. Adjustment based on testimony differs from adjustment due to perceptual experience. Imagine a blind and deaf person who wants to go to a certain place and has to cross a street. Based inter alia on tactile cues from the ground, he knows that he has arrived in front of a street, but on his own he does not know when to cross it safely. He does not see the pedestrian lights or hear the cars stop. However, he has a dog which is trained to start walking (and thus pulling his master) if it and its master stop in front of a street, and if the pedestrian lights on the opposite site of the street turn green. In such a situation, one could claim that the blind and deaf person fulfills condition (2). With the help of his dog he is able to discriminate when pedestrians are supposed to cross the street, and to adjust his behavior in an adequate way. Nonetheless, the person’s belief is arguably not based on his ability to perceive, say, the pedestrian lights. Condition (1) helps us to exclude such a case from being an instance of perception. Moreover, condition (1) excludes
introspection as well as our understanding of numbers from counting as forms of perception.\footnote{Matthen argues that input to perceptual systems must “come[…] from transducers—cells that convert incident energy into a neural pulse that carries information about this energy” (Matthen 2015, p. 571) because otherwise things such as a “number sense” would counterintuitively count as a sense modality.}

Next I will deal with some potential objections to conditions (1) and (2) being necessary and sufficient for perception. One potential objection is based on the intuition that perception is about detecting something outside one’s body.\footnote{For example, Arthur David Smith rejects a perceptual account of pain sensations because we do not, in contrast to cases of standard sense perception, attribute pain to the external thing that allegedly caused it. For example, if we grab a warm potato, we (suddenly) feel, besides tactile sensations, sensations of warmth, and attribute the warmth to the object in our hand. By contrast, if we grab a knife, and accidentally cut ourselves, we (suddenly) feel pain (viz. have pain sensations), but do not attribute pain to the knife. Smith takes this as evidence for his thesis that pain is a sensation that functions only non-perceptually, that is, that does not present an object distinct from the experience itself (A.D. Smith 2011, pp. 344-345, 353). Of course, Smith is right in observing that we do not attribute pains to external objects such as knives. But there is a straightforward reason for it: we can grab a knife without cutting ourselves and thus without feeling pain. We therefore have no reason to associate pain with a knife per se (and assume that there is pain “in” the knife analog to the way we assume that there is warmth “in” the potato) or the event of touching a knife. It is rather the event of my hand being cut that causes the pain. And we do attribute pain-related processes to such events, namely causing pain. Thus we might yell “Au! That is painful!” or “That hurts!”, where “that” in both expressions refers to the event of being cut. Or, if the pain persists, we may say “My hand hurts”, thus shifting the grammatical subject from the harming event to the injured bodily part. If someone asks me where it hurts, I may also say “I have pain in my hand”, thus directly ascribing pain to the hand. Hence, it is not true that we do not attribute pain (or pain-related processes like hurting) to anything objective. We attribute it to events and/or bodily parts. Thus it is Smith’s failure to take into consideration that pain sensations might be perceptual states of bodily parts, bodily-related events respectively, that made him blind for a plausible perceptual account of pains.}

Do I not beg the question by allowing states of one’s body as objects or events we perceive? Are there any independent reasons to accept ways to detect something inside one’s body as sense perception, that is, to accept that there are not only exteroceptive but also interoceptive senses? Philosophers such as O'Shaughnessy (1995), Bermudez (1998, p. 132), Keeley (2002, p. 12), Macpherson (2011, p. 16), and Ritchie & Carruthers (2015) defend that interoceptive senses such as proprioception can be (or
ought to) be classified as a sense. My main reason not to restrict “perception” to exteroceptive senses is the ability of an organism to adjust its behavior according to information about its body. For example, without the ability to feel the relative position and movements of our own body parts (i.e. without proprioception) we would not be able to sit, to stand up, or to grab something, unless we constantly watched each of our movements (Sacks 1985a; Cole and Paillard 1995). And without the ability to feel pain people do not shift their weight while standing or sleeping, and are thus unable to avoid inflammation of the joints (Melzack & Wall 2008, pp. 4-5). In both cases the subjects are unable to react to certain input and adjust their behavior in a way that is beneficial to them. Conversely, subjects without such defects are able to react to these inputs, and hence can be considered as perceiving their own bodily states.

Another potential objection to the suggested conditions (1) and (2) is that they do not appeal to the presence of a sense-organ. Philosophers like Hacker make the usage of a specific sense organ a necessary condition for perception (M. R. Bennett & Hacker 2003, pp. 91, 125-126). After all, we see with our eyes and smell with our nose. If the usage of a specific sense-organ were necessary, then nociception would be excluded, given that there seems to be no sense organ we detect bodily harm (and feel pain) with. It will not do to claim that we feel pain with our nociceptors, and that these sensory receptors can hence count as sense organs because our concept of a sense organ seems to include that we can move the sense organ at will in order to detect what we are searching for.25 Given that we have no (conscious) control of our

---

25 In his book *A Materialist Theory of the Mind* (1968) David Armstrong defines a sense-organ as “a portion of our body which when stimulated produces a characteristic range of perceptions” (1968, p. 212), and “which we habitually move at will with the object of
nociceptors, nociceptors will not count as an instance of a sense organ. However, it is questionable whether such a controllable sense organ is really necessary in order to count as a sense modality. In the case of proprioception, we likewise have no conscious awareness of using any sense organ.

(W)hereas to look is to use your eyes, to propriocept is not to use anything, at least - and this is the crucial part – not consciously. You are simply aware of the position of your limbs (indeed people tend not to be aware that they do know the position of their limbs other than through sight or touch [...]). (O'Dea 2011, p. 308)

The philosopher John O'Dea argues that this is the reason why senses such as proprioception have not been included in the traditional five senses. This may indeed be true, but why stick to tradition? We ought to stick to tradition and make the ability to use a sense organ at will a necessary condition of a sense modality only if our aim is to clarify our common-sense meaning of “sense (modality)”.

But the aim of my PhD thesis is not to clarify folk intuitions about how we ordinarily use the term “sense (modality)”. It is rather to come up with the most plausible account of pain sensations. If some of our common sense intuitions about pain conflict with empirical evidence, we should abandon these intuitions. And evidence that some animals can, according to the two conditions suggested above, perceive obstacles, prey and conspecifics by such means as echolocation, infrared radiation, or electric fields suggests that there are much more sense modalities than the five traditional ones. Since it is questionable that there is a sense organ that is used at will for perceiving what is going on in our body and environment.” (ibid., p. 213). Based on this definition, Armstrong denies that we can treat (sensory) receptors as sense organs.

26 Keeley outright denies that we should define sense organs as something that we can move at will. He proposes three physiological conditions for a sense organ, and maintains that free nerve endings meet these conditions, so that we do not have to identify sense organs in a morphological way (Keeley 2002, p. 14).
example in electroreception, it is plausible to reject such a criterion for determining what a sense it. What is crucial is an organism’s ability to react to certain stimuli, and its possession of sensory receptors that are stimulated by those stimuli.\textsuperscript{27}

7. Strong intentionalism as a way to naturalize phenomenal consciousness

So far, I have tried to define perception in a way that remains neutral on metaphysical questions about perception and our relation to the world. However, in the second, third, and especially in the fifth chapter, it will become evident that I adopt an intentionalist theory of perception, as opposed to such unorthodox positions as sense-data theories, adverbial theories, or naïve realism. To defend an intentionalist theory of perception against these non-intentionalist theories would exceed the scope of this work. In this section my goal is merely to explain why I understand perceptual states as intentional ones, and why I commit myself to strong intentionalism, that is, to the metaphysical claim that phenomenal properties of a mental state are fully determined by the experience’s intentional content. This requires to elaborate a bit on developments in the analytic philosophy of mind.

In order to explain how body and mind are related various theories of mind, monist and dualist ones, have been introduced. Among the monist theories of mind, we have

\textsuperscript{27} A similar objection to the one that we have no sense organ we can move at will in the case of nociception is the assumption that there is no explorative actions we can take in order to either get a pain or examine it more carefully, whereas we can visually, auditorily, etc. explore our world by looking, listening, sniffing, etc. Matthen responds to this objection by insisting that there is explorative nociceptive behavior: “active exploration—stroking, prodding, palpating, etc.—endow [pain] with objective features such as quality (burning, itching, throbbing, etc.), intensity, and location (‘It’s deep in my elbow, not high on my forearm as I initially thought’). When one has actively explored pain, one becomes aware of a disturbance in the body and the sensory properties of this entity.” (Matthen 2015, p. 580).
approaches according to which physical objects, including the body, can be reduced to the mind (phenomenalism) and those according to which mental states can be reduced to, or at least depend on, physical states (identity theory, behaviorism, functionalism). Among the latter, functionalism has been one of the most influential theories in the philosophy of mind as well as in cognitive science. According to functionalism, mental states are constituted by their causal relations to one another and to sensory inputs and behavioral outputs. While it is plausible to assume that cognitive states such as thoughts consist in states which are causally related to certain inputs and outputs (as well as other functional states), other mental states such as perceptual states seem to consist in more than such relations. The latter also possess qualitative or phenomenal properties (also referred to as “phenomenology”, “what-it-is-likeness” or “qualia”), and these do not seem to be reducible to physical states and their relations. 28 Phenomenal properties thus constitute a problem for functionalism as well as for other physicalist theories of mind. Strong intentionalist theories of mind (Dretske 1995; Tye 1995b; Lycan 1996; Carruthers 2000, 2005) try to solve this problem.

A note about terminology. Many authors use the term “representationalism” to describe what I call “intentionalist theories of mind” here. However, similar to Klein (2015, p. 7), I will use the terms “representationalism” and “intentionalism” differently. Representationalism is here defined as the thesis that experiences have representational contents, that is, contents with truth (or veridicality) conditions, whereas intentionalism is defined as the broader thesis that experiences have

---

28 Recently, some philosophers claim that cognitive states too have phenomenal qualities. See for example Bayne & Montague 2011, and Smithies 2013.
representational and/or imperative and/or normative contents, where imperative contents do not have truth conditions, but only satisfaction conditions (see Klein 2015, pp. 6-7; Martinez 2011, p. 82). Regarding normative contents, I will here follow the standard position and assume that they too lack truth-conditions, but nothing hinges on this.29 (I will say more about representational, imperative, and normative/evaluative content in chapter 5.)

The fundamental claim of weak as well as strong versions of intentionalism is that every mental state is about or refers to something beyond itself, that is, to some (not necessarily existing) object, event, or state of affairs (Armstrong 1968, pp. 40-41). This claim can be traced back to Franz Brentano (1874, pp. 115-6) who maintained that all mental states are directed toward things. Such a broad claim is bold because it has often been assumed that only cognitive states, for example perceptual beliefs, are about or refer to things. However, developments in cognitive science and neuroscience30 as well as the epistemological problem that arguably only truth-

29 When I deal with Tye’s and Bain’s evaluativist accounts of pain in chapter 5, it will become evident that they take the normative/evaluative content of (unpleasant) pain sensations to be truth-apt (see for example Bain, forthcoming-a). This would make Bain’s and Tye’s account a representational one. However, whether normative contents, such as that x is good/bad, have truth-conditions is a controversial thesis. Non-cognitivists such as Simon Blackburn (1984, pp. 171, 182-189) or Allan Gibbard (1990, pp. 8, 172-173) deny that. Even though these philosophers deal with the contents of normative judgments, rather than with the contents of (perceptual) experiences, Bain and Tye would have to explain why some experiences are supposed to be truth-apt, but – if Blackburn and Gibbard are right – not the normative judgments which we apparently render based on such experiences. I am not going to ponder on the question whether normative contents are truth-apt, given that I myself do not adopt an evaluativist position. Another reason why we can ignore this issue is that the evaluative content of (unpleasant) pains, namely that they are bad, will be construed as being apt to harm (you), and contents such as this bodily disturbance is apt to harm (me) are presumably truth-apt. (This interpretation of being bad is proposed only by Tye and his co-author Cutter, though. Bain does not spell out how he construes the evaluative content of pain sensations.)

30 For example, David Marr (1982/2010) convincingly argues that the visual system provides information to recognition systems that abstracts away from perspectival features, and thus provides observer-independent representations. However, because Marr’s theory is not spelled out in terms of experiences, it is controversial how the observer-independent
evaluable things can have or transmit positive epistemic status to our perceptual beliefs and thus justify them (see for example Sellars 1963, p. 131) made many philosophers endorse that not only beliefs, but also perceptual experiences themselves are about things. According to intentionalism, when I see a tomato, my experience is about the tomato. My visual experience represents that there is a tomato in front of me. \textit{That there is a tomato in front of me} is taken to be the intentional \textit{content} of the experience. Alex Byrne (2001), Susanna Siegel (2010, 2014) and Adam Pautz (2011) offer explicit arguments for the claim that perceptual states have intentional content.\footnote{For example, Pautz argues that (strong) intentionalism – as opposed to, \textit{inter alia}, disjunctivism or qualia-based theories of perception – gives the best explanation of phenomena such as illusions. “For instance, visual experience, even when illusory or hallucinatory, grounds the capacity for external thought.” (Pautz 2011, p. 127). For example, if it \textit{seems} to a person that there is something red and round in front of him, then he can “have certain general beliefs with \textit{being red} and \textit{being round} as predicative constituents, even if he was previously unacquainted with these properties.” (ibid., p. 128).} Despite the acceptance of intentional content for perceptual experiences, many philosophers thought that bodily sensations such as pains or itches lack such content (Rorty 1980, p. 22; Kripke 1980, pp. 152-153; McGinn 1996, pp. 8-9; Block 2005, p. 138). However, philosophers like Armstrong (1968), Tye (1995a, 2005, 2011), Bain (2003, 2007), Hill (2005), Hall (2008), Martínez (2011), Jacobson (2013, under review), and Klein (2007, 2015) have argued that there are good reasons to think of bodily sensations as states with intentional content.

---

representations are related to personal-level (visual) experiences. – Tyler Burge often refers to the vision science that is partly based on Marr’s work, and claims that the studies in this field are \textit{not} merely about sub-personal information processing, but (partly) also about personal-level representational states of particulars in the environment. He adds that even though the personal-level representational states do not need to be conscious, the final products of the formation processes that vision science describes and explains are, at least in human beings, usually conscious (Burge 2010, p. 93, n. 43). I will say more about Burge and his criteria for perception in chapter 3.
One of the advantages of an intentionalist, or, more precisely, a representational account of pain is the possibility to plausibly explain the issue of pain’s location. Common sense tells us that the location of pain is the place we point to if asked where it hurts. It is natural to conclude that the location of pain is identical to the place of the bodily condition that has caused the pain experience. However, cases of referred pain, phantom limb pain, and central pain militate against this conclusion. These cases rather suggest that all our pains are actually located in our brains, based on the plausible assumption that our experiences of pains (in the illusionary cases as well as in the veridical ones) are generated by (or identical to) brain states (or, broader, states of the CNS). But this seems very counterintuitive, *inter alia* because we do not *act* as if pain is in our heads. For example, if I hit the closet with my knee such that my knee hurts, I assuage my knee, not my head. If I have toothache, I ask the dentist to treat the tooth in question, not my head. Representational accounts of pain can easily resolve this issue by proposing that the location of a pain is the bodily part which the pain experience *represents* as bodily damaged (or whatever property it is that pain experiences represent). And given that representational contents can be non-veridical, it deals well with the illusionary cases mentioned above. For example, a phantom limb pain patient is in pain, but his pain experience falsely represents that his (non-existing) limb is damaged, since he/she does not have a limb (anymore). (I will say more on the location of pain, and why this gives us a strong reason to consider pain sensations to be perceptual states in chapter 3.)

Now, whereas weak versions of intentionalism claim that experiences have intentional content as well as phenomenal properties which are not about anything in the world (and thus cannot be reduced to intentional states), strong versions claim
that the phenomenal properties of experiences are identical to, or entirely determined by, their intentional content.\footnote{For example, advocates of strong intentionalism state that phenomenal qualities either are identical to (Tye 2005, p. 99), are “wholly constituted by” (Bain 2003, p. 502), or supervene on (Klein 2015, p. 7) intentional content.} Strong intentionalist accounts hope to naturalize the phenomenal character of experience. Of course, this presupposes a naturalistic story about how to determine intentional content. Usually this is done by assuming that mental states are identical to, or at least dependent on, neural states, and by assuming a naturalistic account of how the neural state in question can be said to represent a worldly state by itself, that is, independently of our interpretation of that neural state. Strong intentionalism thus does not prove, but rather presupposes that pain sensations and other mental states are identical to, or at least depend on, physical states. Even though this is not always made explicit, their contribution does not consist in rejecting phenomenalism, substance or property dualism or other metaphysical alternatives to physicalism, but rather in a plausible account of how physical states can be \textit{about} things. For example, Tye favors a \textit{causal covariation} account of intentional content according to which phenomenal properties are identical to what they “track”: (external) features they causally covariate with under optimal conditions (1995b, pp. 101, 223, n. 11; 2011, p. 91). By contrast, Millikan (1984) and Dretske (1995) favor a teleological account of intentional content. They deny that causal covariance is sufficient for representation. For example, Dretske denies that just because the angle a column of smoke makes with the horizon covaries with (and thus can be used to gain information about) wind speed, it \textit{represents} (by itself, that is independent from our interpretation of it) wind speed (1995, p. 4). In order for $X$ to represent $Y$, $X$ must have the \textit{function} to indicate $Y$ – a function that
we either assign to $X$ (in the case of conventional representations such as instruments or language) or a function that $X$ acquires by learning or by natural selection (in the case of concepts, bodily organs, or sensory systems and their states) (ibid., pp. 7-8).\textsuperscript{33} In chapter 5 I will argue that we have good reason to assume such a teleological account for our nociceptive systems.

Obviously, this section does not constitute a defense either of physicalism, functionalism, or strong intentionalism. Indeed I presuppose such a framework because I believe that it gives us the opportunity to naturalize the phenomenal qualities of experiences. My contribution consists in defending the view that pain sensations are perceptual states, and that it is as plausible to construe pain sensations as intentional ones as it is in the case of standard perceptual states.

\section*{8. Summary of chapter 1}

In this chapter I have argued, mostly based on empirical findings concerning the neural systems which are responsible for producing our pain sensations, that we should reject affective and intensive accounts of pain, and focus on perceptual accounts and how they define pain. I have then adopted Ayedee’s modified version of the IASP definition of pain according to which pain is an unpleasant sensory experience which results from actual or potential tissue damage, or which is

\textsuperscript{33} Tye’s account and the teleological account might in effect state the same because Tye clarifies at some point that for creatures which belongs to a species with an evolutionary history the design (or function) of their perceptual system partly determines what counts as “under optimal conditions”. For the case of visual experiences, Tye states, “In the case of evolved creatures, it is natural to hold that such [optimal] conditions for vision involve the various components of the visual system operating as they were designed to do in the sort of external environment in which they were designed to operate” (Tye 2000, p. 138; italics added). For a good overview and a critical discussion of the various accounts that try to naturalize intentional content see Carruthers and Botterill 1999, pp. 161-190, and Siegel 2010, pp. 83-87.
sufficiently similar to one such. This definition presupposes that pain sensations share a common phenomenology, a controversial thesis I have justified based on Grahek’s proposal that pain sensations are determinables which appear in form of different determinates (being either dull, sharp, etc.). I presented reasons which explain why the common phenomenology of pain sensations is more controversial than the common phenomenology of color experiences, and I suggested that psychophysical studies with short intervals between different sensations rather than the memory-based intuitions of individual philosophers should be the criteria by means of which we determine whether pain sensations share a common phenomenology or not. Such studies reveal that we can distinguish at least between “first pain” and “second pain”, but given that we call both sensations “pains” suggests that they have enough in common to classify both as pain sensations. In the fourth section I presented neurological studies that suggest that pain sensations are processed in two different neural pathways, and consist in a sensory-discriminatory component and an affective-motivational component. Various studies suggest that activation of both components is necessary and sufficient to produce sensations which we identify as pain sensations on a phenomenological basis.

Next I proposed necessary and sufficient conditions for an experience to be perceptual. I argued that stimulation of sensory receptors by worldly object or event X, the transmission of the corresponding neural signals to the CNS, the ability to discriminate X, and the ability to adjust one’s behavior in a beneficial way are necessary and sufficient for a perceptual experience. I defended that we can have perceptual states from exteroceptive as well as interoceptive senses, and that we do not need to possess a sense-organ understood as something we can move at will in
order to have a perceptual experience of $X$. In the last section, I laid down why I embrace a (strong) intentionalist account of perception.
Chapter 2: Pain sensations are perceptual states

In this chapter I will argue that experiences of (actual or potential) damage fulfill the conditions for perceptual experiences. This is true even though the experience of pain partly depends on higher cognitive processes and the proper working of the underlying neural systems. I will argue that this does not exclude pain sensations from being perceptual states because the same is true for standard perceptual experiences. I will also refute the objection that the allegedly weak correlation between pain and bodily damage forces intentionalist accounts of pain to postulate so many malfunctions (misrepresentations respectively) that such accounts become implausible. In sections 3 and 4 I will respond to the claims that there is no appearance-reality distinction regarding pain, and that our linguistic practice shows that there is a conceptual difference between standard perceptual experiences and pain sensations. At the end I offer an explanation of why we do not express perceptual reports of (potential) bodily damage in objectivist, but in mental terms.

1. Bodily damage as something we interoceptively perceive

I claim that experiences of (actual or potential) damage fulfill conditions (1) and (2), and therefore can be considered as something we interoceptively perceive. Condition (1) is fulfilled, given that we have sensory receptors which are stimulated by heavy pressure on, heat close to, or tissue-damaging chemicals in contact with our bodies. The stimulation of such “nociceptors” causes electrical signals which are, when not inhibited, transmitted to the central nervous system and usually cause an experience with distinct qualitative properties, viz. pain. As written in chapter 1, the existence
of nociceptors and their connection to the CNS is accepted by all parties. And I assume that the stimulation of nociceptors normally causally covaries with potential or actual bodily damage at that site. For example, extreme hot (or cold) thermal stimuli will lead to burns (or frostbite) at the stimulated body part if one does not withdraw. Prolonged heavy pressure leads to tissue trauma. And per definition, noxious (i.e. tissue-damaging) chemicals will do the same. Of course, it is possible that nociceptors do not work properly, or that tissue becomes damaged by other stimuli than the three mentioned above. Hence, nociceptor stimulation and (actual or potential) bodily damage can come apart. But such a dissociation between distal and proximal stimuli is possible for any sense modality. For example, if you listen to recorded music (and no music instruments are played nearby), the sound waves stimulating your auditory receptors do not causally covary with a corresponding distal auditory event, such as someone nearby strumming the guitar or blowing a whistle. Hence, we do not need a perfect correlation between proximal and distal stimuli. As long as (potential) bodily damage normally covaries with nociceptor stimulation, condition (1) can be said to be fulfilled.

Condition (2) is fulfilled, since we are able to discriminate (actual or potential) damage based on the nociceptive activity that usually produces pain sensations, and to adjust our behavior in an adequate way, viz. such that we prevent harm or further harm to our bodies. That pain normally makes us react in a way that is beneficial to us is evident in those persons who are congenitally insensitive to pain. Such persons

---

34 Even authors like Melzack and Wall (2008, p. 155) as well as Jennifer Corns (2014a, 2016) who stress that we should not label nociceptors as “pain receptors” accept that nociceptors are specialized in such a way that they respond to particular stimuli, and that such a stimulation evokes characteristic patterns of neural signals that usually leads to pain sensations (Melzack & Wall 2008, pp. 81, 86, 154).
often die young because of injury, accident, or inflammation of joints due to their failure to change positions, in particular during sleep (Melzack and Wall 2008, pp. 4-5).

I conclude that (actual or potential) damage fulfills the two conditions for being an object of a perceptual modality. The sense modality by means of which we perceive such damage is called “nociception”, and the phenomenal state that comes to represent such damage is called “pain”. However, I do not claim that all pain sensations are perceptual states. As written in chapter 1 section 5, hallucinations are not perceptual states. Accordingly, hallucinatory pains are not perceptual states.35 But illusionary pains are. An example of illusionary pains are so-called referred pains, that is, pains which are felt at a place other than the place of the bodily damage which causes the pain. For instance, a heart attack can cause pain in the neck, shoulders, and back even though it is the heart muscle which gets damaged.36 Such pain correctly represents that some part of the body is damaged, but it is inaccurate because the subject gets the impression that there is something wrong with his/her neck, shoulders and back, rather than with his/her chest.

Critical readers will wonder whether illusionary pains really fulfill the second condition for perceptual states:

35 Thanks to Hongwoo Kwon for pressing this point.
36 There is no consensus about the mechanisms responsible for the phenomenon of referred pain. However, it is surely not an accident that many cases of referred pains are cases of muscle or visceral injury. Pain studies showed that we are good at detecting the site of injuries to the skin and the joints, but that we are bad at localizing muscle injuries, and even worse in the case of visceral injuries (Bielefeldt and Gebhart 2013, p. 703). This suggests that referred pain might be due to a chain reaction in which not only visceral nociceptors, but also nearby somatic nociceptors are activated. The latter would then be responsible for the precise, but non-veridical pain sensations which create the impression that there is something wrong with a bodily part which does not correspond to the site of the actual bodily damage. But this is something empirical studies will have to investigate.
(2) \( O \) is able to discriminate \( X \), and to adjust its behavior in an adequate way, that is, in a way that is beneficial to its reproduction and/or survival.

Are patients with referred pains able to discriminate a certain part of one’s body as actually or potentially damaged, and adjust their behavior in an adequate way? I believe they do. Patients with referred notice that a certain part of one’s body is actually or potentially damaged, even though it is not the proper part, but a nearby part (see footnote 36). And they can adjust their behavior in an adequate way, say, by resting, or by going to the doctor. Their actions do not need to target the place of the (actual or potential) bodily damage (here: their hearts) in order to count as adequate, partly because pains do not give us specific orders (see chapter 5 section 3). This is even more evident in another example of referred pain, namely ice cream headache (or “brain freeze”). If you eat very cold ice-cream or an ice pop on a hot day, the cold stimulus at the roof of your mouth will cause the capillaries in the sinuses first to constrict and then to expand as they warm up again. This dilation is sensed by nearby pain receptors, which send signals to the brain via the trigeminal nerve, and cause a sudden headache (Hulihan 1997). The headache can be construed as a referred pain because it inaccurately localizes the body part which gets potentially damaged not in your mouth, but more toward your forehead. Anyway, the point is that the pain enables you to react adequately by, for example, making you stop eating what you are eating. It does not matter that the pain is an inaccurate representation. It can nonetheless fulfill condition (2), and therefore count as a perceptual state.
2. Bodily damage is not always experienced as pain

Note that what I have written in the last section does not entail that pain is always the result of (actual or potential) bodily damage. Some people experience pain in the apparent absence of any bodily damage, for example patients who suffer from chronic pain. Conversely, some humans are congenitally unable to feel any pain in spite of their bodies getting harmed. Some do not feel pain in certain situations despite physical damage to their bodies due to cultural norms, to specific expectations, or to distraction (see Melzack and Wall 2008, pp. 4-5, 9-11, 15-17, 22-27, 75-16, 137, 171, 188). These phenomena prove that pain is not simply the passive noticing of noxious things stimulating one’s nociceptors, but that pain sensations partly depend on one’s cognitive states, such as one’s beliefs about cultural norms, or one’s (conscious or subconscious) beliefs about what to expect in a certain situation. Accordingly Melzack and Wall argue in their gate control theory of pain that the central nervous system actively manipulates the signals coming from nociceptors, depending inter alia on one’s memories of prior experiences and the meaning of the current situation.37

However, this does not, pace Hardcastle (2015), militate against perceptual approaches to pain, since our standard perceptual experiences are arguably penetrated by cognition, too. For example, Dustin Stokes, assessing the empirical research on cognitive penetration, concludes that even though the empirical evidence

37 As Cross states in her review article, it is uncontroversial that that the transmission of nociceptive neural signals is inhibited both within the spinal cord (“segmental modulation”) as well as from the cortex and the hypothalamus (“descending modulation”) (1994, pp. 380-381). But note that the existence of neural top-down mechanisms alone is not sufficient to prove that experiences of pain causally depend on cognitive states, because “this inference would require a relatively uncontroversial mapping from mental functions or states onto neural structures, and neuroscience is far from achieving this.” (Stokes, 2013, p. 654).
is not conclusive, the cognitive penetrability thesis according to which our perceptual experiences are sometimes penetrated by cognitive states is more plausible than the thesis that only perceptual judgments or beliefs are (sometimes) affected by (other) cognitive states (2013, pp. 657-658). Focusing on cognitive penetration of visual experience, Albert Newen and Petra Vetter (2017) likewise conclude that in the light of

1. cortical brain areas being heavily interconnected (not only to adjacent areas, but also to other processing areas further away),

2. higher level processes occurring much faster than previously thought, and therefore capable of influencing visual (or other) processing before a stable perceptual experience occurs38,

3. functional evidence for categorical top-down influences to the early vision cortex39,

4. studies which show that activated memorized visual templates change our perceptual experiences40, and

---

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

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

40 Newen and Vetter refer inter alia to a study by Hansen, Olkkonen, Walter & Gegenfurtner (2006) which suggests that activation of abstract concepts or so-called visual templates such as the template of yellow bananas modifies how subjects experience the color of these objects (Newen & Vetter 2017, p. 32). In the case of seeing an impoverished black and white image as an image with a dog once one’s concept of a (Dalmatian) dog is activated, Newen and Vetter further argue that this effect cannot be explained only by a change of attentional processing. Newen and Vetter refer to the neuroscientific study by Frith & Dolan (1997)
5. hypnosis studies which refute the attempt to explain away the modification of perceptual experiences (as suggested by (4)) as being merely the effect of long-term changes within the perceptual module due to associative learning  

the most plausible explanation of the relevant phenomena is to assume that higher cognitive processes (such as beliefs, desires or concepts) can change perceptual experiences. Accordingly, it is reasonable to assume that what we see and hear does not depend merely on the stimulation of the relevant receptor cells, but also on so-called top-down processes of the brain. What we are interested in, what we desire (here construed as cognitive states) can apparently affect how we perceive the world.

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

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

Newen and Vetter thus reject the thesis shared by Pylyshyn (1999) and Raftopoulos (2014) that there is an encapsulated and impenetrable visual module in the brain. Newen and Vetter stress that even though brain area “V4 […] mainly processes color information […] it does not follow at all that V4 cannot be influenced by higher cognitive contents. Functional specialisation of brain areas by itself does not imply cognitive impenetrability. We suspect that this unjustified implication is based on the fact that Fodor (1983) defined modules with several main criteria combining domain-specificity, impenetrability and being innate. But this definition of combined module criteria should not mislead us. Without further evidence the definition is just not well chosen: domain-specificity and impenetrability need not go together.” (Newen & Vetter 2017, p. 28).
Applied to the case of pain, this means that higher cognitive processes will influence whether and how (actual or potential) damage to a part of one’s body is experienced by the subject as pain. The experiments by Leknes et al. described in chapter 1 section 3 provide a good illustration of how expectations can influence the experience of noxious stimuli.

Besides cognitive penetrability, malfunctioning of the nociceptive system too will account for certain cases in which pain and bodily damage dissociate. For example, subjects who suffer from congenital insensitivity to pain do not feel pain despite (actual or potential) bodily damage because their nociceptive system is not working properly. As Nagasako, Oaklander, and Dworkin (2003) point out, in subjects with such a condition at least one kind of those peripheral nerve fibers which are sensitive to noxious stimuli are completely absent or heavily reduced (2003, p. 215). And without (enough of) these fibers the nociceptive systems cannot work properly.

Conversely, headaches such as migraine or cluster headaches are cases in which pain occurs even though the bodily part where the pain is felt is not (actually or potentially) damaged. Rather than correctly indicating bodily damage at some part of the head, such headaches occur due to some kind of neurovascular disorder, that is, malfunctioning of neuronal processing and of intracranial extracerebral vessels (Goadsby 2009, p. 860). This is in accordance with my intentionalist thesis that pain experiences interoceptively represent a certain part of one’s body as actually or potentially damaged because headaches and other pains caused by malfunctions of

---

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

However, Jennifer Corns (2014a, pp. 368-369) and Sabrina Coninx\(^4\) have recently objected that instances of pain which do not correlate with bodily damage are so common that proponents of intentionalist accounts of pain have to treat many cases of pain as misrepresentations of bodily damage. And assuming that misrepresentations of (standard) sensory systems are rare, Corns and Coninx conclude that intentionalist accounts of pain become implausible.

Their argument rests on three assumptions that can be contested:

1. Pain and bodily damage are weakly correlated.

2. Misrepresentations of (standard) sensory systems are rare.

3. A weak correlation of pain and tissue damage excludes (actual or potential) bodily damage from being represented in pain experiences.

Even though I believe that (2) and (3) can be challenged too\(^5\), it will be sufficient to show that (1) is not justified in order to undermine the argument by Corns and

\(^4\) Coninx presented this argument in her talk “Challenging the Representational Approach to Pain” held on June 9\(^\text{th}\) 2017 at the Rudolf-Carnap-Lectures at the Ruhr-Universität Bochum (Germany).

\(^5\) I do not have any specific argument against (2), but it is worth noting that neither Corns nor Coninx refer to any empirical studies that support (2) either. But given that (2) is an empirical hypothesis, it should be corroborated by empirical results rather than intuitions. – (3) becomes questionable if we remember that a teleological account of intentional content does not presuppose that a perceptual state perfectly covaries with the worldly property it represents. The crucial question is not what the perceptual state actually covaries with, but what it is supposed to covary with, that is, its function. Millikan, for example, illustrates with the eyeblink reflex that a mechanism (or “token”) can have a proper function even though the mechanism may *often* be triggered by what turns out to be a false alarm (1995, p. 187). Representationalists can likewise argue that some pain experiences which have not been caused by any kind of bodily damage (at the site of the felt pain) can be explained as false alarms of the nociceptive system, thus insisting that the proper function of pain experiences is to interoceptively represent actual or potential bodily damage in a part of one’s body. A
Coninx. Regarding (1), Corns (2014a, p. 368) argues that it is supported by what we know *inter alia* about headaches, lower-back pains, the thermal grill illusion\(^{46}\), and chronic pains.

In my reply I will focus on acute pains\(^ {47}\), given that it is widely accepted in the medical as well as the philosophical community that chronic pains are *disorders* which prevent the nociceptive system from working properly (such that the resulting pains are plausibly construed as *misrepresentations* even if there are more and more patients who suffer from chronic pains). The first thing to note is that leading figures in medical science state that acute pains are caused either by injury, disease or abnormal function.

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

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

Intentionalists will take this as evidence that pain either represents a certain part of one’s body as actually or potentially damaged (due to injury or disease) or that it case which can be plausibly explained in this way is the pain resulting from the thermal grill illusion (see my next footnote) because it is plausible to assume that the nociceptive system misconstrues innocuous stimuli for noxious ones in such cases, analog to the false alarms of the eyeblink reflex.

\(^{46}\) The thermal grill illusion is produced by an interlaced grill of warm (~40°C) and cool (~20°C) bars. When you touch both kinds of bars at the same time, you experience burning pain in your hand. For a plausible explanation of this phenomenon, see my previous footnote.

\(^{47}\) Acute pains are, at least in the case of acute low back pain, defined as pains which have not persisted for longer than three months, or, when opposed to “subacute” pains, not longer than five to seven weeks (McGuirk & Bogduk 2009, p. 1094).
mispresents such bodily damage due to some malfunction of the nociceptive system. John D. Loeser, a M.D. and neurologist to whom Corns (2014a, p. 368) herself refers in order to make her point, even makes the quantitative judgment that *in most cases* the cause of acute pain is some kind of bodily injury or some disease (rather than some malfunction of the nociceptive system):

> In most patients with acute pain, the region of tissue damage is obvious and the patient's complaints clearly stem from the injured region. In patients with pain associated with cancer, the search for an etiology of the patient's pain usually reveals disease, such as metastasis to bone or tissue damage from the attempts to cure the malignancy, such as radiation-induced fibrosis or chemotherapy-induced neuropathy. (Loeser 2001, p. 265)

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

Do these figures corroborate (1), that is, the thesis that pain and bodily damage are weakly correlated? In order to render a judgment we first have to define what counts as *weakly* correlated or, correspondingly, as *well* correlated. Neither Corns nor Coninx do that, but in medical science a rule of thumb says that a correlation
coefficient of 0.70 to 0.90 (−0.70 to −0.90 respectively) counts as a high (or strong) correlation, while one of 0.30 to 0.50 (−0.30 to −0.50 respectively) counts as a low (or weak) correlation (Mukaka 2012, p. 71). Applied to pain and bodily damage, I suggest that we speak of a strong correlation if we find bodily damage in more than 70% of the cases in which a subject feels pain, and of a weak correlation if we find bodily damage in less than 50% of the cases in which a subject feels pain. If we stick to this definition, then the numbers presented by Coninx do not corroborate (1). (1) would require a representative survey which assesses how many pain experiences are (apparently) not caused by any (actual or potential) damage to one’s body. If it turned out that more than 30% of all pain experiences consist in such pain experiences, then pain and bodily damage would not strongly correlate. If 50% or more consist in such pain experiences, then pain and bodily damage would correlate weakly. But we do not have such figures. Accepting the result from Burch et al. that 15% of the population sometimes suffer from migraine or severe headaches (while assuming that such headaches are not caused by any bodily damage) does not tell us anything useful about the relationship of pain and bodily damage. For example, we cannot infer that 85% of the population have only pain experiences which are caused by some kind of actual or potential bodily damage. Nor does the figure tell us that 15% of all pain experiences are not caused by some kind of actual or potential bodily damage. The figures presented by Coninx are thus insufficient to support (but likewise insufficient to falsify) (1). Given the lack of relevant statistical data, we have to rely on such estimations as given by Loeser. And these rather militate against (1).
There is, however, a particularity in which the nociceptive system indeed differs from traditional sense modalities.\(^{48}\) Whereas pain sensation due to damaged (and hence “malfunctioning”) sensory receptors seem to represent veridically that a part of one’s body is damaged, this is not the case in other sense modalities. Consider the analogous case for vision. If the sensory receptors of the visual system are damaged, the visual field of the subject will not correspond to the objective states of affairs. The subject might see stains in his visual field, or objects in the environment may look as if they have a different color than the one presumably seen by most subjects with a functioning visual system. In other words, the subject with a damaged visual system will have visual sensations, but these sensations will be non-veridical. By contrast, if the sensory receptors of the nociceptive system or some neurons which are involved in the transmission of nociceptive information are damaged, the subject has veridical pain sensations, given that something at the location where the subjects feels pain is damaged, for example his/her sensory receptors. This is indeed a difference to the traditional sense modalities, but one that makes evolutionary sense.

It is plausible to assume that the nociceptive system evolved in such a way that it produces pain sensations (i.e. perceptual states that represent actual or potential bodily damage) not only when its receptors are stimulated by the relevant stimuli, but also when its receptors are damaged, given that in both cases pain is a correct representation of such damage. In spite of this particularity, the fulfillment of conditions (1) and (2), and other similarities with perceptual experiences (the

---

\(^{48}\) I got aware of this particularity when reading a draft of an upcoming paper by Richard Gray (under review). In this paper, Gray targets the view that pain is an experience which represents that a part of one’s body is (actually or potentially) damaged. No longer advocating an intensive account of pain, he now states that pain is rather an exteroceptive experience of noxious stimuli, at least in the case of exogenous (as opposed to endogenous) pain.
locative aspect, having phenomenal qualities, the provision of relevant information about the world, etc.) give us sufficient reason to classify pain experiences as perceptual experiences.

3. The appearance-reality objection

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

I agree with the critics that it cannot appear to me that I am in pain, while not really being in pain, at least after careful consideration (Tye 1995b, pp. 192-193). However, even if we grant that there are no such pain illusions and hallucinations, the appearance-reality objection is based on a category mistake. It falsely assumes that pain is an object of perception, and thus on a par with objects seen, heard, smelled, etc. Pains are intentional states which represent certain states in the world, namely (potential) bodily damage. The intentional objects of standard perception (such as sticks, events, odorants, etc.) are on a par with bodily damage, not with the pain sensations which represent it. What is analog to pain sensations are the visual,
auditory, etc. experiences (or sensations) which represent things like sticks. And in the same way that there is no discrepancy between how pain sensations appear to me and how they “really” are, likewise there is no discrepancy between how visual, auditory, olfactory sensations appear to me and how they “really” are. By contrast, in the same way that a seen stick might look bent while actually being straight, a part of my body may feel as if being (potentially) damaged, while actually being intact. Chronic pain or phantom limb pain are famous examples.

4. Murat Aydede’s argument from focus

Murat Aydede offers a related argument against intentionalist accounts of pain. The difference between pain and uncontroversial perceptual experiences is supposed to be manifest in our ways to talk about instances of illusion or hallucination. Aydede claims that while we withdraw perceptual reports when faced with evidence to the contrary, we do not do that in the case of pain “reports”. Let’s compare cases of visual and auditory misrepresentations with an alleged case of nociceptive misrepresentation. Imagine you enter a bus and see what looks like a flag outside the window. You utter

(i) I see a flag on my left side

and you tell your friend to look at it. But he replies that there is no flag. You look again and notice that the colors of the flag-like object are unusually faded. It turns out that this is only a reflection of a flag to your right. You withdraw (i), and might tell your friend that it appeared to you as if there was a flag to your left.
Now imagine that you want to buy a pair of jeans. You ask an employee about the price and the employee apparently replies “fifteen dollars”. If somebody had asked you to describe your auditory experience, you might have said

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

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

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

(iii) I feel pain in my left foot.

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

Put differently, Aydede’s “argument from focus” proceeds in the following way. If feeling pain amounts to perceiving a physical disturbance in a certain part of one’s body on a par with seeing a (material) flag or hearing “fifty dollars”, then we would expect the grammatical objects in pain reports to refer to physical disturbances, and not to subjective pain experiences. But this is not the case. Whereas the grammatical objects in

(i) I see a flag on my left side

(ii) I hear the words “fifteen dollars”

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

(iii) I feel pain in my left foot

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

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

(a) There is a red cube in front of me

(b) I see a red cube

(c) It seems to me that there is a red cube in front of me

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

In statements such as (a), we presumably make claims about particular objects or objective states of affairs in the world. Reports such as (c) or (d) are presumably about our subjective experiences, at least if “seems” and “looks” are used in a phenomenological as opposed to an epistemic way.\(^49\) We will deal with (b) below. Now, whereas philosophers such as Berit Brogaard count all four statements as perceptual reports\(^50\), Aydede does not. He believes that only (a) and (b), and these

\(^{49}\) Berit Brogaard illustrates this distinction well by means of two examples. If I say “It looks like the road is wet” and mean it in a phenomenological, as opposed to an epistemic sense, “a defeater is not going to change how things look. If I am told that the city has painted the roads to make them look wet as part of their drive-safe campaign, it will still look to me as if the roads are wet.” (2015, p. 239) Likewise, “[e]ven if I am told that the lines in the Müller-Lyer optical illusion have the same length, it will still look to me as if they have different lengths.” (ibid., p. 242).

\(^{50}\) Berit Brogaard can be said to consider (a)-(d) to be perceptual reports, since she defines perceptual reports as “utterances of sentences that contain a perceptual verb” (Brogaard 2015,
merely in most, not in all cases, amount to reports of one’s perceptual states. His judgment is based on his requirement that the verb in perceptual reports is used as a success verb, that is, based on the requirement that the utterer thereby commits him-/herself to a factual claim about an objective property (characterizable in physical terms). According to Aydede, this requirement is manifest in our practice to withdraw perceptual reports in the face of counterevidence. Accordingly, those statements which we do not withdraw in spite of counterevidence are not perceptual reports. Hence, when (c) and (d) are used in a phenomenological sense, they are not perceptual reports. Aydede’s narrow understanding of perceptual reports seems plausible, especially for those who, like me, assume that not every sensual experience amounts to a perceptual state, and who conclude that hallucinations are not perceptual states. However, it is one thing to say what should count as a perceptual state; it is another thing to examine how the verb “perceive” and its cognates are actually used. Some experimental philosophers have already shown that Aydede’s appeal to “our” linguistic practice, and to “our ordinary concept of pain” (2009, pp. 533, n.2, 534, 535, n. 6, 545, 546, …) is unwarranted. My criticisms consists in showing that statements such as (b) are

---

p. 237), and since she defines not only “sound”, “feel”, “taste”, “smell”, “see”, “hear”, and “perceive”, but also “look” (in the phenomenological sense) as a perceptual verb (ibid.). According to Aydede, “experiences that are intuitively of the same phenomenal kind […] are genuinely perceptual only if their report normally/dominantly uses success verbs, that is, takes the form exhibited by the likes of (1) [“I see a dark discoloration on the back of my hand”] and (3) [“I see a red cube partially occluded by a green ball to its left”], read transparently.” (2009, p. 545). By a “transparent reading” Aydede means that rendering such reports implies an existential (or factual) claim about an objective property characterizable in physical terms. For example, in the case of Aydede’s example (1) it implies the claim that there is a dark discoloration in the back of my hand that I am seeing (ibid., pp. 543-4).

52 Based on online surveys, Reuter, Dustin & Sytsma (2014) refute Aydede’s claim that “our ordinary concept of pain” is such that pain cannot consist in a physical feature or condition of a part of one’s body. Targeting certain statements they attribute to Aydede (2005, pp. 123-124), Reuter et al. use an empirical study to show that, pace Aydede, a majority of people
not always withdrawn in the face of counterevidence, partly because they are not always meant as factual claims about objective properties. Statements like (b) can be construed either as being about particular objects in the world, such as a particular red cube, or my subjective experience of it. This is supported by the way we talk about illusionary or hallucinatory experiences. For example, even though in the flag example above we will hesitate to say that I have seen a flag on my left side (given that there was no flag there), I might insist that I have seen some flag-like thing to my left. If used in a phenomenological sense, statements like (b) are thus not always withdrawn.

The same applies even to ordinary non-illusionary cases. Consider a situation in which Sylvia experiences the smell of a lasagna. There is no lasagna nearby. The only potential source is a spaghetti restaurant next door. Now, even if her interlocutors tell her that she probably confuses the smell of spaghetti with the one of lasagna, she may still insist that it is lasagna which she smells. Breathing in and out, she keeps on having that particular smell of a carrot lasagna in her nose. She may admit that there is probably no actual carrot lasagna around, and still believe that what she now smells is nothing but such a lasagna.

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

think that the statement “I see a dark discoloration on the back of my hand” can be correct even if the subject in question hallucinates, viz. even if the subject sees a (phantom) hand that does not exist. Hence, “see” is not used as a success verb here, that is, not as picking out existing objects in the environment (Reuter, Dustin & Sytisma 2014, pp. 93-94). Conversely, more than half of the survey participants stated that a person who takes an antidepressant with potentially strange side effects can hallucinate a pain, which implies that that the participants distinguish between real pain and illusionary pain. When asked about the possibility of hallucinations merely in one sense modality (in a second study), even 64.5% of the participants endorsed the possibility of pain hallucinations (ibid., pp. 84-6). Of course, we may reject such folk intuitions as wrong, but the point of Reuter et al. is that Aydede cannot appeal to folk intuitions (“our ordinary concept of pain”) in order to justify his claim.
There is a carrot lasagna somewhere close by. I smell a carrot lasagna. It seems to me that there is a carrot lasagna somewhere close by.53

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

53 An analog statement to (d) “The cube in front of me looks red” is omitted because we do not have an appearance verb for olfaction which has the same function as “looks”. We might construe “The odor (or air) around me smells as of lasagna”, but terms like “as of” are technical terms used in philosophical circles, not something non-philosophers would say to describe their experiences. An alternative is “The odor (or air) around me smells like lasagna”, but how “smell” is used in this statement will be as controversial as suggestions about the usage of “smell” in (b*). I therefore omit a forth way to express one’s olfactory experience.
We can find similar insistence in cases where we disagree about flavors. For example, if the flavor of a wine reminds me of strawberries whereas its flavor reminds you of peaches, it will be difficult for you to convince me that the wine tastes like peaches. Hence, I may not only insist on

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

but also to

(b**) This wine tastes like strawberries.

Aydede probably did not consider such examples because he compared nociception mainly to vision and audition. In case of seeing and hearing we readily correct statements in which we have mistakenly claimed that the content of our visual or auditory experience corresponds to some object or objective state of affairs in the world because such statements can often be easily falsified by others, and/or by our other senses.\(^\text{54}\) \(^\text{55}\) By contrast, perceptual reports about smells or tastes cannot be easily falsified by others. Of course, one could adopt Tyler Burge’s view and conclude that olfaction and gustation are not sense modalities (see next chapter). In chapter 3 I will provide reasons to believe that olfactory states are perceptual representations (and hence that olfaction is a perceptual modality), but here it will be sufficient to say that we are justified in taking olfaction and gustation to be sense

\(^{54}\) Another reason seems to be that smell, unlike vision, does not pick out the particular object that is responsible for the smell (Batty 2011, pp. 166-167). Clare Batty defends such a thesis, \textit{and} argues that smells nevertheless \textit{represent} objects as thus and so, even though not particular objects, but merely indefinite objects: there is something that smells thus and so (ibid., pp. 165-172).

\(^{55}\) This does not mean that all perceptual reports based on vision or audition are withdrawn in the case of counter-evidence. As I argued above, I believe that we can retain such statements as (b) even when we ourselves believe that there is no flag to our left, because the object of “see” can also refer to the subjective experience itself.
modalities, because both of them arguably meet the conditions I introduced in chapter 1.

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

(I) all our reports taking the form of (b) imply factual claims about non-mental objects and/or their objective properties, and

(II) we always withdraw standard perceptual reports in case of disagreement or counterevidence.

To be fair, at times Aydede writes as if he does not claim that all reports which take the form of (b) are perceptual reports, but only those in which the utterer factually uses the verb in question as a success verb, that is, those in which he/she would withdraw his/her report in the face of counterevidence. However, such a reading has the corollary that in cases where a person S is subject to an illusionary experience without knowing it, S will assume that his/her statements regarding this experience are perceptual reports whereas Aydede will deny that. What counts as a perceptual report would thus not be determined by the content of the actual utterance, but only by appeal to counterfactuals. Aydede could insist that in such cases we should not use “perceive” and its cognates in order to describe our experiences. However, then his argument would be a normative one. But as I understand Aydede’s argument from focus it is supposed to be an argument based on factual linguistic practice. Aydede claims that pain sensations are not perceptual states because reports about pains are (factually) used in a different way than reports about standard perceptual states, not that they should be used in such-and-such way. Hence, I reject this reading.

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

(iii) I feel pain in my left foot,

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

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

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

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

It is sufficient that we can merely conceive of such a case. Since Aydede (2009, p. 563) argues that there is a conceptual difference between standard perception and feeling pain, his thesis is falsified by it being conceivable that we withdraw pain reports in such cases.
I believe that rejecting assumptions (I), (II), as well as Aydede’s denial that we could withdraw pain reports are sufficient to refute his argument from focus. One question that remains though is why, if nociception is a sense modality, our perceptual reports are about pain, and not about the bodily harm pains are said to represent. For example, why do we say

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

rather than

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

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

---

56 For a similar response see Ritchie & Carruthers (2015, p. 358).
In his unpublished PhD thesis, Bain too ponders on the reason why we use mentalist concepts, viz. pain or hurt, in order to describe our pain experiences rather than ascribing an appearance to ourselves. Why do we say “It seems to me (visually) as though this apple is red”, but not “It seems to me (somatosensorily) as though this foot is damaged”? Bain conjectures that

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

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

Another plausible explanation is inspired by what Manolo Martínez writes. Against Tye’s strong representationalism, Martínez first takes sides with Aydede and argues that there seems to be an asymmetry between standard perceptual states and pain. For example, when we see something, “we are first and foremost interested in the features of the external world which the experience represents and only secondarily in the experience itself.” (Martínez 2011, p. 69; italics added). By contrast, when we feel pain, “our main object of interest seems to be the experience itself.” (ibid., p. 70;
Martínez suggests that the reason for our interest in the pain experience (as evinced by our practice to use “pain” and thus refer to our experience rather than to bodily damage, or whatever it is that pain represents) is that “pain feels awful, regardless of its success at representing the external world. This is why we want, first and foremost, to avoid this awfulness, independently of whatever it may […] represent.” (ibid., p. 71). If we follow such a suggestion, then it is the unpleasantness of pains that lets us focus on and talk about “pain” rather than the intentional object pains represent. I assume that all three suggested reasons affected (and still affect) the way we talk and think about pain and the bodily damage it represents.

5. Summary of chapter 2

In this chapter I argued that experiences of (actual or potential) damage fulfill the conditions for perceptual experiences. In section 2 I stated that pain is not simply the passive noticing of noxious things stimulating nociceptors, but that the experience of pain partly depends on higher cognitive processes. This does not exclude pain sensations from being perceptual states because the same happens in traditional perceptual modalities, a phenomenon coined cognitive penetration. Another reason for cases where pain and bodily damage dissociate is malfunctioning of the nociceptive system. In this context, I defended my thesis that pain represents a certain part of one’s body as actually or potentially damaged against the objection that the allegedly weak correlation between pain and bodily damage forces intentionalist accounts of pain to postulate so many malfunctions (misrepresentations respectively) that such accounts become implausible. At the end of section 2 I acknowledged that the nociceptive system is particular in that it
produces pain sensation not only when its sensory receptors are stimulated but also when they are damaged.

In section 3 I countered the argument that pain cannot be a perceptual state because there is no appearance-reality distinction regarding pain. Even though I accepted that we do not seem able to err about being in pain, we likewise cannot err about seeming to see, hear, or smell something. Pain is thus on a par with other perceptual experiences, that is, with the way it seems to me that something is the case, not on a par with the (physical) objects these experiences represent. Given that pain is an instance of a seeming, there is an appearance-reality distinction, namely between the appearance of (actual or potential) bodily damage, viz. pain, on the one hand, and the actual damage (or threat therefore) on the other hand.

In section 4 I argued against Aydede’s argument from focus. I argued, pace Aydede, that the verb “perceive” and its cognates (“see”, “hear”, etc.) are not always used as success verbs. Accordingly, our perceptual reports do not always imply factual claims about non-mental objects and/or their objective properties, but are sometimes about our subjective experiences. This is why, pace Aydede, (standard) perceptual reports are not always withdrawn in the face of counterevidence. Moreover, Aydede is wrong that it is not conceivable that we withdraw pain reports, as evinced by my two examples (phantom pain, dentist). At the end I offered a (speculative) explanation of why we do not express perceptual reports of (potential) bodily damage in objectivist, but in mental terms.
Chapter 3: Defending the perceptual account of pain
against Burge’s qualms

One of the things I mean by saying that pain sensations are perceptual is that by means of them we are able to acquire objective knowledge of the world. Pain sensations represent that a certain part of one’s body is (actually or potentially) damaged, and if this representation is veridical, then one’s body is indeed (actually or potentially) damaged. This is not entailed by intentionalism itself because intentionalism is compatible with idealism and other ontologies. Experiences could be construed as representing brain states, retina states, or sense-data rather than physical objects, their properties, and events in the world. But I commit myself to a realist version of intentionalism, and assume that the intentional objects of our perceptual experiences are naturalistic objects.

57 I am grateful to Keith Wilson for clarifying this point.
58 Actually, I think that the most plausible metaphysical view is an indirect realist one according to which our knowledge of the world is mediated by mental states. I hold such a view mostly based on the argument from hallucination, and on considerations about the causal processes that enable humans and other animals to perceive the world. After all, our perceptual experiences are the result of neural impulses. Sensory receptors respond to stimuli of some physical type and transduce them into electrical signals. The resulting intentional states and the phenomenal properties of what we see, hear, smell, etc. are constructions of our CNS, and only indirectly reflect the objects and events which are represented by the intentional states. My view thus differs for example from naïve realism, which, at least on some versions of it, holds that perceptual states are identical with material objects (see Martin 2004, pp. 56-7; Hatfield 2013, p. 965). By contrast, I assume that the perceptual states, that is, the mental states constructed by our CNS, are different from material objects. As Laurence Bonjour puts it, the content of our experience merely constitutes “a representation of the external material world, one that is caused by that world and that we are justified, on the basis of something like a causal or explanatory inference, in thinking to be at least approximately accurate.” (Bonjour 2013).
59 Such a realist version of intentionalism is compatible with the assumption that not all properties represented in our perceptual experiences are properties which are postulated in current theoretical physics. I have much sympathy for Gary Hatfield’s relationalist account of colors according to which colors are not such mind-independent properties of objects, but species-relative properties of things which cause experiences with various phenomenal characters in perceivers (see Hatfield 2009b).
In an influential article Kathleen Akins criticizes that naturalistic intentionalist accounts of mental states falsely assume that the function of the senses is to inform the organism of what is going on in the world (1996, p. 338). Akins grants that our thoughts can be about stable objects and objective properties in the world, but she denies that knowledge about the way the senses work will help us to explain the intentionality of thoughts. Adopting a Cartesian view, Akins argues that it cannot be the senses which are responsible for the stable and unified way we represent the world because we represent the world thus despite what we perceive, that is, despite the proximal stimuli which (in the case of visual experiences) constantly change whenever either the subject or the object moves, or whenever the light conditions change (ibid., p. 368).

According to Akins, the function of our sense modalities is not to depict the world as it is, but “to direct motor behavior in a timely and efficient fashion” (ibid., p. 353). Many authors will object that such a practical functions of the senses on the one hand, and their task to represent the world accurately on the other hand are compatible (as proposed for example by the representational-imperative view), and further assume that in order to fulfill their practical functions the senses need to cause

---

60 Akins argues similar to Descartes who inferred from his wax thought experiment that, based on our sensory experiences, we cannot recognize what external objects are (Cottingham, Stoothoff & Murdoch 1984, pp. 20-21). But whereas Descartes contends that it is our mind/intellect that lets us grasp the wax as flexible and changeable, or more generally lets us regard a thing that changes its form as an identical object, Akins does not suggest which human faculty is responsible for our (representational) thoughts apparently depicting the world more objectively than our senses. She merely makes the negative claim that it cannot be the senses. And, unlike Descartes, she plays with an anti-realist notion of the world as we think of it. According to her, the way we think of the world (namely as containing re-identifiable places and particulars) may not be a realistic representation of the world, but rather a construction of our mind (Akins 1996, pp. 368-369).
representations of the world. But Akins claims that the former can be achieved without the latter.  

Burge’s book *Origins of Objectivity* can be read as an objectivist reply to Akins, namely as the claim that our sensory systems do represent mind-independent features of the world insofar as they implement constancy mechanisms – mechanisms scientists posit only if the explanation of some behavior requires positing internal representations of distal stimuli (see below). Burge thus claims that at least for *some* sense modalities, science gives us good reasons to believe that the world is as it appears to us (as long as we are not subject to illusions or hallucinations). However, Burge argues that science does not give us any reason to conclude that pain sensations provide such objective information, and therefore concludes that pain sensations are not perceptual states. Burge’s attempt to rigorously define perceptual representational states has been very influential, and dealing with his approach will help clarifying what I mean when I say that feeling pain is a perceptual state. 

Now, I could challenge Burge’s conclusion regarding pain sensation by insisting that pain is a perceptual state because it satisfies the necessary conditions for perception introduced in chapter 1 section 5. But then Burge will probably reply that this only shows that I missed a necessary condition, namely the implementation of constancy mechanisms. In my view we should not to make the implementation of constancy 

---

Akins attempts to corroborate this claim *inter alia* by arguing, first, that our sensations are subjective because our senses – she focuses mostly on scientific insights about the way thermoreception (ibid., pp. 346-351), proprioception (ibid., pp. 361-362) and the vestibular sense work (ibid., p. 369) – are heavily affected by our interests and capabilities. For example, Akins construes thermoreception as informing the organism about any thermal events that are *relevant to the organism* – telling the organism, as it were, whether the stimulus in question is good or bad for it – rather than impartially signaling the objective temperature of the body’s skin (ibid., p. 349).
mechanisms a necessary condition because I believe that the concept of constancy mechanism is merely a placeholder for various assumptions about what it is that is detected by our sense modalities and about how to explain the subsequent behavior (see below). But for the sake of argument, I am going to grant Burge’s conditions for perception, and show that even based on his own requirements, he should conclude that pain sensations are perceptual states. Burge would thus have to conclude that there are constancy mechanisms implemented in nociception, but I myself will eschew such a conclusion because I believe that it is more informative to talk about the underlying criteria for constancy mechanisms than about these mechanisms themselves.

Before proceeding, a final point about terminology. For the sake of convenience the terms “representation” and “perception” (“representational state” and “perceptual state” respectively) will be treated more or less synonymously in this chapter. Burge assumes that perceptual states are representational states (2010, pp. xi, 5, 10, 310, 383), where being representational is mainly defined as intrinsically possessing truth- or accuracy-conditions (ibid., p. 390). Of course, there are non-perceptual representational states such as propositional thoughts, but I will neglect them in this chapter and simply use “representation” to stand for “perceptual representation”. This way, we can accept as valid reasoning that in some of Burge’s quotes as well as in the main text below, a statement about perception will sometimes be used to support a claim about representation or vice versa.

1. Burge’s criteria for perceptual representation

So why does Burge think that pains are not perceptual (and therefore not representational) states? As should be clear by now, the short answer is that he claims
that implementing constancy mechanisms is a necessary condition for perception\(^{62}\), and he argues that nociception does not fulfill this condition.

What are constancy mechanisms? Burge defines them as capacities that systematically “represent some given particular or attribute as that very particular or attribute under significant variations in registration of proximal stimulation” (ibid., p. 399). Like most philosophers and psychologists, Burge assumes that, at least in the veridical cases, none of our perceptual states results just from top-down processing, but involves the stimulation of sensory receptors such as photoreceptor cells by objects or events in the environment (including events in one’s own body). This is what Burge means by “proximal stimulation”. Importantly, the proximal stimulation caused by one and the same distal object, say the picture of a square, varies depending on one’s distance to the picture, the viewing angle, the light conditions, etc. Proximal stimulation is contrasted with distal objects, a term that Burge uses for actual objects or events in the environment that presumably cause the sensory receptors of the perceiver, and whose properties do not vary with the circumstances (in the way proximal stimulation does). So constancy mechanisms consist in whatever enables us (and certain other animals) to represent the properties of an object or event in the environment in a stable and accurate way – that is, represent its actual size, shape, color, lightness, or position – despite the variance in sensory receptor activity that occurs when the relevant circumstances change, for

---

\(^{62}\) Burge claims that “in a rough, non-criterial way, perceptual constancies are necessary as well as sufficient for perceptual objectification and perceptual representation” (2010, p. 413). Elsewhere he makes the same claim: “perceptual constancies are necessary as well as sufficient for perception, and hence for perceptual objectivity” (2009, p. 318, fn. 62). – “I conjecture that a sensory system is perceptual if and only if the system includes perceptual constancies” (2014, p. 399).
example, when either the object or the perceiver moves, or when light conditions change.

What reasons do we have to posit constancy mechanisms? There are two. First, in humans we posit them because we *consciously* perceive, for example, the color or the size of an object *as* (in some sense, and more or less\(^{63}\)) the *same* despite significant variations in illumination or in how much space the object takes up of our visual array. Second, in human and non-human animals, such mechanisms (and the corresponding representational states produced by these mechanisms) are posited in order to make sense of their behavior. Burge almost exclusively focuses on the latter reason due to his doubts that we can determine constancy mechanisms (purely) in a phenomenological way (ibid., p. 409, n. 44). He thinks that certain behavior can only be explained if we attribute constancy mechanisms to the organism in question. The attribution of constancy mechanisms goes hand in hand with the attribution of internal representations of actual objects and their properties to the perceiving individual, given that the constancy mechanisms are mechanisms that produce such representations (ibid., pp. 319, 395). In other words, Burge claims that whenever there is reason to attribute perceptual representational states (that is, states with veridicality conditions) to an organism, there is, by the same token, reason to attribute constancy mechanisms to it, or vice versa.

\(^{63}\) Based on his own experiences and phenomenological descriptions of others, Gary Hatfield emphasizes “that perceptual systems typically do not yield full phenomenal constancy: color vision does not fully discount illumination and other contextual factors; metamerism occurs within the range of natural illuminants; size and shape constancy are not complete (although phenomenal sizes and shapes are normally nearer to objective sizes and shapes than to projective ones)” (2009a, p. 209).
Attributing this thesis to Burge makes most sense of his statements about constancy mechanisms and representational states. However, Burge is not explicit on their relationship, and even makes statements which apparently conflict with my interpretation. For example, he states that being representational as well as being objective (besides being a state of the individual and being a sensory state) are necessary conditions for being a perceptual state (ibid., p. 368), and being objective involves being transformed by constancy mechanisms. Given that being representational and being objective are here offered as distinct necessary conditions for perceptual representations, being representational seems to be a condition that could be defined independently from being objective, and hence, independently from constancy mechanisms. This conflicts with many of Burge’s statements in which he speaks of representations as kinds of states which are associated with distinctive types of explanation in terms of states with veridicality conditions (ibid., pp. 9, 12, 296, 316-7, 319, 383, 394-5, 431). In these statements Burge seems to assume that the postulation of states with veridicality conditions – that is, states which are, accurately or inaccurately, about actual objects or events and their properties – in order to explain certain behavior is sufficient for postulating constancy mechanisms.

My interpretation also best explains why Burge does not ponder on the possibility of representational sensory states which are not perceptual. Such states should be possible if being objective is one further condition (besides being representational, being sensory, and being a state of the individual) for perceptual states. However, when Burge argues why being objective is a necessary condition for being a perceptual state, he does not mention such non-perceptual (that is, subjective?)
representational sensory states as states which have to be excluded. It seems as if Burge thinks that there are no such cases, assuming that all representational sensory states are instances of perceptual states.

This interpretation is also in accordance with his statement that perception, representation, and perceptual constancies (as the central instances of perceptual objectification) cannot be explained independently (ibid., p. 397). Burge seems to assume that it is only by means of constancy capacities that representations of distal objects (and their properties) are formed.

2. When to attribute representational states

In this section I will use two examples in order to illustrate when, according to Burge, we have to attribute representational states to an organism, to its sense modality respectively. On Burge’s account, we need to attribute representational states to the visual systems of frogs because their prey-catching behavior requires a distinctively representational explanation, that is, an explanation that appeals to states which are about (or refer to) things in the world, and which can be assessed with respect to properties like truth or accuracy. When asked why a frog snaps for a fly, biologists will appeal to representational states. For example, they might say that the frog

---

64 Burge mentions non-perceptual sensory states, or (presumably in humans) non-perceptual, phenomenally conscious sensory states (or “conscious feels” (ibid., p. 402)), but not non-perceptual representational states.

65 According to Burge, “to be representational a state must have veridicality conditions as an aspect of its nature – as an aspect of fundamental explanation-grounding kinds that it instantiates. […] A scientific understanding of [representational] states themselves invokes veridicality conditions. The veridicality conditions are aspects of the kinds of states that are involved. The laws that the states figure in are specifiable partly in terms of veridicality conditions. Science does not explain bacterial movement in terms of veridicality conditions. Bacteria do not think or perceive. Science does explain the formation of certain psychological states – most impressively perceptual states – in terms of veridicality conditions. Certain animals, including human beings, have veridicality conditions – kinds of representational states – as real aspects of their psychologies” (2014, p. 390).
perceived a fly, something that can be accurate or inaccurate. Now, frogs snap for all kinds of relatively small moving objects, not only flies. Hence, their prey-catching behavior cannot be explained by attributing the representational content of there being a fly (in front of it) to the frogs’ visual states. But likewise, the explanation cannot be that the frog snapped for a fly because frogs react to any dot on their retina that has the size and shape of a fly. For, as the philosopher Peter Schulte explains, research showed that frogs do not respond to all small, dark spots moving on their retina. If these spots are caused by large objects that are far away, frogs usually show no feeding response. And conversely, they do respond to large, dark spots if these spots are caused by small objects that are very close. In other words, frogs respond to the real size of objects, not to the size of retinal stimuli (Ingle 1968; Ingle and Cook 1977). Apparently, the frog’s visual system is able to combine information about the distance of the perceived object with information about the size of the retinal stimulus to produce an output that reliably indicates the real size of the object, and this output, probably a neural state in the frog’s optic tectum, determines how the frog reacts to the stimulus. The mechanism employed by the frog’s visual system is called a size-distance constancy mechanism. Similar constancy mechanisms seem to be involved in the frog’s perception of velocity and lightness (Stebbins and Cohen 1995: 48–50). (2012, p. 489)

So the frog’s snapping for a fly is explained by saying that it did so because it perceived a relatively small, moving object that has a certain degree of contrast with the background. Proposing that the frog exhibits prey-catching behavior whenever there is a cohesive series of retinal images of a certain size and contrast does not explain the frog behavior because it does not do justice to the empirical facts. This is illustrated by columns I and II of table 1. Proximal stimuli (here: the retinal image of the frog’s eye) cannot explain the frog behavior because different behavior occurs despite identity in proximal stimulation (“x” here stands for small, dark spots moving

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distal stimulus</td>
<td>A</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Proximal stimulus</td>
<td>x</td>
<td>x</td>
<td>y</td>
</tr>
<tr>
<td>Behavior</td>
<td>α</td>
<td>β</td>
<td>α</td>
</tr>
</tbody>
</table>

*Table 1*
on their retina). But given that the distal stimuli (here: the actual objects which cause the retinal images) have been different, postulating internal states that refer to these distal stimulus (as well as postulating constancy mechanisms that produce these internal states) is a plausible explanation of the situation. Likewise only reference to distal stimuli explains the situation described by columns I and III, in which we have identical behavior despite variation in proximal stimulation. That is, a frog would snap for a fly even though this fly produces a bigger retinal image when near and a smaller one when further off. In both situations the explanation must refer to representational states of actual objects and their properties, rather than to proximal stimuli. It is the necessity to attribute such representational states to an animal (and to postulate constancy mechanisms that produce such states) in order to explain its behavior that allows us, according to Burge, to speak of perception.

It will be helpful to compare the way we explain the frog behavior with explanations of the behavior of more primitive organisms such as bacteria. According to Burge and other authors\(^\text{66}\), such organisms (as well as artefacts) do not represent the world (as it is), because we do not need to refer to veridicality conditions in order to explain their behavior. The second example deals with magnetotactic bacteria, that is, bacteria which have sensors that respond to magnetic fields. Under certain conditions, moving in response to those fields leads these bacteria to areas with low oxygen, something that is beneficial to them. Their sensory registration can thus be construed as having the function to let them move toward oxygen-poor places. However, pace

\(^{66}\) See for example Akins (1996, p. 366) and Schulte (2015, pp. 125ff.). But see Dretske (1995, p. 2) and Millikan (see the next footnote) for opposing positions. For example, Dretske considers artefacts to be representing objective states of affairs, given that he defines representations as states that have a function to indicate a property of a certain domain of objects (1995, p. 28).
Ruth Millikan\(^{67}\). Burge denies that magnetotactic bacteria represent (and hence perceive) either oxygen poverty or the magnetic field. It can be denied that these bacteria perceive oxygen poverty because they are not causally sensitive to oxygen or oxygen poverty. Their states and movements are more reliably and more informationally correlated with magnetic forces than with oxygen or oxygen poverty (Burge 2010, p. 300). But Burge also denies that these bacteria perceive magnetic forces because we do not have to attribute to them states which are either accurate or inaccurate in order to explain their behavior. Regarding their behavior, Burge states

> Everything in the example can be explained using the notion of biological function (with respect to oxygen poverty), normal environmental conditions, and sensory discrimination (with respect to magnetic forces). (ibid.)

Burge does not make it explicit, but the key difference to the frog case presumably is that the proximal stimulation of the magnetic sensory cells cannot be different while the magnetic force stays the same.\(^{68}\) Consequently, table 2 will vary from table 1 above. Because the relation of distal to

\[\begin{array}{ccc}
\text{Distal stimulus} & I & II \ \\
\text{Proximal stimulus} & x & x \ \\
\text{Behavior} & \alpha & \alpha \ \\
\end{array}\]

\textbf{Table 2}

\(^{67}\) Millikan is an advocate of a teleosemantic account of representational content. She distinguishes between \textit{producers} (e.g. sensory receptors and early neural processes) and \textit{consumers} (subsystems of the organisms which make use of produced representational states, such as various practical reasoning and action-control systems) of mental representations. Millikan claims that it is the consumers that primarily determine the content of perceptual representational states. Roughly, a mental state \(M\) represents an external event \(S\), and thus has the content \textit{state }\(S\textit{ obtains}, if and only if a mapping relation between \(M\) and \(S\) is necessary in order for \(M\)'s consumer to fulfill its biological function, that is, to survive and/or to propagate. Regarding the \textit{magnetosomes} (little magnetic organelles that normally align themselves with Earth’s magnetic field) of anaerobic bacteria, Millikan writes that “intuition tells us that what the pull of the magneto-some represents is the whereabouts of oxygen-free water” (1989, p. 290), given that poverty of oxygen is beneficial to the bacteria’s survival.

\(^{68}\) Schulte argues in this way. According to him, “the orientation of the bacterium is a direct result of the force exerted on the magnetosome chains by the magnetic field” (2015, p. 125). Magnetosome chains are structures in magnetotactic bacteria that act like a compass needle to orient these bacteria in geomagnetic fields.
proximal stimulus is fixed in our bacteria case, their behavior can be explained by referring just to the proximal stimulus, viz. the stimulation of their magnetic sensory cells. Reference to (and hence representation of) the actual magnetic force is unnecessary. According to Burge then, these bacteria move toward oxygen poor regions not because they perceive oxygen poor regions or magnetic fields, but rather because they are pulled toward a certain magnetic force which correlates with oxygen poor regions.

Burge’s distinction between perceptual (sensory) states and non-perceptual sensory states hence depends on what we need to posit in order to explain the behavior that is related to (is initiated by?) the sensory state. If we need to posit an internal representation of some particular, some property, or some relation in order to explain the relevant behavior, then we should attribute a perceptual state to the organism. But if we do not need to posit such a representation, but can explain the behavior by appealing to the organism’s discriminative capabilities, to the biological function (survival and propagation) of the sensory states, and to environmental conditions, then there is no need to posit perceptual states.\footnote{This distinction between explanations which invoke internal states which refer to distal objects and events beyond the proximal stimuli on the one hand, and explanations which invoke biological functions (and thus the benefits of certain behavior and perceptual systems) presupposes that the former is not reducible to the latter. And indeed Burge fiercely rejects Millikan’s and Dretske’s attempts to account for veridicality (and error) by means of biological function (Burge 2010, pp. 293-303). However, his arguments are not conclusive, and it does not seem to be impossible to give a teleological account of states with intentional content. If such an account is plausible, then Burge’s refusal to ascribe representational content to states of those organisms whose behavior can be explained in an evolutionary way will be found wanting. However, my goal in chapter 3 is to show that Burge ought to treat pain (and olfactory) experiences as representational/perceptual states even based on his own criteria, and thus independently of the question whether or not veridicality (and error) can be accounted for by means of biological function.} Note that Burge thus offers a way to distinguish perceptual (sensory) states from non-perceptual sensory states without
any explicit appeal to constancy mechanisms. This reveals that the condition of constancy mechanisms for perception is just a convenient shorthand for the necessity to posit representational states.\textsuperscript{70} Hence, the \textit{long} answer to the question why Burge thinks that pains are not perceptual (and therefore not representational) states is Burge’s assumption that we can explain pain-behavior in terms of sensory discriminatory abilities, biological function and environmental conditions, making the postulation of states which are, accurately or inaccurately, about actual objects or events in the world (and the postulation of mechanisms which produce such states) unnecessary.

According to Burge, vision, hearing, touch, and proprioception exhibit constancy mechanisms (2010, p. 414), nociception apparently does not (ibid., p. 421). Burge holds that we do not need to posit an internal representation of some distal particular, property, or relation in order to explain pain and the behavior that it induces. Pain is simply a functional response to the stimulation of nociceptive receptors. When nociceptors fire, the subject will usually be in a state that leads to pain-behavior – whatever caused the nociceptors to fire. Nociception then is not a perceptual system which has the function to represent objective features of the world. Its only function

\textsuperscript{70} To be fair, Burge writes at some point that his characterization of constancy mechanism was not supposed to be a definition, because it presupposes what it was supposed to explain: namely perceptual representation. Recall that Burge takes perception to be representational, and that he claims that a necessary condition for perception are constancy mechanisms. But since he characterizes constancy mechanisms in \textit{representational} terms, constancy mechanisms cannot be used to distinguish perception/representation from non-perception/non-representation. Burge is aware of this and simply leaves it to “empirical theory” to identify cases of constancy mechanisms (2010, p. 413). Of course, this does not solve the circularity problem, but Burge simply insists that he does not offer a \textit{definition} of perception here. Nonetheless, I believe that what he writes in other passages (especially the ones I mention in chapter 3 section 1) suggests that it is the postulation of representational states based on certain behavior that ultimately provides the criterion for distinguishing perceptual states from non-perceptual states in Burge’s framework.
is to facilitate the survival and propagation of the organism, reference to which explains nociceptive states as well as the resulting pain-behavior.

Before I challenge Burge’s pain thesis, I will first challenge Burge’s even more surprising conclusion that olfactory experiences are not perceptual states either. Again, the superficial question will be whether there are constancy mechanisms involved in olfaction or not. But constancy mechanism is a theoretical concept. It is not something we can discover by dissecting the nose. The question therefore is whether olfaction fulfill the criteria for constancy mechanisms or not. I will argue that olfaction indirectly fulfills these criteria. I will reason that the phenomenon of olfactory illusions demonstrates that we can distinguish between accurate and inaccurate olfactory sensations. And being able to distinguish between states that accurately or inaccurately depict the world suggests that olfactory experiences represent the world to be a certain way. By Burge’s own standards, this should result in olfactory experiences being perceptual states. And if his denial that olfactory experiences are perceptual states is mistaken, then we have another reason to be suspicious about his denial in the case of pain.

3. Human olfaction as a perceptual system

Before we turn to Burge, it will be helpful to clarify the terminology because “smell” (as a noun) is often used either to refer to

(a) an olfactory property of an object (e.g. in “This rose has a nice smell.”),

(b) a chemical compound (i.e. an object) which is emitted by liquid or solid substances and which usually spreads in the air close to that substance (e.g. in “Are you aware of this smell?”),
(c) one’s experience of such a compound (e.g. in “I love this smell.”).

Based on the suggestions made by Clare Batty (2010a, p. 1147) I use the noun “smell” to refer to (a) – more precisely, to (a) as presented in olfactory experience –, the noun “odor” to refer to (b), and “olfactory experience” to refer to (c). In other words, “smell” is used when I talk about properties, and “odor” when I talk about objects. “Odor” is used here to refer to chemical compounds which are experienced as either pleasant or unpleasant. Hence, it does not have a negative connotation, in contrast, say, to “stink”. Finally, I will use the term “odorants” to refer to the liquid or solid substances which emit odors. So much for terminology.

Based on his condition that constancy mechanisms are necessary for perception, Burge concludes that neither the chemical senses (olfaction and gustation) nor thermoreception are perceptual systems (2010, pp. 415-416). By contrast, I believe that we should not adopt such a revisionary account of our senses. It is true that we are mostly aware of odors only when there has been some olfactory change in our environment (see Köster, Møller, and Mojet 2014). However, if we smell a rose, gas, perfume, smoke, or feces, and are aware of it, we assume that we perceive something objective in our environment. It is thus counterintuitive to say that olfactory sensations are not about the world, but merely about the sensory states themselves.

---

71 Burge grants that there can, in principle, be a location constancy for olfaction through single or relatively short-term sensory registrations under certain limited conditions. However, he rejects that this exceptional case amounts to perceptual constancies (2010, p. 415).

72 Even Arthur David Smith, who, like Burge, denies that our experience of pain are perceptual, and who claims that our sense of taste as well as our sense of surface temperatures are only perceptual when combined with a sense of something resisting one's movement (something Smith calls “Anstoss”), does not deny that olfactory sensations are perceptual (A. D. Smith 2011).
A good way to reveal the implausibility of Burge’s denial is to compare what the “inaccuracy” of (non-perceptual) sensory states on the one hand, and perceptual states on the other hand, amounts to on Burge’s view. When a perceptual state is inaccurate, it misrepresents what is in the world. By contrast, if an allegedly non-perceptual sensory state is “inaccurate”, this only amounts to saying that it does not serve the organism’s needs (Burge 2010, pp. 410-1). I put “inaccurate” in quotation marks because Burge would deny that we can speak of accuracy in the first place. He would maintain that the only information inherent in such states that comes close to being accurate or not is being beneficial or not (which often correlates with these states being pleasant or not). Hence, on Burge’s account, if an odorant causes olfactory experience of type \(x\) on most occasions, but, due to some non-standard circumstances, causes olfactory experience of type \(y\) on a certain occasion, \(y\) will not misrepresent the odorant. According to Burge, \(y\) would not be inaccurate, but simply different from \(x\). However, I believe that this is not the case, given that we can and do assess our olfactory experiences not only regarding their phenomenal difference or regarding their hedonic tone, but also regarding their accurateness. This is evinced by cases of olfactory illusion and hallucination. If it seems to me that there is a smell of a carrot lasagna somewhere close by even though all my other senses tell me that there is no carrot lasagna around – say, because I have this olfactory experience while I am swimming in an enclosed swimming hall (with no food or kitchen around) –, then I will conclude that this olfactory experience is a misperception, more precisely an olfactory hallucination. And the possibility to misperceive odorants entails the possibility to perceive them (in veridical cases).
According to Richard J. Stevenson, there is good empirical evidence for there being olfactory illusions and hallucinations, even though these are – unlike many visual, auditory or tactile illusions – typically not noticed by the subject. Here are three of his examples. First, experiments revealed that the fluid dihydromyrcenol – a synthetic odorant with a metallic citric-floral character – “can be perceived as smelling more ‘woody’ when smelled in the context of citrus smelling odors and more ‘citrusy’ in the context of woody smelling odors” (Stevenson 2011, p. 1189). Stevenson plausibly suggests that this parallels relative size illusions such as the Ebbinghaus illusion (see figure 3), where a central circle surrounded by large circles appears smaller than a central circle of the same size surrounded by small circles. In both cases we misperceive a property of an object (the smell of the odorant under standard conditions; size) due to nearby similar objects distorting our perception. People familiar with the Ebbinghaus illusion know that their visual impression misrepresents the actual size of the central circle. Likewise, people familiar with dihydromyrcenol know that their olfactory experiences of it in the vicinity of odorants which emit citrus or woody smelling odors misrepresent the properties of the odorant dihydromyrcenol.73

---

73 Which properties exactly do the olfactory experiences misrepresent? I take these properties to be dispositional properties, that is, dispositions of odorants to cause certain phenomenal experiences in us. For example, roses have the dispositional property to cause in us the olfactory experiences we associate with roses. I hence advocate a relationalist account of olfactory experiences. However, there is a disagreement about the nature of olfactory experiences. For example, Clare Batty claims that “a given olfactory experience represents that there is something or other “here,” or “at” the perceiver, that has certain olfactory properties” (Batty 2014, p. 2; italics added) such as “smoky” or “lavendery” (Batty 2010b, p.
Second, “the perceived location of an odor can be shifted from the tip-of-the-nose to the mouth, even when the odor is still presented orthonasally, if a taste is present in the mouth” (ibid., p. 1890). Third, as an example of an intensity illusion Stevenson points to the fact that “[t]he presence of color, relative to no color, makes an odor appear to smell stronger, even though the odor stimulus remains constant” (ibid., p. 1894). Stevenson argues that the last example parallels the Charpentier illusion, where a person has the impression that a larger object weights more than a smaller

531). In contrast to my view, she holds that the olfactory properties represented in olfactory experiences are properties not of odorants, but of odors (ibid., p. 532). She seems to arrive at this conclusion not through positive evidence – she explicitly states that this is not something that olfactory experiences by themselves tell us, but rather something which we come to know by “other considerations” (ibid., p. 533) – but through excluding that the olfactory properties represented in olfactory experiences could be properties of odorants. Batty argues that olfactory experiences do not represent odorants, their properties respectively, because she assumes that olfactory experiences represent something as being “here”, that is, in the vicinity of the subject. She takes this restriction to the (close) vicinity to entail that a lot of our olfactory experiences would turn out to be misrepresentations if construed as representing odorants (and their properties) because we often smell odorants which are relatively far away, for example, the garbage outside of our flats (when the windows are open) (ibid., 532). In my view, Batty’s argument is much weaker than she assumes. I believe that it is more plausible to assume that the area which counts as “here” is much larger than Batty believes. In her example, this would include the garbage outside of her apartment. This is especially plausible if we take into consideration that our olfactory system evolved at a time in which humans lived in more or less open areas rather than enclosed ones, such as houses. I assume that our olfactory system stood the test of time because it was useful not only to know what happens two or three square meters next to me, but also farther away. This does also justice to the biological functions of olfaction which presumably consists in the detection and localization of edible food (including the avoidance of poisonous substances), the evasion of potentially dangerous enemies (Moncrieff 1967, pp. 2-8), the recognition of blood-related kin (Porter, Cernoch & Balogh 1985), and thus presumably the avoidance of incest. What the olfactory system is supposed to detect then are not odors, but (ultimately) odorants, such as food, poisonous substances, animals, and kin/non-kin humans respectively.

74 But see Lim & Johnson (2011) whose experiments (with retronasal stimulation) suggest that the referral to oral cavity and/or tongue will work more or less only if the taste in the mouth is one that usually co-occurs with the relevant odor, for example, sucrose in the case of vanilla odors.

75 In the last two quotes in the main text, Stevenson writes as if the perceptual object of olfaction are odors. Like Batty, he probably assumes that that olfactory experiences represent odors. For reasons laid down in my second to last footnote, I hold that olfactory experiences rather represent odorants. So according to my view, we should replace “odor” by “odorant” in Stevenson’s quotes in the main text. I think this does not affect the evidence for olfactory illusions and hallucinations.
object (with otherwise similar properties and the *same* weight). In both cases the experience of one property (color; visual size) affects the experience of another property (intensity of the smell; weight).

If the above examples indeed constitute cases of olfactory illusion and hallucination, and if cases of illusion are cases in which we *misperceive* some of the object’s properties, it stands to reason to say that we *perceive* smells in veridical cases. Now, some people doubt that these cases really constitute examples of illusions and hallucinations. For example, Batty argues that these examples are not properly labelled “illusions” because the ordinary concept of illusion presupposes that we *misperceive* some properties of a particular object. But, Batty claims, in olfactory experience, we are not presented with a particular object, but merely with *something or other* that has (or seems to have) certain properties (Batty 2014, pp. 2-3). Even though I disagree with Batty on the representational content of olfactory experiences (see footnote 73), my point against Burge is not affected by the correctness or falsity of Batty’s way to conceptualize the content of our olfactory experiences, since Batty agrees that the upper examples reveal a disparity between some objective state of the world and one’s perception of it. She writes that

my notion of non-veridicality for olfactory experience is no different than Stevenson’s notion of illusion. Remember that, according to Stevenson, an illusory experience involves “a disparity between some objective state of the world and ones [sic] perception of it” (1888). But this is just what, on my notion of non-veridicality for olfactory experience, a non-veridical experience involves. […] Stevenson’s notion of illusion requires that we ask whether that degree of woodiness is instantiated by some state of the environment, where “environment” presumably denotes the space around the perceiver eligible for inhalation. But my notion of non-veridicality asks the same—that [i]s, whether that degree of woodiness is instantiated at the perceiver. […] Just like Stevenson’s notion of illusion, my notion of non-
veridicality does not ask after any particular thing that appears to be F. (ibid., p. 7)

Hence, even though there is disagreement about the exact nature of representation in olfaction, both Stevenson and Batty accept that we can assess olfactory experiences for veridicality (ibid., p. 6), and that is what is important for my argument against Burge. Consequently, if the above examples constitute cases in which there is a disparity between smells (odorants respectively) on the one hand and olfactory experiences on the other hand, then the claim that we assess olfactory experiences only regarding their promotion of our needs is false. Accordingly, if we can assess olfactory experiences also as being accurate or inaccurate, then olfactory experiences are not just functional responses to the stimulation of olfactory receptors, but genuine perceptual states.

As written above, Burge’s crucial criterion for perceptual states is what we need to posit in order to explain the relevant behavior. In the case of olfactory illusions and hallucination, the question then is whether we can explain the (verbal) behavior in these cases by appeal to our sensory discriminatory abilities, to their biological functions, and to the environmental conditions, or whether we need to invoke representational states, that is, states with veridicality conditions. In general Burge assumes that olfactory-related behavior can be explained without positing representational states. But I think that this is not possible in the above cases. How can we explain, for example, the surprise the subjects express when they suddenly

---

76 Burge expresses this assumption *inter alia* when claiming that “[p]roximal registration of a chemical blend, together with registration of intensity and distribution of registrations on the body, suffice” (2010, p. 415) to enable (and to explain) olfaction-related behavior. “Scientific accounts of [olfactory or gustatory] operations do not, for the most part, make non-trivial appeal to sensory states with veridicality conditions” (ibid., p. 416).
experience the location of the odor(ant) to be in the mouth rather than the tip-of-the-nose other than by their realization that their experience misleadingly indicates that the smell comes from their oral cavity rather than from the front of their nose? At first, they might simply experience that the apparent location of the odor(ant) has changed. They come to realize that it is an illusion when they come to know (probably by vision) that the location of the emitting odorant has not changed. This is on a par with illusions like the Ebbinghaus illusion or the Müller-Lyer illusion (figure 4) in which subjects realize that they undergo an illusion only if they are told that the size of the central circles (the length of the horizontal lines respectively) are identical, or if the subjects confirm it by measuring the relevant size themselves.

I conclude that Burge should accept that (human) olfactory states are perceptual states. But could Burge not grant that there sometimes is a disparity between odorants and our olfactory sensations of them, and nonetheless insist that (human) olfaction is not a perceptual system because it does not implement constancy mechanisms? I think Burge cannot argue in this way because he assumes that the attribution of perceptual representational states (including misrepresentations) to an organism goes hand in hand with the attribution of constancy mechanisms that produce such states (Burge 2010, pp. 9, 12, 296, 316-7, 319, 383, 431; see also section 1). Recall that the requirement of the presence of constancy mechanisms for perception seems to be just shorthand for the requirement to posit (perceptual) representational states in order to explain certain behavior that is related to certain sensory states.
That there are constancy mechanisms in olfaction on a par with visual constancies (e.g. shape, size, color, lightness, distance, location constancies) and auditory ones (e.g. speech perception, identification of musical instruments) is a claim made inter alia by Stevenson (Stevenson 2011, p. 1892). Stevenson argues that there are two perceptual constancies in olfaction, one concerning the intensity of an odor, another concerning its quality. Regarding the first, Stevenson notes that human subjects experience the intensity of an odor as stable independently of whether they take a big or a little sniff when smelling an odor (and thus independently of the concentration of an odor over the olfactory epithelium, that is, over the tissue inside one’s nasal cavity which contains olfactory receptors, and independently of the resulting size of the neural response of the olfactory nerve). His explanation is that the human olfactory system represents the (actual) intensity of the odor by combining information about the size of the neural response of the olfactory nerve with information about the rate of airflow over the olfactory epithelium. This situation could be described by table 3.

(Table 3 differs from tables 1 and 2 because Burge focuses on behavior whereas here what is constant is the olfactory experience in question.) In column I and II we have the same distal stimulus (the mean concentration of an odor in the air around the subject; not its concentration over the olfactory epithelium77) and the same olfactory experiences despite variance in proximal stimulation (the

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distal stimulus</td>
<td>A</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Proximal stimulus</td>
<td>x</td>
<td>y</td>
<td>y</td>
</tr>
<tr>
<td>Olfactory experience</td>
<td>€</td>
<td>€</td>
<td>£</td>
</tr>
</tbody>
</table>

Table 3

77 In accordance with what I write in footnotes 73, 75, and 79, I take the distal stimulus to be the odorant (which emits an odor with a mean concentration in the air around the subject), not the odor. But I chose to stick to Stevenson’s framework in order to pay tribute to him and his claim that there are constancy mechanisms involved in olfaction. Nonetheless, I believe that same could be said with odorants as the distal objects of olfaction.
concentration of an odor over the olfactory epithelium). By contrast, columns I and III describe a potential situation in which a difference in the mean concentration of an odor in the air around the subject will lead to a different proximal stimulation and a different olfactory experience. If this is correct, and we accept phenomenal constancy (not only constancy in behavior) as evidence for perceptual constancy, then it is plausible to infer that our olfactory sensory states represent distal stimuli.

Regarding the second constancy, Stevenson notes that we can recognize smells such as the smell of coffee even if the olfactory epithelium is stimulated by a chemical compound whose constituents partly vary from the constituents that normally make up what we call coffee aroma. Stevenson claims that our brain does not require that the olfactory input perfectly matches a template of patterns of receptor excitation stored in the olfactory cortex, and that this flexibility allows us to recognize particular smells despite the complexity of the olfactory environment.\(^\text{78}\)\(^\text{79}\)

Despite these phenomena, Burge has not changed his mind since then. In a paper from 2014 he mentions, besides vision, only touch, proprioception, and hearing as

\(^{78}\) See Stevenson 2011, p. 1892. For a clear and more elaborate reconstruction of the two perceptual constancies proposed by Stevenson see Batty 2014, p. 6.

\(^{79}\) The second phenomenon is problematic, since constancy mechanisms have been defined as whatever enables us to represent the actual properties of an object or event in the environment despite variance in sensory receptor activity. If we followed Stevenson and took odors to be the distal objects that we perceive by means of olfaction, then two different chemical compounds should yield different proximal stimulation and consequently different olfactory experiences. However, in the above case, odors with partly different constituents – which should make these odors different odors – yield the same sensation. But then again, it might be claimed that such fine-grained distinctions between odors are too strict. It might simply be the case that what we call the “coffee aroma” is not identical to a certain chemical compound (with molecules a, b, c), but rather corresponds to a set of similar chemical compounds (some of which lack the molecule c, others have an additional molecule d, etc.). I leave it open whether the second phenomenon constitutes what Burge calls a constancy mechanisms, and assume that the first phenomenon and the evidence for olfactory illusions and hallucinations give us good reason to believe that there are constancy mechanisms in (human) olfaction.
perceptual systems (2014, p. 400), thus suggesting that he still holds that the chemical senses are not perceptual ones.\textsuperscript{80} Does Burge have other reasons for his insistence?

When I asked whether Burge can grant that there sometimes is a disparity between objective odors and our olfactory sensations, and nonetheless insist that (human) olfaction is not a perceptual system because it does not implement constancy mechanisms, I kept quiet about one specific move Burge could make. He could insist that he merely denies that (human) olfaction \textit{in itself} is a perceptual system. And indeed he explicitly allows that the chemical senses might be perceptual when supplemented by input from other sources (ibid., p. 415). Burge could thus argue that our assessment of olfactory experiences as being accurate or misleading is based not on olfaction alone, but also on input from other senses and/or cognition. For example, in the lasagna case above, critics might say that the olfactory experience in itself does not tell us whether it is veridical or not, and that discovering the hallucinatory nature of the experience requires the input, say, from vision and/or certain cognitive processes, such as the thought that it is very unlikely that there is a (recently cooked) lasagna inside this swimming hall. Doesn’t this show that olfactory experiences in themselves do not represent anything?

\textsuperscript{80} Maybe Burge agrees with Matt Nudds who grants that there are no constancies in (human) olfaction because the mechanisms mentioned by Stevenson are mechanisms of pattern-matching rather than constancy mechanisms (see Nudds 2012, p. 165, n. 10). However, it is doubtful that Burge could deny, especially in the case of the first phenomenon, that there is a constancy mechanisms involved given that we are able to explain the constant experience of the intensity of odors apparently only by attributing a representational state to the human subject.
I believe that such a strategy is based on two misconceptions. First, not only olfactory experiences but also paradigmatic perceptual experiences do not tell us on their own whether they are veridical or not. Consider the situation in which you encounter a stick half-immersed in water. Without touching the stick or without any knowledge about optical refraction, you will not know whether the stick is really bent or not. Hence, even in vision we need input from other senses and/or cognition to assess whether a particular experience is veridical or illusionary. But what about impossible figures, such as figure 5? It seems that we know that they cannot be veridical simply by looking at them. Isn’t this a counterexample to my claim that no perceptual experience by itself tells us whether it is veridical or not?

Impossible figures are striking examples of visual illusion, but the realization of their illusory character does involve cognitive processes. When trying to look at figure 5 as a whole, we usually are not aware of its illusory character. It is only when our gaze oscillates between the top of the figure (with its two rods), and its bottom (with its three cylinders) that we realize that something is wrong with this image. And the realization involves some cognitive processes. We compare the two ends of the figure and recognize that this figure is impossible. Hence, this visual experience by itself does not tell us that it is illusionary either.

The second misconception of the proposal above is even more fundamental. The proposal presupposes that we can assess the perceptual status of sensory systems in isolation from other sense modalities. But psychophysical and philosophical studies have cast doubt on the possibility to individuate the senses in a neat way (Macpherson 2011; Matthen 2015). For example, cross-modal effects, such as the
McGurk effect\textsuperscript{81}, demonstrate that our senses are more interconnected than we usually assume (see Bayne and Spence 2015, p. 612; B. Smith 2015, pp. 320, 333, 344). Casey O’Callaghan even argues that “some intermodal feature instances are perceptible only through the coordinated use of multiple senses” (2015, p. 553; italics added) and thus denies that what we perceive is the sum of what each sense alone provides. For example, if we listen to a good ventriloquist, we genuinely have the impression that the words spoken by the ventriloquist are emitted by his/her dummy. The words seem to come out of the dummy’s mouth, not the ventriloquist’s. Tim Bayne and Charles Spence seem to agree with O’Callaghan’s above claim (Bayne & Spence 2015, pp. 614-615), and rephrase O’Callaghan’s argument in a conditional way:

If, in ventriloquism, it is internal to the content of one’s perception that what one sees is identical to what one hears, then it will not be possible to exhaustively capture the nature of one’s experience in purely visual and purely auditory terms” (ibid., p. 615).

Do we have any reason to reject the antecedent of this conditional? We will reject it if we assume that our judgment that what we see is what we hear does not directly ensue from our experience, but is due to some kind of inference we render on top of our experience. Such an assumption might be based on the fact that some people can

\textsuperscript{81} Matthen concisely describes the McGurk effect. “When you listen as well as watch somebody uttering the syllables /ga/, / ga/, /ga/, you may well feel that the \textit{look} of the mouth is completely discrete and different from the \textit{sound} of the phoneme: one is a bodily movement revealed by looking; the other is a sound that you hear. But McGurk and MacDonald (1976) performed the interesting experiment of filming a speaker saying /gal/, /gal/, /gal/, and substituting an audio track of the sound /bal/, /bal/, /bal/ (synchronized with the lip movements). Upon watching this mismatched audio-visual clip, subjects automatically and irresistibly hear /da/, /da/, /da/, a phoneme intermediate (in terms of articulation) between the visually presented /ga/ and the auditorily presented /bal/.” (Matthen 2015, p. 576). The McGurk effect demonstrates that vision contributes to the way we perceive phonemes, and thus indicates that phonemes are detected genuinely multisensory, that is, only where visual perceptual processes work together with auditory ones.
see such a scene without hearing it (viz. deaf people), and that some people can hear such a scene without seeing it (blind people). However, the whole point of the audio-visual effect of ventriloquism is that we could not reproduce it if we took the experiences of a deaf person seeing the dummy’s movements, and supplemented it with the experiences from a blind person hearing the ventriloquist’s words. For it is not the case that we hear someone talking, see someone open and close his/her mouth, and then conclude that it must be the dummy which talks because it is the one who opens and closes its mouth. At least, such a conclusion is not something we render consciously. If it were, then our conclusion should be sensitive to our beliefs. But given that most of us believe that dummies cannot talk, a conscious inference can hardly explain the phenomenology of the ventriloquism experience. For we have the impression that the dummy talks despite our belief that dummies cannot talk, and are accordingly surprised by the ventriloquism effect. I therefore conclude that such intermodal effects as well as the cross-modal effects demonstrate that our experiences cannot always be attributed to the workings of a sense modality working in isolation from the others. As Jose Luis Bermudez nicely puts it:

What we experience in sense perception is a presentation of the world that integrates information from all modalities […]. This is clearly the case when we are dealing with the perception of common sensibles. The shape that I see is seen as the very same shape that I could close my hand around. (1998, p. 141)

With regard to olfaction, Barry Smith emphasizes that smelling is not a unimodal experience because most odors do not only stimulate the olfactory epithelium, but also the trigeminal nerve which is sensitive to tactile, proprioceptive, and nociceptive stimuli (B. Smith 2015, p. 346). Consequently, Burge’s assumption that we could render a verdict about the perceptual status of a sense modality in isolation of other
senses seems ill-advised. As we will see below, my own thesis that pain is a perceptual state does not require pain to be the result of the workings of one sensory system in isolation from others. So let’s move forward to finally see which reasons we have for taking pain to be a perceptual state.

4. The localization of pain

What positive reasons do we have to assume that pains are perceptual states? If we concur with Shoemaker’s conviction that perception is what explains how we gain knowledge of concrete objects of the world (1986, p. 109), then we do have a reason to consider pain a perceptual state. For, more often than not, we discover some (potential) damage to our bodies when we feel pain, and thus gain knowledge about our bodies, that is, concrete objects.

But I will focus on our ability to locate pain sensations here. Having a location is something that pain shares with paradigmatic perceptual states. Bermudez takes it that “[s]ense perception generally involves localizing what is perceived within an egocentric frame of reference centered on the perceiver’s body.” (1998, p. 142). For example, we see objects as to our left or right (and as close to us or far off), hear sounds coming from a certain direction (and being more or less far away), by means of touch and proprioception we feel objects as to our left or right (and as close to us

---

82 Christopher Hill argues that we ascribe a location to the object of our awareness while feeling pain, just as we do in standard perception (2005, p. 78). Peter Hacker and his co-author M. R. Bennett likewise accept that we can assign a (somatic) location to pain, even though they convincingly argue that the preposition “in” in “pain in the knee” is different from the one in “the penny in the box”, since pain is not an object, let alone one that is independent of the knee (or the subject) (2003, pp. 122-125). See also the debate on the location of pain between John Searle on the one hand, and Bennett and Hacker on the other hand in Bennett, Hacker, Dennett & Searle (2007, pp. 117-125), as well as Jackson (1977, pp. 73-83), Hyman (2003), Bain (2007), and O'Shaughnessy (2008, ch. 6).
or far off), we smell odorants at the nose or in the mouth, and experience taste as in the mouth (even when lacking tactile sensations of an object there) (Ayers 1991, p. 163). This contrasts with emotions which are often taken as not being perceptual states. Emotions do not have a location. I do not feel fear at my skin, even though I may have goose bumps there. I do not feel jealousy in my neck, even though my neck may get tensed when I think of my lover flirting with another person. The contrast with emotions and the commonality with typical perceptual states give us reason to believe that pain too is a perceptual state.

Moreover, the fact that we can locate our pain sensations in space suggests that by means of pain we detect an objective feature of a part of our body (see for example Tye 1995b, pp. 112-113; 2002, pp. 142-143). Location is a spatial property, and many philosophers have argued that there are good reasons to believe that in the case of spatial properties, unlike in the case of secondary properties such as color, our senses inform us of properties which cannot be merely the result of an idiosyncratic sensory system. In other words, spatial properties such as shape, size, and location are taken to be mind-independent properties of objects. For example, Charles Siewert argues that the spatial aspects of our visual experience are objective because we presumably cannot think of an alternative way how the various things we see as being shaped, sized, and positioned in a certain way could actually be systematically arranged in a different way than the apparent one (1998, p. 237). Spatial properties

---

83 Whether the experiences we have when wearing inverting spectacles counts as counterevidence to this claim is not clear. People wearing such spectacles report that the world appears to be upside down (and, depending on the glasses, also left-right inverted). So it seems that at least the position of the things we see could actually be systematically arranged in a different way than the apparent one. However, this might be only temporarily so. Some people reported that they saw the world properly again after wearing the glasses for some days or weeks. Whether this means that they saw the visual field in the same way as before they starting wearing the inverting spectacles is controversial. While philosophers like
are not only seen, but also felt by touch – importantly not only passive touch, that is, experiences, for example, of pressure, but also active touch, that is, experiences of resistance or impediment when trying to move into a certain direction. Jonathan Bennett conjectures that this is what makes them different from classic secondary qualities such as color.

[A] blind person can build up an account of what bodies [i.e. objects] there are, what their shapes and sizes and positions are, and so on, by means which fundamentally consist in his knowing what impediments there are to specific movements of (parts of) his own body. (1971, p. 93)

Spatial properties such as shape or position constrain our movements and determine how we can interact with the objects in question.

[O]f two rigid things, the smaller cannot contain the larger; one thing cannot block another's fall without touching it; a cube cannot roll smoothly on a flat surface; a circular disc's imprint on wax will be circular; and so on (ibid., p. 99).

And if a glass is shorter and narrower than a jug,

we can place the glass inside the jug; or fill the jug with water, and then fill the glass from it and throw away the remaining water; or place both vessels on a table and draw [subject] S's hand across the top of the glass until it is stopped by the jug (ibid., 97).

Because the spatial properties of an object determine how we can interact with it, and what kind of effects it will have on certain other objects, it is more difficult to imagine that such properties vary across differences in observation conditions as well as the species and the state of the perceiving subject than in the case of secondary

---

Carruthers (2005, pp. 56, 94) render such a conclusion, psychologists such as Robert B. Welch (1978, pp. 133-4) are much more sceptical that the available data allows such a verdict. But even Welch can imagine that humans who wore such spectacles from birth might see the visual field in the same way as we do (ibid.). If this is true, then Siewert’s claim will not be falsified by appeal to experiences with inverting spectacles.
qualities. In other words, whereas we can imagine worldly things to have different colors than the actual ones without this having any (or hardly any) implications for our interaction with them, we cannot say the same about the spatial properties of things. I believe that this applies also to pain sensations.

I will illustrate this with a thought experiment. While it is difficult, if not impossible, to imagine an inverted spectrum for pain locations without others noticing this fact, it is relatively easy to imagine this for color experiences. For example, we might easily imagine that to Hannah ripe tomatoes look the way grass looks to us, and vice versa. Or that a clear sky looks to her like lemons look to us, and vice versa.

Wittgenstein and others have argued that a person could have such an inverted spectrum without it being evident to her or her fellow citizens, since it would arguably not affect her behavior, including her verbal behavior. Thus Hannah would say that the tomatoes she sees are “red” despite her color inversion, given that this is how she learned to use the word “red”. This thought experiment seems to suggest that Hannah’s color experiences are neither accurate nor inaccurate. For what would be the criterion to decide that her experiences are inaccurate and ours accurate? Of course, we could assume that those color experiences are accurate which are experienced by the majority of humans in the same or similar way, but

---

84 Tye has challenged this thesis by arguing that if a patch of saturated yellow is placed next to a patch of saturated blue, and subjects are asked to point at the brighter color, Hannah would point at a different color than humans with no inverted color spectrum (1995, pp. 203-204). If this is correct, then the phenomenal difference could be manifest in behavior. However, whether Tye is right does not affect my argument in the body text, since all I am claiming is the relative ease with which we can imagine that different humans can experience the color of objects differently without them and others noticing this fact, as opposed to the difficulty to do that for the location of a sensation like pain.
this would be arbitrary. I believe that most of us will rather say that Hannah simply experiences objects in a *different* way than we do.

Such inverted spectrum thought experiments have often been used as evidence for the claim that color experiences do not represent objective properties, and/or that colors are subjective properties. Whether color experiences are mind-independent properties or not is controversial, and is not the *explanandum* of this chapter. What I want to emphasize here is the relative ease with which we can imagine others to experience the same object as having a different color without us noticing this fact, and the implausibility to declare one (or some) of these experiences as accurate, and others as inaccurate.

Now, compare this to an analog inversion thought experiment regarding the spatial aspect of pain sensations. Jonas is a human who feels pain at a place that is right-left reversed to the location of the actual (or potential) damage. For example, if he is bitten in the right hand, he will feel pain in his left hand. In contrast to the color inversion thought experiment, others will easily notice Jonas’s deviant condition. And we will qualify Jonas’s pain experiences as *inaccurate* with regard to its location, given that we have a non-arbitrary criterion for deciding where we expect it to hurt, namely the location of the (potential) damage to the body. Contrary to our

---

85 Objectivist accounts of color, such as Byrne & Hilbert (2003) and Block (2003), take colors to be physical properties which exist independently of how they are experienced. For example, Block argues that that colors must be objective because we can reproduce paint with the same hue (Block 2003, pp. 193-4). However, Block ignores that the standardized classification of hues which grounds the industrialized reproduction of paint “is made possible by severely restricting the conditions under which color observations are made by test observers.” (Hatfield 2009b, p. 291). Under normal, unrestricted ambient conditions and with variation in the perceiving subjects the same surface reflectance properties can yield *different* color responses (ibid.). This variance supports a subjectivist or relationalist account of color (see ibid., pp. 284ff.).
expectations, Jonas would point not to his right hand, but to his left hand when asked where it hurts – even though he has been bitten into his right hand. Now, a critic might claim that, like in the case of Hannah, Jonas’s deviant behavior might not be so evident to others if we imagine that Jonas points to his right hand when asked where it hurts, even though his pain is in his left hand. But can we really imagine the latter? And how would we in such a case determine that Jonas’s pain sensations are “really” located in his left hand? Not from an objective point of view, since, according to the skeptic’s modified scenario, Jonas points to the right hand as the (apparent) location of his pain. Physiological data would also point to the damaged area. For physiologists could confirm that nociceptors have been stimulated in Jonas’s right hand, not in his left hand. But also not from a phenomenological point of view, because, the skeptic claims, even to Jonas it now seems as if the pain is where the (potential) damage has been inflicted on – assuming that Jonas will point to the place which hurts. Or could Jonas have the impression that his left hand hurts while nonetheless pointing to his right hand? Surely, we can imagine that against his will Jonas points to his right hand in such a situation, but it seems that such a reversal could not be realized in a consistent way. For even if his hand muscles did not obey him and point to another place than the apparent location of his pain, he might chose to divert our attention to the “real” location of his pain, that is, to the left hand, by staring at his left hand. Or, more probably, he might simply say that it is his left hand that hurts, in spite of where his limbs point to.

So it seems as if we cannot make any sense of the alleged possibility that Jonas feels pain at a place that is neither the place of its cause (damage or potential damage) nor
its effects (such as Jonas’s pointing to the location of his pain experiences). I think all this militates in favor of a view according to which we detect an objective feature of a part of our body by means of pain. It suggests that pain sensations have veridicality conditions, and, at the very least, represent that there is something going on in a particular part of one’s body.

Given that according to my interpretation of Burge the postulation of states with veridicality conditions, that is, states which are, accurately or inaccurately, about actual objects or events and their properties, in order to explain certain (verbal) behavior is sufficient for postulating constancy mechanisms (see section 1 and 2), Burge should conclude that constancy mechanisms are implemented in nociception, and hence that pain sensations are perceptual states.

Because Burge believes that pain sensations are not perceptual states, and that we can explain pain behavior without the postulation of states with veridicality conditions, he has to come up with an alternative explanation of why we experience pain as being in a certain place. He divides pain sensations into a qualitative feeling on the one hand, and the feeling of the location of pain on the other hand, and denies that either the former or the latter are in themselves perceptual or representational (2010, p. 421). Nonetheless, Burge concedes that the latter can be perceptual at least in a derivative way, due to “there [being] functioning practical connections between

---

86 Subjects in pain usually point to the place where a body part has been (potentially) damaged, but the effect and the cause can come apart, as in referred pain. The claim here is not that we cannot make sense of pain being at a place which is not the place of the corresponding damage or potential damage. We can imagine that. But the claim is that we cannot imagine pain being systematically distorted from its cause and its effects.

87 Burge concedes that the locational aspect of pain has a (derivative) perceptual dimension, but nevertheless claims that “the qualitative feeling [of pain] in itself, including the feeling of location, is not, I think, representational” (2010, p. 422).
the feeling and taking care of the location of felt bodily damage” (ibid.). It is not clear how to understand this phrase. Matt Nudds construes Burge’s indications as the thesis that

the location attributed to the [pain] sensation doesn’t report a quality of the sensation itself, [but] merely a disposition to act towards a location to which the sensation is referred. The pain I feel seems to be in my hand because I am disposed to act in certain ways towards my hand, e.g. to rub it, or to say that’s where it hurts. So ‘there is no explanatory need to invoke veridicality conditions or representational content’ (421). (Nudds 2012, p. 166)

I take it that Nudds’s interpretation of Burge does not consist in an account of how I get to know where I feel pain. For if the claim is that I know that I feel pain in my hand because I am disposed to rub it, this surely gets the explanatory order wrong. It is far more plausible to assume that I am disposed to rub my hand because I (know that I) feel pain in it. More likely the claim is that my feeling of the location of pain consists in my disposition to, say, rub a certain body part. But given Burge’s rejection of behavioristic explanations of representational states as inadequate (Burge 2010, pp. 76, 81, n. 28), he would probably reject a behavioristic explanation of the feeling of the location of pain, understood as a derivatively perceptual and hence representational state.

Be that as it may, Burge seems to have changed his mind after 2010 anyway because in a paper from 2014 he is much more cautious and seems to grant that at least the feeling of the location of pain is representational (and hence perceptual). Still, he

---

88 Colin Klein tries to explain the location of pains in a similar way to Nudds’s interpretation of Burge. See my criticism of Klein’s account in chapter 5 section 4.

89 Burge does not make this explicit. However, in this paper he only denies that the felt quality of pain is representational (and hence perceptual), implying that the locative aspect is representational. He states that “not all consciousness involves perception, or even representation. Awareness of the felt quality of pain (as distinguished from proprioceptive
keeps on claiming that pain as a whole is not representational (and hence not perceptual). 90 There are two reasons why this claim is problematic. First, it is doubtful that we can have the qualitative feeling of pain without feeling its location or the other way round. 91 As O’Shaughnessy (2008, pp. 192ff., 217, 220, 223), Ayers (1991, pp. 162, 190), Crane (2001, pp. 79-83) and Bain stress, we always feel pain in a certain part of our (apparent) body, hence as having a certain location.

[If] I feel a pain in my finger, then it is difficult to imagine my feeling the pain without feeling my finger; it is difficult to imagine an experience in which it seems to me as if my finger is not there any longer, even though the pain apparently still is — floating in thin air, there, where it was before. (Bain 1999, p. 57)

[The] place at which the subject of a pain experience feels the item to be is determined by the apparent location of the body part in which the item feels to be located. (ibid., p. 58)

In the same way that a crease cannot be perceived without at the same time perceiving the object whose folding or doubling constitutes the crease, what I feel when I have a pain experience cannot be felt without locating it in a certain part of my (apparent) body. At first glance, this looks like a strong claim. For one might think that it is possible to experience pain without experiencing it in a certain part of one’s body. But can we really imagine that? I cannot. If I try to conceive of such a locating of pain) does not require representational content or perceptual constancies.” (2014, pp. 402-403).

90 John Searle seems to make the same problematic claim. On the one hand he acknowledges that the locative “aspect of pains is intentional, because it has conditions of satisfaction. In the case of a phantom limb, for example, one can be mistaken, and the possibility of a mistake is at least a good clue that the phenomenon is intentional.” (Searle 1992, p. 251, n. 1 to chapter 4). On the other hand, he claims that pains [as a whole?] are not intentional because they do not represent anything beyond themselves (ibid., p. 84).

91 The impression that one could have the qualitative feeling of pain without feeling its location is probably due to the fact that we sometimes speak as if pain is a particular object we are aware of, and which is “in” some body part. For example, when I say “I feel (a) pain in my left foot”, this might suggest that pain is an object which is independent of my left foot (or any other bodily part). But as I argue below, this is a misconception.
pain, I end up with conceiving some kind of headache. Believing that we can imagine a pain experience without feeling pain in a certain part of our body is like believing that we can imagine a word which has no meaning. If you take away the meaning, what you get are not words, but either noise or (for example ink) marks. Likewise, if you take away the locative aspect of pain experiences, what you imagine are not pain experiences, but some kind of mood.

That one necessarily experiences pains at a part of one’s (apparent) body is something O’Shaughnessy demonstrates by contrasting how we know the location of a visual object with how we know the location of a pain. How do you know that a dog is in its kennel? You perceive the relevant relata (dog, kennel) as well as their spatial relation (one thing being inside the other). By contrast, you do not know that you have pain in one of your teeth by perceiving the relata (pain, tooth) and their spatial relation. You necessarily experience pain as being at a certain place in your (apparent) body (O'Shaughnessy 2008, pp. 219-220).

This is to be excepted if feeling pain is equivalent to experiencing some kind of actual or potential damage to one’s body, as I am assuming here. For given that bodily damage is necessarily located at a certain part of one’s (apparent) body, there cannot be any pains outside of one’s (apparent) body. I conclude that it does not make sense to follow Burge and assume that there is such a thing as the qualitative

_____________________________

92 Of course, the body part in question does not have to exist, as evinced by patients who suffer from phantom limb pains. The pain experience of such patients is hallucinatory, since they do not have the limb which seems to hurt. Nonetheless, such patients have the impression that it is one of their limbs that hurts, and thus feel pain in the place their limb seems to be. For them, their pain does not exist outside their (apparent) bodies – does not flow “in thin air” – even though it might be the case that where they assume their non-existing limbs to be air is (more or less) the only existing thing.
“feeling” of pain experiences independent of a locative feeling of it. Accordingly, I reject to ascribe representational content only to one of these “feelings”.

Even if we allow Burge’s analysis of pain sensations, Burge’s denial that pain sensations as a whole are representational is unjustified for a second reason. If we grant that due to cues from another sensory system one component of the pain sensation gains representational content, we have reason to consider pain sensations as a whole to be representational states. Burge himself allows in a similar case that even though one sensory system by itself fails to produce perceptual representations, it can do so when making use of cues from another sensory system, here from proprioception:

For example, as one moves one’s hand or arm over a corner of a chair, the corner is felt as being in the same place. The touch system relies on a continuing proprioceptive body image, onto which touch information derived from the movement of one’s hand or arm is mapped. Here position constancy is achieved with respect to the surface of the corner of the chair, through the cooperation of the touch system with the proprioceptive system. (2010, p. 414)

If proprioceptive information can make certain tactile states representational ones, then there is no reason to deny that proprioceptive information can do the same for nociceptive states. After all, my account of pain does not require that nociception is an autonomous perceptual system. Recall that I maintain that pain informs us, accurately or inaccurately, about something in the world as opposed to be merely

---

93 Given that Burge states that (human) touch implements perceptual constancies, and tactile experiences are therefore perceptual/representational, it might come as a surprise that Burge here indicates that certain tactile states are, in themselves, not representational ones. This apparent contradiction can probably be resolved by assuming that Burge denies that all aspects of touch, that is, all tactile experiences are perceptual. This is indicated when in a paper from 2014, Burge states that “[v]arious aspects of touch, proprioception, and hearing are perceptual, again in a wide variety of animals.” (2014, p. 400).
about an experience. For this to be true, it is not necessary that nociception in isolation from all other sensory systems is a perceptual system.

Still, it might turn out that our ability to locate pain sensations are not really dependent on proprioceptive information. Studies with subjects who lost sensations of touch and muscular proprioception, but who retained their ability to feel thermal stimuli and pain, suggest that – in the absence of visual or other auditory cues – proprioceptive information is necessary in order to act toward the body part which has been stimulated, but unnecessary in order to describe the location of the stimulus or to point to a place in a pictorial representation of a human body. About the test subject called “G.L.”, clinical neurophysiologist Jonathan Cole and neuroscientist Jacques Paillard state that

G.L., for instance, is normally able to perceive a thermal stimulus delivered to a given point on the surface of the skin of her left arm. When prevented from seeing her body and requested to do so, she is unable to point with her right arm to the place of stimulation. Having lost the ability to proprioceptively update her body schema, she cannot locate that place in her sensorimotor body space. However, she can verbally designate this place in the anatomy of her body (“over my left wrist,” for instance), and she even indicates it precisely on a schematic body diagram. In other words, she can locate the stimulus in a perceptual representation of her body, knows where the stimulus has been delivered within the frame of her body image, but does not know how to get there in her apparently lost sensorimotor frame (1995, p. 254).

In this experiment the subject has been asked to locate thermal sensations, not pain sensations, but it is likely that proprioceptive information is neither necessary for knowing where it hurts. Burge’s alternative account thus looks very unconvincing.

Nonetheless, Burge might go in the offensive and raise a last objection against my perceptual account of pain sensations by claiming that I confuse the content of
perceptual beliefs with the content of perceptual experiences. In a relevant footnote, Burge states,

Of course, more sophisticated representational systems – systems of belief, for example – can use non-perceptual systems to form objective representations. One can form beliefs about pain, the feel of muscle contraction, the smell of peanut butter, the qualities of the taste of a wine. These are not perceptual representations. Perceptual systems are sensory systems that have within them objectifying routines. (ibid., p. 421, n. 67)

Applied to pain sensations, the objection consists in the claim that our pain sensations by themselves do not tell us anything about our bodies. They are not representational states. Only the beliefs we form (partly) based on these sensations are representational states. But, importantly, such beliefs are not perceptual representations. Burge might think that pain sensations consist merely in their phenomenological quality, and are thus not about anything in the world. But, in accordance with the last quote, this does not mean that pain sensations cannot be taken as indicating something in the world. For example, once we learn that pain sensations correlate with bodily damage or threat, pain sensations may trigger the belief that a part of our body is subject to some kind of (actual or potential) damage. But this belief is based on some kind of unconscious inference, and not inherent in the pain sensations themselves.

My reply to this account is threefold. First, I believe that what I have said about the location of pains in chapter 1 section 7 as well in this chapter renders it implausible that our pain sensations themselves are not located, but merely become located when embedded in a belief by some kind of (unconscious) inference. Such a view presupposes that we could feel pain without it being located, and I have argued that
this is something we cannot imagine.\textsuperscript{94} (To say that the pain sensations \textit{themselves} are located does not exclude the possibility that our pain sensations may be based not only on nociceptive input, but, say, also on proprioceptive input.)

Second, people who hold that pain sensations are nothing but a phenomenological quality, face the problem of giving a naturalistic account of such qualities. It is not clear whether Burge really construes pain sensations as qualia, but he explicitly accepts that there are \textit{nonrepresentational} qualitative mental properties, that is, qualia (2003, pp. 405-7). If this is what he takes pains to be, then he faces the problem of situating these presumably non-physical properties in a physical world. As written in chapter 1 section 7, the main motivation of strong intentionalist accounts is to give a naturalistic account of phenomenal qualities. But Burge denies that the phenomenal properties of experiences could be reduced to their representational contents (2010, p. xiv), and thus has to come up with another naturalistic account of phenomenal qualities if he advocates a materialist view of the mind. He still owes us such an account.\textsuperscript{95}

Third, the distinction between blank sensations and states that result from some kind of inference is an abstract one, and we do not have any clear criterion for what counts as (unconscious) inference. That said, I believe that as long as the resulting experience is insensitive to other things known by the subject (as in the case of the

\textsuperscript{94} Remember that even the subject whose lateral pain system – that is, the system which computes the location, intensity, duration, and nature (stabbing, burning, prickling) of noxious stimuli – was vastly damaged, was able to locate his pain, even if only very broadly as “somewhere between fingertips and shoulder” (see chapter 1 section 4).

\textsuperscript{95} Burge states that if the phenomenal character changes, then the intentional content of the perceptual experience will be, at some level, different (2003, p. 412), and thus proposes that the phenomenal character of an experience supervenes on its intentional content. But this does not amount to an account of how non-mental properties such as qualia interact with physical events.
Müller-Lyer illusion) and as long as the “unconscious inference” is not performed on the personal level, we have no reason to deny that the resulting experience is perceptual. And indeed pain sensations can be insensitive to other things known by the subject, as evinced by cases of phantom limb pain. Persons who suffer from phantom limb pain experience their absent limb as painful, even though they do not believe or judge that they feel pain there, since they know that they do not have the respective limb (anymore). Conversely, patients who suffer from pathological pains, that is, from pains which are not caused by some kind of bodily damage, will have the impression that there is something wrong with the part of the body that hurts. This impression will remain, even if they believe, say due to a complete medical check-up, that there is no such damage at the place of the felt pain. In the same way that the horizontal lines in the Müller-Lyer illusion seem to be of different length in spite of the subject believing that this impression is false, to patients with pathological pains the hurting bodily part seems to be in a state of damage (or threatened by such damage) in spite of their belief that this impression is false. If perceptual experience and perceptual judgment thus conflict, we have reason to believe that it is the experience itself, not the perceptual judgment that represents the world to be a certain way. Hence, I take it that pain sensations in themselves represent some objective state of affairs and therefore can count as perceptual, not just the beliefs that are based on such sensations.

5. Summary of chapter 3

The aim of this chapter was to defend the thesis that pain sensations have representational content, and therefore count as perceptual states against Burge’s influential account of perception. Burge’s assumption that neither olfactory
experiences nor pain sensation are perceptual because there are no constancy mechanisms involved is false, given that Burge himself attributes constancy mechanisms to those systems where the corresponding behavior can only be explained by invoking representational states. We should attribute constancy mechanisms to (human) olfaction, since we assess olfactory sensations not only in terms of the biological function of olfaction, but also in terms of correspondence to a mind-independent reality. As a response to the potential objection that our assessment of olfactory experiences is based on other elements than the olfactory experience itself, thus suggesting that olfaction in itself is not a perceptual system, I challenged Burge’s implicit assumption that we can assess the perceptual status of sensory systems in isolation from other sense modalities. I pointed to cross-modal effects, intermodal effects, and the physiological fact that most odors do not only stimulate the olfactory epithelium, but also the trigeminal nerve which is sensitive to tactile, proprioceptive, and nociceptive stimuli.

Finally, the knowledge we gain by means of pain, but most of all our ability to allocate our pain sensations to certain parts of our body militate in favor of a perceptual interpretation of pain sensations. By comparing pain sensations with color experiences I have illustrated that due to their spatial properties (viz. their location) pain sensations can be plausibly construed as (non-arbitrarily) accurate or inaccurate. Moreover, because the spatial properties of an object determine how we can interact with it, it is much more plausible to construe pain sensations as information about objective states of affairs rather than purely subjective states which reflect only our assessment of the world rather than (also) depicting the world. I have argued that Burge’s attempt to salvage his denial by attributing representational content only to
the “feeling” of the location of pain, but not to pain sensations as a whole is based on the untenable assumption that we can have the qualitative feeling of pain without feeling its location. Moreover, even if this were possible, Burge should allow that pain sensations (as a whole) are representational states due to their spatial properties (maybe based on proprioceptive information) because he allows the same for some tactile experiences. At the end I have presented reasons that support my thesis that pain sensations themselves have the representational content I ascribe to them, not just the beliefs which we form based on our pain sensations.
Chapter 4: The unpleasantness and motivational force of pain

My fourth chapter will be dedicated to the unpleasantness of pain and its motivational force. There are two reasons why I will deal with these two features in an extensive way. First, these features are often used as evidence against perceptual or, more narrowly, against representational accounts of pain. For example, both Manolo Martínez (2011, pp. 74-75) and Hilla Jacobson (2013, pp. 511-512) appeal to these features in order to argue against purely representational accounts of pain. (I will deal with this in detail in chapter 5.) The idea is that pain cannot be a perceptual/representational state because it is inherently unpleasant. Prima facie, the affective dimension (and correspondingly the motivational force) of pain sensations manifests a contrast between them and standard perceptual states. For whereas many visual and other standard perceptual experiences seem to be neither pleasant nor unpleasant (and thus leave us cold), it seems that pains are always unpleasant (and thus motivating). I am going to argue that this contrast is only an apparent one.

The second reason why I deal with these features is that clarifying the question whether pains are always unpleasant or not affects how we define pain. In chapter 1 section 2 I adopted a definition according to which pain is an unpleasant sensory experience that results from actual or potential tissue damage, or is sufficiently similar to one such. If it turned out that there are pain sensations which are not unpleasant, then this definition would be falsified.96 I will defend the definition of

---

96 One might think that the second disjunct of the definition enables us to include pain experiences that are not unpleasant, but I assume that part of the common phenomenology of pains that grounds the individuation of pain experiences includes the negative hedonic tone
pain I adopted by arguing that in the alleged cases of non-pleasant pain the subjects in question either experience a form of nociceptive activity which does not amount to pain experiences (in the case of spiciness, episodic analgesia, morphine and lobotomized patients) or they experience pains, but these pains are less unpleasant than the pains normal people would have if exposed to the same noxious stimuli (in the case of pain asymbolia).

In contrast to most philosophers who deal with pain, I thus deny that there are pains which are not unpleasant. But at the same time I will argue that from the fact that pains are always unpleasant it does not follow that pains are not perceptual states. I will justify this claim by pointing to many standard perceptual states which are always experienced either as pleasant or as unpleasant. Given the tight connection between affect and motivation, many standard perceptual states will also be intrinsically motivating – just like pains. The alleged contrast between pain and standard perceptual states thus turns out to be a misconception.

As for terminology, I use “unpleasantness” to refer to the negative affective property (or hedonic tone) we are aware of when in pain. But not only when in pain. Many mental states are unpleasant. Nausea is unpleasant, wearing shoes which are too tight is unpleasant, and listening to atonal music can be unpleasant. Pain sensations seem to have something in common with such experiences, but of course we believe that these states differ in their total phenomenology. Do they differ in phenomenology because all these states instantiate qualitatively different kinds of unpleasantness?

________________________

of pains. In other words, I assume that, say, being sharp or dull is not sufficient to make an experience similar enough to canonical pain experiences. In order to be sufficiently similar, I take it that a sensation must be unpleasant in the way canonical pain experiences are in order to count as a pain sensation.
Or is it rather the case that unpleasantness is part of one single dimension, particular instances of which only vary in their intensity, and that the difference in phenomenology is partly based on the sensory qualities of the mental states? I tend to the latter view. This is why I prefer the term “unpleasantness” over “awfulness” or “painfulness”. The latter terms are presumably used by other authors in order to denote the negative affective property specific to pains sensations. This creates the impression that there are different kinds of unpleasantness. I do not want to make such a commitment, and therefore describe pain sensations using the term “unpleasantness”.

Moreover, I distinguish between the negative affective property of pain sensations and our aversive response to it. The latter is sometimes called “suffering”, “unrest”, or “discomfort”. In most cases, we react with aversion when we feel pain. But in certain circumstances the unpleasantness of pain and our aversive response come apart. For example, in certain kinds of meditation you can learn not to react to the pain sensation, to accept it, and to introspect it without (at some cognitive level) wanting to get rid of it. This practice lets you tolerate the pain, but it will not abolish

---

97 Carruthers adopts a view similar to the latter position. However, he makes the bolder claim that valence (which includes pleasure and displeasure) constitutes “a single natural kind, the same across all different types of affective states” (2017, p. 3; see also p. 5) such as pains, pleasures, emotions, moods, and feelings of desire or repulsion. Carruthers justifies this claim by pointing to the fact, first, that there is a unified neurological structure responsible for affective states, second, that there are tranquilizers which reduce both pleasure and all kinds of displeasure (physical pain as well as grief and other forms of social suffering), and, third, that pleasure as well as displeasure is both affected by the subject’s expectations (ibid., pp. 2-3). According to Carruthers, all this suggests that there is one single mechanism that underlies pleasure and displeasure, thus indicating that valence is a single (natural) kind.

98 For example, Keats and Beecher distinguish between “pain” and “suffering”. According to their terminology, the former refers to “the physical stimulus” (1950, p. 11), the latter refers to the combination of the stimulus and the psychic modification of this stimulus. The authors list the subject’s concern, anxiety, and the importance he/she attaches to the pain as examples of such a psychic modification (“or emotional associations of pain stimuli” (ibid., p. 12)).
the pain. The pain is still there. And it is unpleasant. For those unfamiliar with such
meditation, consider taking a cold shower. Most people avoid taking cold showers
because they usually experience them as unpleasant. Nonetheless, you can learn to
take a cold shower without tensing up. You can learn to tolerate the cold, and not to
suffer from it. But again, this will not turn the experience into a pleasant one. The
experience of the cold water still has a negative valence. When I use “unpleasantness”
I refer to this negative valence inherent in such experiences.

1. The necessity and the universality thesis

For most non-philosophers it will be trivial to hear that pains are unpleasant. Pain is
ordinarily understood as a negative feeling we want to get rid of. It is tempting to
conclude that it is a conceptual truth that pain is unpleasant. Pain would thus be
necessarily unpleasant. In the past the thesis that pains are necessarily unpleasant has
been advocated inter alia by Kurt Baier (1958) and recently by Bennett Helm (2002,
pp. 14-5, 25).99 Baier held that it is part of the meaning of “pain” that pain is
unpleasant (or evil, awful, or some such), and hence that it does not make sense to
speak of pains that are not unpleasant (not to mention pleasant pains) (1958, pp.
268ff.). What reasons do we have to accept the claim that pains are necessarily
unpleasant? The most important reason is that we seem to classify only those bodily
sensations as pains which are unpleasant. Suppose you use a shampoo from a friend
without noticing that it is a menthol shampoo. After you soap yourself you start to
have unusual bodily sensations, especially at some sensitive body parts. At first, you

99 Anesthesiologists and pain researchers C. Richard Chapman, John D. Loeser, and Dennis
C. Turk likewise define pain as necessary unpleasant when they construe pain as “a subjective
experience, negative in hedonic tone, that has both sensory and emotional features, and it
bears cognitive associations to tissue injury.” (Chapman, Loeser & Turk 2001, p. 2083; italics
added).
might not be able to classify these sensations, and wonder what might have caused them. If you focus carefully on them, you will note that they are not particularly pleasant, even though the specific kind of unpleasantness common to pains is absent. You conclude that it is not pain what you feel. It is rather a pricking sensation. When you finally read the shampoo’s label, you discover the cause of your unusual sensations. It is the menthol in the shampoo. The reason for not classifying such sensations as pain is mirrored by empirical studies which show that we have a tendency to reserve the word “pain” for unpleasant experiences, while describing less intense sensations in terms of “stinging” or “pricking”. Our classification seems to be driven by the following reasoning: if the sensation does not hurt, then it is not a pain. This also explains why we use “pain” not only to refer to the sensations usually caused by potential or actual damage to our bodies, but also to unpleasant emotions such as grief or lovesickness (“It was very painful for him to lose his father.”) as well as for all kinds of unpleasant and annoying events (“He is a pain in the ass.”). It is plausible to assume that “pain” is used also in such cases because all of these consist in unpleasant situations.

Baier’s necessity claim is also supported by our criteria to ascribe pain to others. When young children fall and injure themselves, but do not mind the injury, we usually do not attribute pains to them. Likewise, we believe adults who claim to not feel pain despite being wounded, especially if they do not display any kind of pain-behavior, such as grimacing, crying out, or taking pain-killers.

---

These points militate in favor of Baier’s necessity thesis. But they are not conclusive. Ideally, a conceptual truth is supported by the inability to conceive of the two conceptually related elements coming apart. Can we imagine to feel pain without this experience being unpleasant? I believe that we cannot imagine it. By contrast, R. M. Hare seems to claim that we can conceive of such a situation. He states that “there logically could be a person who did not dislike high intensities of […] pain sensations” (Hare and Gardiner 1964, pp. 96-97). For example, Hare claims that we can understand a fakir’s claim that he, by practice, “has got into a state in which he does not dislike lying on a bed of nails, although he has exactly the same experiences, apart from the dislike, that I would have if I lay on a bed of nails.” (ibid., p. 98). It is not clear whether Hare really proposes a challenge to the necessity thesis, given that his statement is about pain without dislike rather than pain without unpleasantness. But despite the plausible assumption that dislike is an effect of unpleasant states (and thus belongs to what I called “suffering” above) rather than being identical with the unpleasantness of these states, Hare seems to use the term “subjective feeling of dislike” (ibid., p. 96) to refer to what I call the “unpleasantness” of pain (see also ibid., pp. 93, 94-95). If we grant that we refer to the same thing101, the problem with Hare’s suggestion is that it is unclear what the pain sensation apart from its unpleasantness is supposed to be. In abstract thought, we can surely imagine pain experiences and subtract, as it were, its unpleasantness. But it is highly questionable that there is some affectively neutral phenomenological component that makes my experience and the one of the fakir “exactly the same” apart from the unpleasantness.

101 Alternatively, one could argue that unpleasant states necessarily result in subjective feelings of dislike, so that we can infer from the lack of dislike a lack of unpleasantness. If this is correct, Hare’s suggestion might also threaten Baier’s necessity thesis even though his “dislike” and my “unpleasantness” do not refer to the same thing.
dislike/unpleasantness. Consider what headaches, stomachaches, and pains due to a cut have in common. I believe that, from a phenomenological point of view, without the affective property of unpleasantness we would not classify them as pains, that is, as belonging to the same class of experiences. If this is true, then what we imagine the fakir to feel is not pain.

Yet reference to phenomenology or to intuitions is highly controversial, and will probably not convince my critics. Fortunately, we do not actually need to determine whether Baier’s necessity thesis is true or not. For our purposes, it is sufficient to illuminate whether pains are always unpleasant because, according to critics of perceptual accounts of pain, the universal unpleasantness of pains is enough

---

102 Melzack and Wall claim that pain is not a simple sensations, but a multidimensional subjective experience that comprises sensory as well as affective qualities (2008, p. xii). According to these authors, the sensory qualities are usually described in terms of temporal, spatial, pressure, or thermal properties (such as pulsing, stabbing, sharp, hot, itchy, dull), whereas the affective qualities are described in terms of tension, fear, wearisomeness or other emotions (ibid., 38–40). Like many others, Nicola Grahek has adopted the multidimensionality claim, and, modifying it slightly, states that pain is “a complex experience comprising sensory-discriminative, emotional-cognitive, and behavioral components.” (2007, p. 2; italics added). Dissociation experiments suggest that at least the sensory-discriminative and the affective components can be experienced independently of one another. However, I will argue, pace philosophers like Grahek or Valerie Hardcastle (1999, p. 104), that we should not identify any of these components with pain itself, and thus not declare that such experiments demonstrate, for example, that there can be pain without unpleasantness.

103 In a paper from 1970 George Pitcher addresses the question whether pains are necessarily unpleasant. Pitcher answers that he has intuitions that cancel each other out. On the one hand, he has the intuition that a sensation is not a pain if it is not unpleasant. On the other hand, he writes that it is “conceivable that there should be sentient beings who feel just what we feel when we have pains and yet either positively enjoy them or at least don't find them unpleasant.” (1970a, p. 482). Despite the last claim, Pitcher believes that such intuitions do not demonstrate anything, and that an argument is required to justify either side. Pitcher goes on to argue that there is reason to believe that pains are always unpleasant, assuming that in alleged counterexamples (including the fakir case) the neural signals coming from stimulated nociceptors are inhibited in such a way that the subject either experiences no sensations at all or that the resulting experiences are not pain experiences (ibid., p. 491-2). At the end Pitcher also states that if there are no counterexamples to unpleasant pains, then we have good reason to believe that pains are necessarily unpleasant (ibid.).
to exclude pains from being *perceptual* states. I shall call the claim that pains are always unpleasant “the universality thesis”.

2. Alleged counterexamples to the universality thesis

I will agree with my critics that pain experiences are always unpleasant, but argue in section 3 that this does not disqualify pains as perceptual states. In section 2 I will discuss three groups of phenomena that appear to be counterexamples to the universality thesis. In contrast to philosophers such as Nelkin (1986), Hall (1989), Grahek (2007), and Bain (2013, 2014), I will argue that none of these examples refute the universality thesis. And as long as we do not find any such counterexamples, we are justified in taking the universality thesis to be true.

2.1. Spiciness

The first phenomenon may come as a surprise. Why should spiciness be able to refute the universality thesis given that we do not associate experiences of spiciness with pain? The reason why one could think of experiences of spiciness as pain experiences

---

104 Masochism seems to be another potential counterexample to the universality thesis because masochists appear to find pleasure in what is painful. It is tempting to conclude that their pains, unlike the pains of most other humans, are pleasant. However, I will refrain from discussing masochism here for three reasons. First, given that masochists seem to enjoy pains only in certain, especially sexual contexts, it is doubtful that it is pain in itself that masochists like and seek. Some authors argue that pain is something the masochist merely endures in order to get something else he/she values (e.g. sexual gratification or the love of somebody who stands proxy for his/her parent). Accordingly, I suspect that masochists do not experience pain in itself as pleasant, but rather take pleasure in a certain context-dependent situation *in spite of* the unpleasantness of pain. Second, there seems to be no consensus on the question why some masochists state that they really find pleasure in their pain (rather than saying that the pain is a means to some other good). Shall we take such statements at face value, or claim that such statements are the result either of self-deception or of poor introspection? Third, none of the opponents of the universality (or necessity) thesis mentioned above relies on masochism as a counterexample. I assume that masochism is a much too controversial issue to posit a real threat to the universality claim, and therefore focus on more promising candidates for counterexamples. (For more on masochism and the problem of giving an exact answer to the question what a masochist finds pleasant, see Hare & Gardiner 1964, pp. 112ff., Pitcher 1970a, and Klein 2015, ch. 13.)
is that the former are caused by the same sensory receptors, viz. nociceptors (Roth 2010, pp. 145-147). If we group experiences according to the sensory receptors whose stimulation causes them, experiences of spiciness and what we ordinarily call “pain” belong to the same group. Based on such a classification, we could call experiences of spiciness, or at least moderate spiciness experiences “pleasant pain experiences” and ordinary pain experiences “unpleasant pain experiences”. Grouping both together may appear also plausible if we keep in mind that the behavior of people who have eaten food which is too spicy for them has something in common with standard pain-behavior: both indicate search for relief. Suppose you eat some spicy Indian food. At some point, you have a runny nose and start to exhale heavily, apparently trying to cool your “burning” mouth. Many people then drink water or milk, or eat yogurt to relieve the burning sensation. It is tempting to conclude that eating spicy food is at least a bit unpleasant, and therefore resembles ordinary pain experiences.

However, I believe that eating spicy food is not unpleasant in the way pains are. The unpleasantness of eating spicy food, if it is unpleasant at all, is different from the unpleasantness of pains. It is for this reason that the sensations we have when we are eating spicy food are not called pains by us (and consequently that we do not apply the concept of pain to these sensations). This also explains why some persons take spiciness to be a taste property, and why these people are surprised to hear that the burning sensations are the result of the stimulation of nociceptors rather than taste receptors. The fact that these sensations are produced by stimulation of nociceptors does not prove that these sensations are pain sensations though. They are better construed as experiences of nociceptive activity. Hence, what the spiciness case
suggests is that nociceptive activity and experience of pain can come apart. As a result, the thesis that pain is always unpleasant has not been refuted.

2.2. **Episodic analgesia**

There are cases of episodic analgesia which may be construed as cases in which the subjects have pain sensations that are not unpleasant. During his time as a doctor in WWII, American anesthesiologist Henry K. Beecher observed that many wounded soldiers entirely denied pain from their extensive wounds and consequently did not request any pain-killers. Beecher stresses that these soldiers were not in shock, but mentally clear, and that many of them had taken no narcotics. He admits that their denial might be interpreted in different ways, one option being that the soldiers simply did not have any pain sensations whatsoever. However, he thinks it is more likely that they had pain sensations but that the subjects did not experience them as unpleasant (1959, p. 166). Beecher’s explanation for this remarkable phenomenon is a story of cognitive penetration. The soldiers’ experiences of their wounds were not unpleasant because the soldiers associated them with something good, namely the prospect of being sent to the hospital rather than being sent to the front line where being killed was very likely (ibid., pp. 164-5). In other words, their pain sensations have not been unpleasant because these sensations stood for something positive, viz. wounds that will bring them to a relatively safe place.\(^{105}\)

\(^{105}\) Even though a positive assessment of one’s wound may be sufficient to experience it not as unpleasant, it is certainly not necessary. A study by Melzack et al. (1982) “found that thirty-seven per cent of the people who arrived at the emergency clinic of a large urban hospital with a variety of injuries, including amputated fingers, major lacerations of the skin and fractured bones, reported that they did not feel any pain until many minutes – even hours – after the injury.” (Cited in: Melzack and Wall 2008, pp. 7-8). Surely, the homes or working places of all these subjects have not been so horrible that these patients preferred to get injured and be sent to the hospital rather than to remain at their common places. An
The study by Leknes et al. (2013) which I presented in chapter 1 section 3 has been construed in a similar way. Peter Carruthers claims that the experiments by Leknes et al. demonstrate that “moderate pain that is lesser than expected can even be experienced as pleasant” (Carruthers 2017, pp. 2-3). To see why Carruthers is wrong, remember that in the “relative relief session” in which the test subjects first saw a red screen with white text saying “Heat stimulus coming up …” and then were exposed either to a thermal stimulus they have rated as moderately painful or to one they have rated as intensely painful, the participants rated the moderate thermal stimulation within the pleasant range of a sensation hedonics scale. By contrast, the same moderate thermal stimulation was rated as unpleasant in the “control session” in which a visual cue – a green screen and white text (“Warm stimulus coming up …”) – was followed either by a thermal stimulus they have rated as moderately painful or one they have rated as non-painfully warm. Unlike Carruthers, the experimenters merely conclude that “in a context of intense pain, a moderately noxious stimulus can elicit positive hedonic feelings.” (Leknes et al. 2013, p. 407). The similarity to the soldier case is that one can plausibly argue that the context has rendered otherwise unpleasant sensations into pleasant ones.

But like in the spiciness case the examples of this second group at best demonstrate a dissociation of nociceptive activity and pain rather than presenting a dissociation of pain and unpleasantness. In the case of the soldiers most of the subjects simply

explanation analogue to the soldiers’ case is improbable and unnecessary. The fact that the emergency patients have been unconcerned about their wounds is sufficient to explain the hospital cases. This is in accordance with many anecdotes. Many people told me stories where they received an injury but were not in pain either because they were unaware of the gravity of the wound, because they were confident that the doctors will fix the problem, or because they were stoic about it.
claimed that they are not in pain. As long as we are not given any good reason for mistrusting their statements, we are entitled to believe that the subjects have not been in pain. Either the subjects did not experience any pain-like sensations at all or they experienced such sensations but did not classify them as pain (possibly based on the assumption that pain is something that is unpleasant). In both cases it is plausible to assume that what they experienced was not pain.

In the Leknes et al. study the test subjects implicitly denied that their experiences were unpleasant in the “relative relief” context. Given that they were able to rate their experience on a scale ranging from "very painful" to "very pleasant", and given that they rated the experience as pleasant, they implicitly rated the experience as not painful (and hence as not unpleasant). It is therefore more appropriate to conclude that the moderate thermal stimuli (in the relative relief context) did not result in pain experiences rather than to conclude that they resulted in pleasant pain experiences.

Hence, I take the two examples of the second group as not being able to prove that there are pains which are not unpleasant. What opponents of the universality thesis need are cases in which the subjects explicitly claim that they are in pain while at the same time stating that this pain is not unpleasant. Such cases will be discussed in the next group.

2.3. **Lobotomy pain, morphine pain, and motivation**

There are three often cited pain phenomena (the pains of 1. lobotomy patients, 2. morphine patients, and 3. pain asymbolics) that are used against the thesis that pains are universally (or necessarily) unpleasant. The first two phenomena of this group
seem to be based on the same physiological mechanisms. I will therefore deal with both of them in this section, and consider pain asymbolia in the next section.

This section is structured in the following way. I am going to argue that neither the pains of lobotomy patients nor the ones of morphine patients are counterexamples to the universality thesis. After a description of these phenomena, I will show that Hall’s claim that lobotomized and morphine patients feel pain, but not unpleasant pains cannot account for these patients’ behavior. For the same reason I will dismiss Grahek’s claim that these patients feel unpleasant pain, but are not worried by it. My criticism of Grahek depends on the assumption that there is a necessary connection between unpleasantness and motivation (a thesis I will coin “UNM”). I will discuss the plausibility of UNM, and conclude that we do not have a reason to reject it. In particular, an argument against UNM given by Jennifer Corns is dismissed as unconvincing. We can therefore conclude that Grahek’s account is indeed problematic. Eventually, I will adopt an account offered by Bennett Helm, and show why it is plausible to assume that lobotomized and morphine patients confuse their sensations with pain sensations. Hence, like in the case of spiciness and episodic analgesia, the sensations of lobotomized and morphine patients are not pains.

I start with describing the phenomena. Patients who underwent prefrontal lobotomy as well as patients with chronic pains who were treated with morphine

---

106 For example, some lobotomized patients as well as some patients who take morphine (or barbiturates such as pentobarbital sodium) for the treatment of postoperative pains do not mind their postoperative pains, but are sensitive to experimentally inflicted pains (see below in the main text). The similarities are thus great that A. Keats and H. Beecher consider the effect of barbiturates to be a temporary reversible lobotomy (1950, p. 12). This suggests that the pain of lobotomy patients on the one hand, and the pain of patients who take morphine (or barbiturates) are based on the same physiological mechanisms.

107 (Prefrontal) lobotomy is a neurological operation in which those nerve fibers are cut which connect the frontal lobes to the rest of the brain. Lobotomy was performed mainly in the
honestly claim to feel pain but not to be bothered by it. It is not the case that lobotomy and morphine patients do not have any unpleasant pains anymore, since not all lobotomy operations accomplished pain relief. And even the patients who claim not to mind their chronic pains anymore “may complain vociferously about pinprick and mild burn” (Melzack and Wall 2008, p. 137), which indicates that “successfully” lobotomized patients can have unpleasant pains after all. For if these patients did not experience such pinpricks and burns as unpleasant – if these things would leave them absolutely cold –, then surely they would not complain about them. But the fact that these patients can have unpleasant pains does not prevent the case of lobotomy pain (or morphine pain) from being a potential counterexample to the universality thesis. All that is necessary to refute the universality thesis is that lobotomized patients (or patients with chronic pains who take morphine) experience some pains that are not unpleasant.

The counterargument to the universality thesis then proceeds as follows: Because some patients claim not to be bothered by certain kinds of pains after surgery or drug consumption, we can infer that these pains are not unpleasant. Presumably Hall makes this implicit inference when he states that such patients’ behavior is best explained by assuming that “the drug or surgery has blocked or severed the connection between the pain sensation and the state of dislike, so that these people are actually having a pain sensation which is not unpleasant or awful anymore” (1989, p. 652). Hall distinguishes between affectively neutral pain sensations on the one
hand, and unpleasantness/dislike\textsuperscript{108} on the other hand, and claims that in lobotomy and morphine pain both come apart.

But does the fact that lobotomy and morphine patients are not bothered by certain pains prove that some of their pains are not unpleasant? Whereas Hall’s reasoning is based on such an assumption, Grahek challenges it. Grahek’s main criticism is that Hall cannot explain why some lobotomized patients keep on claiming that their old chronic pains are still agonizing.\textsuperscript{109} In a study with 178 patients who suffered from postoperative pains, that is, pains from disease or surgery, A. Keats and H. Beecher investigated pain-related effects of saline (a placebo), pentobarbital sodium (a barbiturate), and morphine (a narcotic). They noticed that following doses of morphine and pentobarbital sodium between 20 and 30 test subjects showed comfort but claimed that there is no or hardly any pain relief. That is, they were content and showed no particular desire to get rid of their pains (as evinced \textit{inter alia} by the fact that they did not ask for painkillers or other medication), but claimed at the same time that their postoperative pains are nearly as intense as they were before they received the medication (Keats & Beecher 1950, p. 3).

This is puzzling. The patients’ comfort suggests that they are not in pain, while their verbal reports contradict such a verdict. The same applies to the question whether their pains are unpleasant. The fact that the subjects do not seem bothered by their existing pains suggests that they are not unpleasant. However, the claim that the

\textsuperscript{108} According to Hall, “[t]he unpleasantness of pain sensations consists in their being disliked.” (1989, p. 646).

\textsuperscript{109} The agonizing pain example is from Grahek (2007, p. 32) who refers to Paul Brand’s and Philip Yancey’s \textit{The Gift of Pain} (1997) where Brand cites one lobotomy patient who says, with a smile on her face, that her old pain is (still) “agonizing” but that she does not mind it.
pains are as intense as they had been, especially when labeled “agonizing”, suggests
the opposite. Hall’s explanation is thus indeed incomplete. It might account for

a) lobotomized patients’ lack of non-verbal pain-behavior, such as grimacing,
crying out or demanding pain-killers,

but it fails to explain

b) their verbal claim that their chronic pains are as intense as they used to be,
   for example agonizing (even though they do not mind these pains).

Are there any hypotheses which cover both (a) and (b)? I will present the suggestions
made by Beecher, Grahek, and Helm, and lay down why the last one is to be
preferred. Beecher tries to account for (a) and (b) by distinguishing between pain
sensations and the subject’s psychic reaction to these sensations. He suggests that
what drugs like morphine do is to change the latter while not abolishing the feeling
of pain sensations. This way, the subjects still feel the pain sensations, but they do
not suffer from them. Beecher believes that patients who take morphine do not suffer
(or at least hardly suffer) from their pain sensations because (as an effect of morphine
consumption?) the patients do not ascribe the significance to them they used to
ascribe to these sensations (1959, p. 164).

Grahek makes a claim similar to the one by Beecher. Grahek explains the
indifference toward certain pains displayed in lobotomized patients and patients
under the influence of morphine by claiming that these patients are not worried about
their pains. According to Grahek, what disappears after a successful lobotomy is the
“the anxiety, fear, or dread that the patients formerly felt about their sustained,
intractable pain” (2007, p. 134). Whereas Beecher does not make any statements
about the unpleasantness of the pains of these patients, Grahek claims that they are (still) unpleasant.

Because they [i.e. the lobotomized patients] do not attach to their permanently present pain the meaning or significance that they ascribed to it before the operation, it does not bother them or they do not mind it anymore. But it does not follow that they do not dislike it anymore, or that it has ceased to be unpleasant for them. […] Of course, this will depend very much on the intensity of pain; but […] their pain was mostly—though sustained—of moderate intensity. Where it was severe, one might explain their not being bothered by it or not minding it by the fact that they had been reduced to a state of total apathy. (ibid., pp. 134-5)

Grahek thus presents two factors that are supposed to explain the patients’ behavior, namely

i) not worrying about their pains (not ascribing a certain meaning to them), and

ii) apathy (see also Grahek 2007, pp. 131-2).

Even though Grahek does not make this explicit, he seems to suggest that (i) is an effect of (ii). If this is the case, (a) and (b) will ultimately be explained by (ii) alone. But whether this is the case is irrelevant for our purposes. We are now only interested whether (i) or (ii) can explain (a) and (b), while assuming that the old chronic pains of lobotomy patients are still unpleasant.

Let’s focus first on (i). Grahek compares the lobotomy patients’ lack of concern with some subject S who learns from his doctor that S’s dull pain in his upper left chest is not, as S was afraid, a sign of an impending heart attack, but merely the effect of a muscular inflammation. In the same way that S loses his anxiety about S’s pain while the pain stays unpleasant, lobotomy and morphine patients are said to have lost their anxiety toward their allegedly unpleasant pains (Grahek 2007, p. 34).
I believe that (i) thus understood does not explain (a). Even if we grant that (i) explains (b), it is totally unclear why a lack of anxiety would prevent the subjects to demand pain-killers if their pains are, as Grahek assumes, unpleasant. For example, if S’s chest pain is unpleasant, especially to a degree that is agonizing, we will expect that S will take some pain-killers or otherwise seeks pain relief. It does not matter that S knows that the pain is only the effect of a muscular inflammation. You do not have to be afraid that a pain indicates some kind of disease in order to be motivated to get rid of it. The unpleasantness itself is sufficient to motivate us to do so. After all, we take pain-killers not to cure the damage a pain is a symptom of, but mostly to silence the symptom itself. So even if the pains of lobotomized patients were meaningless, that does not explain why the patients do not want to get rid of these (meaningless) pains nonetheless.

Can Grahek’s (ii) explain (a) and (b)? In order to answer this, we need to say more about apathy than Grahek does. In general, apathy is understood as a lack of motivation which typically goes hand in hand with a flattened affect. In the medical literature three necessary conditions for apathy have been suggested:

1. diminished goal-directed overt behavior as indicated inter alia by a lack of productivity and initiative,

2. diminished goal-directed cognition as indicated inter alia by a lack of concern about one’s personal health or functional problems, as well as a lack of interest,
(3) diminished *emotional concomitants* of goal-directed behavior as indicated *inter alia* by a lack of emotional responsivity to positive or negative events.

(Marin 1991, p. 245)\(^{110}\)

The lobotomized patients whose behavior we try to explain satisfy these conditions, and can thus be categorized as apathetic.\(^{111}\) But this definition of apathy alone is silent about whether apathetic subjects can have unpleasant experiences (and simply do not react to those experiences) or not. For it remains unclear whether the events mentioned in condition (3) are “positive or negative” in some objective sense (for example facilitating or threatening survival), or in some subjective sense (for example events that are experienced by the subject as pleasant or unpleasant). However, the author of the definition adds that apathy is consistent with positive affect (euphoric states) as well as negative affect (anger, irritability, agitation, or sadness) as long as the intensity and duration of these affective states are diminished (ibid., p. 249).

If this is correct, then Grahek’s claim (ii) can be reconstructed as the claim that lobotomized patients experience unpleasant pains, but that the unpleasantness of

\(^{110}\) M.D. Robert Marin distinguishes between apathy as a syndrome, that is, as a cluster of symptoms that tells us something about the cause of the symptoms, and apathy as a symptom, that is, as a side-effect of some other syndrome, such as depression. I have presented here only Marin’s definition for apathy as a syndrome, since in Grahek’s suggestion (ii) the apathy is supposed to account for the lobotomized patients’ behavior.

\(^{111}\) Grahek refers to Hardy, Wolff, and Goodel who conducted a study with 38 lobotomized patients, in order to depict what is typical of lobotomized patients: “lack of complaint and failure to call attention to their plight and needs were striking. They failed not only to complain of their spontaneous pain but also of their needs, such as personal nursing care, need of urine bottle, bedpan, or the adjustment of uncomfortable dressing. When incontinent of feces they were indifferent to odor. It spread about their persons and beds” (Hardy, J. D., Wolff, H. G., and Goodel, H. 1952. *Pain Sensations and Reactions*. New York: Hafner, pp. 316–317; cited in: Grahek 2007, p. 132). A concise statement by a son of a lobotomized patient also illustrates well the lack of emotional responsivity of such patients, “It would make no difference to Dad whether I told him I had won a thousand pounds, or that I was going outside to shoot myself.” (Falconer 1948, p. 709).
their pains is diminished to such a degree that the subjects do not mind them. In my view, such a proposal might explain (a), but it is difficult to imagine that it accounts for (b). For if the degree of unpleasantness is reduced to a degree that leaves the subjects cold, then their pain can hardly be agonizing. “Agonizing” describes an experience which is hardly tolerable, not a mild one that does not bother the subject.

It seems as if neither Hall nor Grahek can explain both (a) and (b). But there must be some explanation why lobotomized and morphine patients act in the way they do. Readers who are sympathetic to Grahek’s account might object that my criticism of Grahek depends on the assumption that there is a necessary connection between affect (pleasantness/unpleasantness) and motivation, and that I have hitherto presented no argument for the claim that

\[(UNM)\quad \text{an unpleasant experience necessarily (or always$^{112}$) motivates one to get rid of it.}\]

In my objection to Grahek’s (i), I indeed assumed that the unpleasantness itself is sufficient to motivate us to get rid of the pain experience. And my objection to (ii) presupposed that if a pain is intense (even agonizing) it will bother the subject. What reasons to do we have for accepting UNM?

One reason is our everyday experience that we want more of what we experience as pleasant and less of what we experience as unpleasant. Based on such knowledge, it

---

$^{112}$ The connection between unpleasantness and motivation is thought to be as one without exception. Accordingly, this is a universality thesis. However, I will use the term “necessarily” in the following argument because Corns’s argument will play an important role below in the main text, and she makes the claim that motivation is linked to unpleasantness not necessarily, but only typically. My goal was thus to provide a smoother reading experience for the reader. If unhappy with this choice, the reader is free to substitute “necessary” by “always” in the succeeding arguments.
is hard to believe that one can have an unpleasant sensation and nonetheless not
dislike it (that is, and nonetheless not mind it, not be bothered by it, have no
inclination whatsoever to get rid of the sensation). Accordingly, many philosophers
(and non-philosophers) seem to take UNM for granted. For example, Peter
Carruthers takes valence (as the qualitative dimension of affect) to be intrinsically
motivating (2017, p. 7). And most philosophers interested in pain assume that pains
motivate us to react in a certain way because pains are unpleasant.\textsuperscript{113}

By contrast, Bennett Helm not only presupposes, but tries to account for the
relationship of valence and motivation. According to him, pleasure and
unpleasantness (confusingly he calls the latter “pain” or “hurting”) are intrinsically
motivating because they are felt evaluations of circumstances that affect what is
important to us (for example the integrity of our own body), and because this import
entails that we are prepared to act on behalf of what we value (2002, p. 19). On
Bennett’s account, unpleasantness consists in the badness of something (for example
bodily injury) gripping one’s attention in such a way that one thereby feels the pull
to act appropriately (ibid., pp. 20, 27). For example, when we feel bodily pain, we
feel what is going on in a particular body part to be bad (ibid., p. 22).

Helm’s evaluativist approach is interesting, but I believe that his account is a
paraphrase rather than an explanation of the relationship of valence and motivation,

\textsuperscript{113} According to Bain, all the leading philosophical accounts of pain – that is, evaluativism
(Michael Tye, Bennett Helm, David Bain), imperativism (Manolo Martínez), psycho-
functionalism (Murat Aydede), first-order desire theories (George Pitcher), and second-order
desire theories (Hilla Jacobson, D.M. Armstrong) – assume that it is the unpleasantness of
pain that (intrinsically) motivates us to do something about what is unpleasant; the only
exception being Colin Klein’s pure imperativism, according to which besides the motivation
to remove the pain sensation due to the unpleasantness of pain we are also motivated by
the bare sensation (without the unpleasantness) itself, namely motivated to protect a certain body
part (Bain 2017; the advocates of the various accounts have mostly been identified by me).
and thus cannot substantiate UNM. In his account it is *importance* that constitutes the link between affect and motivation. But redefining “affect” in terms of importance (and thus connecting it to motivation) merely exchanges one plausible thesis (viz. UNM) for another, namely

(INM) an experience about important matters necessarily motivates one to act accordingly.

A satisfying explanation requires that the *explanans* is more evident, more plausible than the *explanandum*. However, in Helm’s case, INM seems as plausible as, but *not more* plausible as UNM. Hence, I believe that it is not able to explain why UNM is true.

Given UNM’s plausibility, it might be best to accept it unless there is some convincing argument against it. Jennifer Corns has recently challenged UNM. She claims that the motivation to end one’s painful episodes is only typically, but not necessarily caused by painful episodes (2014b, p. 245). To support this claim, she mainly focuses on the non-cognitive, subpersonal processes and states which underlie conscious dislike (let’s call them “NHT”\(^{114}\)), and those that underlie one’s motivation to react to one’s experiences (let’s call them “AV”\(^{115}\)), and points to the fact that NHT and AV can come apart. However, this does not constitute evidence against UNM because Corns’s argument does not concern unpleasantness defined as

\(^{114}\) NHT stands for the non-cognitive, not necessarily conscious, immediate negative hedonic tone. This is how Corns defines her use of “unpleasantness” (2014b, pp. 239-240). She explicitly distinguishes NHT from “affect” a term she reserves for *conscious* hedonic episodes (ibid., p. 240). Later, she states that NHT often causes dislike (ibid., p. 252).

\(^{115}\) AV stands for the non-cognitive, not necessarily conscious, aversive valence. This is how Corns defines her use of “motivational oomph” (ibid., pp. 239, 240). AV stands to motivation (understood as a cognitive, conscious state that is goal-directed, intentional and flexible) such that AV often causes the formation of motivation (ibid., p. 252).
a phenomenal quality of pains (and other states) that the subject is aware of. Neither NHT nor the dislike it often causes are identical to what we have called “unpleasantness”. Despite her claim that the motivation to end one’s painful episodes is only typically, but not necessarily caused by painful episodes, Corns’s argument is unable to provide justification for this claim. If she had demonstrated that NHT is a necessary condition of unpleasantness, that AV is a necessary condition for motivation, and that NHT and AV can come apart, then it would be plausible to accept that unpleasantness and motivation too can come apart. However, Corns does not offer such an argument. She does not present any positive account of unpleasantness and how it is related to our motivation to get rid of (painful) pain.¹¹⁶ Corns’s argument does not even show that something necessary for dislike and something necessary for motivation can come apart because the empirical data she refers to only shows that NHT often causes dislike and AV often causes the formation of motivation (ibid., p. 252). Given that in those cases where NHT and AV come apart, dislike and the formation of motivation could be caused by something else than NHT or AV respectively, Corns’s argument is far weaker than it appears at first sight.

I conclude that we have no reason to doubt UNM, and that our objections to Grahek’s account of lobotomized patients’ behavior are justified. But does this leave us only with Hall’s alternative account, so that we have to deny that pains are always unpleasant? No. If we accept UNM, we are entitled to deny that lobotomized (and

¹¹⁶ Corns does make a negative claim regarding unpleasantness, namely that NHT and AV are not sufficient for unpleasantness (ibid., p. 252). However, this is irrelevant for her claim that the motivation to end one’s painful episodes is only typically, but not necessarily caused by painful episodes. As written above, what is required is the clarification of necessary conditions of unpleasantness (and motivation).
morphine) patients have (unpleasant) pains, especially agonizing ones.\textsuperscript{117} Indeed, Helm himself makes such a claim, and even though I believe that Helm’s account does not verify UNM, I think he proposes a plausible alternative to Hall’s and Grahek’s account. Based on his account of unpleasant states (including bodily pains) as felt evaluation, Helm does not only deny that morphine patients have unpleasant states, he also denies that these patients feel (proper) pain at all.\textsuperscript{118} Helm claims that it does not make sense to treat a sensation as pain if a subject lacks the necessary background concerns, as evinced for example by consistent failure to display emotions and desires appropriate in situations of actual or potential damage to one’s body (2002, pp. 24, 25, 18). According to Helm, the only reason why we might want to construe the sensations of morphine patients as pains is due to the “historical connection [of these sensations] with sensations that \textit{did} hurt” (ibid., p. 30, n. 28; italics added). Even though Helm does not make this explicit, he thus implicitly claims that morphine patients confuse their present sensations with former pain sensations. This explanation accounts for both (a) and (b) from above. Lobotomized patients do not show non-verbal pain-behavior because their sensations are not pains. But they claim that their chronic pains are as intense as they used to be because they

\textsuperscript{117} Another alternative would be to suggest that these subjects use “agonizing” in some unorthodox way. Maybe these lobotomized patients remember the agony the pain caused them, and describe what might be true of non-lobotomized patients (including their own pre-lobotomy situation) in the sense that, if ordinary people had, as it were, their pain, then this pain would be agonizing. But such a suggestion is unnecessarily complicated. Rather than to propose that these patients feel pain, but that these pains are not unpleasant, and that they confuse their unpleasant pains for agonizing ones, it is more plausible to assume that what they feel are not pains at all. I will introduce such a suggestion below in the main text.

\textsuperscript{118} Pitcher (1970a, pp. 491-2) likewise denies that what lobotomized patients feel is pain. Based on Melzack and Wall’s gate control theory of pain, he assumes that the brains of such patients inhibit the neural signals caused by stimulated nociceptors to generate what we take to be (ordinary) pain experiences. However, Pitcher does not explain why lobotomized patients nevertheless claim to feel pain.
confuse their current sensations with pain sensations, which is evinced by the fact that they do not mind these sensations.

This explication comes with some costs. Since we usually take it that the subject himself/herself knows best what he/she feels, denying that a human subject can correctly identify pain sensations seems *prima facie* implausible. Moreover, it is difficult to imagine that these subjects cannot remember how pain feels like. Assuming that they are familiar with pain due to their experiences of unpleasant pains before the surgery or before the consumption of a drug, it is counterintuitive that they should not be able to identify a certain sensation as pain. Finally, the fact that the pain threshold of lobotomized patients is within the normal range (see Grahek 2007, p. 130) suggests that these patients apply the concept of pain correctly. However, I believe that we have a good response to all these qualms. First of all, we should allow that different people use “pain” slightly differently. Some people might apply the concept term very broadly, that is, virtually in all cases in which they have some kind of unpleasant bodily sensation.\(^\text{119}\) By contrast, others might reserve this term for bodily sensations which phenomenologically resemble those sensations that typically accompany bodily injury. I assume that idiosyncratic usages of the concept pain might be quite common, since people usually do not correct each other about their bodily sensations, given that each person can experience only his/her own bodily states.\(^\text{120}\) This does not mean that there are not circumstances in which we can

\(^{119}\) This might be the reason why philosopher R. M. Hare claims that “pain” is ambiguous, and is sometimes applied to all kinds of things that we dislike (Hare & Gardiner 1964, pp. 94-95).

\(^{120}\) Helm has argued that we can correct each other’s pain reports when defending his claim that pleasures and pains can be warranted or not. In his example, a father criticizes his son for feeling pain too readily, and says “That doesn’t hurt! Don’t be a sissy!” (Helm 2002, p. 26). Such sentences have probably been uttered a million times. But I believe that it is false
correct others about their bodily states based on what we would feel like in such circumstances, but such cases are rare. Most of the time people will accept another’s statement that he/she is in pain, and how unpleasant this pain is. It is only when the statement conflicts with the utterer’s behavior, or if the statement is embedded in a non-realistic context such as a theatre scene, that we will have doubts about the truth of such a statement. For example, if somebody complains about pain without showing any kind of (non-verbal) pain behavior, we will often disbelieve that the utterer is in pain. Lobotomy and morphine pains are such cases. In short, it might simply be the case that these patients have an idiosyncratic use of the word “pain”.

Second, we can demonstrate that the subject is not always the ultimate authority on what it is that he/she currently experiences. For example, we can strikingly err about the content of our current visual experience. People usually think that everything near the center of their visual field has clearly defined shape, and that clarity starts to fade fairly far out at the periphery, say, about 30 degrees. But Daniel Dennett (1991, pp. 53-54) has demonstrated that this is false by means of a simple experiment which anybody can conduct. Take a playing card or any other small object and hold it at arm’s length off to the side. While keeping your eyes focused straight ahead, slowly bring the card toward the center of your visual field. Surprisingly, you will need to bring the card much closer than 30 degrees to see clearly its suit, color, and value. This demonstrates that we can go totally wrong about our own ongoing conscious experience.

to interpret these sentences as a case in which the father knows better how the son feels, and therefore corrects his son’s pain report. The first statement (“That does not hurt!”), let alone the second one, is better construed as a request to endure the experience rather than being a description of it.
Third, the objection that lobotomized patients and morphine patients surely remember what pain feels like loses its persuasiveness if we take into considerations two things. Assuming that we identify pain sensations based on phenomenological similarity with those sensations that typically occur during bodily injury, there will be border cases in which it will be difficult for the subject to judge whether the current sensation is sufficiently similar to consider it a pain (Aydede 2917, p. 454). Not only is similarity a vague concept, my ability to compare a current sensation with a qualitatively different one that I do not currently have is very limited. Is my current toothache similar to the sensations I had when I got a groin strain some month ago? I cannot tell. I would tentatively say yes, but this is more based on my factual memory that I classified both as pains rather than on episodic memories of their phenomenology. In order to make a confident statement about their phenomenological similarity, these sensations would have to occur very shortly after one another. Given that such prompt succession is rare, there is reason to doubt whether lobotomized and morphine patients classify their sensations as pain because they remember what their past pains felt like. Such doubt will be even more plausible if we also take into consideration that lobotomy as well as drugs such as morphine heavily affect our neural mechanisms, and that their effects on the brain (similar to brain lesions due to trauma to the head, exposure to certain infections, or exposure to many types of chemicals and ionizing radiation) impair or disable neurological functions which are crucial for one’s language, identity, and memory. For example, in “The Man Who Mistook His Wife for a Hat” Oliver Sacks (1985b) describes a man, called “Dr. P.”, who had problems to recognize a person’s face. In general, it was difficult for him to recognize objects as a whole, as opposed to certain of their
features. This sometimes led to comic situations. For example, he confused water hydrants and parking meters with faces of children, or confused his own foot with a shoe. If a person can confuse his foot with a shoe (and thus not correctly remember what a shoe looks like), then it is conceivable that subjects confuse certain sensations for pain (and thus not correctly remember what pain feels like).

Fourth, the objection that lobotomized patients seem to apply the concept of pain correctly because their pain threshold is within the normal range can be answered if we take seriously the assumption that there are different kinds of pains. At the beginning of this section I wrote that lobotomized and morphine patients are bothered by certain kinds of pains, but not by others. This suggests that we should distinguish at least two kinds of pains. Often such a distinction is made between recuperative or postoperative pains on the one hand, and experimentally inflicted pains such as pain due to pricking on the other hand. Such a distinction is supported *inter alia* by neurological insights and by the phenomenology of pain. As written in chapter 1, we have two different kinds of sensory receptors that are stimulated by noxious stimuli, viz. A and F fibers. These fibers not only conduct the nociceptive input with different speed, resulting in what has been coined “fast pain” and “slow pain”, but also usually yield pains which differ in their phenomenological quality. Activation of A fibers correlates well with human reports of a sharp, well-localized pain, whereas activation of F fibers correlates well with human reports of a dull pain (Perl & Kruger 1996, pp. 186, 194). Moreover, the distinction between two kinds of pain is supported by our pharmacological knowledge about the effects of narcotics such as morphine, or barbiturates such as pentobarbital sodium. Morphine as well pentobarbital sodium often provide relief of prolonged pain and of tension pain.
(called “tenderness”), but do not abolish pains due to injuries caused for example by pinpricks (see Melzack and Wall 2008, pp. 105, 142-143, 175; Keats and Beecher 1950, p. 1).

If the distinction between postoperative and experimentally inflicted pains is warranted, then we can grant that lobotomized patients apply the concept of pain correctly in the case of experimentally inflicted pain, since the pain threshold is measured by thermal radiation (that is, a form of experimentally inflicted pain). This is compatible with their inability to apply the concept of pain correctly in the case of postoperative pains. Experimentally inflicted pain might phenomenologically differ in such a way from postoperative pains that lobotomized patients can identify the sensations that are caused by external noxious stimuli as (experimentally inflicted) pain, but mistake non-pain sensations with (pathological or visceral, that is postoperative) pain.

I conclude that we have finally a plausible explanation of the behavior of morphine and lobotomized patients. These patients confuse some of their sensations with pain, and thus verbally describe these sensations as pain sensations while not manifesting any of the behavior associated with pain, such as grimacing or looking for a way to alleviate their pains, for example, by means of pain-killers.

To sum up, I rejected Hall’s explanation of these patients’ behavior because it did not explain why they claimed that their pains are as intense (even agonizing) as they used to be, despite the lack of pain-behavior. We then investigated Grahek’s apathy account and dismissed it because it was incomplete, too. We addressed the worry that our objections to Grahek might be based on the plausible, but unproved assumption that an unpleasant experience necessarily motivates one to get rid of it.
(UNM), but eventually accepted it because Corns’s argument did not corroborate her challenge to UNM. At the end we adopted Helm’s denial that morphine and lobotomized patients feel pain at all, and came up with plausible explanations of why they might confuse certain sensations with (postoperative) pains based *inter alia* on the distinction between postoperative pains on the one hand and experimentally inflicted pains on the other hand. I conclude that these pain phenomena do not refute the universality thesis.

2.4. Pain asymbolia

The last pain phenomenon which supposedly demonstrates that there are pains which are not unpleasant is pain asymbolia. According to Grahek, pain asymbolia constitutes the only compelling evidence for pains without unpleasantness (2007, pp. 1-2, 51; Grahek uses the term “painfulness”). In what follows I will describe the phenomenon, and show that Grahek’s claim does not refute the universality thesis.

Pain asymbolia is a neurological condition characterized by inappropriate and/or diminished pain-behavior (Schilder & Stengel 1928; Berthier *et al.* 1988; Grahek 2007, ch. 4). When patients with pain asymbolia are exposed to noxious stimuli, they sometimes say that it hurts, but hardly show any pain-behavior. When experimenters apply thermal stimuli to these patients’ bodies, pinprick them, apply heavy pressure on some parts of their bodies, pinch their limbs, or squeeze certain muscles, pain asymbolics only rarely (and then only incompletely) withdraw the stimulated body part, or show a defense reaction. Yet it is not the case that no (bodily) reactions occur. Berthier *et al.* state that their “[p]atients showed normal autonomic reactions (tachycardia, hypertension, sweating, mydriasis) during the painful stimulation” (1988, p. 43). And the female patient examined by Schilder and Stengel had clear
facial expressions of pain when pinpricked. Sometimes she rubbed the pinpricked area (even though quite late) (Schilder and Stengel 1928, pp. 146-148), and uttered that the pricking hurts. Nonetheless, she and most pain asymbolics do not show appropriate emotional response. They do not become annoyed, aggressive or anxious even though they are continuously exposed to noxious stimuli. Quite the opposite is the case. Some pain asymbolics even smile or laugh when thus exposed (and abruptly cease when the experimenter stops applying the noxious stimuli). They even offer their limbs for further noxious stimulation. Interestingly, pain asymbolics also rarely respond (appropriately) to offensive threats, for example when an experimenter pretends to stab them with a knife, prick their eye with a needle, or verbally menaces them (Schilder & Stengel 1928, p. 148; Berthier et al. 1988, pp. 42, 43). Their weird behavior might suggest that pain asymbolics experience (at least some) noxious stimuli not as unpleasant. Did we thus find a counterexample to the universality thesis after all?

We did not. Even though Grahek sometimes confusingly writes that pain asymbolics show that pain without unpleasantness is possible, he himself explicitly states that this does not mean that we should revise our concept of pain and assume that pain is not inherently unpleasant (2007, pp. 139-140). Accordingly, he explicitly accepts that the motivational-affective component of pain, its unpleasantness, is a necessary

---

121 To be precise, after being pinpricked she said “It hurts me” (“es tut mir weh” (Schilder & Stengel 1928, p. 147)), or “Thank you very much; this was pretty good; this hurt quite a lot” (“Danke schön, das war ganz gut, das hat mir so weh getan” (ibid.)). Pointing to where she has been pricked a second ago, she once said “Oh man, it hurt there” (“Ja freilich da hat es weh getan” (ibid., p. 149)). When asked whether a current pricking hurts (“Tut das weh?”), she responded “Yes, indeed a bit” (“Ja freilich bisserl.” (ibid.)). And when the experimenter pricked her left hand, and asked whether that hurt, she replied “It hurts indeed, but I do not know what that actually was/is. Maybe it hurts near the heart or what.” (“Es tut schon weh, aber ich weiß nicht, was das war eigentlich ist. Vielleicht tut es beim Herzen weh oder was.” (ibid., p. 151)) When uttering the last sentence, the patient reaches for her chest.
condition for pain (ibid., p. 111). Grahek takes pain asymbolia merely to show that the “bare sensation of pain” (ibid., p. 140), that is, the sensory-discriminative component of pain alone, does not motivate subjects to protect their body, and thus serves no biological function.

If we follow Grahek and assume that

(1) what pain asymbolics experience is only the sensory-discriminative component of pain, and

(2) the motivational-affective component of pain is necessary for a sensation to be a pain,

then, like in the case of lobotomized and morphine patients, we have to deny that what pain asymbolics feel is pain. This has been suggested by Richard Gray who claims that pain asymbolics confuse pain (construed by Gray as a sensation with certain contingent sensory quality, and an essential affective quality) with a sensation which has the same contingent sensory quality, but no affective quality (2014, p. 98). Gray thus denies that the sensations which pain asymbolics identify by means of their contingent sensory quality are pain sensations.

---

122 Even though Grahek vigorously defends the thesis that pain asymbolics do feel pain, I am strongly convinced that we can ascribe to Grahek the thesis that what pain asymbolics experience is not what we (ordinarily) mean by “pain”. Grahek uses the term “feeling pain” in a technical sense that he introduces in contrast to his term “being in pain”. Whereas the latter stands for having an unpleasant pain experience, the former stands for experiencing the sensory-discriminative component of pain with or without its motivational-affective component, that is, with or without its unpleasantness. With this interpretation of Grahek, it becomes intelligible how Grahek can ascribe the capability to feel pain to pain asymbolics, while in other passages claim that the motivational-affective component is a necessary condition for (being in) pain.
But such a denial faces various problems. Besides the one we discussed in the case of lobotomized and morphine patients (including the memory objection\textsuperscript{123}), there is another reason to assume that pain asymbolics correctly judge whether they are in pain. Pain asymbolics can tell when they begin to perceive a stimulus as painful (pain threshold), they appropriately judge that the pain intensifies in degree relatively to the intensity of the applied stimulus, and they report when pain becomes intolerable (pain tolerance). Moreover, the fact that at least in the case of the pain threshold their values are very similar to the values of “normal” humans (Berthier \textit{et al.} 1988, p. 44) strongly suggests that pain asymbolics are using the concept of pain properly, at least in the case of experimentally inflicted pain. Note that one cannot counter the last argument in the same way as in the case of lobotomized and morphine patients because pain asymbolics rarely react appropriately to experimentally inflicted pains, whereas lobotomized and morphine patients showed no (appropriate) pain reactions to their alleged postoperative pains. Hence, we cannot salvage the denial by distinguishing between postoperative and experimentally inflicted pains, and claim that pain asymbolics confuse only the former while allowing that they correctly identify the latter (as evinced by their pain threshold values). In the case of pain asymbolia, it is less likely that it is the sensation as such that the subjects confuse.

In contrast to Gray, I believe that pain asymbolics experience pain, and that their pains are unpleasant. This is supported by the fact that some pain asymbolics claim that pricking hurts (see footnote 121), that they grimace when being pricked, and

\textsuperscript{123} The memory objection also applies to pain asymbolia, given that it is not a condition people suffer from birth. The known cases so far were all the result of accidents or illness. Pain asymbolics had had unpleasant pains before their condition occurred, such that one might argue that these subjects remember how pain feels like.
that the threshold values at which they judge a stimulus to be painful are very similar to the ones of normal test subjects. Their pains are unpleasant, but less unpleasant than the pains normal people would have if exposed to the same noxious stimuli. This is evinced by the fact that the pain tolerance values of pain asymbolics are significantly higher than the ones of normal test subjects. Noxious stimuli such as pricking or electric current must be quite strong to make pain asymbolics say that the pain is intolerable and/or to cause avoidance behavior, but such a degree exists (Schilder & Stengel 1928, p. 148). By contrast, “normal” pinpricks are too mild to constitute an annoyance for pain asymbolics.

Yet this alone will not account for all the behavior shown by pain asymbolics. Besides the behavior that indicates (diminished) unpleasantness, the account of pain asymbolia should also explain why

(A) pain asymbolics do not react to visual, auditory and other threats,
(B) pain asymbolics are not worried about bodily damage,
(C) some pain asymbolics smile or laugh while exposed to noxious stimuli.

We have to account for (B) because even if the continuous pricking, pinching, and noxious thermal stimuli were barely unpleasant, normal subjects would still worry that these cause damage to their bodies. Likewise, the diminution of unpleasantness does not account for (A). If pain asymbolia merely caused a decrease in

---

124 Berthier et al. applied electric stimuli to the index finger of their test subjects in order to test the pain asymbolics’ pain threshold and pain tolerance. The fact that they determined values for pain tolerance implies that there was a definite point at which pain asymbolics said that the stimulus had become intolerable (Berthier et al. 1988, p. 44). Therefore Grahek’s claim that pain asymbolics do not react to noxious stimuli at all is false (see for example Grahek 2007, pp. 30-39).
unpleasantness, then pain asymbolics would surely react to threats, if only based on their memories. The lack of responsivity to threats implies that pain asymbolics do not evaluate the situation appropriately. They do not classify what they see or hear as dangerous. It is plausible to assume that the same happens with their pain experiences. Even though these are mildly unpleasant, they are not classified as threats to one’s bodily integrity, and consequently appropriate motor or emotional behavior is not initiated.\textsuperscript{125}

And why do some pain asymbolics even smile or laugh? Grahek suggests that they are amused because they expect the pain to be much more severe, and are then surprised by the mildness of their actual experiences (2007, p. 74). I believe that Grahek overestimates the cognitive abilities of pain asymbolics here. Given that pain asymbolics typically suffer from cognitive deficits due to further neurological syndromes such as anosognosia, aprosodia, apraxia, anosodiaphoria, dysgraphia, or aphasia (Berthier \textit{et al.} 1988, p. 44; Schilder & Stengel 1928), I doubt that we should ascribe such expectations to them. Anyone who reads the detailed description of Schilder and Stengel’s pain asymbolia patient realizes how irrational some of the patient’s behavior is, especially shortly after the occurrence of the pain asymbolia.

\textsuperscript{125} Assuming that pain asymbolics do not classify – “classification” here understood as some kind of subpersonal process – their unpleasant pains as threats to their bodily integrity may give the impression that I agree with evaluatists such as Tye and Bain that the pain of pain asymbolics does not represent a certain bodily state as being bad for the subject. I am going to discuss the evaluativist account of pains in chapter 5, and argue that my representational-imperative account is superior to it in chapter 5 sections 3 and 4. Here, I would merely like to stress a difference between Bain’s and my account. Bain claims that the evaluativist content of pain experiences accounts for their unpleasantness. Hence, he assumes that because the pain of pain asymbolics lack such content, their pains are not unpleasant. By contrast, my claim in chapter 4 section 2.4 is that we should acknowledge that the pains of pain asymbolics are unpleasant, given that some pain asymbolics claim that pricking hurts, that they grimace when being pricked, and that their pain threshold are normal (while their pain tolerance is significantly increased).
syndrome. By contrast, Grahek’s thesis seems to presuppose that the subjects are rational all the time. Moreover, his thesis does not do justice to (A). If we ascribe expectations regarding severe pain to them, then we should also assume that they expect (and fear) severe pain when threats such as being stabbed are imminent, and to act accordingly – at least at the beginning, that is, before they learn that their pains are less unpleasant than they used to be. However, from the start they did not act in such a way. Many of them showed hardly any avoidance or protective behavior. Finally, Berthier et al. write that in follow-up studies, one of their six pain asymbolia patients “was partially concerned about his condition and became fully aware and even astonished by his pathological laughter during painful stimulation.” (1988, p. 46). The patient kept on laughing during noxious stimulation despite his insight that he acts in a weird way. This suggests that the laughter is not really under his conscious control. By contrast, Grahek’s thesis implies that pain asymbolics voluntarily laughed (or smiled) because they realized something. In this light, Grahek’s amusement thesis becomes more and more dubious. All this suggests that some subpersonal processes rather than personal-level expectations are responsible for the subjects’ laughter. What kind of processes these are is an empirical question further studies have to answer.

I conclude that none of the discussed pain phenomena posits a threat to the universality thesis. Given our tendency to use “pain” only for certain experiences, namely those that have in common some phenomenal quality specific to pain experiences, the thesis that pain is always unpleasant has been vindicated.
3. Affect in standard perceptual experiences

Does the unpleasantness of pain preclude pain from being a perceptual state? One might think so if one assumes that pains (only) tell us what to do, whereas perceptual states (only) tell us how the world is. On one such view, seeing one’s child smiling is neither pleasant nor unpleasant in itself. If it is pleasant, then this is allegedly the result of a separate cognitive assessment of the visual state based on one’s extrinsic desires, such as the desire that one’s child is happy (and seeing it smiling one infers that it is happy). If I lack such a desire (or other relevant desires), or if, say, the smiling child is not mine, the visual state will not be pleasant on this account. Such an externalist view becomes more plausible with the following example. Imagine a student who wants to verify whether he has passed an important exam. He checks the university webpage and sees that he has passed the exam. Is seeing certain marks on the display (marks forming the letters “passed”) pleasant in itself? The externalist view denies that. Seeing these marks is only pleasant because passing the exam is important for the student, and because these marks mean that the student indeed passed the exam. Reading the marks “passed” in a total difference context, say in an obituary (saying “Mr. … passed away …”), might be an experience that is either unpleasant, or neither pleasant nor unpleasant for the student. Given the affective variance when seeing these marks, externalists generalize that perceptual states in themselves lack any affective dimension, and acquire it only in combination with certain beliefs and/or desires.

Against such an externalist view, I argue that there is evidence that some perceptual states are not as affectively neutral and motivationally inert as such a view suggests. I will show that many standard perceptual states are similar to pain inasmuch they
too are virtually always pleasant or unpleasant. *Prima facie*, the fact that more or less all humans experience these perceptual states as pleasant or unpleasant suggests that these states are pleasant or unpleasant because of their sensory features, that is, that these perceptual states are *intrinsically* pleasant or unpleasant. However, it will turn out that this is not true (at least for some of those perceptual states) because one and the same stimulus can be experienced in different affective ways. Nonetheless, the variance does not depend on what is important for the subject on a personal level (see “passed” case above), but rather on intrinsic bodily mechanisms, in particular homeostatic mechanisms that are not under the control of the subject. I believe that this refutes the externalist account of affect presented above, and establishes that some perceptual states are *inherently* pleasant or unpleasant.¹²⁶

Let’s start with examples of visual and auditory experiences. Even though the affective dimension is the least obvious here, there are some cases which suggest that even here we find certain experiences always pleasant or unpleasant. For example, seeing something drastic such as guts and blood can be nauseating and will make many people turn away from the scene.¹²⁷ Regarding auditory experiences,

---

¹²⁶ This is compatible with both accounts of valence (as the qualitative component of affective states) which Carruthers compares in his 2017 paper. According to the “representational” account, valence is a non-conceptual representation of one’s concurrent sensation’s value (i.e. its badness or goodness) (2017, p. 6). By contrast, the “hedonic” account construes valence as a distinct, intrinsic qualitative property of the experience in question (ibid., p. 7). Even though the representational account does not assume that valence is some intrinsic quality, it construes valence as a *non-conceptual* representation of value, and therefore likewise contrasts it with value judgments on a personal, conceptual level. Carruthers favors the representational account.

¹²⁷ Susanna Siegel apparently provides other examples of visual experiences that seem to be, if not inherently pleasant or unpleasant, inherently *motivating*. Based on her contention that some of our experiences represent not only low-level properties such as shape, color or size, but also high-level properties (or “k-properties”) such as cats, keys, pine-trees, and semantic properties (2006, p. 482), Siegel claims that seeing an approaching passerby (on a narrow sidewalk) can be intrinsically motivating (or “soliciting”) (2014, p. 55). Similar to J. J. Gibson’s claim that we *perceive* the environment as enabling certain actions, she argues that
most people will agree that the scraping sounds of train wheels are very irritating. Recent psychophysical experiments show that such sounds are more or less universally experienced as unpleasant (Cox 2008, p. 1200).

The affective and motivational dimension of sensory experience is even more evident in our other sense modalities. If I smell what seems to be a delicious lasagna, I will have a pleasant experience, and will be inclined to eat the dish which emits the odor. I will be motivated to eat the dish even if I previously lacked a supplementary desire or urge, such as hunger. Rather, the odor can cause the desire to eat the food in question. That we have an innate disposition to experience certain smells as pleasant or unpleasant is most evident if we consider stench. Smelling Hydrogen Sulphide (H$_2$S) and other foul odors is unpleasant and makes us want to keep our distance. The unpleasantness of these olfactory experiences seems to be the direct effect of the phenomenal qualities of the odors in question rather than being the effect of certain social standards and/or certain associations. And this is not only true of strong smells. Many olfactory experiences are so common and so ephemeral that we also perceive the environment as telling us to do certain things in particular situations (what we perceive are “mandates” in Siegel’s terminology). For example, the sight of an approaching passerby might be experienced as telling you to step aside (ibid., p. 60). However, I do not adopt Siegel’s examples because she does not in fact make the strong claim that experienced “mandates” are intrinsically motivating in the sense that the subject’s experiences do not depend on the subject’s other mental states, such as his/her beliefs or desires. Siegel states that the accuracy conditions for experienced “mandates” are relative to norms (ibid., p. 71). Accordingly, my experience of the approaching passerby as telling me to step aside depends on the moral norms I feel obliged to respect (ibid., p. 70). This is thus not the sense of inherent motivation/affect that is relevant for my purpose.  

128 Note that I am not making the claim that the statement “stench is unpleasant” is analytically true, and that stench is therefore inherently unpleasant. This might indeed be true, but someone might plausibly claim that “stench” is not a property of certain odors, but our value judgment of certain odors. In any case, my question is not whether experiences of stench are inherently unpleasant, but whether experiences of particular odors (such as H$_2$S or the smell of feces) is inherently unpleasant. The latter question is arguably one that cannot be answered in an analytic way, but only in an empirical way. I am thankful to Wolfgang Barz for pressing me to clarify this point.
often notice smells only if the odor is strong and/or unusual. But even relatively mild odors influence our behavior. This becomes evident in a paper by Tafalla (2013) where the author describes how she grew up without being able to smell. Contrasting her case with humans that possess a normally functioning olfactory sense demonstrates how smells influence our behavior.

Or consider thermal stimuli. Entering a warm place or taking a warm shower is pleasant. When making such thermal experiences, we do not just acquire knowledge about the outside temperature or the temperature of the water. We enjoy being warm. However, thermal stimuli cannot be intrinsically pleasant or intrinsically unpleasant because one and the same temperature can be experienced as pleasant or unpleasant depending on the circumstances. As Corns (2014b, pp. 240-1) convincingly argues, the affective dimension of those stimuli that influence features under homeostatic control, features such as one’s body temperature or thirst, can be explained by their contribution to one’s homeostasis. For example, if you are cold, standing by a fire is pleasant because it contributes to the re-establishment of the standard thermal state of the body. If you are hot, standing by a fire is unpleasant because the additional warming does not contribute to the re-establishment of the standard thermal state of the skin – it makes the re-establishment more difficult. Whether a thermal stimulus is pleasant or not will thus depend on the antecedent thermal state of your body. But for our purposes it does not matter that thermal stimuli of the same temperature can be experienced as pleasant or unpleasant depending on the circumstances. All we need is that they are experienced as either pleasant or unpleasant (as opposed to affectively neutral). Given that we enjoy not only thermal stimuli which re-establish our standard body temperatures, but also those thermal stimuli which sustain it, we
can explain why we experience thermal stimuli as either pleasant or unpleasant. And given that the affective dimension results from homeostatic utility rather than some cognitive assessment based on one’s extrinsic desires, it is plausible to construe the experience of thermal stimuli as inherently pleasant or unpleasant. They are inherent because it is not up to me and my desires whether a (thermal) stimulus is experienced as pleasant or unpleasant. To be sure, my expectations and desires will have some influence on whether I experience, say, a thermal stimulus of 44°C as pleasant or unpleasant. For example, if I want to take a bath, such a stimulus will be experienced as pleasant. But such cognitive influence has its limits. If I enter a bath with water of 44°C directly after I came home from the freezing cold, my desire for a warm bath will not turn my experience into a pleasant one. Likewise, whatever beliefs or desires I have, I will certainly not experience a thermal stimulus of 90°C as pleasant. The affective dimension of certain perceptual states is thus determined by factors intrinsic to the stimulus and one’s body.

Most people will also agree that many taste or flavor experiences are inherently pleasant or unpleasant. Eating toffee, for example, is a pleasant experience. Most people have an innate disposition to like sweet food and to dislike bitter food, probably because sweet food, for example ripe fruits, supplies more ready energy than unripe, bitter food, and thus facilitates survival. This is not to deny that if you were forced to eat toffee repetitively, you will eventually dislike the taste. But like in the case of thermal perception, the affective dimension of this experience can be explained by its contribution to one’s homeostasis. At some point, the body has more nutrients than it needs and can easily store. Accordingly, here too the affective
dimension of the stimulus depends on the sensory features of the stimulus and the (antecedent) state of one’s body.

Summing up, all these examples suggest that there are standard perceptual states which are indeed always pleasant or unpleasant. If this is true, then the alleged dichotomy of standard perceptual experiences on the one hand, and pain experiences on the other hand, due to the unpleasantness of pain vanishes. Note that I do not need to show that all standard perceptual experiences have an inherent affective dimension. For example, we can allow that some, or even many, visual states are experienced as pleasant or unpleasant only if the subject possess certain beliefs and/or desires (as in the “passed” example from above) because, even if this is the case, the difference between standard perceptual states and pain would only be a quantitative one, and not the qualitative one claimed by opponents of perceptual accounts of pain.

4. Summary of chapter 4

I have argued that the thesis that pains are always unpleasant has not been refuted by the various pain phenomena presented above. Rather than concluding that in these cases, the subjects experience pains which are not unpleasant, I have suggested that the subjects either experience a form of nociceptive activity which does not amount to pain experiences (spiciness, episodic analgesia, morphine and lobotomized patients) or they experience pains, but these pains are less unpleasant than the pains normal people would have if exposed to the same noxious stimuli (pain asymbolia). Nonetheless, the unpleasantness of pain does not preclude pain from being a perceptual state because many other standard perceptual states too are always experienced as pleasant or unpleasant. Based on the assumption that (sufficient) pleasure or unpleasantness necessarily motivates (thesis UNM), we can infer that
these standard perceptual states are also motivating. The alleged contrast between pain and standard perceptual states thus turns out to be a misconception.
Chapter 5: Pain and its representational-imperative content

In the previous chapter I argued that pains are always unpleasant, and that this does not exclude pain sensations from being perceptual. In this chapter I will argue for a specific account of perception. I claim that only a representational-imperative view is able to account for our pain experiences. According to this view, pain sensations represent a certain part of one’s body as actually or potentially damaged, and thus provide information about the location, the intensity, the onset and other sensory qualities of a bodily state. In addition, pain sensations also possess an imperative content which consists in a desire-like state that tells you not to have this bodily state (with such and such urgency). The imperative content accounts for the unpleasantness of pain and the motivation to do something so that a certain part of one’s body is not represented (anymore) as being (actually or potentially) damaged. Together with my arguments for the thesis that not only pain experiences but also many standard perceptual states are either pleasant or unpleasant, a representationalist-imperativist view is not only plausible for pain experiences, but also other perceptual states. This does justice to the fact that perceptual states guide our actions, that is, they determine what we do to get what we want, what we do to get rid of what we dislike respectively, a point influentially made by Millikan (1995), and recently stressed by enactive accounts of perception (see Hurley 2001; Noë 2005).

In more detail, this chapter is structured in the following way. In the first section, I make explicit what I take to be the representational and the imperative content of
pain experiences, and argue that the two components of pain experiences justify positing such a hybrid content. In the second section, I justify why pain experiences have the suggested content by explaining how (strong) intentionalists determine the content of particular kinds of experiences. In the third section, I explain why the imperative content suggested by Martinez is preferable to other suggestions. In particular, I argue that Bain’s defense of an evaluativist account of pain experience against Hilla Jacobson’s recent messenger-shooting objection contradicts Bain’s own commitment to strong intentionalism. In the fourth section, I defend the representational-imperative view against intentionalist accounts of pain which claim that pains possess only one kind of content, namely either representational or imperative content. Given that the purely representational accounts on the market assume that pains are not always unpleasant, they have to individuate pain experiences merely based on their indicative content. I demonstrate that they fail to do so. At last, I reject Klein’s pure imperativism because Klein does not present any real challenge to the established view that pain experiences have a sensory-discriminative as well as an affective-motivational component, and that we need the representational content in order to account for the sensory-discriminative component. Moreover, I argue that Klein cannot give a plausible explanation of the (apparent) location of pains in terms of concern or action guidance. In the fifth section, I will argue that the attempt to account for the affective-motivational aspect of pain by means of a desire-like attitude, while construing the content as one devoid of mood, fails because it cannot account for the non-instrumental unpleasantness of pain.
1. Pain as experiences with two kinds of contents

According to the representational-imperative account of pain I endorse, pain sensations have two kinds of content. Why should we accept that? First of all, this is supported by the neurological studies I mentioned in chapter 1 section 4. According to these studies, our pain sensations are the result of neural activity in two very different nociceptive subsystems. The lateral subsystem is responsible for our ability to localize what is represented in pain experience, to describe its fine-grained quality (dullness, sharpness), and to assess the intensity of the pain sensation. By contrast, the medial nociceptive subsystem is responsible for the unpleasantness and the motivational character of pain. This bifurcation at the neurological level suggests that our pain sensations have two components, viz. a sensory-discriminatory one, and an affective-motivational one. All parties, but in particular strong intentionalists, should account for these two components of pain sensations, given that strong intentionalists claim that phenomenal qualities can be reduced to (and thus explained by) the contents of the experience in question.

Except Klein whose pure imperativism I will discuss further below, intentionalist accounts of pain all assume that some kind of representational content explains the sensory-discriminative component of pain. I agree, and following Bain (2003, p. 506) and Tye (1995b, pp. 112-114; 2005, p. 101) I claim that the representational content of pain sensations consist in the interoceptive representation of a certain part of one’s body as actually or potentially damaged.

Postulating representational content does justice to the fact that our pain experience can be veridical or false. To illustrate this, consider a common experience. You accidentally cut your finger without noticing it. You ran errands and paid no attention
to the minor unpleasant sensation at the tip of your index finger. But later, at rest, you notice the sensation, and discover that your finger is slightly cut. Such pain veridically represents that your index finger is damaged. An example of a false representation is referred pain. In chapter 3 section 4 I argued that the representational content of pain is especially apt to account for the locative aspect of pain. In chapter 5 section 4 I will argue that we cannot account for this aspect merely by positing imperative content.

As written above, pain has also another component, namely an affective-motivational one. Philosophers disagree about how to account for this component. Tye and Bain propose that this component is accounted for by means of an evaluative content, namely the content that the bodily state (not the pain experience) is bad for the subject (Bain, forthcoming-a), where the property of being bad is, at least for Tye and Cutter, the property of being apt to harm you (Tye & Cutter 2011, p. 99). By contrast, Hall and Martinez claim that the additional content consists in an imperative content, namely roughly

\[(H) \quad \text{Stop! Stop doing what you’re doing with this bodily part! (Hall 2008, p. 534)}\]

or, less specifically,

\[(M) \quad \text{Don’t have this bodily disturbance! (Martínez 2011, p. 76).}\]

I favor Hall’s and Martinez’s view over Tye’s and Bain’s evaluativist view because ascribing imperative content to our pain sensations explains in a better way why pains are unpleasant and why they motivate us to act. (I will say more about this in section 3.) Moreover, a representational-imperative account of pain fits nicely with
Millikan’s (1995, p. 192) thesis that some perceptual states have both representational as well as imperative content (she calls such states “pushmi-pullyu representations”). On Millikan’s account, the imperative content of the state is what guides action (ibid., p. 189). If we adopt Millikan’s thesis, we could construe pain experiences as well as those (standard) perceptual states that have an affective component as experiences which have representational and imperative content.

2. How to determine the contents of (pain) experiences

Regarding the exact content of pain experiences, the reader will wonder whether the imperative content of pain experiences consists in (H), in (M), or in some different content. This leads us to the question how we determine contents. Given that I commit myself to a strong intentionalist view, I cannot say that the contents of perceptual experiences are determined by their phenomenology.\(^{129}\) That would be

\(^{129}\) Authors like Charles Siewert (1998, ch. 7) or Susanna Siegel assume that this is a way to determine the intentional contents of perceptual experiences. According to Siegel, experiences can convey their contents in three different ways. The content of an experience may be given, first, in the perceptual belief that it is natural for the subject to form as a result of having the relevant experience (such as \textit{There is a red tomato}), second, in the intentional action that is guided by the experience (such as reaching out to grasp an object in an appropriate manner), or, via introspection (2010, p. 51). For example, Siegel assumes that introspection, defined as what “allows one to discover the current occupants of one's stream of consciousness, whatever they are” (ibid., p. 82), is useful to reject certain proposals for the contents of one’s current visual state if \textit{what} one sees obviously differs from what is proposed in the content: “It seems plain that in seeing the fruit bowl (or even in merely hallucinating), one can know by introspection that one is not having an experience as of a busy airport or of an undifferentiated expanse of blue. Introspection can rule out many proposed contents as inadequate to the phenomenal character of the experience and thus is not completely useless as a means of discovering which contents an experience has.” (ibid., p. 80) However, introspection alone does not help to determine whether, say, “high-level properties” such as being a banana, being caused, or being a pine tree are represented in (some) perceptual experiences. Siegel therefore suggests that we first propose a certain content (apparently based on the information that a perceptual experience arguably conveys to us, resulting in certain perceptual beliefs and/or actions), for example that visual experiences can represent the property of being caused by something, and then test this hypothesis by the method of phenomenal contrast. This method consists in comparing two experiences (ideally of the same object or event) with similar, but different phenomenal character, and testing whether
circular because strong intentionalists assume that the phenomenology of perceptual experiences is determined by their contents.

Let’s have a look first on how the indicative content of pain experiences is determined by strong intentionalists. As written in the second to last section, Tye advocates a causal-covariation account of the content of perceptual experiences. According to this account, an experience represents what causally covaries with it (under optimal conditions). In other words, according to this account the content of a perceptual experience is the proposition that this-and-this obtains, where this-and-this is what causally covaries with the perceptual state (under optimal conditions). If one’s bodily processes fulfill their normal function, then the stimulation of nociceptors is what causally covaries with pain experiences. But based on the assumption that by means of the stimulation of sensory receptors we perceive something else than just the proximal (viz. the strong mechanical, thermal, and chemical) stimuli, philosophers and scientists looked for a distal property that (under normal conditions) causally covaries with pain experiences. In his book *Integrative Action of the Nervous System* (1906) neurophysiologist Charles Sherrington suggested that what the proximal stimuli have in common is that they cause or

---

it is plausible that the phenomenal difference is explained by the target hypothesis in a better way than by alternative explanations (2010, pp. 89-95).

The problem of Siegel’s method to determine the intentional content of perceptual experiences is that it relies much on introspection (which includes intuitions about whether two experiences vary in their phenomenal character or not) and on intuitions about the plausibility of stating that certain perceptual experiences have, for example, high-level properties based on introspection (see for example Prinz 2013). More fundamentally, Adam Pautz (2011, pp. 116-117) claims that if we explain the notion of contents in terms of phenomenal appearances, it becomes trivially true that non-hallucinatory experiences have contents because having intentional content then just amounts to saying that experiential episodes are associated with true appears-looks reports, and this is something that can be accepted by qualia theorists as well as naïve realists. In other words, Pautz claims that Siegel’s account of intentional content is not a substantial theory.
threaten to cause tissue damage, and coined the term “noxious” in order to describe the corresponding stimuli. Armstrong, Pitcher, Tye, Bain, and others all adopt this suggestion. Thus, according to Tye, the indicative content of pain experience consists in “information about the location and physiological properties of some tissue damage or disturbance” (2011, p. 91) because pain causally covaries with actual or potential tissue damage.

This is in accordance with the teleological account of intentional content advocated by Millikan and Dretske. On a teleological account, a pain experience represents (actual or potential) tissue damage if the nociceptive system has evolved in such a way that it acquired the biological function of indicating such damage by means of the pain experiences it produces. This is a plausible thesis because being in pain arguably enhances your chances to survive. In the case of potential damage, pain enables you to do something in order to avoid actual bodily damage, for example, by withdrawing a particular limb. In the case of actual damage, pain enables you to prevent further damage, for example, by protecting the affected bodily part. That pain sensations are useful for survival becomes also evident if we compare the life span of humans who are congenitally unable to feel pain with the one of humans without such a handicap. As written in chapter 2, the former often die young due to injury, accident, or inflammation of joints. Moreover, I have argued in chapter 2 section 2 that Corns and Coninx are unable to present any reasons which cast doubt on a strong correlation between pain and bodily damage. And a strong correlation constitutes another reason to assume that the nociceptive system indeed acquired the function of indicating actual or potential bodily damage.
3. Accounting for the unpleasantness of pains

So much for the indicative contents of pain experiences. What about the contents of pain experiences that account for the unpleasantness of pain? Are there some, say, teleological considerations that support positing either evaluative or imperative contents? First of all, Martinez offers a reason why the imperative content of pain experiences consists in (M), or in a slightly modified version which allows to account for pains with different intensity, namely

\[(M^*) \text{ Don’t have this bodily disturbance (with such and such urgency)!}\]

rather than in proscription imperatives such as

\[(H) \text{ Stop! Stop doing what you’re doing with this bodily part!}\]

Martinez plausibly claims that pains do not tell us to act in any specific way. Unlike, for example, the intimate connection of itches and scratching, “no such intimate relation seems to exist between pains and particular actions. No particular action is sanctioned by the pain of a broken ankle, or a toothache.” (2011, p. 77). I agree that pains such as toothache, headaches, or menstrual cramps do not seem to prescribe, or proscribe any particular course of action, let alone ceasing an action with the bodily part that hurts. For example, I cannot stop doing something with my hurting tooth because in most cases of toothache I have not used the tooth to engage in any particular action in the first place. (H) is plausible for events in which I get injured during an activity, say, cutting wood or playing football. But (H) is unsuitable as the imperative content for all pains.

Do such considerations also help us to decide whether the content that accounts for the unpleasantness of pain is better construed in terms of \((M^*)\) than in terms of
(T) This bodily disturbance is apt to harm (me) (Tye & Cutter 2011, p. 99),

and thus help us to decide whether a representational-imperative account is superior to an evaluativist account of pain? Prima facie, (T), like (H), seems very plausible only for a restricted range of cases, namely those pain experiences that indicate potential damage. If I approach a flame with my hand, or touch some irritant chemical, it makes a lot of sense to construe pain as a warning signal that detects threats, that is, potentially harming things. By contrast, (T) looks less plausible in the case of healing (or recuperative) pains. Such pains occur after damage has been inflicted on me, for example when I overstretched my adductors in the groin during a football match. After such an injury, my groin hurts every time I move my leg. (T) does not seem to be an appropriate description of such pain experiences because (T) seems to imply that I am not yet hurt. However, Tye and Cutter could dispel such doubts by construing such pains as warning the subject to re-injure him-/herself. Accordingly, (T) could be modified in a way analogous to the disjunction of actual or potential damage:

(T*) This bodily disturbance is apt to harm or further harm (me).

130 To say that (T) is not an appropriate description may give the impression that this content is determined by the phenomenology of the pain experience rather than itself determining the phenomenology. This is not the case. Strictly speaking, propositions like (T) do not describe what we feel when we are in pain. Rather they are informed guesses regarding the function of perceptual experiences. As written above, these guesses are tested by trying to implement them into a story how the physical states that realize these experiences could have (naturally) acquired such a function. So what we argue about is the plausibility of the function rather than the plausibility of a phenomenal description.
(T*) would not fall prey to the same objection as (T) does. Hence, the considerations that helped us to decide whether (M*) is a better candidate for the additional content of pain experiences than (H) do not help us to decide whether it is better than (T*).

That said, I still think that (M*) is superior to (T*) for two other reasons. First, it better accounts for pain’s non-instrumental unpleasantness. Pains are unpleasant *besides and independently of* the bodily damage they indicate, the negative emotions (anxiety, anger) they typically cause, or the plans they thwart. The unpleasantness of pains is something we do not want *no matter what*. While certain things can be good or bad only in an instrumental way – for example, this hammer is good if I want to bang a nail into the wall but neither good nor bad if I don’t have any such desires – pleasure and unpleasantness are non-instrumentally good, or bad respectively. There is no such thing as being pleasant (or unpleasant) only in an instrumental way.

Despite the plausibility of the thesis that pains are non-instrumentally unpleasant (or bad), at times Klein (2015) seems to deny it. Assuming that pains are *not always* unpleasant, he ponders on the question why they are mostly unpleasant (why they “hurt”), and *inter alia* suggests that pain is unpleasant because it disturbs you: it tells you to do things (viz. protect your body) which you didn’t intend to do, and thus frustrates the plans you originally had (2015, p. 189). In my view, this makes pains annoying rather than unpleasant. Consider a situation in which you only slept four hours last night, and after lunch you get sleepy. Your eyelids often involuntarily close, and you have difficulties to focus on what you are doing. Your body arguably tells you to take a rest. But because you have limited time to complete your current
task, you keep on doing what you are doing. Is your sleepiness unpleasant? Does it hurt? Is it painful?\footnote{Bain (forthcoming-b) too defends the thesis that (unpleasant) pain is non-instrumentally bad against the thesis that pains are bad because they interfere with one’s plans. Bain convincingly argues that, when you get tortured, even only for a very short time, the reason why your pain may seem unbearable is not that the torturer prevents you from doing what you wanted to do in this moment. Rather it is “[t]he feel of your unpleasant pain itself, […] the awful way things seem to you when in such pain” (ibid.) that you cannot stand.}

Coming back to the question why (M*) is preferable to (T*), we need to keep in mind that (M*) expresses a desire (or desire-like state) for something not to be the case (anymore). The reason why imperative content better accounts for the unpleasantness (or badness) of pain than representational content is that frustrated desires (or desire-like states) too are unpleasant (or bad) in the non-instrumental way pains are. Having your desires frustrated is typically an unpleasant experience. Any professional philosopher can tell you a thing or two about it. If you desire to foster your career and invest a lot of time in applying for a grant to a research project, a rejected application does not feel good. Of course, this experience can feel bad for a lot of reasons. The experience might be unpleasant because you might get angry at the reviewers who took so long for the assessment. Or you might start to worry whether you are a good philosopher, and doubts about your own skills can get you down. But even if your confidence does not suffer from such a rejection, even if you know that the reviewers have to go through hundreds of applications, and therefore understand that the assessment takes long, a rejection will still feel bad. For if you desire \( p \), you eagerly anticipate the desire's satisfaction, and enjoy \( p \) if your desire for \( p \) is satisfied. Conversely, it is unpleasant if it seems to you that \( p \) is not the case.
Of course, neurological studies might demonstrate that satisfying one’s desires is pleasant because this correlates with the transmission of certain neurotransmitters, thus apparently showing that is possible that both come apart (rather than merely claiming that, say, the pleasure of desire satisfaction can be overridden by other factors). If $S$ is a person who, for example, lacks the relevant neurotransmitters, satisfying $S$’s desires might not be a pleasant experience. While this looks like a plausible scenario, it is not clear whether we would want to describe $S$’s mental states as desires in the first place. If the connection to pleasant and unpleasant feelings is constitutive of desire, we might not. But even if we do, as long as such cases are exceptions and the satisfaction of desires is typically a pleasant experience, it will still be the case that ascribing a desire-based contents such as ($M^*$) accounts better for the unpleasantness of pains than ascribing the ascription of belief-based contents such as ($T^*$). For receiving the information that something is apt to harm (or further harm) me is unpleasant only if certain conditions are met.

I will illustrate this by an analog visual state. Imagine you are in a South American tropical rainforest to study yellow-banded poison dart frogs. You finally encounter one, and its aposematic coloration represents that it is apt to harm you. But that in itself is not an unpleasant experience. For laymen, this visual experience might be

---

132 In the SEP entry “Desire”, Tim Schroeder states that despite disagreement about the nature of desire, the concept of desire usually includes inter alia a relation to certain feelings, including feelings of pleasure and displeasure. “Desiring is a state of mind that is commonly associated with a number of different effects: a person with a desire tends to act in certain ways, feel in certain ways, and think in certain ways. If Nora desires tea, for example, then Nora will typically make herself a cup of tea; if she does not get herself some tea right away she will nonetheless typically feel the urge to do so; she will find the thought of tea pleasant and will find her current lack of tea unpleasant; she will find her thoughts repeatedly turning to the idea of tea; she will judge that tea seems like a good idea; and so on. These various effects have been the focus of efforts to develop theories that are theories of desire.” (Schroeder 2017).
an unpleasant experience, possibly because they are afraid that the frog could be poisonous and harm them if it comes in contact with them. But you do not have such fears. You know that they are poisonous, but you are prepared, and you know how to avoid any harm by them. Rather than being anxious, you are actually fascinated by the bright colors of the frog which makes your visual experience a pleasant one. This thought experiment reveals that the representation of potential harm does not have to be unpleasant. Of course, Tye and Cutter may object that there is a difference between visual representations of harm and interoceptive representations of harm, but the point is that it is less clear why ascribing contents like (T) accounts for the non-instrumental unpleasantness of pains than by ascribing contents like (M*).

Hilla Jacobson (2013) has offered a related argument against Tye’s and Bain’s attempts to defend a representational account of pains with the help of their claim that the unpleasantness of pain can be accounted for by the evaluative content of pain. She argues that representationalists cannot explain why it is reasonable to take painkillers, knowing that the painkiller will not affect the damage the pain supposedly represents. That the reason for taking painkillers cannot be to get rid of, or change, the bodily damage supposedly represented by the pain is most evident in cases in which the subject knows that there is nothing these pains veridically represent, as in phantom limb pain. The reason must be to get rid of the pain itself.\textsuperscript{133}

\textsuperscript{133} This does not mean that unpleasantness is constituted by a second-order desire that is directed against the pain itself. Jacobson argues that such an account is false because it gets the order of explanation wrong: it claims that pain is unpleasant because we desire to get rid of them; whereas it is more plausible to assume that we want to get rid of pain because of the way it feels, viz. because it is unpleasant. Hence, the object of the relevant attitude – whether it is a desire or desire-like state, an evaluative belief, or a normative belief (command) – is the intentional object of the pain, that is, the bodily condition that pain represents, rather than the experience of pain (Jacobson, under review). Accordingly, what we want to get rid of is, strictly speaking, what pain represents, not the pain experience itself. I put this clarification into a footnote because Jacobson’s argument against Tye’s and Bain’s evaluativism is not
And this is something we consider to be reasonable, given that we do not blame, for example, a patient with phantom limb pain for wasting painkillers. The fact that we consider it to be reasonable to get rid of one’s pain by taking painkillers independently of their effects on the bodily state that (apparently or actually) causes the pain experience is further evidence for the thesis that pain, or more precisely its unpleasantness, is non-instrumentally bad. Jacobson argues that Tye and Bain cannot accommodate the non-instrumental badness of pain’s unpleasantness because on their account the unpleasantness of pain consists in the information that a certain bodily state is bad for you (is apt to harm you, according to Tye and Cutter, respectively), and such information is not non-instrumentally bad. To illustrate this point, Jacobson compares such evaluative content with a messenger who conveys bad news to a king (this is why this objection became known as the messenger-shooting objection). In both cases, what is bad about the news is whatever the news concerns, not the mere fact of being informed about it. If the king shoots the messenger, we consider this to be irrational. By contrast, we do not consider it irrational to silence the pain experience which supposedly represents that a certain

touched by this. – By the way, in a paper from 2013, Bain also presents an argument why our practice of taking painkillers does not prove that (unpleasant) pains aim at the cessation of the unpleasant experience itself rather than at the cessation of what pain represents. Bain denies that just because painkillers end (unpleasant) pains, this reveals what (unpleasant) pains aim at. For, by analogy, ending somebody’s hunger by punching him in the stomach does not reveal that (that) hunger aims at whatever terminates its existence (Bain 2013, p. 85; see also Wittgenstein 1975, p. 64). However, Bain tells us neither here nor in his “Pains that don’t hurt” (2014) what it is that reveals what hunger or (unpleasant) pain aim at. By contrast, teleological accounts of intentional content will claim that there is a plausible evolutionary explanation of why hunger aims at stopping one’s hunger by eating, and why pain aims at stopping, alleviating or preventing (actual or potential) damage to one’s body. If we had stopped our hunger sensation by punching our stomachs rather than eating something, we would not have survived. Likewise, if we had taken painkillers every time we felt pain rather than (also) cared about the bodily state that the pain (apparently) represents, we would have died young. In a nutshell, it is evolutionary useful to have desires for (instances of) bodily damage not to occur, rather than (just) having desires for pain experiences not to occur.
bodily state is bad for you. Jacobson concludes that Tye’s and Bain’s evaluative content cannot account for the non-instrumentally bad unpleasantness of pain.

I believe that this is a powerful argument. In an upcoming paper, Bain (forthcoming-b) responds to it. I will present his reply, and argue that it is incompatible with strong intentionalism, and therefore conflicts with Bain’s own presuppositions. Bain mainly criticizes that people like Jacobson ignore that the evaluative content of pain experiences is presented in a different way than the evaluative content of beliefs, including judgments that something is bad for you. His argument can be reconstructed in the following way.

1. It is the unpleasantness of pain, understood as a phenomenal feel, that is bad for you about your unpleasant pain.

2. This feel consists in a perceptual representation of a given state’s badness for you.

3. By contrast, being told that a certain state of your body is bad for you, say, by a messenger creates a corresponding cognitive representation (or, more precisely, a judgment).

4. Perceptual states have a different phenomenology than judgments (or cognitive states in general) because in perception something “impresses” itself on one’s senses. In perception, the subject “encounters” something (Bain, forthcoming-b, p. 18).\(^{134}\)

\(^{134}\) Some might deny that cognitive states have any phenomenal character, and therefore claim that perceptual states have a phenomenology whereas judgments do not. But Bain’s argument would work even if we grant this claim rather than the weaker claim that there is a phenomenal contrast between these states. Hence, making this strong claim is irrelevant to Bain’s thesis.
5. Hence, “what is bad for you about your unpleasant pain is not your merely representing damaged states of your body as bad for you, but rather your putatively encountering those states’ badness for you, or your having their badness-for-you putatively impressed on your senses.” (ibid.)

Of course, Bain is right that perceiving something is different from being told something. In other words, the content of perceptual states differs from the content of statements which try to describe the relevant event. Perceptual states are much richer than the corresponding verbal descriptions, given that in our descriptions we abstract from all those details that we deem irrelevant. However, Bain’s explanation of this difference, as manifest in (5), is based on the claim that the phenomenal feel constituting the unpleasantness of pain exceeds what is represented in pain experiences. This contradicts Bain’s own theoretical commitments, given that he also wants to defend the strong intentionalist thesis that “an experience's phenomenal character is wholly constituted by its content” (Bain 2003, p. 502).

To put it differently, if Bain wants to maintain strong intentionalism, and holds that the phenomenology of perceptual states consists only in their intentional content, that pains too are so to be understood, and that their intentional contents are representational (which includes, according to Bain, their evaluative content) – which amounts to saying that pains and other perceptual states are about something in the world and that this is conveyed to us –, then the response he gives to the messenger-shooting objection is unavailable to him. It is unavailable because it presupposes that perceptual states have not only such representational content, but

---

135 Bain might alternatively claim that it is not the content that differs, but the mode in which this content is presented. Because these claims are not crucial, we can grant either claim.
also some non-representational, phenomenal properties (expressed e.g. by what it is like to encounter the world, including your body and its states). Weak intentionalists such as Block or McGinn could accept such an assumption, but if Bain wants to defend strong intentionalism, he cannot argue in this way.

There is an alternative to Bain’s response which is perfectly compatible with strong intentionalism, namely the representational-imperative view I endorse. According to the representational-imperative view, the intentional content of pain experiences is not exhausted by representational content. Pain experiences also possess an imperative content, and this is what distinguishes them inter alia from judgements which are based on being told that a certain bodily state of you is bad for you (or is apt to harm you). To stay in Jacobson’s picture, if pain were a messenger, then it would not just convey bad news to the king, but also constantly irritate him to do something about the issue.

As I have written above, there is a second reason why I believe that accounting for unpleasantness of pain in terms of (M*) is superior to attempts to do it in terms of (T) or (T*): it is easier to see why pain experiences motivate actions if we construe them as possessing content (M*) rather than (T) or (T*). This becomes evident if we remind ourselves that (T) consists in a proposition that is true or false, and is therefore akin to beliefs, whereas (M*) consists in a proposition that is satisfied or not satisfied, and is therefore akin to desires. Beliefs and desires have a different direction of fit. “Direction of fit” is a term coined by John Searle. The idea already appears in G.E.M. Anscombe’s book Intention, and is well illustrated by Searle in the following way.
Suppose a man goes to the supermarket with a shopping list given him by his wife on which are written the words "beans, butter, bacon, and bread". Suppose as he goes around with his shopping cart selecting these items, he is followed by a detective who writes down everything he takes. As they emerge from the store both shopper and detective will have identical lists. But the function of the two lists will be quite different. In the case of the shopper's list, the purpose of the list is, so to speak, to get the world to match the words; the man is supposed to make his actions fit the list. In the case of the detective, the purpose of the list is to make the words match the world; the man is supposed to make the list fit the actions of the shopper. This can be further demonstrated by observing the role of "mistake" in the two cases. If the detective gets home and suddenly realizes that the man bought pork chops instead of bacon, he can simply erase the word "bacon" and write "pork chops". But if the shopper gets home and his wife points out he has bought pork chops when he should have bought bacon he cannot correct the mistake by erasing "bacon" from the list and writing "pork chops". (Searle 1979, pp. 3-4)

Searle was concerned about linguistic matters, but the concept of direction of fit has been applied also to mental states. Like the shopper’s list, beliefs have a mind-to-world direction of fit: in a case of mismatch one changes one’s belief, not the world. By contrast, desires, like the detective’s list, have a world-to-mind direction of fit: in a case of mismatch, one changes (or at least tries to change) the world rather than one’s desire.

This distinction well explains why (M*) intuitively motivates actions when (in a case of mismatch) one’s body appears to be damaged. The subject wants to change the world such that the bodily damage is no more. By contrast, (T) itself does not motivate any actions. It is only in combination with, say, a desire not to be harmed that the subject will react if his/her experience represents that a bodily disturbance is apt to harm him/her. The second point does not falsify that pain experiences have evaluative content, but the immediacy of our reactions to pain militate in favor of an imperative rather than an evaluative content.
In this section I have presented two arguments why the affective-motivational components of pain is better explained by ascribing imperative content to pain rather than representational content. In short, frustrated desires (or desire-like states) are (typically) as non-instrumentally bad as pains. Both are unpleasant independently of further consequences they might have. By contrast, the information that something is apt to harm you is only conditionally unpleasant. It is unpleasant only if you desire not to be harmed. Second, desires (or desire-like states) have a world-to-mind direction of fit. They motivate us to change a worldly state of affairs rather than to change our picture of the world. This intuitively explains why pain motivates us to change a state of affairs, viz. to do something so that a part of one’s body is not represented (anymore) as being damaged.

4. Why pains do not have only one kind of content

As written above, I assume that both the representational and the imperative content are necessary to account for our pain experiences. This contrasts with authors who assume that pains are not necessarily unpleasant – examples are Tye (2005, p. 106) and Bain (2014, p. 316) – and accordingly assume that a sensation can be a pain even though it is not unpleasant. These authors’ definition of pains must rely on something different from unpleasantness. Indeed, most of the leading intentionalists’ accounts of pain, except Colin Klein’s pure imperativism, assume that what makes an experience a pain experience is that it interoceptively represents a part of one’s body as being in a particular physiological state, such as bodily disorder or tissue damage. As stated in sections 1 and 3, Tye and Bain add that unpleasant pains have an additional intentional content, namely the evaluative content that the bodily state is
bad for the subject. But since both Tye and Bain assume that there are pains which are not unpleasant, this evaluative content is optional, and hence not essential for individuating pain experiences. According to them, the indicative content suggested above is necessary and sufficient to account for the phenomenology of our pain experiences.

The problem of such a purely representational account is that it does not exclude non-pain experiences, and thus does not correctly individuate pain experiences. Given that strong intentionalists such as Tye and Bain hold that the phenomenal character is identical to (Tye 2005, p. 99) or is “wholly constituted by” (Bain 2003, p. 502) intentional content, it follows that only experiences with the phenomenology of pains have such an intentional content. That is, only pain experiences interoceptively represent that a part of one’s body is damaged (or, broader, in a state of disorder). Experiences with a different phenomenology must have a different intentional content. However, it seems that experiences such as itches can also be

\[\text{136 Norton Nelkin (1994) also advocates an evaluative theory of pain, but based on his radical denial of phenomenological qualities (1994, p. 331), his view differs in various respects from the one of Tye and Bain. Nelkin assumes that pains have two necessary components, a (indeed any kind of) phenomenal state and a non-inferential, evaluative representation of the form, “This state represented by the (current) phenomenal state is harmful”. But whereas Tye and Bain assume that the evaluation is part of the intentional content of the pain experience, Nelkin denies that such an evaluation is intrinsic to any of the phenomenal states that can be evaluated as unpleasant/painful. According to him, the evaluation is a kind of judgment (ibid., pp. 331-332). Moreover, unlike Tye and Bain, Nelkin holds that it is the evaluative component which distinguishes a pain, say, from a tingling sensation (ibid., p. 339). Personally, I agree with Nelkin that pain has two components, and that only when these come together do we experience pain. However, I disagree with his fundamental assumption that pain experiences do not share a common phenomenology, and thus can be elicited by any phenomenal state. His denial of a common phenomenology creates the problem of individuating pains for Nelkin, too. Nelkin acknowledges that according to his account, nausea should be considered a pain given that it too can plausibly be construed as involving the evaluation ‘Harm to the body’. His speculative attempt to explain why nausea is factually not classified as pain is unconvincing (ibid., p. 339).

137 Tye consequently states that “pain experiences have a distinctive representational content” (2005, p. 99; italics added).}
plausibly construed as interoceptively representing that a part of one’s body is damaged (or, broader, in a state of disorder). But itch experiences phenomenologically differ from pain experiences. Thus, the indicative content alone does not capture the phenomenology specific to pains.

By contrast, if we ascribe representational as well as imperative content to pain experiences and assume that only both together can account for the phenomenology of pain experiences, then we can exclude non-pain experiences such as itches. They are excluded because it is plausible that itches do not have an imperative content such as

\[ (M^*) \text{ Don’t have this bodily disturbance (with such and such urgency)! } \]

but rather the imperative content *Scratch (here)!* Richard Hall convincingly argues for this, based on the intimate (almost conceptual) relationship of scratches to the *specific* action that they motivate (2008, pp. 526-527).

The second view which posits that pain experiences have only one kind of content is Colin Klein’s pure imperativism. According to Klein, specific pains have an imperative content along the lines of the following “pain schema”:

\[ \text{PS: } \text{Keep body part B from event}^{138} \ E \ (\text{with priority} \ P)! \ (2015, \ p. \ 57) \]

[For] example, the pain of a broken ankle is the command, “Keep your ankle from bearing weight (with urgency so-and-so)!” The pain of a burn on your arm is, “Keep your arm from being touched!” The pain of a torn biceps muscle is ‘Keep your biceps from contracting!’” (ibid., p. 57)

---

\(^{138}\) Klein himself does not use the term “event”. He classifies the term E as picking out “the sort of action to take with respect to B” (2015, p. 98). However, Klein’s examples (see below in the main text) suggest that E picks out events rather than actions. After all, “bearing weight” and “being touched” are surely to be classified as events rather than actions.
In contrast to the representational-imperative view I advocate, Klein claims that pains have “no (psychologically relevant) content beyond their imperative content” (2015, p. 7), especially no indicative content. Can Klein account for all pain experiences without postulating any representational content? If he can, and if there are no other flaws of this purely imperative account, then there is no need to adopt a representational-imperative view.

However, Klein’s account faces some serious problems. Neurological studies like the one by Ploner et al. (see chapter 1 section 4) indicate that we have two different nociceptive subsystems which can be activated independently of each other, and that one of them plays an essential role for the sensory-discriminative aspects of pain experiences. This suggests that pain experiences have two different components, and that representational content is needed in order to account for the sensory-discriminative component of pain. Klein has to deny, and in fact denies the dichotomy between sensory-discriminative and affective-motivational components of pain experiences (2015, p. 48, n. 2). He does that inter alia by postulating that all pains motivate, independently from the motivation by unpleasantness. To be more precise, Klein claims that all pain experiences, that is, unpleasant ones as well as non-unpleasant ones, motivate us to protect a certain part of our bodies, while unpleasantness additionally motivates us to do something else, namely to get rid of our unpleasant experience (ibid., pp. 12, 45, 53). Alleged examples of pains that are not unpleasant (that don’t “hurt” in Klein’s terminology) but nonetheless motivate us to protect our bodies are morphine pains, the pains felt by pain asymbolics, mild pains, and “pains that precede unproblematic postural adjustment” (ibid., p. 49).
Klein’s classification is wrong because of several reasons. First of all, I argued in the last chapter that the sensations felt by morphine patients are *not* pains, and hence not instances of pain which is not unpleasant.

Klein’s thesis is also far-fetched when applied to pain asymbolics. Given that many of them show hardly any avoidance or protective behavior when exposed to ordinarily painful stimuli\(^{139}\), it is implausible to construe their (supposedly non-unpleasant) pains as motivating them to protect their bodies. What reasons do we have to ascribe such motivational states to pain asymbolics? After all, the reason why we ascribe such states to others is their (actual or likely) *behavior*. Given that pain asymbolics do not show any protective behavior when exposed to ordinarily painful stimuli, the rationale for ascribing such motivational states to them is gone. Klein knows that this is a problem for his account, and tries to solve it by denying that (all) pains *always* motivate. He rather makes the weaker claim that pains only motivate if the subject cares for his/her own body, and maintains that pain asymbolics lack such care (ibid., p. 154). Klein thereby contradicts himself, since until then he claimed that (all) pains motivate (to protect one’s body) *regardless of one’s desires or values* (see for example ibid., p. 1), and surely caring for one’s own body is (or is based on) a desire or a value.

This leaves us with mild pains, and pains that precede unproblematic postural adjustment. In my view, it is more plausible to assume that these pains are both

\(^{139}\) As written in the last chapter, it takes quite strong pain stimuli to make pain asymbolics react in a defensive way. Schilder and Stengel note that their patient does sometimes rub the pinpricked area, even though quite late (1928, pp. 146-7), and that she does react in a defensive way to very strong electric pain stimuli (ibid., p. 148). This was one of the reasons for claiming that pain asymbolics do feel unpleasant pains, but that these pains are experienced as *mildly* painful (unless the intensity of the painful stimuli is quite strong).
mildly unpleasant (and that this accounts for their motivational aspects) rather than claiming that these are not unpleasant at all. Klein argues that such a claim falsely presupposes that the intensity of pain on the one hand, and the intensity of the unpleasantness of pain (here supposedly referred to as “suffering”) on the other hand covary.

[I]f pain and suffering are not distinguished, then pain and suffering should covary in their intensity. Yet pain and suffering are able to vary independently in their intensity. On the one hand, mild pains can cause intense suffering—as when, for example | they are not under your control, they forebode serious injury, or they have persisted for weeks. On the other hand, repeated pains can cause one to suffer less and less. A new exercise routine or getting blood drawn might become less and less unpleasant over time. If you must have blood drawn every day, you’ll find it less and less unpleasant. It’s not so much that the pain gets less intense, however: there’s still the sting of the needle, and that doesn’t change much at all over time. Rather, as you become familiar with the same pain, it hurts less. You don’t mind it so much. (ibid., pp. 51-2)

Klein thus argues that mild pains do not have to be mildly unpleasant because the intensity of the unpleasantness of pains can vary independently from the intensity of pains, including the possibility that mild pains are not unpleasant at all.

Assuming that by “suffering” Klein refers to the unpleasantness of pain, as indicated by the fact that Klein seems to use “suffering”, “unpleasant[ness]” and “hurt[ing]” interchangeably here (see also ibid., p. 71), I disagree with Klein on the question whether the intensity of pain can differ from the intensity of its unpleasantness.¹⁴⁰ I

¹⁴⁰ Klein also refers to a study by Rainville, Carrier, Hofbauer, Bushnell, and Duncan (1999) in order to support his claim that pain intensity and intensity of suffering/unpleasantness are distinct phenomena, and that "pain intensity alone is part of pain, while unpleasantness is a secondary [i.e. optional, non-essential] characteristic." (2015, p. 52). Regarding the above study, Klein states, "Rainville et al. (1999) found that “pain intensity” and “pain unpleasantness” ratings could be independently modulated by hypnotic suggestion." (ibid.). Readers of the article by Rainville et al. will find that the authors have been able to use hypnosis in order to manipulate what they call “pain affect” more or less independently of
believe that Klein uses the term “pain” (or “painful”) inconsistently, referring either to some subjective experience or to some stimuli that can be objectively measured. For example, when Klein states that “mild pains can cause intense suffering” (see last quote) “pain” must refer to some stimuli which can be objectively measured. Otherwise Klein’s statement does not make sense. If “pain” referred to some subjective experience, then pains could not be mild and intensely unpleasant at the same time because saying that a pain is mild implies that the pain is not very unpleasant. (Conversely, to say that a pain is intensely unpleasant rules out that this pain is mild.) In the above quote, “pain” presumably refers to stimuli which, in standard conditions, cause sensations which are rated by most of the test subjects as mild pains. This usage of “pain” contrasts with Klein’s own standard usage of it. While he does claim that “pain” is ambiguous, in all of its alleged meanings “pain” is supposed to refer to some kind of sensation (ibid., p. 10). And from the context it is clear that Klein thus defines pains as experiences, and not as objectively defined

141 This usage of “pain” contrasts with Klein’s own standard usage of it. While he does claim that “pain” is ambiguous, in all of its alleged meanings “pain” is supposed to refer to some kind of sensation (ibid., p. 10). And from the context it is clear that Klein thus defines pains as experiences, and not as objectively defined

---

pain intensity, whereas the converse was hardly accomplished (1999, pp. 165-6). The main problem with the study by Rainville et al. is that they seem to mean something else by “pain affect” than the unpleasantness which is, according to me, always part of pain sensations. Rainville et al. never actually define what they mean by “pain affect”, but from the hypnotic suggestions which are supposedly directed at the pain affect (“unpleasant”, “uncomfortable”, “disturbing” as opposed to “comfortable”, “well-being”, “agreeable”, “restful”) (ibid., p. 170) and from their implicit identification of the affective dimension of pain with what William James called pain’s “degree of intolerability” (ibid., p. 160), it seems that Rainville et al. examined the patients’ aversive reactions to pain sensations rather than the unpleasantness inherent to pain. As written in the beginning of chapter 4, we should distinguish between these two things. I am sure that the study of Rainville et al. shows that the hypnotic suggestions made many test persons relax in such a way that they were able to tolerate the immersion of their hand in water of 46.5°C. But that does not show that that the heat stimulus has not been unpleasant (or even pleasant). If we maintain the distinction between the unpleasantness of pain on the one hand, and our reactions to pain on the other hand, we can grant the result by Rainville et al. without rendering Klein’s conclusion that the intensity of pain differs from the intensity of its unpleasantness.

141 But note that it is unclear how Klein would define these standard conditions. In particular, it would be interesting whether being under one’s control is a property that belongs to these conditions.
stimuli. Klein’s argument against the “mildly unpleasant” account of mild pains (and postural pains) therefore rests on a confusion, and can be dismissed.

Another reason which militates against Klein’s classification is that Klein cannot present cases of strong pains which are not unpleasant (but motivating). He comes up with examples of pains after alcohol consumption, pains under hypnosis, and pains of lobotomized patients, but eventually admits that suffering/unpleasantness probably is not completely eliminated in these cases (ibid., p. 164). I conclude that we have no reason to agree with Klein on the existence of motivating, but non-unpleasant pains. Klein thus fails to challenge the established dichotomy between sensory-discriminative and affective-motivational components of pain experiences, and to persuade us to accept his view according to which the imperative content suggested by him accounts for all components of pain experiences, not only the affective-motivational one.

Besides the problems for Klein’s claim that all pains (including allegedly non-unpleasant pains) are motivating, Klein himself admits that the location of pains posits a problem for his purely imperative view “because commands aren’t located. Adding representational content would make things easy—you can just locate the pain where whatever’s represented happens to be.” (ibid., p. 9). Whereas representational theories claim that pains represent some (actual or potential) damage at some bodily location, Klein claims that our pain sensations merely guide actions toward some location:

> Because imperatives aren’t truth-apt, they can’t represent truths about locations. Unlike the representationalist, we can’t appeal to represented facts about locations in the world to explain their felt location. The key, I suggest, is that the felt location should correspond to the part of the body that one is...
commanded to protect. We feel pains in the location toward which our concern is directed. (ibid., p. 88)

I take it that Klein does not mean that we feel pain at bodily part $x$ because we want to protect $x$ because this would get the order of explanation wrong. It seems much more natural to say that we want to protect bodily part $x$ because we feel pain there. Does Klein rather have a behaviorist thesis in mind according to which I feel pain in $x$ because I am disposed to act in certain ways toward $x$? That is not clear. In particular, it is not clear how our concern (and arguably our attention) can be directed toward some location without previously having perceived something at that location.

Compare a situation in which you look at a screen, for example, when you watch a film on TV. At some point, your attention is directed to a moving object outside a nearby window, and you look to the side. It is difficult to deny that, from the corner of your eye, you saw the object before you turned your head and inspected it more carefully. Siegel makes a similar point when she defends an intentionalist account of perceptual experiences against accounts which claim that perception does not consist in acquiring information about worldly objects and events (information which might be useful in the context of further considerations and contexts) but rather in motivating (or “guiding”) certain actions. Based on J.J. Gibson’s (1979) concept of affordances, radical action guiding accounts of perception claim that we do not perceive objects and events but merely possibilities to act, such as the possibility to grasp a nearby object. Such accounts are most plausible in the case of specialized skilled action such as playing tennis because here the subject seems to be directly motivated to act in a certain way due to events in his/her environment. For example, the player arguably “sees” in some sense how he/she can return the ball. However, Siegel objects that even in such cases, it is not as if the subject does not see the things...
relevant for the game. “You couldn’t very well play tennis without seeing the ball” (Siegel, 2014, p. 61). Coming back to the pain case, it is likewise plausible to assume that you first perceive something – according to my account the actual or potential damage to a part of your body – at a certain place before you can act toward it, say, before you can protect the affected bodily part. This is in accordance with the first point, that is, with the assumption that it is the perception of something that causes your concern being directed toward it.

Moreover, Klein’s thesis that “[w]e feel pains in the location toward which our concern is directed” (2015, p. 88) is falsified by the case of pain asymbolia: the pains of pain asymbolics are located, but their concern is not directed toward that location given that they are not concerned about their bodily integrity (at least in those cases where pain asymbolics are exposed to stimuli that ordinarily cause moderate pain, such as pinpricks).

I take these reasons to show that Klein cannot account for the (apparent) location of pains in terms of concern or action guidance. As Klein himself acknowledges it is much easier, that is, much more plausible to assume that we feel pain where whatever pain represents happens to be. I am convinced that a representational-imperative view best explains the locative aspect of pains. Together with the neurological insights about components of pain experiences, and Klein’s failure to challenge the dichotomy of sensory-discriminative and affective-motivational aspects of pain, I conclude that his purely imperative account of pain is incomplete, and that we have good reason to ascribe representational as well as imperative contents to pain experiences.
5. Still, could we do without imperative content?

Despite all the reasons I have given for the introduction of two kinds of content, some representationalists might think that we could account for the affective-motivational component of pain not by introducing different kinds of content (especially imperative content), but rather by introducing various kinds of attitudes we take toward a content.

This will suggest itself especially to proponents of the language of thought hypothesis (LOTH). The LOTH is a theory about thoughts. It suggests that intentional states such as beliefs and desires are propositional attitudes. Thoughts are *attitudes* because one takes an attitude (such as believing, hoping, fearing, desiring, etc.) to a proposition. They are *propositional* because these states can be described by indicative sentences which express a proposition, for example the proposition *that biscuits are crisp*. How does LOTH determine the content of a thought? According to LOTH, a thought, like a sentence, consists in a composition of components which themselves have representational or semantic properties. The content of a thought therefore depends on the semantic properties of the components, concepts in the case of a thought, as well as the way the concepts are put together (according to certain syntactic rules). LOTH proponents vary on how concepts get their semantic properties, but typically it is assumed that concepts come to stand for

---

142 There is disagreement about the ontological status of propositions, but minimally they are taken to consist in something that can be true or false. Assuming that an English speaking person can have the same thought as a French speaking person, it is moreover held that propositions are not sentences in particular (public) languages, but a language of thought (usually called “Mentalese”).
either by causally co-varying with \( p \), by co-varying with \( p \) under ideal conditions, or by having the biological function to stand for \( p \).

By contrast, which attitude you are taking to a proposition is determined, according to David Braddon-Mitchell’s and Frank Jackson’s depiction of LOTH, in a functional way. Assuming that brain state \( \alpha \) represents a biscuit, and brain state \( \beta \) represents the property of being crisp, which attitude you take toward a proposition is determined by

the causal-functional role of the sentence token in the head that encodes it – \( \beta(\alpha) \) in our example. Very crudely, if the encoding sentence token that expresses the proposition that biscuits are crisp is connected up in your brain so as to make you behave as though biscuits are crisp (given your desires), then you believe that they are crisp. If, on the other hand, the token is connected up so as to make you try to bring it about that they are crisp (perhaps by putting them in the oven), you desire biscuits to be crisp. (2007, p. 174)

Now, if we assume that the content of all thoughts, including the content of desires, consists in a proposition devoid of mood\(^{143}\), that whether the thought is a desire or belief is indeed determined by the attitude taken toward it, and that the content of experiences is determined analog to the content of thoughts, then we might not need to postulate imperative content. If such an ontologically more economical account

\(^{143}\) Such an understanding of content is based on Frege’s account of the meaning of sentences as an ordered pair of a sense and force. According to Frege, sentences like “Jones is an efficient administrator.”, “Is Jones an efficient administrator?”, and “Jones, administrate efficiently!” have the same sense, that is, they all express the proposition (or “thought” – German “Gedanke” – as Frege called it) that Jones is an efficient administrator. However, depending on their grammatical mood, they vary in their (overall) meaning. Frege suggested to account for the different moods by introducing the notion of force which represents what we do with the proposition. In the example above, we either assert the proposition that Jones is an efficient administrator, or we ask whether it is true, or we command that it be made true respectively (see Miller 2007, pp. 62-3). The idea in the main text is thus that the content of experiences might be devoid of “mood” too, and that the “mood” is accounted for by the attitude we take toward it.
can explain all the relevant pain phenomena, then it seems that my proposal that pains have representational as well as imperative content seems unnecessary bloated, and should be replaced by a purely representational account of pain.¹⁴⁴

Thus, we might construe the content of pain sensations as consisting in the proposition that

\[(R) \quad this \text{ part of one’s body is actually or potentially damaged (with such and such severity)}\]

and claim that taking the attitude of disliking explains why we desire to get rid of that state, and are motivated to act accordingly. In other words, the suggestion is that taking a belief-like attitude toward \((R)\) accounts for the sensory-discriminative aspect of pain, while taking a disliking attitude toward \((R)\) accounts for the affective-motivational aspect of pain. Will that do?

The crisp biscuit example from above might give the impression that it will not do. For if the attitude is determined functionally, then \(S\) does not seem able to take a belief-like attitude toward \((R)\) and a desire-like attitude toward \((R)\) at the same time. In other words, if the attitude depends on what kind of behavior is triggered by the \((R)\) token in \(S\)’s brain, and if \textit{behaving as if \((R)\) is true} differs from \textit{trying to make \((R)\) true}, then there will be no behavior which determines that \(S\) takes a belief-like and a desire-like attitude toward \((R)\) at the same time. However, we can dispel such doubts by arguing that unlike in the crisp biscuit case, \(S\) can have both attitudes toward \((R)\) because trying to make \((R)\) \textit{untrue} (as opposed to the attempt to make it true) presupposes that \(S\) takes a belief-like attitude toward \((R)\). So let’s grant that

¹⁴⁴ I am grateful to Hongwoo Kwon for pressing this point.
there is a kind of behavior which determines that one takes a belief-like attitude toward (R) as well as a desire-like attitude toward (R).

The real problem with this alternative account is that it does not do justice to the non-instrumental unpleasantness of pain. In chapter 5 section 3 we demonstrated that the intentional content of pain experiences cannot be exhausted by representational (and evaluative) content because we have good reason to take pain killers even though we know that taking pain killers will not help to make (R) untrue. The alternative account presented in this section faces the same objection. If taking a disliking attitude toward (R) is determined by S’s attempt to make (R) untrue, then taking pain killers cannot count as behavior which constitutes taking a disliking (or other desire-like) attitude toward (R) because the consumption of pain killers is exactly *not* an attempt to make (R) untrue. We do not take pain killers in order to treat (actual or potential) bodily damage, but in order to get rid of the unpleasant state which reminds us of the bodily damage.

To put the objection differently, the alternative account does not explain why pains are always unpleasant. It is not clear why taking an attitude toward (R) should account for the affective-motivational aspect of pain because it is contingent what kind of attitude I take toward (R). The alternative view does not show why we typically, universally or even necessarily take the attitude of disliking toward (R). It simply says that we do. But this allows the possibility that we also take another attitude toward (R). We might as well take a desiring or hoping attitude toward (R). The failure to explain why it is the disliking attitude which we take toward (R) is just another way to say that the alternative view fails to account for the non-instrumental unpleasantness of pain. By contrast, on the representational-imperative account of
pain, it is not up to us whether we like or dislike our pain sensations. Pain is always unpleasant and its unpleasantness is not due to its negative effects. Ascribing imperative content to the sensation helps to account for this non-instrumental unpleasantness.

6. Summary of chapter 5

In this chapter I have argued that pain experiences are perceptual states with a hybrid content. On the one hand, pain sensations represent a certain part of one’s body as actually or potentially damaged, and thus provide information about the location, the intensity, the onset and other sensory qualities of a bodily state. On the other hand, pain sensations possess an imperative content which consists in a desire-like state that tells you not to have this bodily state (with such and such urgency). The imperative content accounts for the unpleasantness of pain and the motivation to do something so that a certain part of one’s body is not represented (anymore) as being (actually or potentially) damaged. I have argued that the representational-imperative view is superior to purely representational and purely imperative views, because the latter cannot correctly individuate pain sensations, or because they cannot account for the non-instrumental unpleasantness of pain.
Conclusion

I hope this book was able to convince the reader that pain is not merely a simple sensation which does not provide any information about the world, but a complex perceptual experience with at least two contents. Pain sensations not only interoceptively represent a certain part of one’s body as actually or potentially damaged, they are also desire-like states that tell you not to have this bodily state (with such and such urgency). I believe that such a representational-imperative view is the best explanation of all the various phenomena that we associate with pain. It does justice to the fact that we can detect bodily damage by means of pain, and to the fact that pains are always unpleasant, a thesis I have substantially argued for.

I hope this book also showed that perception is not just a passive detection of stimuli, but a complex activity. What we perceive in one sense modality is pro tanto influenced by our beliefs and desires. It is also influenced by what we perceive with other modalities. And perceptual states have often an affective dimension, and are thus not as motivationally inert as some accounts assume, especially those that mainly focus on vision.

Finally, I hope that this book contributes to a unified account of mental states as states that are about objects and events, and that can be naturalized based on teleosemantic or other accounts of intentional content. If I am right that pain sensations are intentional states, then the division of mental states into intentional cognitive states on the one hand, and non-intentional experiences on the other hand might turn out to be obsolete, given that proponents of such a division, such as McGinn or Block, often use pain as an example of a mental state which is,
presumably, not intentional. I have argued that the causal correlation of pain and damage, and especially the location of pains give us good reasons to believe that pain sensations, if veridical, provide objective information about the world. In my chapter on Burge I have shown that critics of strong intentionalism cannot reply that only the locative aspects of pain are representational whereas the other properties of pain, including its phenomenal properties, do not represent anything, because there is no such thing as unlocated pains. And once we accept that pains are intentional states, a teleological account of intentional content can tell a plausible story of how the physical states which pain sensations are presumably identical to (or at least depend on) can be about the world and its properties.
References


—— (under review) “The Exteroceptive Role of Pain”.


—— (under review) “Not Only a Messenger: Towards an Attitudinal-Representational Theory of Pain”.


205
—— (2005) "Another Look at Representationalism About Pain", in M. Aydede (ed.) 
MA: MIT Press, 99-120.

Tye, M. & Cutter, B. (2011) “Tracking Representationalism and the Painfulness of 


Welch, R. B. (1978) Perceptual Modification: Adapting to Altered Sensory 


Williams, A. C. & Craig, K. D. (2016) “Updating the Definition of Pain”, PAIN, 

157(11), 2420-2423. doi: 10.1097/j.pain.0000000000000613.

한국어 초록

지각으로서 고통
— 고통 감각에 관한 표상주의적 - 명령적 설명 —

박 토마스

본 논문은 신체적 고통의 감각들이란 시각이나 후각과 같은 감각에 의해 만들어지는 지각적 경험들과 동등한 수준의 것임을 핵심적으로 주장한다. 고통의 경험에 의해 우리는 우리 신체에 대한 일정한 객관적 정보를 얻는다. 그러므로 고통은, 단지 세계에 대해 아무것도 알려주지 않는다고 하는 주관적인 현상적 감각질(a subjective phenomenal quality)에서 성립하는 것이 아니다. 본고는 강한 지향주의적 입장을 취한다. 특히 고통 감각을 (정확하게든 아니든) 위치에 지정할 수 있는 능력(the ability to locate)에 의해, 고통은 적어도 신체의 특정 부분에서 무엇인가가 일어나고 있음을 표상한다는 주장이 됬받침 됨을 이끌어 낼 것이다. 나아가 나는 (실제적이거나 잠재적인) 신체적 손상과 고통은 높은 상관성을 갖는다는 것과 고통은 언제나 불쾌하다는 것을 응호하면서, 신체의 특정 부분이 실제로나 잠재적으로 손상되었다는 표상적 내용뿐만 아니라 이 실제적이거나 잠재적인 손상의 상태를 벗어나라는 (일정한 긴급성을 가진) 명령적 내용을 고통 감각에 귀속시킬 때 고통과 관련된 현상들을 가장 잘 설명할 수 있다고 논증할 것이다. 다른 한편, 고통이 가진 불쾌함으로 인해 고통이 지각적 상태에서 배제되어야 하는 듯 보이지만, 그러한 인상은
우리의 일반적인 지각 상태가 그에 내재적인 쌍락과 관련된 성질을 갖지 않으며 동기유발을 무관하다는 잘못된 믿음에 기초한 것이다. 나는 우리가 갖는 다수의 지각 상태가 유쾌하거나 불쾌하다고 경험이를 들어 위와 같은 외재주의적 설명을 논박할 것이다.

나는 위의 논증들을 진행하면서, 타일러 버지, 무라트 아이데테, 테이비드 베인, 콜린 클라인, 리처드 그레이에 의해 제안된 입장에 맞서 나의 표상주의적-명령적 입장을 옹호할 것이다.

주요어 : 고통, 지각, 표상주의, 지향주의, 불쾌, 지각적 내용, 명령적 내용, 가상-실제구별
학번 : 2010-31282