

Constructing a World for the Senses

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Penultimate draft

1. Perceptual Intentionality

We receive information about the world through our sensory organs. The surface of the organ receives some stimulus, and the complex mechanisms of our perceptual system produce perceptual experiences. It is a characteristic feature of these experiences that they present a world that seems to be outside our body, and to exist independently of our experiences. At least in one sense of the term "intentional", this is to say that perceptual experiences are intentional. The term has been used in different ways, and sometimes people say that a mental state or event is intentional simply if it has an object, even if this object is experience-dependent, like a sensation. I am interested in a different phenomenon: I will confine my interest in this chapter to intentionality as the apparent directedness of a mental state at something *beyond itself*, moreover, at something which *could exist independently of being experienced*.

I say "apparent" directedness, because hallucinations, that is, experiences that lack an object, can also be intentional in this sense: in hallucinations too, it can seem that an experience-independent world is presented to us. I take the question of whether an experience is intentional a phenomenal question, in the sense that it deals with what *appears* to be presented by an experience. Some philosophers are interested in a notion of intentionality or representation that separates the question of the apparent presence of the external world from the issue of representation. For example, some philosophers say that an experience of a brain in a vat may seem to represent the external world, but it does not, because it lacks an adequate causal-nomological connection to the world. This experience appears to have an object, but if the object of an experience is what is represented by the experience, then this appearance is misleading: the experience has no object. If the terms "representational" and "intentional" are used synonymously, then the experiences of brains in vats lack intentionality. I do not wish to take issue with such views here, nor do I claim that my sense of "intentionality" is superior. I simply want to make clear what the focus of this chapter is: it is perceptual intentionality, understood in a specific way. To repeat then: a sensory experience exhibits *perceptual intentionality* if (i) it's in a sensory mode and (ii) it seems to present an experience-independent world, including experience-independent objects and their experience-independent qualities.

Understanding intentionality in this way fits well with the phenomenal intentionality program. According to defenders of the phenomenal intentionality view, there is a kind of

intentionality, pervasive in conscious mental episodes, which is constituted by the phenomenal features of conscious experiences (Horgan and Tienson 2002). This chapter offers support for a specific version of this view. The basic idea is as follows. The simple phenomenal features of sensory experiences in themselves may amount to no more than modifications of the subject's consciousness: they may present nothing beyond the experience that they are part of. A feeling may just be a feeling and not present or represent anything. However, when these sensory features are received by the subject in a highly organised and predictable structure, one that responds to actions and further inquiry in a systematic way, the experience may become suggestive of the presence of something *beyond* this experience, namely, an experience-independent object. Perceptual intentionality is thus constituted by the structure of sensory phenomenal features: by the way these features hang together and respond to movement and inquiry.

I shall illustrate this thesis mainly on the case of pain. The views on the nature of pain vary: some suggest it is a pure sensation, which has no intentional object; others hold that pain experiences represent parts of our body; yet another view likens pain to exteroceptive perceptions like touch. According to the position defended here, there may be some truth in each of these views. The pure qualitative features of a pain-experience are not, in themselves, object-presenting. However, if these features are organised in a certain order, they may come to present a part of the body, or even objects external to the body. Comparing these different scenarios hopefully sheds light on the nature of perceptual intentionality.

2. Cutaneous Senses

Our largest sensory organ is the skin, and it contains various kinds of receptors. Mechanoreceptors are sensitive to pressure and vibration; thermoreceptors are sensitive to changes in temperature, and nociceptors react to various kinds of noxious stimuli. Each kind of receptor, when activated, sends out signals which travel, through dedicated pathways, to the brain, and when all goes well, result in an experience with a characteristic phenomenal character.¹

Suppose that a group of Extra-Terrestrial scientists came to study the perceptual system of human beings. The sensory organs of these people are very different from those of ours, but they, just like we, have conscious experiences in response to events in the world, and they can form a perfectly good idea of how we learn about our environment through experiences with a certain specific kind of phenomenal character. They are now conducting a study of the human somatosensory system, and they have discovered the three kinds of receptors and how the receptors

¹ This might be an oversimplification in the case of pain, because it may not be the case that the stimulus of some receptors *invariably* gives rise to the feeling of pain, independently of contextual or cognitive factors (see Rollman 1991). But taking these factors into account, we can still classify receptors according to the typical stimuli they react to.

react to different kinds of stimuli. From the first-person reports of human subjects, they also learned that these stimuli give rise to different kinds of experiences. At this point, their hypothesis is that human beings perceive the world through their skin at least in three different ways. They think that what is presented in these experiences are properties and things that activate the receptors. They are not sure whether the three ways involve perceiving different sets of properties, or perhaps some of the same properties are perceived in different ways. Still, they are pretty confident that they have identified three exteroceptive perceptual systems: that is, three systems that seem to present the external world through characteristic conscious experiences.

The Extra-Terrestrial scientists are subsequently somewhat surprised to discover that some philosophers have a different opinion. For example, Paul Grice, writing on the question of how to individuate different sensory modalities, condemns the practice of counting three cutaneous senses: “consider the assaults made by physiologists and psychologists on the so-called 'sense of touch'. They wish, I think on neurological grounds, to distinguish three senses: a pressure-sense, a warm-and-cold sense, and a pain sense” (Grice 1962, p. 36). Grice points out that a characteristic kind of experience produced by a material thing is not always a *perception* of the thing. He thinks that feeling pain is a case of this kind: it's true that objects produce pain experiences in us, but pain is not a perception of the pain-causing object. The qualities that we naturally use to describe these experiences – for example, 'painful' – do not identify a “relatively abiding characteristic which material things in general either possess or do not possess” (Grice 1962, p. 36)

Locke also questioned that the three "senses of touch" are properly regarded as exteroceptive perceptual senses. Locke famously distinguished among primary, secondary, and – as they are occasionally called – tertiary qualities. Tertiary qualities are "bare powers": the power of things to produce certain kinds of sensations in us. For example, fire has a power to produce a painful sensation. But when we reflect upon the experience, we are not inclined to think that the quality that characterises the experience is also to be found in the cause of the experience: we don't think that pain is somehow *in* the fire. This is different from the way we are inclined to think of secondary qualities like warmth. The natural idea is that the warmth we feel in an experience is the same quality as the fire has: fire is warm. Now Locke thinks that this is a mistake, because we should think of secondary qualities exactly the same way as we think of tertiary qualities: warmth is no more in the fire than pain is (Locke 1690, book II, chapter viii).

Let us assume, as our first hypothesis, that if an experience is a perceptual experience, then the object one perceives (in case of actual perception, that is, excluding cases of hallucination) is an

external object that causes the experience. That is, let us limit our inquiry to exteroceptive perception. Then we can summarise Grice's and Locke's view as follows. Grice thinks that touch, when it tells us about the shape, surface or warm-and-cold qualities of external things, is a form of perception. However, pain experiences are not forms of perception. Locke thinks that pain experiences don't seem to be perceptions (only sensations), whereas warmth experiences do; yet this is misleading, because neither pain nor warmth experiences are perceptions. Only tactile experiences of shapes and surface qualities are perceptions.

The Extra-Terrestrial scientists are very interested in these claims and would like to know what explains these differences. As far as they can see, the production of experiences of shapes, of warm-and-cold, and of pain, all have the same structure: external object – stimuli of appropriate receptors – neural mechanism – experience with a specific phenomenal character. They wonder why some of these count as perceptions, and why some don't.

The curiosity of the Extra-Terrestrial scientists is further intrigued when they discover that there are philosophers (different from the ones previously consulted) who apparently toyed with the idea of pain experiences constituting a case of external perception. In §312 of the *Philosophical Investigations*, Wittgenstein asks us to imagine the possibility that “the surfaces of the things around us (stones, plants, etc.) have patches and regions which produce pain in our skin when we touch them. ... In this case we should speak of pain-patches on the leaf of a particular plant just as present we speak of red patches” (Wittgenstein 1953). We may imagine that we can trace the contours of a pain patch, just like tracing the contours of a smoother patch in a rough surface. The experience would not be like feeling the sting of nettles, because when one is stung by a nettle, there is no clear awareness of which area of the leaf caused the pain. In contrast, feeling the pain patch would involve being conscious of one's finger leaving and entering the pain patch.

The other example is based on an idea by A.J. Ayer.² Imagine that there is a big building with a maze of corridors, and one of the corridors has the unpleasant property of giving you a strong headache as soon as you enter it. The headache stops once you leave the corridor. This is a very reliable feature, and after a few bad experiences, when considering how to get to another part of the building, you think it's better if we avoid the 'headachy' corridor. One could say: this corridor is dark, this other is usually smelly, the third is noisy, and *that one is very headachy*.

If these examples are plausible, then we can see how to make sense of the idea that pain experiences *could be* exteroceptive perceptual experiences. If Grice and Locke are right, we don't

² Thanks to Howard Robinson for calling my attention to this example.

normally treat pain experiences as forms of external perception; but if the examples presented by Wittgenstein and Ayer are coherent, then at least in some sense, this isn't a necessary feature of these experiences. One of the main aims of this chapter is to provide an explanation of this phenomenon: namely, the phenomenon that we do not regard certain sensory experiences as exteroceptive perceptual experiences, but we can imagine circumstances in which very similar experiences – exhibiting sensory features in the same modality – would in fact be regarded as exteroceptive perceptual experiences.

3. Felt Pain and Perceived Pain

The first thing to notice is that the qualities that characterise our pain *experiences* and the qualities that characterise the pain *patches* on the leaf must be different qualities. On the most dominant notion of pain, pains are *essentially felt*. If one has an injury, and it hurts, the pain lasts as long as there is a feeling of pain. If one takes an anaesthetic, and it works, the pain ceases to be felt and hence it ceases altogether: a painkiller does indeed kill pain. Of course, the *injury* may remain, even if it doesn't hurt any longer.

I say that this is the dominant ordinary notion of pain, though there is perhaps some room for debate whether the way we talk of pains always follows this logic. Maybe sometimes it doesn't. In any case, there is clearly a coherent notion of pain as essentially a feeling, and this notion is an important one. An "unfelt pain" (though I'd prefer to say "injury") may cause certain kinds of concern: injuries are harmful, and we usually aim to heal them, or get rid of them in some way. Just making the feeling of pain disappear may not be enough. However, it is still true that *felt pain* is of special interest to us, and most of the time when we are concerned about pain we are concerned about the painful feeling.

According to some theories, a pain experience is the representation of tissue damage in the affected area of the body. Tissue damage can exist even when no one is representing it: damage to a bodily part is an experience-independent state of affairs. So the state of affairs I represent when my hand hurts is something that could obtain even if I were not conscious. This view cannot be the full account of what it is to be in pain, because it offers no explanation for the circumstance that pains are essentially felt. The phenomenal character of the experience cannot be entirely given by the representation of an experience-transcendent property. A much more plausible explanation is that pain is a kind of experience that is characterised by its own specific experiential quality. I shall call this quality "Pain1"; it is a quality that can be exemplified only if a conscious creature has the appropriate kind of experience.³

³ Michael Tye suggests that pains represent bodily injuries, and he thinks that we need not appeal to the subjective

The second notion, Pain2, is employed when we talk of a pain-patch. Pain2 is an experience-independent quality of an experience-independent object. This quality can be exemplified even if no conscious creature has any actual relevant experience.⁴ Pain-patches and headachy corridors have their character even if no-one is around to experience this character. Pain1 and Pain2 are clearly different properties: Pain1 can be exemplified only if a certain kind of experience is occurring, whereas Pain2 can be exemplified in the absence of any relevant experience.

Some of our usual notions of qualities of certain kinds of experiences and qualities of objects exhibit the same double nature. Consider, for example, taste. If someone has a bad head-cold, we sometimes say that she cannot taste anything. But people occasionally also say when they have a cold that everything is completely tasteless. There are two different notions here: Taste1 is a feature that can be exemplified only when a conscious creature has the appropriate experience, whereas Taste2 is a quality that can be exemplified even in the absence of any such experience.

Clearly, there is an intimate connection between the qualities of Pain1 and Pain2: when I perceive something as having the quality Pain2, my experience has the experiential quality Pain1. Pain2 is a quality that figures in imaginary scenarios like the ones conceived by Wittgenstein and Ayer, but we don't use it to characterise external objects in everyday life. As various philosophers put it, we don't externalise pains. But why not? I contend that every theory of sensory experience should be able to answer this question. Perceiving pain patches and headachy corridors are experiences that exhibit perceptual intentionality in the sense I defined it above: they are sensory experiences that seem to present features of the world – the patch, or the corridor having the quality Pain2 – that could exist independently of being experienced. If we understand how an experience can acquire the feature of presenting external objects as having Pain2, we will be nearer to understanding the nature of perceptual intentionality.

4. The Contemporaneous Presence of the Object

I argued in the previous two sections that there could be experiences which are perceptions of

character of experience. He also acknowledges that pain features are exemplified only when a subject undergoes a certain kind of experience. But once this acknowledgement is in place, I cannot see what motivation is left to deny that the relevant feature is an experiential feature, rather than a feature of an experience-independent object. See Tye 2002.

⁴ It may be suggested that talking of this quality makes sense only relative to the possibility of some conscious creature having a specific kind of experience. In a world where there are no conscious creatures at all, Pain2 would never be exemplified, so in some sense, Pain2 is a mind-dependent quality (in the way secondary qualities or response-dependent qualities are supposed to be mind-dependent). Perhaps this is correct, and that is why I don't call this quality *mind*-independent, but rather *experience*-independent, where I mean to refer this to *episodes* of experience, rather than the possibility of experiences in general. Even if the existence of certain kind of conscious creatures is required, no actual conscious episode is needed for the exemplification of Pain2.

external objects, and which also have the same experiential qualities – of the type I called "Pain1" – as our ordinary pain experiences. These experiences are hypothetical, because our actual pain experiences are not like that. I suggested that we start to look for an explanation of this fact. In this section and the next, I will compare ordinary exteroceptive perceptual experiences and pain experiences, and I shall point out the features that seem to be present in external perceptions but missing from pain.

It is a characteristic feature of perceptual experiences that they seem to indicate the presence of objects and properties that are contemporaneous with the experience. Ordinarily, if we perceive an object and its having a property, the impression is that the object exists, and exemplifies the property *at that moment*, when the experience is taking place. When we cease to have the specific type of perceptual experience, this can be a result of either of two things: (i) the object ceases to exist or to have the property (for example, when we see the colour of traffic lights changing) or (ii) the circumstances of perception change (one turns one's head and doesn't see the traffic light any more). But in any case, as long as the perceptual experience persists, the object or property seems to be present.

By contrast, pain is *not* usually contemporaneous with its external causes. This is probably one of the main reasons that we don't regard pain as a case of external perception. You see the brightness of the fire, and feel its warmth; if the fire is extinguished, these experiences stop. But if you are careless enough to burn your hand in the fire, the pain remains, even if the fire ceases to exist. You cut your finger and you throw away the knife in frustration: the knife is not there (and perhaps its edge is blunted by the fall) but the pain lingers. In fact, the pain sensation can become even more intense after the harmful object is removed.

Imagine that visual, auditory, or tactile perceptual experiences worked in the same way. You look at a picture, you turn away, and the picture remains with you etched on your visual field for days. You put down a warm cup of coffee, and take a box of cold milk from the fridge, but the feeling of warmth stays in your hand – perhaps becoming even more intense. And so on. It is true that a faint "echo" of a perceptual experience can linger for a bit even in these modalities: if you look at a bright source of light and turn away, bright patches seem to stay with you. But these don't last long, and they obviously lack the intensity and detail of the original perceptual experience. In fact, afterimages are quite different from the visual experience that causes them: staring at a red patch causes a greenish afterimage. So it's quite obvious that it's not the original experience that lingers. As for auditory experiences, there may be a bit of ringing in your ears after hearing a loud noise, but the length, quality, and intensity of the lingering experience cannot be compared to the

way pains linger.

Let us distinguish typical cases of external and internal pain. By "external" pain, I mean pain caused by an injury like a cut, burn, or bruise on the surface of one's body; by "internal" pain, I mean the kinds of pains that are often called "aches": headache, stomach ache, pains in muscles or joints like backache, rheumatic pain, and so on. External pains are usually immediately caused by an easily identifiable external object, and if pain was a form of external perception, these would be the obvious candidates to be the perceived objects. We know that many internal pains are caused by the impact of certain external objects or events: for example, a headache can be caused by too much drink the previous evening. In this case, the pain experience is not contemporaneous with the presence of the external cause because it is seriously *delayed*.

In the case of both external and internal pain, we seem to have the following situation: an object external to the body causes a characteristic change in the body, and the experience seems to be contemporaneous with the presence of some sort of *bodily condition* rather than with the presence of the external object. So it is completely understandable that when people look for the intentional object of a pain experience, one of the most plausible candidates is the affected bodily part, rather than the offending external thing. I shall come back to this view in section 8. However, I contend that we can imagine situations where pain experiences indicate the presence of external objects or properties just like ordinary perceptual experiences do. Wittgenstein's pain patches and Ayer's headachy corridor seem to be illustrations of precisely this phenomenon. As I said when introducing the examples, the most plausible conception of the pain patch seems to involve the experience of our fingers tracing the pain patch: leaving and entering it. "Headachy" seems to be similar to "noisy," "smelly," and "dark" if the headache starts when we enter the corridor, and ceases when we leave.

5. Abiding Characteristics

In the previous section, we saw that one reason why we do not regard pains as perceptions of external objects is that pain experiences are usually not contemporaneous with the presence of their external cause. Grice indicates a further reason: he thinks that the main reason we don't externalise pains is that we do not regard "painful" as a relatively abiding characteristic of objects. We classify things according to their smells, he says, but not according to their painfulness. He thinks the practice has to do with the following circumstances:

- (a) Pains are not greatly variegated, except in intensity and location. Smells are.
- (b) There is no standard procedure for getting a pain: one can be cut, bumped, burned,

scraped, and so on. There is a standard procedure for smelling, namely, inhaling.

(c) Almost any type of object can inflict pain upon us, often in more than one way. (Grice 1962, p. 36)

As a consequence of these facts, Grice says, “pains are on the whole very poor guides to the character of things that hurt us” (ibid.).

Let us assess these claims. The first point doesn't seem to me decisive: pains do vary to some extent, and qualities of pain are helpful diagnostic tools. For example, pains can be shooting, sharp, dull, burning, tingling, cramping or throbbing (see Victor et al. 2008).

As for the second point, notice that Grice's list of procedures concerns only external pain. In a certain sense, contrary to what Grice says, these various ways of encountering pain are intelligibly similar. Compare the procedure of getting pain to the procedure of getting tactile sensations: in the latter case, the procedure is basically for the object to have contact with the skin, and we regard this as fairly uniform, even though contact with the skin can take a number of forms: pressing (or being pressed), stroking, gripping, pushing (or being pushed), lifting. Being cut, burned, bumped, or scraped are all forms of violent and tissue-damaging contacts with the skin, and in this sense, they can also be regarded as similar. Grice's point seems more plausible if, unlike Grice, we also consider internal pains, since the causes of internal pains are not similarly uniform: in many cases, they are not direct results of a certain type causal procedure. Grice's point thus does not seem to be very effective against the point that external pains could be perceptual, but would be more effective against the claim that internal pains are perceptual.

Grice's third point is partly connected to the second. Consider the example of the pain patch on the leaf: of course, the "non-painy" parts of the leaf can also cause pain, for example, if someone sticks the leaf in your eye. Non-headachy corridors can cause a headache if they collapse on your head. Imagining a uniform method of sensing pain makes the cases of externalised pain qualities more plausible: we would be interested in the question of which surfaces are painful *when touched*, or which corridors *radiate* headache when we enter them.

All in all, Grice may be right about some of the factors that contribute to qualifying a type of experience as perceptual: perceptual experiences will be those that arise through a meaningfully uniform procedure, and those we regard as guides to the nature of things. However, he seems to underestimate the suitability of specifically external pain experiences to qualify as perceptual on these grounds.

6. Structure, Order, Predictability, Exploration

I've been arguing so far for two claims: first, that we do not normally externalise pains – that is, we don't regard pain experiences as perceptions of external objects that cause the experience in question; nonetheless, second, that we can meaningfully imagine circumstances where we could or would externalise pains. A non-externalised pain experience is characterised by a specific phenomenal or experiential quality, the quality I called "Pain1". The externalised pain experience has the same phenomenal quality, but in addition, it also presents an external object as having the experience-independent quality Pain2. For the time being, I consider only the options that pain experiences are either internal sensations or perceptions of an external object. I shall consider the further possibility that pain experiences are perceptions of the injured bodily part in section 8. For the moment, I'd like to argue further that what is responsible for the appearance of the presented Pain2 quality is the *structure* of the experience: that is, the relation of Pain1 to further phenomenal and presentational features of the same, and other, experiences.

Consider a typical visual experience like surveying the scene in front of you. This kind of experience is overwhelmingly presentational: objects and their properties appear as experience-independent. The scene provides a lot of details that you can explore in typical ways: if you turn your head, or approach an object, the quality of the experience changes in very familiar and highly predictable ways, suggesting the presence of an experience-independent state of affairs.⁵ The rich structure of the visual experience is in harmony, again, in very familiar and highly predictable ways, with the details of your perceptual experiences in other modalities. The feeling as you hold the book, the small noise the paper makes as you turn a page, all these features form a structure that, in itself, and also together with past experiences, clusters the experienced features around the well-known objects presented in the manifest image of our world.

Contrast this with the experience of an afterimage. In an afterimage, the structure characteristic of the presentation of experience-independent objects is missing. There is no fine detail that returns even after an interruption: say, if you close and open your eye again. The features don't seem to be available for further investigation since the experience is ephemeral, and the experience does not respond to movement in a way that's typical in perceiving external objects. On the contrary, it responds in a way that we have learned to associate with "mere" experiences like phosphenes and afterimages. In the case of at least some afterimages, there is no overwhelming impression that some experience-independent object is presented: the nature of the experience can

⁵ One aspect of this condition is explored by David Smith (Smith 2002) who argues that the necessary condition for perceptual experience is an awareness of the spatial nature of experience, meaning that the experience would change in characteristic ways depending on our spatial movement with respect to perceived objects.

be naturally understood as a feeling, as nothing more than a modification of one's consciousness.

Now consider again the earlier example of the fire: the flames are bright, it feels warm, there's a pleasant smell of burning wood, a sound of crackling. As you move towards, or away from, the fire, the intensity of all these experiences increases and decreases in a way we are accustomed to in the perception of objects. Our success in exploration also incorporates the point mentioned by Grice: that there is a uniform way to produce the experience, and we know how to move our body to enhance or diminish the intensity of a certain type of perception. All this is meant to be a comment on the phenomenal level: a brain in a vat, though obviously not actually moving closer to a fire, would *seem* to move and have its experiences change accordingly. Our investigation is at the phenomenal level: we are interested in how objects appear in experience. Hence we shall disagree with Locke on this point: warmth experiences do seem to present the fire, and hence they will be considered as exhibiting perceptual intentionality.

I suggest that the experiential qualities of ordinary pain experiences do not fit into the structure of experiential features clustering around objects, and that is why pain is not normally externalised. As I said earlier, if you burn your hand, the pain experience after the hand is withdrawn from the fire seems to be focused on you, rather than on the fire: the fire is extinguished, the brightness, the warmth, the sound, the smell are gone, but the pain stays. The experience doesn't seem to point to anything external, because it is not coordinated with other experiential features whose source would appear to be the same object. Moreover, qualities of external pains have a subjective similarity to internal pains, and internal pains fit into the structure of external perceptual experience even less.

I pointed out a difference between ordinary perceptual experiences on the one hand, and experiences that don't seem to present experience-independent objects – afterimages, phosphenes – on the other. The difference was that the simpler phenomenal features of perceptual experiences are organised into a systematic, cross-modally coherent and predictable order. This order is what I call the "structure" of the experience, and I shall suggest that this is responsible for the phenomenal appearance of an experience-independent object.

We had two facts to explain: first, that we normally don't externalise pains; second, that it seems conceivable that we could. If the structure of the experience accounts at least partly for the apparent presentation of the external world, then we can also explain why, under certain circumstances, pains *may become* a form of external perception: this would happen when the experiential pain feature *did* fit into the overall structure imposed upon us by the world.

This suggestion is the beginning of a theory that explains how the phenomenal features of an experience can partly constitute perceptual intentionality. Representationalist and disjunctivist

theories of perception usually take for granted that it is part of the phenomenology of a perceptual experience that it seems to present the world. A disjunctivist theory takes the presentational aspect to be a crucial feature of perceptual experiences: a veridical perception presents things, and a corresponding hallucination seems to do so. In a representationalist theory, a perceptual experience represents the world, and presumably this explains why a world seems to be presented. Perhaps we can't even say that there is an explanatory relation here: an experience being representational simply means that the world appears in a certain way. Some versions of the representationalist view offer a reduction of representational properties in terms of causal-nomological or teleosemantic relations. In this sense, they regard the (re)presentational aspect of the experience as reducible to further facts. However, this isn't a specific explanation of the *phenomenology* of presentation.

The view suggested here entails that the phenomenological presentational feature of perceptual experiences is not basic, but rather it is formed by the relations among phenomenal features that may not be presentational in themselves. I propose that experiences have phenomenal qualities of type "1" – similar to Pain1 – and when these features are organised into a certain order and structure, the impression of an external world emerges. The manifest image of the world – the world as it is presented by the senses – is constructed out of basic experiential features.⁶

7. Spices

It is instructive to compare ordinary pain experiences caused by external injuries to the experience of tasting hot chilli peppers. The hotness of chilli lingers in the mouth, sometimes for quite a while, yet we attribute hotness to the chilli. *Prima facie*, it looks like hotness is one of the qualities that we taste in food; indeed in some classifications, the basic tastes are supposed to be sweet, sour, salty, bitter, and hot.⁷ This may seem like a problem for my claim that one of the main reasons we don't externalise pains is that pains linger. But hotness lingers too, yet we *do* perceive chillies as hot.

To understand this issue more clearly, it is worth saying a few words about the physiology of tasting spicy food. The compound that causes the pungent taste of hot chilli is called "capsaicin". Capsaicin activates the so-called transient receptor potential channel. Transient receptor potential (or "TRP") ion channels are distributed all over the body, and they form an interface between the

⁶ Hence a more precise, but unfortunately more cumbersome, title for this paper would have been 'Constructing *the manifest image of the world for the senses*'. I do not propose to defend idealism: I do not think that the world itself consists of experiential features (though my view about perceptual experiences is compatible with an idealist theory). But I do think that the image of the world is constructed from basic experiential features.

⁷ Strictly speaking, we may not want to say that hotness (in the sense of spiciness) is a *taste*: all parts of the skin, and especially mucous membranes, are sensitive to hot chilli, as everyone who accidentally touched her eyes after slicing chilli will know. In contrast, if say, a few drops of Coke get in our eye, we won't feel it's sweet with the eye: to detect sweetness, we need the special apparatus of taste buds. However, whether hotness is a taste or not, it's clear that it is attributed to chilli peppers.

environment and the sensory system, by acting as transducers of external (chemical, thermal or mechanical) stimuli in sensory neurons. The Vanilloid 1 member of the TRP channel family is called TRPV1, and it is activated by (among other things) noxious heat above 43°C. This degree of heat activates the channel, which transduces the stimulus into inward currents in nociceptive neurons. The nociceptive neurons send further signals to the brain, and this results in thermal and pain sensations. The interesting fact is that the very same channel, whose activation can be the first step of producing pain sensation in response to noxious heat, is also activated by capsaicin. Capsaicin binds to the TRPV1 receptor, and sets into motion the same process as noxious heat does. This can explain why the taste of chilli is described as "hot" in English, and also why people feel hot and start to sweat when they eat spicy food.⁸

The TRPV1 channel is active as long as capsaicin binds to the receptor. In a normal dose, capsaicin does not cause tissue damage; the spicy-hot sensation (caused by the activation of the TRPV1 channel) lasts as long as capsaicin is to be found on the sensory surface. Of course, capsaicin may cause actual tissue damage at very high doses, but the same is true of pretty much every kind of stimulus. So in fact, in ordinary cases, spiciness does not linger beyond the presence of the spicy substance: the experience lasts exactly as long as some of the spicy substance is in the mouth (or on other part of the skin). This fact is reflected in the popular advice on how to alleviate the burning caused by hot food: namely, drink milk rather than water, or eat yoghurt. The difference lies in the fact that milk has lipids that dissolve capsaicin, but water doesn't.

It is tempting to suggest that the hot quality in food could be regarded precisely as an externalised pain quality – that is, as a variety of Pain2. It is an abiding characteristic of objects, it is sensed through a uniform procedure, it activates nociceptors and gives rise to pain sensations, and the presence of the hot substance is contemporaneous with the experiences of hotness. However, I find it difficult to judge whether this is the right analysis of the situation, because it is unclear to what extent we are aware of the capsaicin's presence in the mouth while having the sensation. The presence of capsaicin is not obvious, because it is not detected by other senses: we can't see it, and we can't feel it in the way we feel when a quantity of food is in our mouth. We may ask then why hotness is still attributed to chillis. I believe that part of the explanation is that the experience of hotness is assimilated to, or classified together with taste experiences because we experience hotness mostly when tasting food. Our talk of tastes themselves oscillates between regarding them as experience-dependent and as experience-independent qualities, as shown by the earlier example

⁸ Piperine, the compound responsible for the pungency in black peppers also activates the TRPV1 channel. So does zingerone, an ingredient of ginger. Other TRP channels are activated by other thermal stimuli and other food ingredients. TRPM8 is activated by cold temperature and by menthol. TRPA1 is activated by mustard oil and cinnamon; the range of noxious stimuli that activate TRPA1 is debated. On TRP receptors and pain see also Wang and Woolf 2005.

of having a cold.

This is an example that illustrates the very complex nature of factors that determine whether a sensory experience presents an object as having an experience-independent quality. Not only the phenomenal quality in itself, but also its relation to the behaviour of other, similar qualities, will play a role in determining whether the experience is presentational or not.

8. The Intentionality of Bodily Sensations

I argued in section 4 that we don't regard the pain-causing external thing as the object of the pain-experience, partly because the presence of the thing is often not contemporaneous with the experience. I also remarked that on this ground, it is much more plausible to claim that the injured bodily part is the object of the pain-experience, and indeed, this suggestion has been made by various philosophers (Crane 2003, Tye 2002). However, I also added that we cannot regard the experience *as merely representing the bodily part as having an experience-independent property*. The bodily part having an experience-independent property cannot exhaust the representational content of the experience, because this would leave unexplained why, on the dominant notion of pain, pains are essentially felt.

The following little story may help to illustrate the point. The daughter of a friend of mine once said to him: "daddy, my foot has gone to sleep, come and feel it". She seemed to think that if her father touched her foot, he would also be able to feel the sensation of numbness she was feeling. We sometimes experience bodily states which are perceptible to others. I can hear your stomach rumbling, I can feel your heart beating fast, I can see the injury on your hand. Pins and needles seem different. One explanation of why my friend could not oblige his daughter to feel the numbness in her foot is that the numbness is essentially felt by *her*, by the subject of the experience. This is only one explanation, but it is strengthened by our earlier considerations about pain. If one takes a pain-killer, the injury may well remain, but the pain is gone as soon as the painful feeling is gone.

Many bodily sensations are of this "mixed" kind: they are directed at experience-independent objects (one's foot, for example, which would clearly exist even if it didn't hurt or went numb), but there is more to the experience than presenting the bodily part as having an experience-independent property. One is aware of the bodily part in question in a subjective way that depends essentially on one's having an experience. Hence these episodes are not full-blown perceptual experiences: their object is not wholly independent of the experience. Pains are not externalised: they don't present experience-independent features of things outside the body, but they don't present experience-independent features of bodily parts either.

9. Sensory and Non-Sensory Intentionality

In the last decades, a number of philosophers have suggested that intentionality – or in any case, one specific kind of intentionality – is constituted by the phenomenal character of a mental episode. (Horgan and Tienson 2002, Loar 2003) Many of those who are convinced that this is right base their conviction on fairly simple introspection: when we reflect on some of our experiences, on what it's like to have them, their presentational aspect is obvious to notice. And the differences between what it's like to have one experience as opposed to another often lies in what they seem to present to us. As Kriegel (this volume) notes, this is hardly an argument that would convert sceptics to believers in phenomenal intentionality, but it is certainly an important factor for those of us who have already joined the faith.

Once someone agrees that some of our experiences present the world in virtue of their phenomenal character, one possibility is to say that intentionality or directedness is a basic, irreducible feature of some type of phenomenal characters. Another possibility is to pursue the theory that is outlined here and claim that the external directedness of sensory experiences is not a basic fact, but it is rather constructed by a complex structure of phenomenal qualities which are not presentational in themselves. The main advantage of the latter view is that it can explain that experiences with a certain type of phenomenal feature can be *either* externally directional or non-directional, depending on some further factors. For example, in our case, experiences with the feature Pain₁ are not normally directed at external objects, but we can imagine circumstances where they would be. I believe the same applies to the red in an afterimage and the red in the experience of seeing a tomato. The same sensational feature can be a mere sensation of one occasion, and a presentation of an external object on the other.

Sensory substitution systems provide another example of how the structure of sensory features creates an object for the senses. Tactile-visual sensory substitution systems (originally designed by Paul Bach-Y-Rita) convert visual stimuli to tactile stimuli. The subject has a camera mounted on his forehead, which records a black-and white image of an object in front of him. The image is converted into tactile stimulus (for example pressure or vibration) on a plate which is in contact with the subject's back or tongue. After some practice, subjects learn to locate the position of things recorded by the camera (Bach-Y-Rita et al. 1969). There must be some difference between random twinges on the back and the stimulus provided by the plate converting the camera's image. The suggestion is that the orderly structure of the latter is responsible for the presentation of a new object.

This is a story of the intentionality of *sensory* experiences. The intentionality of thought seems to have an entirely different nature: it is not constructed of more basic, non-intentional

phenomenal features. Some defenders of phenomenal intentionality endorse the claim that cognition itself has a phenomenology. If this is right, then one characteristic of the phenomenal features that lends thoughts their intentionality is that it is basic and not constructed. This is a fundamental difference between sensory and non-sensory intentionality.

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