Lessons In Smelling
Essays on Olfactory Perception

by

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ABSTRACT

This three-paper dissertation focuses on olfactory perception, with each paper exploring an ongoing debate in the perceptual literature through the olfactory 'lens'. Philosophers of perception have typically assumed what I call the Unification Thesis: the thesis that certain philosophical issues about perception should be settled in the same way for each of the sensory modalities. I argue that olfaction presents special challenges to the Unification Thesis. Meeting these challenges rewards us with new insight into three topics: 1) the nature, and extent, of representational content, 2) qualia and the alleged transparency of experience and 3) the nature of the secondary qualities.

In the first chapter, I consider the challenge that olfactory experience presents to upholding a representational view of the sense modalities. It is commonplace to suppose that visual experience is representational. But, given the phenomenology of olfactory experience, it is difficult to see how a representational view of it might go. I take on the challenge and argue for a representational account of olfactory experience that honors its phenomenology.

In the second chapter, I consider what olfactory experience can tell us about the controversy over qualia and, in particular, the argument against them that focuses on the alleged transparency of experience. Although most transparency theorists claim that transparency holds for all of the sense modalities, transparency seems unintuitive for olfactory experience. I argue that olfactory experience is indeed transparent and that explanations of what transparency is supposed to be have been obscured by a reliance on the visual model.

In the final chapter, I turn to the question of what smells are. For many philosophers, the view that colors can be explained in purely physicalistic terms has seemed very appealing. In the case of smell, this kind of view has seemed less appealing. Philosophers have been drawn to the view that the nature of smells must be explained in terms of our subjective reactions. In this chapter, I consider a contemporary argument for this view for the case of color. I argue that physicalistic views of smell have nothing to fear from this argument.

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Introduction

> For some inexplicable reason the sense of smell does not hold the high position it deserves among its sisters. There is something of the fallen angel about it.
>
> - Helen Keller, *The World I Live In*

This dissertation grew out of asking how the sense modalities differ and considering the extent to which the insights we have gained in the visual case can be generalized to the other modalities. For the most part, philosophers of perception have assumed that they can. For the most part, they have assumed (tacitly or not) what I will call the Unification Thesis: the thesis that certain philosophical issues about perception should be settled in the same way for each of the sensory modalities. The status of this thesis is the running theme throughout the dissertation.

In the philosophical literature, there has been very little discussion of the chemical senses—olfaction and gustation. This three-paper dissertation focuses on olfactory perception, with each paper exploring an ongoing debate in the perceptual literature through the olfactory 'lens'. I argue that consideration of olfactory perception presents unique challenges to central debates in the philosophy of perception: 1) the debate about the nature, and extent, of representational content, 2) the debate about qualia and the alleged transparency of experience and 3) the debate about the nature of the secondary qualities. In each case, I argue that olfaction presents challenges to making simple generalizations from vision.

Because we started with vision, certain philosophical theses have seemed very appealing: i) that visual experiences, like beliefs, have representational content, ii) that visual experience is transparent and that there are no visual qualia and iii) that the nature of the color properties can be explained in purely physicalistic terms without appeal to subjective reactions. Granted, these views are not universally held; but, given what visual experience is like, they are certainly attractive. Now, suppose that we had started with olfaction. When we do, we find that the olfactory versions of these three theses do not seem so attractive. I argue that the olfactory case leads us, *prima facie* at least, in the opposite direction from the visual case, to the following theses: i') that olfactory experiences do *not* have representational content, ii') that olfactory experience is *not* transparent, and iii') that the nature of the smell properties *must* be explained in terms of our subjective reactions. Olfaction, then, present us with three cases in which we cannot simply generalize from vision. This dissertation is a defense of the Unification Thesis as it relates to olfaction and to issues (1) through (3) above. That is, I argue 1) that olfactory experiences *do* have representational content, 2) that olfactory experience *is* indeed transparent

and 3) that the way is indeed open for the smell properties to be explained in purely physicalistic terms.

Chapter 1

A Representational Account of Olfactory Experience

> Seattle rain smelled different from New Orleans rain.... New Orleans rain smelled of sulfur and hibiscus, trumpet metal, thunder, and sweat. Seattle rain, the widespread rain of the Great Northwest, smelled of green ice and sumi ink, of geology and silence and minnow breath.
>
> - Tom Robbins, *Jitterbug Perfume*

Much of the philosophical literature on perception has focused on vision. This is not surprising given that vision holds for us a certain prestige. Our visual experience is incredibly rich, offering up a mosaic of apparent three-dimensional objects. For this reason, it is commonplace to suppose that visual experience is *world-directed*, with the view taking its most popular form in the *representational*, or *content*, *view*. World-directed views contrast with what we might call *subjectivist views*—views according to which experiences are raw feels or mere sensations.

There is very little discussion of content for the chemical senses—smell and taste. The tendency among content theorists is to suppose that the experiences of all of the modalities have representational content. However, given the phenomenology of olfactory experience, it is difficult to see how a representational view of it would go. A subjectivist view of it might seem inevitable. This is a serious problem given that the notion of representational content is central to important metaphysical and epistemological projects in the philosophy of mind. Many philosophers of mind believe that a physico-functionalist account of mental representation is in the offing. If we can motivate the view that perceptual experiences have representational content, then we lay the groundwork for a purely naturalistic account of perceptual experience. Similarly, by providing a means of explaining how we can be in direct experiential contact with the world, the notion of representational content alleviates skeptical worries brought about by views according to which our perceptual access is indirect. Olfaction, then, presents an important challenge for representational views to overcome. In this chapter, I argue for a representational account of olfactory experience that fits its phenomenology.

In the first two sections, I introduce our subject matter. In section 1, I explain what representational content is and, in section 2, I make some initial observations about the phenomenology of olfactory experience by comparing it to experiences in the other modalities.

Section 3 draws on the observations made in section 2. Given what olfactory experience is like, I show how a subjectivist view of it might seem inevitable. In section 4, I show that it is not inevitable by arguing for a representational view according to which olfactory experience has a much 'weaker' kind of content than its visual counterpart. In doing so, I expand on phenomenological points that I made in section 2. Finally, in section 5, I show where this conclusion sits within the greater project of providing a representational theory of the sense modalities.

1. What is Representational Content?

Intuitively, the representational content of a perceptual experience is a proposition that specifies the way that the world appears to a subject when having that experience.[1] If the world is that way—if the representational content is true—then the experience is *accurate* or *veridical*. Otherwise—if the content is false—it is inaccurate or nonveridical. We can accordingly think of the representational content of a perceptual experience as giving the experience's "accuracy conditions". Consider a philosopher's favorite: the experience you have when you look at a ripe tomato. A plausible candidate for its accuracy conditions is that a red, roundish, bulgy object be before you.[2]

The idea that we can characterize the representational content of an experience with a set of accuracy conditions has serious intuitive appeal. It is both natural and common to think that, in the case of visual experience at least, experience can mislead us about the way the world is.[3] Consider how your apparently black sock is revealed to be navy once you leave the house and get it out into the daylight. Similarly, we might suppose that, in the tomato case, what you are actually looking at is a cleverly lit albino tomato. Although the albino tomato looks red, roundish and bulgy, it is actually *white*, roundish and bulgy. What you suffer, in each case, is an illusion with respect to an object's color. Your experience misattributes redness to a white object,

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[1] Notable among those who think that perceptual experiences have representational content are: Davies (1991, 1992), Evans (1982), Harman (1990), Lycan (1996), McGinn (1996), Peacocke (1983), Searle (1983) and Tye (1992, 1995, 2000).

[2] It is controversial whether visual experience can represent the property of *being a tomato*. Would your experience be inaccurate if the object before you was actually an extremely realistic plastic facsimile? If so, then the accuracy conditions must appeal to tomatoes. If not, then the accuracy conditions can stay as above. I take it that it is less controversial to hold that the accuracy conditions of such an experience concern properties like *redness*, *roundness* and *bulginess* than metaphysically richer properties such as *being a tomato*. For the sake of clarity, I take the less controversial route.

[3] Following Austin (1962), Travis (2004) argues that perceptual experience is *not* representational but is still able to mislead. But Travis' explanation of illusion is unsatisfying—in particular, his explanation of the Müller-Lyer illusion. In order to accommodate illusions, Travis introduces the notion of a '*look*' of a thing. According to Travis, the look of something is one of the ways that it actually is, and when we are confronted with the look of the Müller-Lyer lines, we are confronted with a way that they, together, actually are. Given the look of the lines, we might *expect* that the lines differ in length when, despite that look, they do not. According to Travis, illusions mislead at the level of expectation, then, and not in the way that things look—because they do have that look! But it is difficult to see how the notion of a look of something is supposed to differ from the notion of the representational content of an experience of looking at that thing. If they are indeed different, then Travis' view replaces representational content with metaphysically questionable entities that are reminiscent of sense data.

blackness to a navy one. In both experiences, you succeed in perceiving an object but misperceive one of its properties. This is not the only way that you can misperceive, however. You might hallucinate a ripe tomato before you. Unlike the illusory case, there is no tomato there and you have no perceptual success.

We have seen that an assignment of content to a visual experience should be compatible with the way that things look to a perceiver when she enjoys that experience.[4] Similarly, we could say that an assignment of content to an olfactory experience should be compatible with "the way that things smell". If that sounds like begging the question in favor of the view that olfactory experience has content, we could put the constraint more neutrally as follows: the content of olfactory experience, if there is such a thing, must respect what olfactory experience is like. The next step is to look at what it *is* like.[5]

2. What is Olfactory Experience Like?

We are often told that, compared to most of our animal friends, we are not very good at smelling. And their feats do seem remarkable to us. To take a familiar sort of friend, we know that dogs have a very keen sense of smell. Some can track a human being by the smell of a piece of clothing and find him trapped under several feet of snow. Recent studies suggest that dogs can detect early and late stage lung and breast cancers on the breath of patients.[6] A less familiar sort of friend, the turkey vulture, also has an acute sense of smell. Flying high above the rainforest, their visual access to the ground cut off by the canopy, these birds are able to detect carrion in an extremely short amount of time. Cover a piece of rotting meat with several inches of groundcover and the vultures are still able to find the meat within forty-five minutes.[7] Just as impressively, the male gypsy moth is able to detect the pheromones of the female of the species from several miles away.[8] These animals rely on their 'noses' where we would, typically, use our eyes. If I want to find something, I typically *look*. Vision is our preferred modality for navigating and learning about the world.

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[4] Due to the intuitiveness of this constraint, we find representational content also referred to as "phenomenological content" (McGinn 1996, 52).

[5] By an 'olfactory experience', I mean (among other things) a mental event that has phenomenal character. Some scientists think that there are human pheromones, although it is a hotly contested issue. These chemical compounds, species specific in the their detection, are supposed to have effects on endocrine functions such as menstruation and sexual activity. See, e.g., McClintock (1983, 1999) and McClintock et al. (2001). Those who hold that there are such things as pheromones claim that their detection occurs unconsciously. As a result, any event that consists of the mere detection of these chemicals is one that lacks phenomenal character. Therefore, it does not count as an olfactory experience as I conceive it.

[6] See McCulloch et al. (2006).

[7] See, e.g., Applegate (1990), Bang (1960) and Stager (1967).

[8] See, e.g., Wilson and Bossert (1963) and Wyatt (2003).

This is because human visual experience has a rich predicative structure. It presents the world, or distinct things in it, as having certain qualities. Consider again the visual experience you have when you look at a ripe tomato. When you look at the tomato, it appears that there is an object—namely, the tomato—and that it has certain properties—redness, roundness and so on. The tomato appears at a certain determinate location external to you and your experience places redness and roundness 'on', or 'in', it. Visual experience can also present multiple objects. Looking at the dinner ingredients on the counter, you might see a green pepper to the left of the tomato. You are able to distinguish them both, sitting there side by side on the counter.

To be sure, there are some visual experiences in which it does not seem that you are presented with any particular thing—such as the experience of looking at a cloudless sky or some other undifferentiated colored expanse. This kind of case will be important later in the chapter. But, for now, it is important to see that the typical visual experience presents us with relatively bounded particulars and attributes properties to them.

Audition and touch are like vision in significant ways. There is a spatial element to many auditory experiences. We hear sounds as coming from certain directions, as presented in relatively determinate locations in space external to us. We can also hear multiple sounds at different locations. I might hear a bird chirping on the window ledge to my left at the same time as I hear the coffee grinder in the kitchen to my right. Not all auditory experiences are directional or determinately spatial—for example, consider the familiar experience of hearing a cell phone ringing when you have no idea where the cell phone is. But, for purposes of drawing the comparison with olfactory experience, it is enough to see that some are. In touch, like vision, the surfaces of objects are presented as being external to the perceiver and we locate these surfaces relative to our bodies. Objects literally come into contact with the skin and exert pressure on our bodies. Any smoothness or roughness one feels, for example, appears to qualify those objects. Moreover, like vision and audition, it is possible to perceive multiple objects by touch. Consider a situation in which you hold a small object in each clenched hand.

But I take it that, for most of us, auditory and tactile experiences do not have as rich a structure as their visual counterparts. As we have seen, visual experience presents us with an extremely intricate geometry. Although auditory and tactile experiences also exhibit spatiality, they fall short of that exhibited by visual experience. For example, although tactile experiences can present multiple objects in spatial relations to one another, the numbers of objects that we are capable of distinguishing by touch is much smaller. We can touch many objects simultaneously, of course. Right now, I am touching the chair I sit in, the wall under my desk with my foot and the keyboard with my hands. But the point is that the number of objects that we are able to

distinguish is much smaller in the case of touch than it is in vision. Touch does not give us as rich a spatial array of objects as visual experience.[9]

Auditory experience fares better than tactile experience in this regard. But, unlike vision and touch, it is questionable whether auditory experience ever presents us with objects like birds and dogs. To be sure, we say that we hear the bird when it chirps, or the dog when it barks. But we only ever hear the bird, or the dog, by hearing the sound that it produces. Consider a novel noise, one that you have no reason to suppose has been made by one object as opposed to another. It is only once we know what the source of the sound is that we are able to make remarks such as "I hear the dog".[10] It is questionable, then, whether auditory experiences present ordinary objects. Instead, they plausibly present other kinds of objects or particulars, namely, *events*—auditory happenings or occurrences.[11] These events are presented as being located—as when I hear the bird chirping somewhere on my left. Visual and tactile experiences can also present us with events as well as with birds and dogs. But, on the face of it, auditory experience only presents perceivers with events.

On a continuum of richness, then, visual experience sits at the 'most rich' extreme while auditory and tactile experience sit down the line at 'less rich' positions.[12, 13] We might equally call this a continuum of *representational richness*, as illusions are possible in all three of these modalities. As I said earlier, examples of illusory experiences are not hard to come by for vision. Although not as common, auditory and tactile illusions can, and do, occur.[14] Can the experiences of the chemical senses even make it onto a continuum of representational richness? I leave

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[9] Another difference is that, although tactile experience presents objects as separate from our bodies, the distance at which we can feel them to be is constrained by the body's limits. Visual presentation of distance is not constrained in this way, although it is constrained by the physiology of the sense organ.

[10] This is something that Berkeley ([1713] 1996) drew attention to in his *First Dialogue*:

> Philonous: ...when I hear a coach drive along the streets, immediately I perceive only the sound; but from the experience I have had that such a sound is connected with a coach, I am said to hear the coach. It is nevertheless evident, that in truth and strictness, nothing can be *heard* but *sound*: and the coach is not then properly perceived by sense, but suggested by experience. (144)

[11] O' Callaghan (forthcoming, ms) argues that sounds are events and, thus, that auditory experience represents events. This view also appears to be what Urmson (1968) is getting at when he claims: "like physical objects, sounds are individuals and may be counted" (119).

[12] It has also been suggested that audition and touch differ from vision in that they do not present empty places. Martin (1992) argues for this thesis with respect to touch and Nudds (2001) with respect to audition.

[13] I set aside the question of whether auditory experience is richer than tactile experience.

[14] In the auditory domain, there is the Deutsch Octave Illusion. To arrive at this illusion, two tones an octave apart are repeatedly presented in alteration. This string of alternating notes is played over headphones in each ear, but when one ear is presented with the high tone, the other ear is simultaneously presented with the low tone, and vice versa. The most commonly reported result is that a series of notes appears to alternate from ear to ear, but that the subject hears the series of notes delivered to the right ear and factors out what is presented to the left ear. So, for example, suppose that at a given time t the right ear is presented with a high note and, at t_{+1}, the right ear is presented with a low note. At t, the left ear is presented with the low note, while at t_{+1}, it is presented with a high note. What the majority of perceivers report hearing at t is a high note in the right ear and, at t_{+1}, a low note in the left ear. But, at t_{+1}, it is a high note that is played into the left ear. The perceiver's experience factors out the stimuli at the left ear while 'misplacing' the low note stimuli of the right ear at the left. Correct sound, wrong place. For more on this illusion, see Deutsch (1974, 1981) and Deutsch and Roll (1976).

Tactile illusions appear to be less common than auditory ones. But an example is the Velvet Hand Illusion. In this illusion, a hexagonally patterned piece of mesh is felt to have a strange velvety texture when rubbed between gently pressed hands. One would think, by looking at the piece of mesh, that it would be felt as having a rough surface. But it is not. The mesh is actually rough but is felt as smooth and velvety. For more on this illusion, see Mochiyama et al. (2005).

discussion of gustatory experience to another paper and focus on olfactory experience alone.[15] Like auditory experience, olfactory experience does not seem to present us with ordinary objects. Moreover, when I sniff around the brewing coffee, the smell does not even seem to occupy more or less determinate locations before me. Rather, the smell simply pervades. And this, it would seem, applies to any typical human olfactory experience. There is some evidence that humans can localize odor sources in highly controlled circumstances (Porter et al. 2005; von Bekesy 1994). But these circumstances are the exception, not the rule, and do not represent the typical experiences of human subjects in their environment.[16] For this reason, I will not consider them here.

Moreover, the notion of an olfactory illusion is just not something that resonates with us. As we have seen, it makes sense to speak of accuracy conditions in the case of visual, auditory and tactile experiences. In the case of the typical visual experience and in the case of all tactile experiences, we can ask of the object of experience, *o*:

For any property *F* that *o* appears to have, does *o* really have *F*?

And in the case of those auditory experiences that are directional, we can ask of a certain event, *e*:

For any auditory property *F* that *e* appears to have, does *e* really have *F*?

If there were an olfactory analogue of these questions, we could ask of an object of olfactory experience, *x*:

For any olfactory property *F* that *x* appears to have, does *x* really have *F*?

But, unlike the experiences of these other modalities, olfactory experience seems disengaged from any particular object. It is tempting to conclude that olfactory experience isn't in the business of predication. This would explain why we are reluctant to speak of olfactory illusions. The idea

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[15] I will make some projections, however. When I sip my coffee, I am saturated with its taste. I do not sense its characteristic taste in certain parts of my mouth or on certain regions of my tongue, and experience *no* taste in or on other parts or regions. But I experience it as *in the mouth*—that is, at a relatively determinate location within the confines of my body. It would seem that gustatory experience has some presentational aspects, then. For this reason, it would seem that gustation makes it onto a continuum of representational richness, placed at an 'even less rich' position.

[16] Compare this with the shark. The shark's sense of smell is remarkable in that it is directional. Like the human sense of hearing, sharks can typically determine the direction that an odorant is coming from. (See, e.g., Hodgson and Mathewson 1971). Consider the hammerhead shark as an extreme example of the physiology that makes this possible. The distance between the nasal cavities is large in most sharks but it is at its largest with the great hammerhead. An odorant coming from the extreme left of the shark's head will arrive at the left nasal cavity before it does the right. To be sure, this is an extreme case. But researchers have shown that, in many other cases, the hammerhead is able to sample more of the medium than other sharks and, as a result, is able to resolve differences in odorant concentration between each nostril. This also allows the shark to locate the direction of the odor source. Humans are typically unable to do this without taking on some serious investigative work—getting bodily movement involved and, in some cases, relying on information gained from other sense modalities. I will return to this point later in the chapter.

that a smell is misattributed to something has no obvious purchase—unlike the case of visual, auditory and tactile experience.

Compared to visual, auditory and tactile experience, then, human olfactory experience is incredibly impoverished. To put it figuratively: compared to the intricately detailed scenes presented by visual experiences especially, olfactory experiences are mere smudges on our consciousness.

3. Are Olfactory Experiences Purely Sensational?

Given the smudginess of olfactory experience, it might very well seem that the answer to this question is 'yes'. It is hard not to feel drawn to the view that olfactory experience has no objective purport, that it is not world-directed. This places olfactory experience in contrast to visual experience, where such views are taken as an affront to its phenomenology.

Christopher Peacocke in his (1983) maintains that olfactory experiences are not world-directed. In the opening chapter of *Sense and Content*, he suggests that "a sensation of...[smell] may have no representational content of any sort, though of course the sensation will be of a distinctive kind" (5). Peacocke says no more about olfactory experience, but William Lycan agrees. He claims: "[p]henomenally speaking, a smell is just a modification of our consciousness, a qualitative condition or event in us" (2000, 281), "lingering uselessly in the mind without representing anything" (1996, 145). Although Lycan goes on to argue that olfactory experience is representational after all, he thinks that there is an initial, phenomenological, motivation for thinking that it is not.

Peacocke's view, and the view that Lycan finds *prima facie* plausible, are *Reidian views* of olfactory experience.[17] The backbone of Thomas Reid's discussion of perception is his distinction between sensation and perception. According to Reid ([1764] 2000), "[s]ensation, and the perception of external objects by the senses, though very different in their nature, have commonly been considered as one and the same thing" (167). Setting out the distinction in his *Essays on the Intellectual Powers of Man* ([1785] 2002), Reid claims:

> Sensation, by itself, implies neither the conception nor belief in something external. It supposes a sentient being and a certain manner in which that being is affected; but it supposes no more. Perception implies a conviction and belief of something external—something different from both the mind that perceives and the act of perception. (199)

[17] Thomas Reid is one of the very few philosophers who has written extensively about smell. In his *An Inquiry into the Human Mind on the Principles of Common Sense* ([1764] 2000), he devotes an entire chapter to it ("Of Smelling"). Others who have substantial discussions of smell are Bhushan (ms), Lycan (1996, 2000) and Perkins (1983). Also notable are shorter discussions in Matthen (2005, 282-288) and Smith (2002, 138-145).

Although sensation does not imply "the conception...[or] belief in something external", a given sensation does give rise to "an immediate conviction and belief of something external" ([1785] 2002, 199)—that is, to a perception. According to Reid, then, perception is the formation of non-inferential beliefs about the instantiation of external qualities. [18]

In the case of olfaction, Reid ([1764] 2000) tells us that sensations are caused by the "effluvia" of "animal and vegetable bodies" (25). Consider the act of sniffing a rose. According to Reid, effluvia given off by the rose cause a certain sensation in you. Let's call it the *rose sensation*. The rose sensation, Reid tells us, gives rise to the immediate and irresistible belief in the existence of an external quality—a quality of the rose or of the effluvia proceeding from the rose. This perception, this belief, has an intentional object—namely, the rose or the effluvium. The rose sensation, on the other hand, does not.

Let's call the view that olfactory experiences are Reidian sensations the *sensational view*.[19] Both Peacocke's and Lycan's remarks suggest the sensational view. According to the Reidian picture of olfaction, rose sensations are not in the business of representing anything. An olfactory sensation is a mere affectation, as Reid put it, or, as contemporary philosophers might put it, a raw feel. According to Reid, olfactory sensations are not world-directed themselves, but they cause other states—namely, beliefs about the instantiation of certain properties—that are. If we take it that Reidian sensations are one and the same as what we now think of as *experiences*, then Reid himself also held that olfactory experiences are purely sensational.[20]

There is a further interpretation of the Reidian sensational view according to which it is a form of *adverbialism* about olfactory experience. In particular, it is a version of adverbialism according to which sensory experiences themselves do not have accuracy conditions. Beliefs based on these experiences might have accuracy conditions, but the sensory experiences themselves do not. Van Cleve (2004) suggests that the Reidian picture of sensations as object-less leads us in the direction of this interpretation. Stating the relationship between the two views, he says: "[t]o have a sensation of red is not to be the subject of an act directed upon a red item as its object, but is simply to sense in a certain way, 'redly' as the adverbial theory styles it"

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[18] This is not entirely accurate. As the block quotation indicates, perception involves the *conception* of something external along with the immediate belief in its present existence. It is controversial just what Reid's notion of conception is. The most common interpretation is the one according to which Reid's conception is the conception inherent to belief—subsuming an object under a concept. However, others point out that Reid sometimes refers to conception as "simple apprehension" ([1785] 2002, 295) and in turn argue that his notion of simple apprehension is a kind of mental awareness that does not involve the exercise of concepts (Van Cleve 2004). I do not want to take a stand on this issue here, so I leave out any reference to conception.

[19] It is an interesting question just how the Reidian sensation + perception bundle relates to the contemporary notion of a sensory experience. The sensational view assumes that a sensation is the uniquely sensory act of the mind—what contemporary philosophers would call a sensory experience. Perception is not an experience per se but rather a further cognitive state caused by such an experience. In opposition to the sensational view, one might argue that Reid would have thought that the sensation + perception bundle itself is closer to our notion of an experience, or that any attempt to map the contemporary notion onto Reid is questionable.

[20] See fn. 19.

(105).[21] According to the adverbialist picture of perception, we do not perceive some*thing*. Rather, we perceive some*how* (Van Cleve 2004). An olfactory experience, then, is not a mental event that has a certain object—for example, a rose. To have an olfactory experience is to do something, to perform an "act of the mind", in a certain way. I may walk quickly; or I may walk slowly. In both cases, I perform an act in a certain way. Similarly, according to the adverbialist, I may experience 'rosely' or I may experience 'skunkly'. Because olfactory experience (as we refer to it) is so smudgy, adverbialism about it is definitely something that makes phenomenological sense.

There is an interesting philosophical point behind these observations about adverbialism—a point that can inform an alternative, representational, account of olfactory experience. The sensational view may seem inevitable, but it is not.

4. Are Olfactory Experiences Representational? Part I

Most discussion of representational content centers on visual experience. As we saw in section 2, the default view is that the properties presented in visual experience are properties of ordinary objects—'medium-sized dry goods', as some might put it. This view, it would seem, is grounded in the phenomenology of visual experience. There is significant disagreement, however, about *how* visual experience represents objects.

One view is that visual content is *abstract*, or *existentially quantified* (Davies 1991, 1992, 1996; McGinn 1996; Tye 1995, 2000). This is the view that your experience of the ripe tomato has the following sort of content:

(***Abs.***) There is an object x at location L, and x is red, and round....

The motivation behind this view is the possibility that experiences of two qualitatively identical, yet distinct, tomatoes might be phenomenologically indistinguishable. Moreover, a perceiver might hallucinate a tomato before her and yet be unable to distinguish this hallucinatory experience from a corresponding veridical experience. All of these are visual experiences *as of a red, round object at a certain location L.* To preserve their indistinguishability, the abstract content theorist proposes that the content of each is content into which no particular tomato enters. Both a veridical experience of a red, round object at L and the hallucination of a red, round object at L have (***Abs.***).

[21] Van Cleve, however, recognizes that drawing this comparison is controversial. For example, there is another interpretation of Reid according to which he held that sensations have *themselves* as objects. This interpretation of Reid rests heavily on remarks such as the following: "[s]ensation is a name given by Philosophers to an act of the mind, which may be distinguished from all others by this, that it hath no object distinct from the act itself" (Reid [1785] 2002, 36).

Opponents of this view claim that the abstract content view ignores the particularity of experience (Burge 1991; Campbell 2002; Martin 2003). According to the *object-involving* account of content, we cannot ignore this crucial phenomenological fact. Adapting an example from Martin (2003), when I look at the tomato placed before me on the cutting board, I am not presented with *some* tomato or other. I am presented with *this* tomato.[22] According to the proponent of the object-involving account, the tomato itself is a constituent of the content of my experience. So, letting '*t*' name the actual tomato before me on the cutting board, my experience has the following sort of content:

(***Obj.***) *t* is red, round...and at L.

The object-involving account allows that visual experience can be the basis of demonstrative thought about objects. It does so because particular objects are a part of content. The view, however, does this at the expense of providing a common account of hallucination and veridical visual experience.

There are many interesting questions about how we might go about upholding either the object-involving or abstract account. Either view must give up one of two attractive claims about the nature of visual experience: (a) that there is a common element to hallucination and veridical visual experience and (b) that there is a particularity about visual experience that allows for the possibility of demonstrative thought about objects. Denying (a), while preserving an object-involving account of content, has recently been at the forefront of discussions of disjunctivism. The proponent of the abstract account faces significant challenges in accounting for (b). The ability to have demonstrative thought about objects is a capacity that, as Martin (2003) rightly notes, no abstract content theorist would willingly cast aside.

It is a good question whether this kind of conflict arises also for olfactory experience. As we shall see shortly, it is not saddled with it. But, first, we must look more closely at our discriminatory abilities in the olfactory domain.

4.1 How Discriminating is Olfactory Experience?

As I said earlier in section 2, the properties presented in olfactory experience seem to be mere smudges on our consciousness. This is why the Reidian sensational view makes sense for

[22] Martin states: "[w]hen I look at a duck in front of me, I am not merely presented with the fact that there is at least one duck in the area, rather I seem to be presented with *this* thing (as one might put it from my perspective) in front of me, which looks to me to be a duck" (2003, 173). Consider also Shoemaker (1996b): "[w]hile sense perception provides one with awareness of facts, i.e., awareness *that* so and so is the case, it does this by means of awareness of objects.... In such a case there is always the potentiality of a factual awareness whose propositional content involves *demonstrative* reference to the object or objects of which one is perceptually aware—e.g. that *this* book is to the right of *that* one" (205).

olfactory experience. So that we can understand this smudge point further, compare again olfactory experience with visual experience. In *Seeing and Knowing* (1988), Fred Dretske argues for a view according to which we do not see an object unless we can differentiate it from its environment.[23] I count as seeing the tomato on the table if I can differentiate it from the table, the wall behind the table and the other vegetables placed next to it. In the case of olfaction, we do not achieve this kind of differentiation. When I plug in the fancy air freshener and its smell drifts over to where I am sitting, I am simply presented with a distinctive property. I do not distinguish the place in the scene before my nose at which the property is instantiated from the place at which it is not. I simply smell that it is instantiated.

Dretske acknowledges that there are cases in which this differentiation does not occur in visual experience and yet we still want to count a subject as seeing some particular object—the sky or the colored expanse of a wall up close.[24] But he stresses that these are limiting cases. In the case of olfactory experience, the analogue of this circumstance is not the limiting case. It is the *norm*. The point is that it is always like this in olfactory experience; we never, on the basis of olfactory experience alone, differentiate where a certain olfactory property is instantiated and where it is not.[25] Doing so involves the conjunction of movement, at least, with olfactory experience. We get up, move around, sniff, foot by foot, room by room. We navigate the olfactory terrain; we actively engage in figuring out where the smells are located in the space around us. Bracket the information gained from movement, and any locatedness of these properties—other than 'out there' or 'around me'—goes as well.

With this in mind, I now want to return to my claim in section 3, that there is a kinship between the phenomenology of olfactory experience and the account of experience that adverbialism provides. One of the main criticisms of adverbialism about visual experience is that it cannot solve the Many Properties Problem—the problem of distinguishing between scenes in which the same properties are instantiated but in different arrangements.[26] The experience of (i) seeing a striped circle to the left of a checkered triangle is different from (ii) seeing a striped triangle to the left of a checkered circle. To illustrate:

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[23] Shoemaker (1996b) makes a similar claim, but states it in terms of perception in general: "[s]ense perception affords 'identification information' about the object of perception. When one perceives one is able to pick out one object from others, distinguishing it from the others by information, provided by the perception, about both its relational and its nonrelational properties" (205).

[24] Dretske claims:

> Touch your nose to a large smooth wall and stare fixedly at the area of the wall in front of you. There is not much doubt about the fact that you see the wall, or at least a portion of it. It is also fairly clear that you do not differentiate it from its immediate surroundings. In this position it has no environment, and so one can hardly be expected to differentiate it from one. I call this a *limiting case* because, normally, we see things in an environment, against a background, or surrounded by other things (which we also see). (1988, 26)

[25] It is always like this outside of the laboratory. Those experiences in the laboratory that I referred to in sec. 2 (p. 16) might be more similar to the typical visual experience.

[26] Jackson (1977) was the first to make this criticism of adverbialism.

(i)

(ii)

Adverbialism is incapable of accounting for the difference between these two experiences. In (i), a perceiver experiences [stripedly & circularly & to-the-leftly & checkeredly & triangularly] and in (ii) a perceiver experiences [stripedly & triangularly & to-the-leftly & checkeredly & circularly]. That is, a perceiver experiences in the same way in both cases. It makes no difference that the adverbs in (ii) appear in a different order than in (i). By the rules of conjunction, the content-specification in (ii) is equivalent to the content-specification in (i). But clearly there is a difference between experiences of type (i) and type (ii).[27]

Enter objects to the rescue. Positing objects explains how properties can be co-instantiated. On a representational view, both experiences represent that striped-ness, checkered-ness, circularity and triangularity are instantiated. The difference between them is that each experience attributes the properties in question to different objects at different locations in one's visual field[28].

As the air freshener example on the previous page suggests, olfactory experience does not present properties at determinate locations in our surroundings. Because of this, the Many Properties Problem does not arise for olfactory experience. When I spray lavender air freshener to try and mask the smell of cigarette smoke, I do not experience the lavender smell at one location and the smoke smell at another—for example, in the circumstance in which the locations are the same, as the lavender smell being right 'on top of' the smoke smell. Nor does it seem plausible to suggest that there might be a different circumstance in which my olfactory experience reports that the air freshener smell is on top of some of the smoke smell but that I missed a spot. As I sit in the room, I am unable to tell the difference between a circumstance in which I cover the

[27] Tye (1989), a former adverbialist, develops a modified adverbialism in response to the Many Properties Problem. For present purposes, it is enough to see that there is a problem with adverbialism traditionally conceived.
[28] By 'visual field' I mean the scene before the perceiver's eyes. My use of it is to be distinguished from one in which 'visual field' is taken to denote a mental particular, or sense datum.

whole room and a circumstance in which I miss a spot.[29] Each experience reports that the smoke smell and the air freshener smell are instantiated.[30] But each experience is silent on where before me these properties are instantiated. Because of this, the experiences are equally silent on what object instantiates which property. Object perception presupposes spatial perception, and if olfactory experience reports nothing more than 'these properties instantiated out there' then we are forced to conclude that olfactory experience gives us diminished object perception. This is what appears to be behind the following remark from Chalmers (1996): "[s]mell has little in the way of apparent structure and often floats free of any apparent object, remaining a primitive presence in our sensory manifold" (8).

The challenge, then, is to provide a plausible view of how olfactory experience represents olfactory objects given this diminished perception. I turn now to this question. I argue that the right view of the content of olfactory experience is one according to which it has a very weak kind of abstract, or existentially quantified, content.

4.2 How Do Olfactory Experiences Represent?

We have seen that olfactory experience gives us the ability to distinguish that properties are located at the very rough location of 'around me', but that it does not allow us to refer to the particular objects that instantiate them.[31] Our results at this point are suggestive of Austen Clark's (2000) account of the content of visual experience. According to Clark, visual experience represents that properties are instantiated at place-times.[32] As Siegel (2002) observes, there are two ways that we might interpret Clark's claim that visual experience has this kind of structure.[33] The second of these interpretations directs our attention to the right view about how olfactory experience represents.

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[29] In a footnote, Clark (2000) suggests that the Many Properties Problem does not arise for olfactory experience. He says: "[p]erhaps human olfaction fails this test; it may lack sufficient spatial character. Can one smell two distinct simultaneous instances of the same acrid odour? Can one distinguish a presentation in which something smells both acrid and musty from one in which something *else* smells musty?" (79).

Smith (2002) also appears to raise the same point. He states:

> [I]t may seem to you that you can, standing in a well-stocked florist's, smell the odours of the flowers filling the room. On reflection, however, we realize that this is not really so. A single, strongly perfumed and variegated bunch of flowers under your nose could lead to the same perception. Blindfolded, you would not be able to tell the difference. (138)

[30] To be sure, there might be a difference in the perceived intensity of the lavender smell in each case. But that would not amount to a difference in the experienced location of that smell.

[31] Others have noted this point about perceived location. Consider Matthen (2005): "[smells] have, at best, a *primitive*—that is, an undifferentiating—feature-location structure—every smell of which I am aware is simply here" (284). Consider also Chalmers (2006): "The phenomenology of taste and smell seems to be representational. Intuitively, an olfactory experience represents that a certain smell is present in one's environment, perhaps in a certain broad location" (112).

[32] To be sure, Clark's view of visual experience has it that properties are presented at much more determinate locations than simply 'around me' and so, in this way, must be understood to depart from our results.

[33] For simplicity, I set aside Clark's comparison of his account with Strawson's (1963) notion of feature-placing. According to Strawson, feature-placing languages fall short of predication. As we shall see momentarily, Clark does not seem to deny that visual experience is predicative.

The first interpretation of Clark is that he holds that visual experience attributes properties *to* places. Siegel notes that Clark tells us this on more than one occasion.[34] But, as a view about how things visually appear, it doesn't seem right. Intuitively, colors and shapes look to be properties of objects like tomatoes. As I look at the tomato before me on the table, my experience does not report that redness and roundness is instantiated by a certain location L. It reports that some object at L—namely, the tomato—is red and round.[35]

Another interpretation of Clark is that he takes it that visual experience has a certain kind of abstract content: that *something or other* that is present at a certain location L is red and round. The experience does not attribute redness and roundness to a place, and neither does it attribute redness and roundness to a particular object.

Whether this is indeed Clark's view is not important for present purposes. What is important is what consideration of Clark has to tell us about the nature of olfactory experience. As I remarked in section 4, the abstract view for visual experience is controversial. Those in favor of an object-involving account argue that an abstract account ignores a crucial phenomenological fact, namely the particularity of visual experience. But this kind of view is a remarkably good fit in the case of olfactory experience. As with visual experience, it is implausible to suppose that olfactory experience attributes properties to places. Although olfactory experience reports that properties are instantiated 'out there', there is no obvious reason to take it to report that these properties are instantiated by *places*. As we have seen, olfactory experience never reports that properties are instantiated by particular objects. For this reason, an object-involving account would not work for olfactory experience. But with the notion of abstract content, we can construct a view according to which olfactory experience reports that properties are instantiated by objects. Or, given that the Many Properties Problem does not arise for olfactory experience, that these properties are instantiated by *an* object (just one). I turn now to what I call the *abstract view* of olfactory experience.

Let me home in on the abstract view by again comparing olfactory experience to visual experience. Despite what I say above, assume that visual experience has abstract content. This is an innocuous assumption, intended for drawing the comparison with olfactory experience, which (in the human case, at least) can only have such content. The Many Properties Problem shows us

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[34] For example, Clark claims: "[t]he sensation of a red triangle next to a green square...picks out place-times and attributes features to them" (2000, 77). And again: "[t]he *sensation* of a red triangle picks out places and attributes features to them" (2000, 147).

[35] This criticism of the first Clark interpretation is behind other, more specific, criticisms of his view. For example, Siegel (2002) draws attention to the fact that Clark's view, interpreted as such, runs into problems in accounting for the apparent motion of a single object through space. Her example:

> What happens in sensory phenomenology when a subject sees a basketball make its way from the player's hands to the basket? The information that it's one and the same basketball traversing a single path is not given by sentience if sentience is limited to feature-placing. On Clark's view, the information that it's one and the same basketball traversing a single path has to be given non-sensorily. The subject's visual experience stops short at delivering a series of momentary presentations of orange-and-roundness at a series of places. (141)

that, for some visual experiences, we need more than one quantifier to capture their contents. Consider the following case: upon arriving home from the farmer's market, I set my groceries down on the counter. The bag tips and some of my bounty escapes and rolls onto the counter—in particular, a tomato (ripe, of course) and a Granny Smith apple. I turn around and see the bag's contents lying on the counter. Suppose that L_1 and L_2 are distinct locations in my visual field. Suppose also, for the sake of simplicity, that shape properties and color properties exhaust the visually salient properties. (So, although the objects on the counter will bear certain relations to one another such as relative size, I leave out any reference to them in setting out the content of my experience.) According to the view that visual content is abstract, the content of the visual experience I have when I look down at the produce on the counter is:

$$\exists x\ (x \text{ is red, round \& at } L_1)\ \&\ \exists y\ (y \text{ is green, round \& at } L_2).$$

My visual experience presents redness and roundness at one location of the visual field, namely L_1, and presents greenness and roundness at another, L_2. Consideration of the Many Properties Problem has shown us that two things are presented. One, namely the tomato, binds redness and roundness while another, the apple, binds greenness and roundness. For this reason, a characterization of the content of my experience requires two quantifiers.

This is not to say that characterizations of all visual experiences will require more than one quantifier. To take a previous example, the visual experience you have when you look at a single ripe tomato will require only one quantifier to characterize it. Similarly, returning to an example of section 2, the experience I have when I look at the expanse of a cloudless sky will require only one quantifier and no reference to a determinate location within the visual field. Defining the whole of the visual field as the location L_v, the content of such an experience would be:

$$\exists x\ (x \text{ is blue \& at } L_v).$$

As I suggested earlier in my discussion of Dretske, it is this kind of visual experience that provides us with a model for olfactory experience and informs us of the inapplicability of the Many Properties Problem to it. It is the visual analogue of what it is always like in olfactory experience.

Consider again the lavender smell/smoke smell example. Like in the visual case above, we can define the whole of the olfactory field—i.e. the rough location 'around me'—as the location L_o. Because the Many Properties Problem is no problem for olfactory experience, we know that a characterization of the content of my experience will require only one quantifier and no reference to determinate location. Similar in form to the visual case above, it reads:

$\exists x$ (x is smoky, lavendery & at L_o).

Again, the need for only one quantifier and no reference to a location other than L_o arises from the fact that olfactory experience does not place properties at determinate locations. All olfactory properties are presented at a single rough location—namely, at L_o. Given this, we see that there is no need to index for any location other than L_o.

Now, someone might object to the abstract view by drawing attention to the existence of 'expert smellers'. It has long been thought that olfactory discrimination can improve with practice—consider, for example, the perfumer. Psychophysical research suggests that, below a certain threshold, so-called expert smellers are far better than normal smellers at analyzing odorant stimuli into their individual "components" (Lawless 1997; Wilson and Stevenson 2006).[36] Talk of individual components naturally leads to thought of parts; in turn, thought of parts naturally leads to the thought of spatial relations between particulars. Doesn't the existence of expert smellers show us that olfactory experience can be more spatially discriminating than the abstract view allows?

Although this objection draws attention to an interesting feature of human olfactory discrimination, it does not show that there is anything amiss with the abstract view. The abstract view does not place any constraints on the number of property-types that a perceiver can distinguish in a given olfactory experience. Rather, what it does constrain is the determinacy of the location at which these properties can appear to be instantiated. According to the abstract view, the only location at which properties appear is the location that consists of the entirety of the olfactory field. While research suggests that expert smellers have enhanced property discrimination, it does not suggest that they are capable of placing these properties at more determinate locations than normal smellers. But this kind of spatial discrimination is what the experts would have to be able to accomplish in order for their expertise to threaten the abstract view. For this reason, talk of "components" should be taken loosely. It does not indicate that expert smellers enjoy added spatial discrimination.

If humans were like other animals, then perhaps characterizations of olfactory content would require multiple quantifiers and reference to determinate locations within the olfactory field.[37] Indeed, if we were like other animals, the idea of an olfactory *field* would be something we could get a firmer grip on by thinking about the phenomenology of our own experience. As it

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[36] In a set of experiments, subjects were asked to analyze mixtures of up to seven odorants. Before performing the task, subjects were made familiar with each of the seven odorants. The results indicate that, in the case of two and three component mixtures, it is possible to enhance one's discriminative capacities with training. Alleged expert smellers were far better than their normal counterparts at identifying the components of odorant mixtures in this range. In the case of four or five component mixtures, both groups were uniformly poor at analysis (Wilson and Stevenson 2006, 177-179).

[37] A characterization of those experiences we have in the lab would require more than one quantifier. Indeed, an object-involving account might get footing in accounting for these rare circumstances. If all of our olfactory experiences were like this, we would be considerably more like the shark. See fn. 16.

stands, it is a fuzzy notion. As should be clear by now, this is symptomatic of the fact that, unlike visual experience, olfactory experience fails to present properties at determinate locations.

4.3 Olfactory Objects: What Are They?

Olfactory experience, I have argued, represents that *something or other* around me is, for example, smoky and lavendery. But what are "olfactory objects", the items that are smoky and lavendery? Up until this point, I have said nothing about this question. As I mentioned at the beginning of section 4, it just seems obvious that the properties presented in a typical visual experience are properties of dogs and cats, tables and chairs, and so on—ordinary objects, that is. In the case of olfactory experience, it is not as obvious what olfactory properties are in fact properties of.

The natural impulse is to say that the qualities of which we are aware are qualities of regular old objects—roses, skunks and chunks of bad cheese—and that these are the external things that are represented in olfactory experience. I remove the lid from the container and it is the cheese that appears to have a bad smell. We certainly think of roses, skunks and bad cheese as the sources of smells. But we also think of them as having a good, or bad, smell—as bearing properties that we 'get at' through olfaction. [38]

However, this isn't very plausible. Consider how we can have an olfactory experience—the experience of the smell of rotting garbage, say—even though the object that we think of as responsible for the smell is far away. In the summer heat with windows open wide, I might smell the garbage outside from my second floor apartment. Given that my olfactory experience represents that properties are instantiated by something or other 'around me', if olfactory objects are things like piles of garbage my experience must be nonveridical. The garbage is not around me; it is downstairs and outside. As we know, this kind of circumstance is not rare. Given this, the view that olfactory objects are ordinary objects makes for an implausible amount of olfactory misperception.

What the garbage case suggests is that olfactory experience presents us with properties of something in the atmosphere—something *in the air*. The stinky garbage is merely the source of an olfactory object, not the olfactory object itself. Although we might say that the room now smells because of the garbage, the distinctive garbage smell property (or set of properties) is more

[38] This impulse is not restricted to the everyday folk. For example, in aid of making a similar point, Matthen (2005) draws attention to Shoemaker's (1996a) claim that secondary qualities are perceived as "belonging to objects in our external environment—the apple is experienced as red, the rose as fragrant, the lemon as sour" (97).

plausibly a feature (or are features) of the air in the room itself.[39]

Here I am agreeing with Tye (2000, 2002), who suggests that the properties we perceive in olfactory experience are properties of something in the air. In particular, Tye tells us that olfactory experiences present us with the qualities of *odors*. Smelly objects are those whose molecules are volatile enough to evaporate from their surfaces and enter the air. (This explains why, at room temperature, we cannot smell iron and steel. At room temperature, their molecules are not volatile.) Reid made a related observation. Remember that, according to Reid, "all bodies are smelled by means of the effluvia they emit" ([1764] 2000, 25). These effluvia are the "volatile parts" of odorous bodies ([1764] 2000, 25). Odors themselves are clouds of Reidian effluvia, or modern-day airborne molecules. Odors are particulars, then. Odor clouds can be more or less concentrated, depending on the rate of evaporation and the stillness of the air. Similarly, odor clouds can mix with one another. In any case, odorant molecules enter the nose when we sniff and ultimately trigger the olfactory receptors.

Olfactory experience predicates properties of objects, but olfactory experience itself is otherwise silent on the nature of these olfactory objects. Interrogating olfactory experience will not tell us what olfactory objects are; other considerations suggest that they are odors.

In one way, olfactory experience seems very much like auditory experience. As I drew attention to in section 2, we are able to say things like "I hear the bird" because we hear the sound that the bird makes. As the garbage case has shown us, we are able to say things like "I smell the garbage" because we smell the odor that it gives off. But, as we saw earlier, there is an important difference between the two types of experience. In the case of audition, experience can present us with a particular thing—namely, an auditory event—that we can single out and think about—like a bird's chirp or a clap of thunder. Visual and tactile experiences also allow us to single out particular things. But olfactory experiences never do. Although they attribute olfactory properties to things that are, in fact, odors, they never present us with the particular odors themselves.

5. Are Olfactory Experiences Representational? Part II

Earlier I drew attention to the fact that the notion of an illusory olfactory experience doesn't seem to resonate with us. The abstract view can explain why this is. As we have seen, olfactory experience grants us minimal object discrimination. Olfactory experience never

[39] This example is adapted from Smith (2002). His example:

> If a particularly malodorous cheese is carried through the room, the smell remains. If we attribute the smell to any physical object, it will be to the room: the room smells, we say. But really, of course, it is the air in the room that smells....Hence, we speak of foul air, and the fragrance of the air. If I put a rose to my nose, I am coming into proximity with the *source* of the smell; and even then, I appreciate the smell only by drawing the odour into my nostrils—that is, the air that has been sweetened by the immediate presence of the rose. (143)

presents multiple objects. What's more, it never presents a single object, at least not in the way that vision might present a particular tomato and audition might present a particular sound. There are no "objects of olfaction" in the way that there are objects of vision and audition. Hence, there is no particular thing of which we can ask, "yes, it *appears* to be smoky, but is it really as it appears?" In that sense, there are no olfactory illusions. But that is not to say that there could not be nonveridical olfactory experiences. There could: if there is nothing in the vicinity that is smoky, then the content of the experience is false, and so the experience is nonveridical.

I have argued that olfactory experience can take its place at the 'least rich' end of a continuum of representational richness and that, as a result, the sensational view is mistaken. Admittedly, I have not presented a decisive argument in favor of the abstract view. I have tacitly assumed the *Unification Thesis*: the thesis that certain philosophical issues about perception should be settled in the same way for each of the sense modalities. In particular, I have assumed the Unification Thesis with respect to representational content. As we have seen, visual experience seems world-directed (specifically, representational), with tactile and auditory experience following suit. The question was: are there impassable obstacles to including olfactory experience with them? So, the Unification Thesis lies behind the question of whether we can fit olfaction on a continuum of representational richness. I have taken this notion of a continuum, and the Unification Thesis, as a starting point for discussing this question. But the Unification Thesis for content is something that needs to be argued for.

There are several considerations in its favor. First, we ought to admit that creatures with better senses of smell than ours enjoy olfactory experiences that are world-directed. After all, their olfactory experiences are for them as our visual experiences are for us. If we take it that *our visual* experiences are representational, then we ought to think that *their olfactory* experiences are as well. But, given that *their* olfactory experiences are representational, we ought to think that *our* olfactory experiences differ from theirs in degree of representational prowess and not in kind. The abstract view provides a way of understanding this difference in degree. A second, related, consideration lies in the fact that, despite their difference in phenomenology, we still take it that the senses function as informational systems. Using the senses, we are able to gather information about the world. Although the phenomenology is impoverished, olfactory experience still functions to guide behavior and action. The smell of smoke, for example, leads me to get up and flee the building. As guides of behavior and grounds of belief, the experiences of the sense modalities form a common kind. A shared metaphysical nature provides a way of accounting for this commonality. If we can plausibly claim that visual experience is representational, then we ought to claim that olfactory experience is as well.

These are merely initial considerations in favor of the Unification Thesis for content. Further work is required in order to establish it. But, as I stated in the introduction, olfaction

presents a special challenge to content theorists who accept such a thesis. Olfaction is considered to be one of the senses, yet it seems initially questionable whether its phenomenology can support a representational view. If we have reason to suppose that olfactory experience is not representational, then we have reason to deny the Unification Thesis for content right off the bat. The abstract view clears the way for further work on representational unity to be done.

Chapter 2

Olfaction, Qualia and the Transparency of Experience

> Beauty is an ecstasy; it is as simple as hunger. There is really nothing to be said about it. It is like the perfume of a rose: you can smell it and that is all.
>
> - W. Somerset Maugham, *Cakes and Ale*

An ongoing debate in the philosophy of perception is the one concerning how we should account for the phenomenal character—or the 'what it is like'—of perceptual experience. Within this debate, there are those who think that qualia exist and those who do not. Qualia realists claim that there are introspectible properties of experience that play a crucial role in determining phenomenal character. Intentionalists are among those who think that there are no such properties. Intentionalism is the view that there is nothing more to the phenomenal character of a perceptual experience than its representational content—that is, the way that things in the world appear to be. In arguing that qualia do not exist, intentionalists have drawn attention to the alleged transparency of experience. Experience is said to be transparent in the sense that we 'see right through it' and onto the objects and properties in the external world. Qualia simply aren't there to be found.

In this chapter, I explore this notion of transparency. Most of the discussions of transparency have focused on vision, a sense modality for which transparency can seem intuitive. But most intentionalists take it that intentionalism is true for *all* of the sensory modalities. This is in keeping with what I have called the Unification Thesis—namely, the thesis that certain philosophical questions about perception ought to shake out in the same way for each of the sensory modalities. Again, I discuss olfaction—a sense modality that, along with gustation, is the least discussed in the philosophical literature on perception. In humans, visual and olfactory experience differ greatly from one another with respect their richness.[40] When compared to visual experience, olfactory experience seems incredibly impoverished. For this reason, transparency seems unintuitive for it.

Is olfactory experience transparent or isn't it? I argue that considering olfactory experience shows us something important about how we should understand the notion of transparency. I argue that olfactory experience is indeed transparent and that explanations of

[40] When I use 'olfactory experience', I am referring to human olfactory experience. I recognize that there are vast differences between the acuity of the human sense of smell and that of other animals. See Chapter 1, p. 13 and p. 16 (fn. 16).

what transparency is supposed to be have been obscured by a reliance on the visual model. Considering transparency as it pertains to olfactory experience, then, clarifies the requirements of transparency.

1. Qualia and Phenomenal Character

Before turning to transparency, let me provide some background by saying more about what qualia are supposed to be. There is an entirely non-controversial sense in which qualia *do* exist. On one conception of qualia, they are those properties, *whatever they are*, that determine the phenomenal character of an experience. This notion of qualia is a "cautious" one, as Eric Lormand (1994, 127) puts it. It is devoid of any assumptions about what kinds of properties qualia are—for example, properties of objects or intrinsic properties of the experience itself. According to this notion of qualia, to assert that experiences have qualia is merely to assert that experiences have phenomenal character. Given this, we would be silly to deny that there are cautious qualia. It would amount to denying that experiences have *any* phenomenal character. But clearly there is something that it is like to smell a rose, to hear middle C and to look at an orange. So, cautious qualia are not the source of any dispute.

The dispute is over a second, restricted, notion of qualia—what I call *candid qualia*. Sydney Shoemaker (1981, 1996a), Christopher Peacocke (1983), Ned Block (1990, 1996, 2003) and others argue that certain properties of perceptual experiences themselves account, at least in part, for the phenomenal character of experience. These properties are thought to have three defining characteristics. They are (1) *intrinsic* and (2) *non-intentional* features of mental events, and are (3) *directly accessible* by introspection.[41] It is helpful to take a closer look at features (1)-(3) of qualia.

Some philosophers claim that the fact that qualia are intrinsic properties of experience is supposed to be apparent to us from reflection on our own experiences. For example, Joseph Levine (2001) states: "[i]f we consider a property like the reddishness of a visual experience, it certainly seems to be the paradigm of an intrinsic property" (93). Similarly, Brian Loar (2003) describes visual qualia as those properties that "present themselves as intrinsic and non-relational properties of visual experiences" (77). Historically, fueling remarks like these is the thought that a functional theory of the mind cannot account for the subjective character of perceptual experiences—that is, for what it is like to look at an orange, to hear middle C and to smell the roses. According to functionalism, mental states can be defined in terms of their causal

[41] I will always use 'qualia' to refer to candid qualia. There is also the original sense of the term (see Lewis 1929), with 'qualia' referring to the alleged properties of sense-data. Qualia in the 'sense-datum sense' are also controversial. However, in a later stage of the chapter, I will argue that we should not think of the appeal to transparency as targeting this original conception of qualia.

roles—that is, in terms of their causal relations to external stimuli, behavior and other mental states. The inverted spectrum and absent-qualia arguments are supposed to show that it is possible that qualia-instantiation and causal role come apart, and that a relational account of the phenomenal character of perceptual experience is implausible.[42] What these arguments show, the story goes, is that qualia are intrinsic properties of experiences. In the inverted spectrum scenario, these properties differ while functional properties are held constant. Similarly, intrinsic properties of experiences are the missing ingredients in the absent-qualia scenario.

Now let's look at (2): *non-intentional* features of experience. Consider a philosopher's favorite: the visual experience you have when you look at a ripe tomato. We might describe this experience as an experience *as of a red, round, bulgy object before you*—that is, as an experience with the content 'red, round, bulgy object before me'.[43] In this case, your experience has the property of *being as of a red, round, bulgy object*. This is an intentional property. An intentional property is a property that an experience has in virtue of its having a certain intentional content. Because they enter into the characterization of the content of experience, we can think of represented properties as intentional properties 'by association'—although they are not properties of the experience itself. So, *red, round* and *bulgy* loosely fall into the category. Qualia, on the other hand, do not. They are bona fide properties of experience, qualia realists suppose. But they do not enter into an exhaustive statement of the representational content of an experience. So, suppose that 'red*' is the name of a certain quale (and that the name indeed has a reference). According to the qualia realist, we will never refer to red* in spelling out the content of any experience (although we may refer to *red*). For this reason, red* is a *non*-intentional property of experience.

And, finally, (3). Qualia are supposed to be *directly accessible* because, in becoming aware of their instantiation, we need not rely on the kinds of inferences that we rely on when attributing mental states to others (e.g. inferences from behavior). In particular, it is supposed that if your experience instantiates a quale, then you are in a position to come to know that the quale is instantiated merely by introspecting on that experience. The idea is that qualia are *available* to you in conscious introspection of your current experience. You need not notice other things that are going on with you—for example, how you are behaving—in order to determine whether your experience instantiates a certain quale.

As I said above, intentionalists claim that there is nothing more to the phenomenal character of an experience than its representational content.[44] Among the intentionalists are Fred

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[42] See, e.g., Block (1980, 1990) and Shoemaker (1981).

[43] Suppose, for the sake of argument, that this characterization is both accurate and exhaustive.

[44] Intentionalism actually comes in two forms: a weak one and a strong one. Intentionalists of both kinds agree that perceptual experience is representational and that mind-independent things, together with their properties, enter into the content of experience. Weak and strong intentionalists differ, however, on what they think the relation between

Dretske (1995), William Lycan (1995, 1996) and Michael Tye (1992, 1995, 2000, 2002). Another way to state intentionalism is as the view that there are *no* candid qualia, and that cautious qualia are *one and the same as* represented properties. We see this idea expressed by Lycan (1996) when he claims that qualia are "merely intentional aspects of sensation, represented properties" (110). And Dretske (1995) tells us: "I...identify qualia with...those properties that...an object is sensuously represented as having" (73). According to Lycan and Dretske, as well as all intentionalists, there is nothing more to phenomenal character than cautious qualia so conceived.

Let's now think about the intentionalist's strategy. Although qualia are supposed to be *non*-intentional properties, it is not enough to argue against qualia by arguing that experiences of a certain type, or of a certain modality, are representational. Doing this just shows that these experiences have intentional properties—not that they have *no* non-intentional ones. Representational experiences might have 'extra' properties—properties that are intrinsic, non-intentional and directly accessible.[45] But, according to the intentionalist, the appeal to transparency shows us that there are no properties matching the description of candid qualia.

2. The Transparency Thesis for Vision

Now I want to turn to some of the statements of transparency that appear in the philosophical literature. But let me start with an important qualification. Philosophers sympathetic to transparency say that *experience* is transparent, but any detailed discussion of transparency in the literature uses visual experience as the model. Few explicitly extrapolate from the results to the other sense modalities.[46] In introducing what has been said about transparency, then, I am forced to follow their lead.

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phenomenal character and content is. Weak intentionalism is the view that phenomenal character supervenes on representational content. According to the weaker form of intentionalism, experiences that are alike with respect to content are alike in their phenomenal character, so that any change in the phenomenal character of an experience is reflected in a change in its representational content. Weak intentionalism is consistent with there being qualia. Strong intentionalism is not. In its strong form, intentionalism says that the phenomenal character of a perceptual experience just *is* its representational content. It is the strong form of intentionalism that the appeal to transparency is meant to motivate. Because the point of this chapter is to examine the appeal to transparency, it is strong intentionalism and the strong intentionalist that I will refer to throughout.

[45] Ned Block (1996, 2003), for instance, happily admits that most visual experiences are representational. He also holds that visual experiences have qualia. The experience I have when I look at a ripe tomato is one of them. In order to understand this claim, we have to understand that Block thinks that there are two kinds of qualia: what he calls *mental paint* and *mental oil*. Mental paint consists of those properties of an experience that represent other, external, properties. Mental oil, on the other hand, consists of those properties of an experience that do not represent any other property. Experiences that are clearly non-representational (according to Block), such as orgasm-experience, pain experience and other bodily sensations have mental oil. He admits that he does not know whether normal visual experience has any of mental oil properties. But, the experience of looking at a ripe tomato, he takes it, has mental paint. So, to take an example from above, he thinks that there is an experiential property that represents redness—call it red*. Although red* *represents* redness, this experiential property is distinct from the represented property redness, which is the one that we would refer to in a statement of representational content. According to Block, we would not refer to red*. Red*, therefore, is non-intentional.

[46] As we shall see, Tye (2000, 2002) is an exception.

The transparency theorist takes an experience that is clearly representational (or, more generally, clearly world-directed) and directs our attention to a lack of evidence for qualia. According to the transparency theorist, when we introspect and focus on the way things look to us, we realize that there is no reason to think that there are qualia. The argument turns on the alleged accessibility of qualia. By the qualia realist's own lights, if qualia do indeed exist, introspection ought to uncover them. But it does not, the transparency theorist claims. This is because experience is transparent.

Transparency is often introduced with a metaphor. As I noted at the beginning of this chapter, an experience is transparent in the sense that we 'see right through it' and onto the objects and properties in the external world. This metaphor draws on Moore's famous remarks in "The Refutation of Idealism" ([1903] 1993). Moore claimed that "consciousness" per se is something that "escapes us"; consciousness is "transparent", he claimed (37). The most commonly cited remark of his is:

> When we try to introspect the sensation of blue, all we can see is the blue: the other element is as if it were diaphanous. (41)

It is controversial just how Moore's remarks relate to the contemporary notion of transparency.[47] For present purposes, it is enough to keep his remarks in mind when considering the contemporary debate.

The most frequently quoted statement of transparency in the contemporary literature is, without a doubt, Gilbert Harman's (1997):

> When Eloise sees a tree before her, the colours she experiences [for example] are all experienced as features of the tree and its surroundings. None of them are experienced as intrinsic features of her experience. Nor does she experience any features of anything as intrinsic features of her experience.... Look at a tree and try to turn your attention to intrinsic features of your visual experience. I predict you will find that the only features there to turn your attention to will be the features of the presented tree, including relational features of the tree 'from here'. (667)

Recently, Michael Tye (1992, 2000, 2002) has stressed Harman's observations in an attempt to develop the appeal to transparency and to secure intentionalism:

[47] For discussion of this controversy, see Stoljar (2003).

> Standing on the beach in Santa Barbara a couple of summers ago on a bright sunny day, I found myself transfixed by the intense blue of the Pacific Ocean.... It seems to me that what I found so pleasing in...[this] instance, what I was focusing on, as it were, were a certain shade and intensity of the color blue. I experienced blue as a property of the ocean not as a property of my experience. My experience itself certainly wasn't blue. (Tye 1992, 160)[48]

What we are told in these passages is that an experience is transparent just in case it satisfies both a positive and a negative sub-thesis. The first is a claim about how the properties of which we are aware appear to be—namely, of external objects. The second is a claim about how these properties do *not* appear to be—namely, of the experience itself. In Harman's case, the properties appear to be those of the presented tree. In Tye's case, they appear to be properties of a body of water. In neither case do they appear to be properties of the experience itself.

Having described Harman's and Tye's claims as concerning the properties *of which we are aware*, it is necessary to say something about a possible objection to the transparency claim. Recall features (1)-(3) of qualia. Now consider the property *lasting more than one second.* According to the objector, both Eloise's and Tye's experiences have this property.[49] The objector reminds us that this is certainly an intrinsic and non-intentional property of experience and that it is, arguably, one that is available in introspection. For example, as you try and turn your attention to a presented tree, you can certainly be aware that you are aware of the tree. The objector urges that, in virtue of this second order awareness, you are aware of your experience and, in particular, of one of its properties—namely, *lasting more than one second.* So, the objector urges, this property satisfies (1)-(3). We have, then, a case against transparency. Contra Harman and Tye, it appears that there *are* qualia.

There are two ways that the transparency theorist could respond to this challenge. First, she might simply deny that we are ever aware of such a property. According to the transparency theorist, the objector has confused represented time with an alleged temporal property of the vehicle of representation—namely, a visual experience. The transparency theorist agrees that we are aware of represented time—for example, for how long the waves were coming and going or for how long the tree was before us. But this is not the same thing as being aware of the duration of some mental event. This is not to say that we are never aware that we are aware of trees and oceans. Rather, it is to claim that we are not aware *of* an awareness of a tree—of some mental event or, as the objector puts it, some experience. The awareness we have is awareness *that* we

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[48] It must be noted that this example differs slightly from the one that Harman gives. In Tye's example, he is not reporting on what he discovered when he introspected on an experience. Rather, he is reporting on what he remembered an experience to be like. Harman's examples constitute projections of what someone—Eloise or you, yourself—will find when they introspect on a current visual experience. Nevertheless, I think that we can read Tye as reporting on what he *would have found* had he introspected on the experience at the time.

[49] The objector assumes, quite reasonably, that following Harman's and Tye's instructions will take time and, in particular, more than one second.

are in a certain state—a state of awareness of the tree or of the ocean. That is, we are aware that we have, among other properties, the property of seeing a tree or of seeing the ocean. What's more, we can also be aware that we have had that property for more than one second. According to the transparency theorist, rather than directing us *at* our experiences, the act of following Harman's and Tye's instructions shows us that we are never aware of mental events.

But the transparency theorist need not go as far as this. As a second way of meeting the objector's challenge, she might happily admit that that we are aware of the property *lasting more than one second* yet maintain that visual experience is transparent. While recognizing that *lasting more than second* satisfies (1)-(3), this transparency theorist argues that the property does not play a part in the 'what it is like' of experience—in determining how things *look* to a perceiver. Remember that, according to the qualia realist, qualia are properties of experience that determine phenomenal character. The transparency argument is meant to target the claim that there are properties fitting this description. If transparency shows that there are no such properties, then it shows that there are no qualia. And it does, says this transparency theorist. Despite the fact that it is a property of experience that satisfies (1)-(3), she reminds us that *lasting more than one second* is merely a function of the duration of a (mental) event. She tells us that we must distinguish between those properties that are by-products of the operation of a modality and the properties that are attributed by that modality. *Lasting more than one second* is a property of the first type, not of the second. But it is the second type of property that is at issue in the debate about phenomenal character, she urges.

Despite this, though, the objection does show us something: that the characterization of qualia needs an added feature. Qualia are (1) intrinsic, (2) non-intentional properties of experience of which we can be (3) directly aware. But they are also, the transparency theorist might say, (4) 'modality salient' properties. In this case, they are the *visually* salient properties—the 'lookish' properties that vision attributes.[50] The property *lasting more than one second* is not a visually salient, or 'lookish', property. Given this, the appeal to transparency has nothing to do with it. When Harman and Tye ask you to introspect on your visual experience and take note of how the properties of which you are aware appear, what they are requesting of you is that you take note of the visually salient properties. According to both Harman and Tye, the visually salient properties appear to be properties of things like trees and bodies of water. They do not appear to be properties of the experience itself.

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[50] Consider Tye (2000, 2002). The italics are his: "Focus your attention on the scene before your eyes and on how things *look* to you. You see various objects; and you see these objects by seeing their facing surfaces.... Intuitively, the surfaces you directly see are publicly observable physical surfaces.... *None* of the properties of which you are directly aware in seeing the various surfaces *look* to you to be qualities of your experience. You do not experience these qualities *as* qualities of your experience" (138, 45).

The choice between the first and second line of response is a controversial one, and I do not want to take a stand on it here. But, for the sake of clarity and simplicity, I will discuss the transparency claim in the language of the second line of response. After all, the examples of transparency we are given talk about modality salient properties—colors, in the case of Harman and Tye. Moreover, as we shall see, it is the modality salient properties that are in dispute in the case of olfaction.

Given what we have been told, then, we can define transparency for vision as follows:

Transparency for Vision:

positive$_v$:	all of the visually salient properties of which you are aware appear to be properties of external objects
negative$_v$:	none of the visually salient properties of which you are aware appear to be properties of the experience itself.

Transparency for visual experience has serious intuitive appeal. As some argue, there are examples of 'atypical' visual experiences that put pressure on these intuitions.[51] But we can agree that there is a canonical visual experience that does seem to exhibit transparency. Let's call this the 'typical' visual experience. Among the typical visual experiences is the one I have when I look at the contents of my desktop. My blue mug sits in the corner of it. The particular shade of blue I experience when I look at it appears to qualify the mug. I can't 'locate' the blueness on, or in, anything else; it appears to be 'smeared' all over the mug's surface. It does not seem to qualify my experience of looking at the mug.

What this means is that qualia realists are often reluctant to deny the intuitive appeal of transparency in the case of visual experience. The challenge for the qualia realist is to grant that it is intuitive in these canonical cases and yet argue that there is reason to suppose that qualia exist. As I hinted at above, this sometimes takes the form of highlighting alleged counterexamples to the typical case. But others argue that transparency is compatible with the existence of qualia. Loar (2003), for example, argues in this way. I leave discussion of the alleged counterexamples and the alleged compatibility for another paper.[52] What is important to stress, at this point, is that the

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[51] Block (2003) cites phosphene experience as a kind of visual experience that lacks transparency. He tells us that "[p]hospene-experiences are visual sensations 'of' color and light stimulated by pressure on the [closed] eyes" (13). Block claims that we can attend to "something more" (13) than the representational properties of such an experience. Other examples of 'atypical' visual experiences are cases of double vision, blurred vision and after-images. For intentionalist responses to these cases, see Tye (2000, 2002).

[52] Loar (2003) tells us: "[p]hilosophers who point out that visual experience is transparent...typically regard this as incompatible with the reality of qualia.... My argument will be that this incompatibilist view is not correct" (78). Loar's argument hinges on a distinction between two different perspectives that we can take on our visual experience. The first is the perspective that supports transparency judgments—a perspective of "transparent reflection" (84), as Loar calls it. The second is the perspective of "oblique reflection" and involves "abstract[ing] from the objects of experience, and attend[ing]

transparency of visual experience does seem intuitive—to transparency theorists and qualia realists alike.

I turn now to olfactory experience and to the question of whether it ever exhibits transparency.

3. The Transparency of Olfactory Experience?

Now, anyone will admit that, once we turn our attention to olfactory experience, the name '*transparency* thesis' is no longer very appropriate. Transparency is defined in terms of vision. Things that are transparent are things through which we can see. Because of this, the transparency metaphor does not translate so nicely for olfactory experience. Still, we can define its two claims for the case of olfactory experience. Given what we have been told, if transparency holds of olfactory experience, it must satisfy both a positive and a negative sub-thesis. In particular, the 'olfactually' salient properties of which one is aware must appear to be properties of external objects. These properties must *not* appear to be properties of the experience itself.

Michael Tye (2000, 2002) stands out as one of the few philosophers who discusses transparency for the other sense modalities—although his treatment of them is *much* less thorough than his treatment of visual experience. He states: "[a]ll of...[my] points generalize to other perceptual modalities..." (2000, 49; 2002, 142). He also tells us that it applies to the case of sensation, such as pain, as well as felt emotion.

According to Tye (2000, 2002), olfactory experience represents the properties of stuff in the air. Consider how the smell of garbage lingers in the kitchen long after you have taken it outside. We smell the odor of the garbage—that airborne stuff that it has emitted or given off.[53] Even when there is a locatable source object, as when the garbage is still in the kitchen, we think of an odor as being 'around us', in the air. We might say that the room smells. But what we really mean is that the *air* in the room has a distinctive property.[54] What Tye identifies as being in the

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to *how*...visual experiences *present* their apparent objects" (85). The idea is that qualia-spotting is something we can learn, or train ourselves, to do.

Amy Kind (2003) suggests that Moore's view was actually a precursor to Loar's. She suggests that Moore did not hold the view that it is *impossible* to avoid 'seeing through' our visual experience, but only that it is *difficult* to do so. As support for this suggestion, she draws attention to the sentence that immediately follows his claim about diaphanousness (see p. 35 above). Moore ([1903] 1993) claims: "Yet [the other element] *can* be distinguished if we look attentively enough, and if we know that there is something to look for" (41).

[53] Notice here that I use 'odor' to refer to a particular—some airborne portion of stuff. We also sometimes use 'odor' to refer to a property. For the sake of clarity, I restrict my use of 'odor' to reference to particulars. For further discussion of this dual use of 'odor, see Chapter 3, p. 48-49.

[54] Consider again the example from Smith (2002) that I cited in Chapter 1, fn. 39:

> If a particularly malodorous cheese is carried through the room, the smell remains. If we attribute the smell to any physical object, it will be to the room: the room smells, we say. But really, of course, it is the air in the room that smells....Hence, we speak of foul air, and the fragrance of the air. If I put a rose to my nose, I am coming into proximity with the *source* of the smell; and even then, I appreciate the smell only by drawing the odour into my nostrils—that is, the air that has been sweetened by the immediate presence of the rose. (143)

air are odors—and it is clear that we are to think of odors as clouds of molecules or gaseous emanations. He tells us:

> [W]e smell things by smelling the odors they give off. They too are publicly accessible. You and I both smell the foul odor of the rotting garbage. Odors, like sounds, move through physical space. (49, 142)

What's more, not only does Tye (2000, 2002) think that these are *in fact* what we perceive in olfactory experience, but he also takes it that it *appears* to us as so when we introspect on such an experience. He says:

> When we introspect our experiences of hearing, smelling, and tasting, the qualities of which we are directly aware are qualities we experience as being qualities of sounds, odors, and tastes. The qualities of which we are directly aware via introspection are not qualities of the experience of hearing, smelling and tasting. (49, 142)[55]

According to Tye, then, when we introspect on an olfactory experience, those olfactually salient properties of which we are aware are placed on or in odors—clouds of molecules in our environment.

For the case of olfactory experience, then, 'Tye-Transparency' is as follows:

Tye-Transparency for Olfaction:

positive$_o$:	all of the olfactually salient properties of which you are aware appear to be properties of odors (i.e. external objects)
negative$_o$:	none of the olfactually salient properties of which you are aware appear to be properties of the experience itself.

While Tye's observations about visual experience are certainly telling, his remarks about olfactory experience have the air of stipulation. Unlike the case of visual experience, we are left wanting more of an explanation of why we should think that olfactory experience is transparent. Tye's observations just do not seem obvious. Do smells *really* appear to be properties of odors? This is a question that strikes one as understandable. As I noted in Chapter 1, compared to the intricate scenes given to us by visual experiences, where we are typically able to distinguish an array of

[55] Presumably what Tye means (and all he needs) here is that the properties do not *appear* to be properties of the experience of smelling. Given that qualia are supposed to be directly accessible by introspection, it is enough for Tye that introspection does not come up with them, that no properties appear as such.

objects before us, olfactory experience presents an undifferentiated smudge of properties.[56] To be sure, I can distinguish *this* property and *that* property. But, *this* odor cloud and *that* odor cloud?

Indeed, Tye stands out in being so confident that transparency holds of olfactory experience. It is true that discussions of olfactory experience in the philosophical literature are rare. Still, the others that there are take as their starting point observations that are in tension with transparency—in particular, observations to the effect that olfactory experience isn't representational. This is the view that positive$_o$ is false and negative$_o$ false. The idea is that, if none of the properties presented appear to be those of external objects, then they must appear to be properties of one's experience. This seems reasonable.[57]

As I drew attention to in Chapter 1, Christopher Peacocke (1983) and William Lycan (1996, 2000) are two who think that olfactory experience is not, or may not be, representational. To repeat, Peacocke claims: "a sensation of [smell]...may have no representational content of any sort, though of course the sensation will be of a distinctive kind" (5). Lycan claims that it is at least *prima facie* plausible that olfactory experiences do not represent, although he does go on to argue that they are indeed representational. So, Lycan claims: "[p]henomenologically speaking, a smell is just a modification of our consciousness, a qualitative condition or event in us" (2000, 281). If olfactory experiences are non-representational, then we have a serious case for qualia. Peacocke's and Lycan's remarks suggest that the phenomenology of olfactory experience supports this kind of move—at least *prima facie*. [58]

Given the degree to which olfactory experience differs from visual experience, Peacocke's view, and the one that Lycan finds *prima facie* plausible, are certainly understandable. As we know, it is tempting to think that olfactory experience doesn't predicate properties to anything at all. If we consider the phenomenology of olfactory experience, we see that there are not objects of olfaction in the same way as there are objects of vision. It presents no objects that we can pick

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[56] See p. 17.

[57] Other ways that Tye-Transparency can fail are as follows. It can fail if positive$_o$ is false and negative$_o$ is true. This would be a situation in which some olfactually salient properties are attributed to nothing at all. They appear to be, as it were, 'bare properties'. It is difficult to imagine what that would be like. As Peacocke's and Lycan's remarks indicate, the natural impulse is to suppose that, if properties do not appear to be those of external things, then they must appear to be properties of the experience itself. Experience must attribute properties to *something*. Transparency can also fail if both positive$_o$ and negative$_o$ are true. This would be a case in which an olfactory experience is representational, but one in which some of the olfactually salient properties appear to be both a property of an external object *and* a property of the experience itself. I will return to the kinds of transparency failure later in the chapter.

[58] It is also plausible that Reid ([1764] 2000; [1785] 2002) held a Peacocke/Lycan view. According to Reid, perceptual experiences consist of two components: sensation and perception. Sensations are 'object-less'. A sensation does not imply "the conception...[or] belief in something external" ([1785] 2002, 199). But a given sensation does give rise to, as Reid describes it, "an immediate conviction and belief of something external" ([1785] 2002, 199). This belief is a perception. According to Reid, then, perception consists in the formation of non-inferential beliefs about the instantiation of external qualities. According to Reid, 'smell' is sometimes used to refer to an olfactory sensation and, at other times, is used to refer to something external to the perceiver—namely, an external property. (The same is true, he claims, for 'taste', 'sound' and 'feel'.) 'Color', on the other hand, is different. 'Color' always refers to "a quality or modification of bodies, which continues to be the same, whether it is seen or not" ([1764] 2000, 85). Reid proposes that visual sensations are "so little interesting" that they pass unnoticed ([1764] 2000, 87). This remark is reminiscent of transparency—the idea that we 'see right through' our visual sensations and onto objects and properties in the external world. The fact that Reid contrasts visual experience with olfactory experience aligns his remarks—at least in spirit—with the Peacocke/Lycan view.

out—unlike the visual case where we can pick out *this* mug and *that* pen. We are simply unable to achieve this in olfactory experience. This is why Tye's remarks about olfactory experience feel overreaching.

We are led, then, in two directions. Recall the Unification Thesis. It states that certain philosophical questions about perception ought to shake out in the same way for each of the sensory modalities. Tye, with his tacit acceptance of the Unification Thesis, assures us that olfactory experience is transparent. But, a consideration of what olfactory experience is like does not vindicate Tye's assurances. Positive$_o$ claims that the olfactually salient properties appear to be properties of external objects; but olfactory experience seems disengaged from any particular object.

In the remainder of the chapter, I will show that the conflict between the Tye view and the Peacocke/Lycan view arises from each party mistakenly casting olfactory experience in the visual mold. Tye defines transparency much too narrowly and in the 'image of vision'—so we are left suspicious of his remarks that olfactory experience satisfies it. Peacocke and Lycan do something similar, tacitly granting visual experience the role of the canonical representational experience. Given how much olfactory experience departs from visual experience, how could olfactory experience be representational? In what follows, then, I set out a view according to which olfactory experience is representational as well as transparent. I argue that, rather than showing us that transparency is false for olfaction, my discussion of Tye has forced us to question whether Tye's notion of transparency is the one that should figure in the Unification Thesis. What the olfactory case shows us is that a modality-generalized *Tye*-Transparency should not be a part of the Unification Thesis. It, in turn, directs us to the right modality-generalized notion of transparency.

As a way of evaluating how things appear (or, more generally, what an experience 'tells us'), we can think about the kinds of judgments we are disposed to make on the basis of that experience. While olfactory experience might seem impoverished when compared to visual experience, while it doesn't 'pin' smells on any particular thing, we are certainly inclined to report that we are coming into contact with something outside of us. After all, integral to smelling is breathing. Given this, we shouldn't think that olfactory experience differs from visual experience because visual experience is predicative and it is not. Rather, as I argued in Chapter 1, olfactory experience differs from its visual counterpart in terms of the *richness* of its predicative structure.

How might we characterize this richness continuum? In order to see how, let's return to the case of visual experience. Using their introspective task, the transparency theorist directs our attention to the fact that, in visual experience, individual things such as trees and bodies of water appear to have certain visually salient properties—for example, colors. This is the way that *things* look. But we can say more about why it is that things look this way. As I drew attention to in the

previous chapter, vision presents us—for the most part, at least—with a structured sensory field.[59] Colors are instantiated at more or less determinate points of the visual field. These colored patches, in turn, bear spatial relations to one another. The result is a sensory field with geometrical properties—a 'color mosaic', as it is sometimes put.[60] Again, to put it figuratively, the world is carved up and divided for us. Consider again the experience I have when I look at my desktop. My experience places blueness at a determinate point of my visual field (namely, where we would say my mug is located) and places redness, greenness and various other properties at other determinate places (namely, where we would say the various pens and pencils strewn about the desk are located). By means of this spatial differentiation, visual experience achieves 'object bundling'—it bundles properties into object 'packages' that we can pick out.

There is no olfactory analogue. There is no way that *things* smell because there is never this kind of spatial differentiation in olfactory experience. *Visual* experience places colors at more or less determinate places in the visual field, but *olfactory* experience does not. In Chapter 1, I gave the following example to illustrate this point.[61] I spray lavender air freshener in an attempt to mask the smell of cigarette smoke. But I do not succeed in completely masking the smell. As a result, I can still smell the smoke smell as well as the air freshener smell. Although I can distinguish two different olfactory properties, my experience does not report at which points of the 'olfactory field' these properties are instantiated. In this way, olfactory experience is different from visual experience.[62] I would not be able to tell the difference between a case in which I cover the whole room with air freshener but in which I can still smell the smoke smell, and a case in which I miss a spot. There might be a difference in perceived intensity of the two smells, but this would not amount to a difference in perceived location. Compare this to the case in which I move one of the pens on my desk. In this case, I would be able to tell (if suitably attentive) that blueness is now located in a different portion of my visual field.

In the case of visual experience, spatial differentiation allows us to speak of a world of (visually presented), individual, objects. In the case of olfactory experience, we have minimal spatial differentiation. This is why the smudge comparison feels so appropriate. Olfactory experience always lacks a rich predicative structure. As I stated earlier in this chapter, I do not deny that olfactory experience is representational. But, as we know from Chapter 1, it is

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[59] See Chapter 1, sec. 4.1.

[60] It is this aspect of visual experience that Clark (2000) draws attention to when he claims that visual experience is *feature-placing*. Visually salient properties—e.g. colors and shapes—are placed at more or less determinate locations of the visual field. See, however, Chapter 1, fn. 33.

[61] See p. 20-22.

[62] As I noted in Chapter 1 (p. 16), there is some evidence that humans can localize odor sources in highly controlled circumstances (Porter et al. 2005; von Bekesy 1994). Again, these circumstances are the exception, not the rule, and do not represent the typical experiences of human subjects in their environment. For this reason, I will not consider them in this chapter.

representational in a much weaker way than visual experience is.[63] Olfactory properties are presented 'out there' or 'around me'—but there is no more spatial differentiation than that. While olfactory experience gives us the ability to refer to the instantiation of certain properties (e.g. smokiness and lavender-ness), it does not allow us to refer to the particular things that instantiate them. Rather, a given olfactory experience only ever represents that there is *something or other* 'out there' with certain olfactory properties. Interrogating the experience further will not supply us with what kind of thing it is—an odor, as in Tye's case, or a 'source object' such as a lavender sprig or a cigarette. In this way, olfactory experience differs from the typical visual experience. Not only can I refer to the instantiation of blueness, I can also refer to the object that instantiates this property—namely, my mug. The same goes for redness and my pen, greenness and my ruler.

4. Transparency Generalized

What does this show us about transparency? Contra Peacocke and Lycan, the lack of structure in olfactory experience does not show us that experience is not transparent. To be sure, if we take Tye-Transparency as definitive of transparency, then olfactory experience is not transparent. Tye-Transparency requires that a given olfactory experience pin the olfactually salient properties to a particular, apparent, object. It does not do this, however. But need it be definitive of transparency that an experience pin the modality salient properties to a particular object? It seems not. We can re-describe transparency at a level of abstraction that respects the differences between the senses, but retains transparency's overall claim. I call this notion of transparency, Generalized Transparency:

Generalized Transparency:

> An experience is generally transparent iff all of the modality salient properties of which you are aware appear to be properties of something other than the experience itself.

Does olfactory experience satisfy Generalized Transparency? Yes. We have agreed that olfactory experience presents properties such as smokiness and lavender-ness as properties of an external 'something we know not what'. How might Generalized Transparency still fail? It could fail if: (a) we find any further, 'extra', olfactually salient properties that appear to be properties of our olfactory experience or if (b) smokiness and lavender-ness *also* appear to be properties of our olfactory experience. Does it fail in either of these ways? No. Again, we have agreed that smokiness and lavender-ness are presented as properties of some external 'something or other'.

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[63] See Chapter 1, sec. 4.2.

Do we find any *other* properties when we sniff in the air in the room? It seems not. Do smokiness and lavender-ness also appear to be a property of our experiences? Once we concede that they are presented as 'out there', there is very little motivation to think so.

The benefit of considering olfactory experience lies in re-aligning the spotlight at the target of the appeal to transparency—namely, the denial of qualia. The visual examples we are given obscure this target.

As the case of olfactory experience has shown us, there need not be any apparent object of experience (although, if everything has gone right, there is something in the world that has the presented property). But the visual examples we are given would have us believe that transparency is a claim about the richness of predicative structure—in particular, the claim that properties are presented as those of individual objects. The olfactory case shows us that this is not so. The purpose of the appeal to transparency is the demonstration that there are no qualia. All that is required for this is that the modality salient properties appear to be properties of something other than the experience itself.

What's more, in alerting us to Generalized Transparency, the olfactory case clears up an additional confusion about transparency. There is controversy over whether transparency is compatible with a sense-datum view. The sense-datum theorist thinks that all perceptual experiences are directed upon an inner, phenomenal, object. Some have thought that transparency is not compatible with such a view. According to Harman (1997), the sense-datum view is "counter to ordinary visual experience" (667). The Eloise transparency passage is given, in part, as evidence for this. The point is seconded by Michael Martin (2002), who claims: "the diaphanous character of experience would seem to indicate a lack of evidence for the existence of sense-data at a point where one would expect to find it" (378). But, as the olfactory case has shown us (albeit indirectly), the nature of the object presented has no bearing on the success, or failure, of transparency. All that matters is that *no* modality salient properties appear to be properties of the experience itself. So, while there may be a debate over whether perceptual experience involves sense-data, the resolution of this debate will have no bearing on the transparency thesis as I understand it. Experience is either transparent or it isn't. It doesn't matter what kind of thing, or indeed whether there is any particular thing, it is transparent to.

Chapter 3

What's that Smell?
The Nature of the Olfactory Qualities

> It was the first time Grenouille had ever been in a perfumery, a place in which odors are not accessories but stand unabashedly at the center of interest.... He knew every single odor handled here and had often merged them in his innermost thoughts to create the most splendid perfumes.
>
> - Patrick Süskind, *Perfume*

In philosophical discussions of the secondary qualities, color has taken center stage. Smells, tastes, sounds and feels have been treated, by and large, as mere accessories to the colors. We are, as it is said, visual creatures. This, at least, has been the working assumption in the philosophy of perception and in those metaphysical discussions about the nature of the secondary qualities. The result has been a scarcity of work on the 'other' secondary qualities and a lingering assumption that the question of their natures will shake out in much the same way as it will for color.

In this chapter, I take smells and place them front and center. Despite what the philosophical literature might indicate, olfaction plays an important role in many facets of our lives. Smells warn us of danger lurking—of things that we should stay away from, such as fire and bad food. Nice smells comfort us, making us feel as though things are clean and all right. It is no wonder that we are avid deodorizers, perfuming ourselves, our homes, our cars and, sometimes, even our pets. Finally, and perhaps most impressively, olfaction is intimately connected with memory. Smells have the power to stir up powerful memories—of your old room, of Christmas festivities, or of that road trip you once took to Seattle. Far from being disinterested in smell, then, it would seem that we are very much interested in it.

Just as many have asked after the natures of redness and blueness, I ask the same about the lilac smell and the skunk smell. Recently, the color debate has been dominated by a debate between relationalists and non-relationalists about color. Relationalists argue that the nature of the colors is partly constituted by the kinds of effects that they have on perceivers. Non-relationalists deny this. According to non-relationalists, while we certainly detect colors, their natures have nothing to do with how they affect us. My question is whether a similar debate arises for the case of the olfactory properties. In particular, I explore whether a certain argument waged by relationalists in the case of color—namely, the argument from perceptual variation—can

be similarly employed for the case of the olfactory properties as well. This approach is in keeping with what I have called the Unification Thesis—namely, the thesis that certain philosophical questions about perception ought to shake out in the same way for each of the sensory modalities. I argue that, while a similar argument is capable of being waged for the olfactory properties, it faces significant difficulties. My evidence is both phenomenological and empirical.

Relationalism and non-relationalism are both realist views of smells. Just like the case of color, there are non-realist positions available. And indeed, although very little has been said about smell in the perceptual literature, there have been takers of just such a view. In section 1, I outline the various types of realist and non-realist positions about smell by looking at the case of color. In section 2, I review the positions argued for thus far for smell. In section 3, I reject non-realism and turn to the realist debate between relationalism and non-relationalism. I introduce the relationalist's argument from perceptual variation. In section 4, I argue in favor of non-relationalism by dissolving a version of the relationalist's argument. Finally, in section 5, I show where these results lie within the greater project of arguing for olfactory non-relationalism.

1. Realism or Non-Realism?

So that I can outline this question clearly, let me begin by drawing attention to a feature of our use of 'smell' and 'odor' that, without my doing so, could be potentially distracting.[64] Although it generally goes unnoticed, we use each in both property-talk and object-talk.[65] Just as we speak of apples and bananas as having colors, we speak of ordinary objects as having smells or odors. So, for example, we say that roses and lilac blooms have pleasant odors—nice smells. We say that apples and bananas have colors because they possess, or bear, certain properties—redness or yellowness, for example. There is little reason to think that we mean anything different in the olfactory case. As I suggested in Chapter 1, most people think—at least prior to any philosophical reflection—that olfactory experience attributes properties to ordinary objects like skunks, dogs and flowers.[66] It is natural, then, that we speak of these objects as having smells or odors. We say that lilacs have an odor, a nice smell, because we take it that what we learn from olfactory experience is that they have a distinctive property—the lilac odor, or the smell of lilac.[67]

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[64] In ordinary discourse we use 'odor' and 'smell' interchangeably.

[65] Perkins (1983) draws attention to this fact. The considerations he gives are much the same as mine and so I will not repeat them here. I will, however, return to a different thread in Perkins later in the chapter.

[66] See p. 27.

[67] We typically name the olfactory properties in terms of what we deem their typical, or most natural, source. So, we have the smell of lilacs, or the lilac odor.

But the everyday folk also use 'odor', and indeed 'smell', to refer to objects in the air.[68] For example, we say that things emit, or give off, odors. Similarly, we say that smells spread through space, that they drift from one region of space to another. The smell of paint might drift through the air, spreading throughout the building. When we say things like this, what we intend to convey is that some entity is moving through the atmosphere, or at least growing within it. As I argued in Chapter 1, ordinary objects like animals and flowers are not the objects presented in olfactory experience.[69] Adopting an object use of 'odor', I claimed that olfactory objects are *odors*—collections of airborne molecules. Smelly objects are those whose molecules are volatile enough to evaporate from their surfaces and enter the air. These molecules enter the air and, when we sniff in their vicinity, they end up in our noses. It is standard practice amongst scientists to refer to these emanations as odors.

Because the dual uses of 'smell' and 'odor' are potentially misleading, I will restrict my use of these terms as follows. I will continue the convention that I adopted in the first chapter and use 'odor' to refer to olfactory objects—those gaseous emanations that source objects, such as flowers, give off. I will use 'smell' to refer to the properties that are presented in olfactory experience. In this chapter, then, it is the nature of smells that I am interested in.[70]

When we sniff in the vicinity of the blooming lilac, we are presented with a distinctive smell—fragrant, sweet and potentially intoxicating. In Chapter 1, I argued for a certain view about the nature of olfactory experience—a view that I call the *abstract view*. According to this view, olfactory experience has a kind of existentially quantified content. According to the abstract view, olfactory experience enables me to refer to the instantiation of a particular smell; it does not, however, allow me to have demonstrative thought about objects. Unlike vision, where we are able to form a singular belief about *this*, or *that*, apple, book, etc., olfactory experience does not enable us to form singular beliefs about *this*, or *that*, object. Olfactory experience only ever reports that there is *something or other* 'out there' with certain properties. Interrogating our experiences further will not supply us with the kind of thing it is—for example, a source object such as a skunk or a lilac bloom, or the odors that we know these things give off. Olfactory experience simply lacks the spatial differentiation necessary for pinning smells on particular objects.

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[68] While I say "*objects* in the air", I recognize that odors are certainly not paradigmatic material objects like apples and bananas. Odors are like clouds. As Hacker (1982) claims , things like "clouds", "puffs of smoke" are on the "borderline of material objecthood", "partly because of their amorphousness, partly because of their mere relative solidity" (1).

[69] See sec 4.3.

[70] There are interesting questions to ask about the nature of these odors. For example, what are the boundaries of an odor? What are the identity conditions for an odor? Because molecules outlast odor-particulars, it is an interesting question of when, and how, a particular odor ceases to be. This raises the question of whether odors have to be present in certain concentrations and configurations and, if so, what the constraints on these are. Similarly, what are we to say about the situation in which two collections mix? Suppose that I spray lavender air freshener over a cloud of cigarette smoke. This is a case in which the lavender odor mixes with the cigarette odor. After I spray the air freshener, do we have a single odor with a complex property or the same two odors in the same approximate location? These are all interesting questions. They are not, however, ones that I will deal with in this chapter.

In keeping with the abstract view, I will take as my starting point the claim that in olfactory experience *something external to us seems to have a certain smell (or a variety of smells)*. The claim that it is something *external* is open to dispute, as one might claim that there is no 'externality' about olfactory experience. I set this objection aside for the time being. What is important to note at this point is that the abstract view is silent on what kinds of properties smells are. It assumes only that smells are represented in experience and that they are represented as external to the perceiver. Although the abstract view assumes olfactory experience is representational, we could, if we wanted, be a bit more neutral about how we state the phenomenological facts. We could instead speak of properties being *presented* to a subject.[71] Naïve realists, for example, will shirk talk of representation. But, they will not deny that things appear to be red, lilacy and so on. On both the representational and naïve realist view, then, there are the same interesting questions to ask about the natures of these properties.[72]

My starting point is much the same as its counterpart in the debate about color. The color debate takes as its starting point the fact that external things appear to be colored. As Byrne and Hilbert (1997) note, the debate about the color properties can be broken down into two distinct, but related, questions:

(1) Do objects like ripe tomatoes and British phone boxes (e.g.) really have the distinctive property that they appear to have—namely, redness?

(2) What is the nature of redness?

Answers to (1) and (2) split the debate into two camps: the **color realists** and the **color eliminativists.**

All **color realists** argue that the answer to (1) is 'yes'. But there are several versions of color realism depending on the answer one gives to (2): physicalism, dispositionalism and primitivism.

Physicalism is the view that colors are physical properties—properties that are specifiable without reference to the experiences of perceivers. Physicalists typically argue that colors are one

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[71] According to my use of 'presented', a property is perceptually presented in experience if and only if it *seems as if* that property is present (around, in my environment, etc.). 'F is presented to subject *s*' is nothing more than shorthand for 'it (perceptually) seems as if F is present in *s*'s environment'. In this way, my use of 'presented in experience' is different from that of Byrne and Hilbert (1997). In distinguishing three kinds of experiential property, they claim: "if a property is *presented in* an experience then, necessarily, something...really does have this property" (xix). Byrne and Hilbert's use of 'presented' is one that a sense-datum theorist would accept; if it seems as if F is present, then F is instantiated. Unlike Byrne and Hilbert, my use of 'presented' remains neutral on whether anything must instantiate the presented property. It is the use that anyone why holds a representational view of perceptual experience would endorse.

[72] It has to be said that, while our starting point is neutral with respect to perceptual theory, the question's answer could place constraints on what perceptual theory one can hold. For example, if one holds that this distinctive property is a non-intentional property of experience (and is, therefore, a kind of projectivist) then one is, as a result, barred from holding a purely representational theory of olfactory experience—a view according to which the intentional properties of experience are the *only* properties of experience. But one need not have one's perceptual theory finalized before tackling the question.

of two kinds of physical property: microphysical surface properties or reflectance properties.[73] The major rival to physicalism, *dispositionalism*, has it that colors are relational properties, not intrinsic ones—as the physicalist holds. According to the dispositionalist, colors are dispositions to cause experiences in perceivers.[74] Like physicalists, dispositionalists think that the colors are properties of objects. They depart from physicalists, however, in maintaining that the nature of these properties cannot be specified without reference to experience. Redness, for example, is the disposition to cause a certain kind of experience in suitable perceivers. It is this disposition to affect us in a distinctive way that ripe tomatoes and British phone boxes have in common.

Primitivism tries to bridge the gap between physicalism and dispositionalism by arguing, like physicalism, that colors are indeed intrinsic properties of objects but that their nature is closely aligned with how the colors appear to be, as dispositionalism urges.[75] According to primitivists, colors are not identical to physical properties or dispositions. They are irreducible, *sui generis*, properties. Colors are in reality just as they appear to be; their nature is laid fully bare in color experience. Because it takes the scientific view and places it in the back seat, primitivism has been the least popular of the realist views.

Unlike the realists, **color eliminativists** answer 'no' to (1). With respect to (2), the eliminativists go one of two ways: they either (a) declare that the question cannot be answered given that nothing whatsoever has the property or (b) argue that redness is a mental property and that something internal to the perceiver (e.g. a sense datum, experience, or portion of the visual field) has that property. Proponents of the (b)-route argue that colors are 'projected' onto objects in the external world and their view is typically referred to as *projectivism*. Version (a) is what I will call *eliminativism proper*.[76] Both eliminativism proper and projectivism propose an error theory of color experience. Although ripe tomatoes and British phone boxes appear to be red, they are in fact *not* red. The same goes for bananas being yellow, pumpkins being orange, and so on. Visual experience makes a mistake. In the case of eliminativism proper, it ascribes a property to objects that, in fact, nothing has. In the case of projectivism, color turns out to be a property of something much different from what visual experience would have us believe.

We can ask two similar questions about smells, although the analogue of (1) is much more general given how, as I pointed out above, olfactory experience differs from visual experience. For this reason, I frame the question in terms of 'things external to us' as opposed to particular objects such as lilacs, skunks or clouds in the air. In the case of smells, the questions are:

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[73] For examples of the former view, see Armstrong (1969), Jackson (1996), Jackson and Pargetter (1987), Smart (1975) and Tye (1995, 2000). For examples of the latter, see Armstrong (1999), Byrne and Hilbert (1997, 2003), Dretske (1995), Hilbert (1987) and Matthen (1988).

[74] Many credit Locke with this view. But, as I will discuss below, this is controversial. For contemporary accounts of dispositionalism, see Averill (1985), Johnston (1992), McGinn (1983, 1996a) and Peacocke (1984).

[75] Proponents of this view are Campbell (1994), Hacker (1987), Johnston (ms), Stroud (2000) and Yablo (1995).

[76] Proponents of eliminativism proper are Hardin (1993) and Mackie (1976). Those of projectivism are Boghossian and Velleman (1991) and Jackson (1977).

(1') When we smell the lilac, (e.g.), does anything external to us really have that distinctive property—namely, 'lilac-ness?

(2') What is the nature of 'lilac-ness'?

Let **smell realism** be the view according to which the answer to (1') is 'yes'. Like the case of color, there are a number of options for the answer to (2'): *physicalism, dispositionalism* and *primitivism*. In contrast to smell realism, **smell eliminativism** will give (1') a 'no'. The eliminativist then has the option of *eliminativism proper* or *projectivism*. Again, on either view, olfactory experience is in error.

2. The Answers—So Far

The philosophical literature contains a selection of brief remarks about smell, but there is very little sustained discussion. It would misrepresent the literature to say that there has been any debate about the nature of smells. But in the discussion that does exist, we can see a battle between realism and eliminativism beginning to unfold. We find this in Thomas Reid and, more recently, in Moreland Perkins.[77]

One can hardly mention the secondary qualities without giving a thought to Locke. And we find themes from Locke running throughout both Reid's and Perkins' discussions. Locke introduces us to secondary qualities at II, viii, §10 of the *Essay* ([1689] 1975). He states:

> Such *Qualities*, which in truth are nothing in the Objects themselves, but Powers to produce various Sensations in us by their *primary Qualities*, i.e. by the Bulk, Figure, Texture, and Motion of their insensible parts, as Colours, Sounds, Tasts, *etc.* These I call *secondary Qualities*. (135)

On one way of reading Locke, he was a dispositionalist about colors, sounds and the like[78]; on another, he was a projectivist about them. Most introductory philosophy texts will tell you that, in this passage, Locke identifies colors and smells with dispositional properties—in particular, dispositions to cause certain kinds of ideas in us.[79] To go with the textbook, then, is to interpret Locke as a dispositionalist about colors and smells.

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[77] As I noted in Chapter 1 (fn. 17), others who have substantial discussions of olfaction (but not necessarily the nature of smells) are Bhushan (ms) and Lycan (1996, 2000). Also, Johansen (1996) has argued that Aristotle's discussion of smell represents an early incarnation of the problem of distinguishing the senses. For contemporary discussions of this problem, see Grice (1967), Keeley (2002), Nelkin (1990) Nudds (2003), and Roxbee-Cox (1977).

[78] Locke does not mention smells and feels in this passage. But it is clear that his "etc." is meant to include them. In passages that follow, Locke refers to the idea of a sweet scent (§13) as well as the idea of warmth (§15) as ideas of secondary qualities.

[79] For ease of discussion, and because my focus will be on comparing the color debate to an emerging smell debate, I will drop references to sounds, tastes and feels.

Although this dispositionalist interpretation of Locke is widely accepted, there is another school of thought according to which he was an eliminativist about colors and smells. No one doubts that Locke held a version of representative realism—the view according to which mental intermediaries stand between perceivers and the external world.[80] The controversy is over whether Locke's colors and smells are properties of ideas or properties of things in the external world. If Locke was a dispositionalist, then he thought they are properties of things in the world. But Reid urged ([1764] 2000, [1785] 2002), and more recently Peter Alexander (1977) and Michael Jacovides (1999) have argued, that Locke held that colors and smells are properties of ideas. On each of their views, the instance of "Colours, Sounds, Tasts, etc." in the passage above refers back to "various Sensations" and not to "Powers".[81] According to both Alexander and Jacovides, there is no doubt that, according to Locke, secondary qualities are dispositional properties. It is just that, unlike what the introductory text tells us, colors and smells are not to be identified with these dispositions. Rather, they are what Locke referred to as "ideas of Secondary qualities"—manifestations of these dispositions. Because Locke clearly thought that it is ordinary objects such violets that appear to be colored and smelly (II, viii, §13), Locke was, on this interpretation, a projectivist about colors and smells. Ideas are colored and smelly; but experience mistakenly 'places' these properties on things in the world.

We have Locke as a dispositionalist, and Locke as a projectivist. Many of Locke's critics interpreted him as the latter. Reid certainly did. Reid saw projectivism as the implication of Locke's representative realism together with his resemblance thesis. As we know, Locke thought that we perceive the world via mental intermediaries. We are directly aware of the ideas and, via these ideas, we are indirectly aware of objects in the world. What's more, Locke claims that ideas of secondary qualities resemble nothing in objects. Reid thought that this committed Locke to not only an unpalatable form of skepticism about the external world but also irrealism about colors and smells. It annexed them to the confines of our minds. We are clearly acquainted with distinctive properties when we, say, look at the violet or sniff in its vicinity. These are properties that we naturally call purple and sweet(-smelling). If these properties resemble nothing in the objects themselves, then they cannot be properties of those objects. On Reid's Lockean picture,

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[80] Locke refers to these mental intermediaries both as *ideas* and as *sensations*. Reid also uses 'sensation' but in a much different sense than Locke. In order to keep the views distinct, I will restrict 'sensation' to talking about Reid and 'idea' to talking about Locke.

[81] Alexander (1977) states this explicitly; Jacovides (1999) does not. It is, however, implied by other things that Jacovides says. For example, in comparing Locke's point of view to the contemporary one, he states: "If a twentieth-century philosopher were to think that bodies do not resemble images with respect to color, he might express this thought by saying that whiteness and the like are in bodies but not in our minds. Locke, in contrast, says that whiteness is on our minds but not in bodies" (484).

then, they must be properties of our ideas. On that picture, colors and smells are not properties of things like violets.[82]

As a way of avoiding what he found so displeasing in Locke, Reid denied the Lockean act/object theory of perception. According to Reid, we do not perceive the world through the perception of mental intermediaries. Experience of the world is not mediated by an *awareness of* a mental intermediary but is, instead, *caused by* a prior act of mind. According to Reid, what contemporary philosophers refer to as *experience*, in actual fact, consists of two distinct acts of mind: *sensation* and *perception*. A sensation is a 'raw feel', a 'mere affectation'; it "by itself, implies neither the conception nor belief in something external" ([1785] 2002, 199).[83] A perception, on the other hand, "implies a conviction and belief of something external—something different from both the mind that perceives and the act of perception" ([1785] 2002, 199). Perceptions, then, are contentful states; they have objects. Although different in nature, sensations and perceptions are integrally related. Sensations, Reid tells us, give rise to perceptions.

Reid stands out as one of the few philosophers to have written at length about smell. In *An Inquiry into the Human Mind on the Principles of Common Sense* ([1764], 2000), Reid devotes an entire chapter to the sense of smell. Reid defends a form of realism about smells. Reid tells us:

> I resolve, for my own part, always to pay a great regard to the dictates of common sense, and not to depart from them without absolute necessity: and therefore I am apt to think, that there is really something in the rose or lily, which is by the vulgar is called *smell*, and which continues to exist when it is not smelled. (39)

To be sure, Reid argues that the word 'smell' is ambiguous. According to Reid, we sometimes give the name 'smell' to an olfactory sensation (i.e., a particular mental event); at others, we give it to

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[82] Consider this remark in Reid's *Essay* ([1785] 2002): "I might mention several paradoxes, which Mr. LOCKE, though by no means fond of paradoxes, was led into by his theories of ideas....[s]uch as, that the secondary qualities of body are no qualities of body at all, but sensations of the mind..." (186). Earlier, in the *Inquiry* ([1764] 2000), Reid attributes paradoxes like this to the Locke's resemblance thesis. He claims that "the dissimilitude between the sensations of our minds, and the qualities or attributes of an insentient, inert substance...hath been unhappily united to the ancient hypothesis [the theory of ideas]: and from this inauspicious match of opinions...have arisen those monsters of paradox and skepticism with which the modern philosophy is too justly chargeable" (92).

[83] Reid also tells us that a sensation has "no object distinct from the act itself" ([1785] 2002, 36). This way of characterizing sensations has led some philosophers to question whether Reid truly gave up the Lockean act/object picture of experience. (For discussion, see Van Cleve 2004) The idea is that, if sensations are directed upon themselves, then they clearly have an object—themselves! The more charitable interpretation of Reid is that he held an early form of adverbialism. After all, Reid compares sensations to pains. According to Reid, feeling pain amounts to nothing more than *being pained*. A pain is not a further mental object (e.g. a Lockean idea) that, for its duration, a pain experience has as its object. Given his comparison of sensations to pains, the charitable interpretation takes seriously Reid's declaration that a sensation is "a manner in which...[a] being is affected;...and supposes no more" ([1785] 2002, 199). To sense (as opposed to perceive) is not to sense some*thing* but to sense some*how*—redly, sweetly and so on.

the external property that is the object of perception.[84] The important thing is that, on Reid's picture, the property presented in olfactory experience is "some power, quality, or virtue, in the rose [for example], or in the effluvia proceeding from it, which hath a permanent existence, independent of the mind, and which, by the constitution of our nature, produces the sensation in us" (43).

Many passages—such as the one preceding—make it sound like Reid held that smells are dispositions to cause distinctive sensations. But it is controversial whether Reid was a dispositionalist or a physicalist about smells. Reid's use of "power" and "virtue", together with reference to our subjective reactions, indicates that he accepted a form of textbook Lockean dispositionalism. Still, other remarks make it sound like he could have been either a physicalist or a dispositionalist—although, most certainly, a realist.[85] For example, Reid ([1785] 2002) also claims that a smell is "the unknown quality or modification, which is the cause or occasion of a sensation which [we] know well" (202). Again, "though common sense says nothing of the nature of these qualities, it plainly dictates the existence of them" ([1764] 2000, 54). On this interpretation of Reid, smells are whatever external properties play a certain role—that is, the role of causing distinctive sensations in us.[86]

Although the details of Reid's official view remain unsettled, one thing is certainly clear: in denying what he thought was the prevailing Lockean projectivist picture, Reid upheld a realist one. Although olfactory experience does not disclose what kinds of external properties they are, smells are indeed out there in the world. They are not creatures of the mind.

More recently, Perkins has argued for the projectivist picture that Reid rejected. The chapter on smell in his *Sensing the World* (1983) is one of the most sustained discussions of smell in the contemporary literature. Perkins develops this view as part of an argument against direct realism. Like me, Perkins holds that odors are olfactory objects. An odor is "something that belongs to an odorous object, can detach itself from the object, enter the air, be carried by the air

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[84] Except for 'color' and the various color names, Reid thought that that all of the names of perceptible qualities are ambiguous. His reasons for 'color' failing to follow suit are curious. In the *Inquiry* ([1764] 2000), Reid claims:

> Perhaps the reason of this may be, that the appearances of the same colour are so various and changeable, according to the different modifications of the light, of the medium, and of the eye, that language could not afford names for them. And indeed they are so little interesting, that they are never attended to, but serve only as signs to signify the things signified by them (87).

Reid doesn't provide more of an explanation than this. I suspect that his claims about sensations being "so little interesting" reflect a commitment to what contemporary philosophers refer to as the transparency of (visual) experience. See also Chapter 2, fn. 58.

[85] I take it that primitivism was not an available option for Reid. He and his contemporaries were grappling with the implications of the new corpuscularian science. According to the corpuscularian theory, objects are constituted of smaller particles of matter. These corpuscles were thought to have primary qualities and, in virtue of these, powers to act on their environment (including us). It is reasonable to assume, then, that the only realist positions Reid would have considered are physicalism and dispositionalism.

[86] I say above that it is controversial whether Reid was a dispositionalist or a physicalist. Strictly speaking, dispositions are not causes of their manifestations. Their categorical bases are. Given this, one might argue that Reid cannot have held that the smell of a rose is *both* a disposition and the cause of the rose sensation. It may be, however, that this point would have been too subtle for Reid to have worried about.

to our nose" (58).[87] Odors have properties that we detect, which he refers to as sens*ible* qualities. Perkins differs from me, however, in that he thinks that we only ever perceive odors *indirectly*. Sensible properties are dispositional properties—dispositions of objects to cause certain experiences in us. The *direct* objects of olfaction are these sensations. These sensations have properties Perkins refers to sens*uous* qualities. We perceive sensible qualities (dispositions of odors) via our acquaintance with sensuous qualities (properties of sensations).

Because Perkins' focus is the debate between direct and indirect realism, his views about the nature of the smells take some unearthing. But they are there. We have agreed that, in olfactory experience, something external to us appears to have a distinctive property. This property is what I have called a smell. Perkins agrees that olfactory experience presents external things as having distinctive properties. So, in this respect, Perkins agrees with our starting point. But what about question (1'): when we smell the lilac, (e.g.), does anything external to us really have that distinctive property—namely, 'lilac-ness'? Does Perkins think that anything external to us really has that property?

He does not. As we know, Perkins thinks that olfactory experiences themselves have intrinsic, qualitative, properties—what he calls sensuous qualities and what others call qualia.[88] Perkins identifies smells with these sensuous qualities (and so, unlike Reid, does answer (2'): what is the nature of 'lilac-ness'?). To see that this is so, we have to approach what he says in two stages.

First, we note that, where I have spoken of the distinctive property *presented* in olfactory experience, Perkins speaks of the "olfactory quality that directly engages our attention" (84). This property is a sensuous quality of one's experience, it "constitutes the peculiar character of the olfactory experience caused by a[n]...odor" (84). According to Perkins, it cannot be the sensible quality of an odor—the disposition of the odor—because a subject can only become aware of such a disposition through being aware of its manifestation—namely, a certain experience. Any property that directly engages our attention, then, must be a property of that experience.

This is all said in aid of the argument for indirect realism. But all it shows is that Perkins thinks that there are qualia and that they are the properties of which we are directly aware in olfactory experience. Nothing about the nature of smells follows. This is a further step, and one that Perkins makes with some remarks about the content of olfactory experience. For example, in an early passing remark, he claims: "[o]lfactory perception itself, imagined as articulating its immediate content, declares the sensuous, olfactory quality—which is how the odor smells to us—

[87] Given my separate uses of 'odor' and 'smell', the passage should be read as stating that an odor is "something that belongs to a *smelly* object, can detach itself from the object, enter the air, be carried by the air to our nose".
[88] As I noted in Chapter 2, 'qualia' is used in different ways. My use here refers to what I call *candid qualia*. These are properties of perceptual experience that account, in least in part, for its qualitative character. Candid qualia differ, for example, from what Dretske (1995) calls qualia—namely, those external properties represented by a given experience.

to *be* the character of [an] odorous effluvium" (67). This sounds distinctively projectivist. Later, in a section devoted to a discussion of olfactory content, he reiterates this point. Although Perkins does not speak in terms of smells, he clearly thinks that the properties presented in olfactory experience are experiential properties that experience (mistakenly) attributes to external things. He claims:

> [T]he structure of olfactory consciousness...is direct consciousness *of* its own sensuous character (*sweet*), and it is an attribution of this very character to the object before the nose, for it functions as the content of an olfactually sensuous attribution of itself to the candy bar. Sensuously to attribute (olfactory) *sweet* to a candy bar is to smell the candy bar as if having this quality. (95)

Perkins, then, answers our two questions as follows. First, (1'): when we smell the lilac, (e.g.), does anything external to us really have that distinctive property—namely, 'lilac-ness'? No, nothing external does—although it certainly seems that way. Secondly, (2'): what is the nature of 'lilac-ness'? Lilac-ness is a property of experience—a sensuous quality, as he puts it—that experience projects onto external things. Perkins, then, is a projectivist about smell.[89]

Reid was clearly a realist about smells. Perkins is an eliminativist. The state of the debate thus far starts, and stops, at (1'): realism or eliminativism? Given Reid's lack of commitment regarding (2'), there is no debate about which form of realism is more motivated. And, given Perkins' indirect realism, there is no mention of opting for eliminativism proper. The debate about the nature of the smells, then, remains relatively unexplored territory. As I said earlier, we have what has been said about the colors and the (mostly implied) assurances that the same will go for the smells. But the details, including any idiosyncrasies of the debate, have yet to be worked out.

3. The Argument from Perceptual Variation

Like Reid, I pursue a realist answer to (1'). Why not eliminativism? The most serious objection to eliminativism lies in the fact that it convicts our olfactory experience of widespread error. We know that olfactory experience reports that there is something or other 'out there' that is, for example, lilacy. If nothing whatsoever is smelly (eliminativism proper), or it is really our experiences that are (projectivism), then olfactory experience consistently fools us. Contrary to what it reports, there is in fact *nothing* out there that is lilacy. This is a position that we should be led to only if the realist alternatives prove implausible. It is the implication of being unable to

[89] In a footnote, Shoemaker (1996c) notes that Perkins holds a view similar to Boghossian and Velleman's (1989) view about color. Boghossian and Velleman are explicitly projectivist about the colors.

locate any property out there that 'matches' the properties that olfactory experience purportedly presents us with. If there is no match, then the revision is plausible—but only then.

My approach, then, is in keeping with Reid's. As we have seen, Reid was clearly a realist but remained unsettled about what form of realism to espouse. It is likely that he thought science would iron this out for us; it was definitely not something that he thought we could settle by mere interrogation of our olfactory experience. In aid of adjudicating between the different realist views, I want to discuss what I take to be the pivotal issue in the debate between them over (2'). This is the issue of perceptual variation. Dispositionalists argue that consideration of this phenomenon decides any Reidian impasse in their favor.[90]

The target of the argument from perceptual variation is not physicalism or primitivism per se. It is, rather, an argument against a kind of realist view, of which physicalism and primitivism are different versions. Earlier, I set out the division in the color and smell debates as one between realists (color and smell) and eliminativists (color and smell). Having rejected eliminativism in favor of pursuing realism, I want to draw attention to a similarly broad division between realist themselves—namely, that between **relationalists** and **non-relationalists** (about color or smells). As I drew attention to in the introduction, relationalists hold that colors and smells are constituted by relations between objects and perceivers. The standard relationalist view is that colors and smells are dispositions to cause a certain kind of experience in perceivers. In other words, the standard relationalist view is (color or smell) dispositionalism.[91] An odor is lilacy, for example, because it has the disposition to cause certain distinctive experiences in perceivers. On this view, smells are perceiver- or mind-dependent properties of odors. Non-relationalists, on the other hand, hold that objects are colored or smelly irrespective of the relations that they bear to perceivers. According to non-relationalism about smells, the lilac smell is a perceiver, or mind, *in*dependent property of an odor. Non-relationalists hold that things are colored or smelly irrespective of the relations that they bear to perceivers. The typical form of

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[90] See, e.g., Bennett (1968) and McGinn (1983). Although not a dispositionalist per se, Cohen (2004) upholds the argument and discusses it at length.

[91] As Cohen (2004) rightly points out, there are non-dispositional relationalist views. For example, McGinn (1996) holds that colors are not identical with dispositions of objects but, rather, supervene on these dispositions. He calls this the *supervenience dispositional theory*. This view, McGinn tells us, avoids certain problems with dispositionalism (e.g., the worry that dispositionalism misrepresents the phenomenology of color experience, or concerns about the appearance of 'red' in 'the disposition to look red') while retaining "the strong dependence of color on sensory response..., though not so directly as before" (545). Another relationalist account is *functionalism* about color. It is defended by Cohen (2003), Jackson (1996, 1998) Jackson and Pargetter (1987) and McLaughlin (1983). According to functionalists, colors are second-order properties—in particular, properties of having some other physical property that is disposed to cause a certain kind of experience in us. Finally, there is Thompson's (1995) *ecological view*. Thompson tells us that colors "correspond to surface spectral reflectance[s] as visually perceived by the animal" (245). The details of Thompson's view are not entirely clear. But, given that it is inspired by Gibson (1983), it is safe to say that he thinks that, in specifying the nature of color (red, e.g.), it is not enough to provide the microphysical details of the object perceived. One must also take into account the perceiver, viewing conditions *and* what the perceived property means to the animal (e.g., ripe, edible, etc.). As Thompson tells us that "colours...are tied to affordances and effectivities: they indicate what the environment affords for the animal and what the animal can effect in its environment" (244).

non-relationalism is physicalism; the less typical is primitivism.[92] Given that olfactory objects are odors, the most natural physicalist view is that smells are molecular properties—specific configurations of atoms of a certain kind, say.[93]

The phenomenon of perceptual variation is supposed to tell against *any* non-relationalist view. In the case of color, the argument is well-developed. There is a wide variety of variation in the perception of color—interspecies, interpersonal and intrapersonal. Color relationalists argue that non-relationists are incapable of explaining this kind of variation. So that we may understand why the trouble arises for non-relationalism, consider an example of interpersonal variation. Two normal observers might disagree over which of a range of color chips is unique green (i.e., the shade of green that is neither bluish nor yellowish).[94] Chip 1, for instance, might be unique green to Paul while appearing distinctively bluish green to Mary. We must ask, then: *is the chip unique green or bluish green?*[95]

According to the relationalist, the problem arises because there is no exclusive answer to this question. The problem can be laid out as follows.[96] We accept

$\text{Ground}_{\text{col}}$: the ground for ascribing a certain color to something is the color that it looks to have.

But we must also recognize

$\text{Variation}_{\text{col}}$: the color that something looks to have might be highly variable from person to person and/or circumstance to circumstance.

Paul and Mary constitute an instance of $\text{Variation}_{\text{col}}$. Given $\text{Ground}_{\text{col}}$ and $\text{Variation}_{\text{col}}$, we are forced to ask: what color *does* the chip have?

Given that both Paul and Mary are normal observers, and that the illuminant under which they view the chips is the same, there seems to be no non-arbitrary way of choosing whose

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[92] Two qualifications are in order here. First, when I say that the typical form of non-relationalism is physicalism, I recognize that it is the typical form in the debate about color. As I have pointed out, any debate about the nature of smells is currently in its infancy. But I think that it is safe to say that physicalism will emerge as the typical non-relationist view in that debate as well. Secondly, as Cohen (2004) notes, non-relationalists need not be realists. Projectivism is a form of non-relationalism. Given that we have rejected eliminativism in favor of realism, I do not include it with the non-relational views.

[93] In some cases, the configuration of the atoms is crucial. For example, carvone has the chemical formula $C_{10}H_{14}O$. It, however, has two isomers—'chemical anagrams' which have the same chemical formula and the same bonds between atoms, but in which the atoms are arranged differently. Each isomer smells different. D-carvone smells of caraway while L-carvone smells of spearmint. Each isomer, then, has a different smell. What this shows is that, in some cases, small changes in molecular structure will lead to drastic changes in perceived smell.

[94] This is well-documented. In the philosophical literature, see Hardin (1993). For the scientific data see, e.g., Hurvich, Jameson & Cohen (1968). For a recent philosophical discussion of shifted spectra, see Byrne & Hilbert (2007), Cohen et al. (2006, 2007), Triplett (2007) and Tye (2006a, 2006b, 2007). This discussion deals with both issues I will discuss here as well as some that I will not.

[95] I focus on a case of *inter*personal variation of apparent color because it has an analogue in the olfactory case.

[96] Here, I draw on the set up of the problem in Jackson & Pargetter (1987).

report is the right one. Mary's claim that the chip is bluish green seems just as eligible to be correct as Paul's does. We might, in an eliminativist mood, claim that neither Paul nor Mary is correct. But, given that interpersonal variation is likely rampant from person to person and circumstance to circumstance, this has the consequence that no object ever has the colors it looks to have. And, for reasons I laid out earlier, this result is unpalatable. The most plausible way of explaining the scenario, the relationalist claims, is that *both* Paul and Mary are correct. The dispositionalist, for example, argues that her view is well-suited to provide this sort of explanation.[97] Remember that, according to the dispositionalist, colors are relational properties—in particular, dispositions to cause certain experiences in certain perceivers in certain conditions. Given this, the dispositionalist is able to argue that, in a single circumstance, the chip has one color for Paul and another color for Mary. Relativized to Paul (or any sub-population of which he is a representative), chip 1 is unique green; and relativized to Mary (or any sub-population of which she is a representative), chip 1 is bluish green.

In contrast, let's consider the effect this has on the physicalist.[98] The physicalist has no way to answer this challenge, urges the dispositionalist. On the physicalist's view, Paul and Mary both cannot be correct. The physical properties of the chip remain the same. If the color of the chip is some physical property of it, then the chip has that property when Mary looks at it, and it has it when Paul looks at it. On the physicalist picture, then, (at least) one of them *must* be misperceiving the chip.[99] But this, the dispositionalist urges, is implausible. Once we grant this point and agree that there is no non-arbitrary way to choose between the conflicting reports, we acknolwedge that there is little reason to think that physicalism is the correct theory of the colors.

Now, the physicalist might argue that there is indeed a way to decide between Paul and Mary's declarations. We go with the majority, she might say. (Suppose, for the sake of argument, that there is a majority.) If the majority of people report that chip 1 is unique green, then we go with Paul. The chip is unique green and, consequently, unique green *is* whatever physical property chip 1 has (e.g. a certain spectral reflectance). If the majority of people go with Mary, then the chip is bluish green. Whatever spectral reflectance the chip has *is* bluish green.

However, as Bennett (1968) argues for the case of taste, even this is arbitrary. He gives us the case of phenol-thio-urea—a substance that tastes bitter to 70% of the population and is tasteless to the rest.[100] We might go with the majority and claim that phenol is bitter. If we are physicalists, then we would say that phenol is bitter because it has a certain molecular property (or set of molecular properties) and bitterness *just is* that molecular property (or set of molecular

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[97] For the most part, the argument from perceptual variation has been waged by dispositionalists.

[98] For the sake of simplicity, I consider only physicalism. Similar considerations apply for primitivism.

[99] I say "at least" in parentheses because, on the physicalist's picture, *both* Mary and Paul could be misperceiving the chip. When discussing physicalism I will, for the sake of simplicity, assume that one of them is successful and that the other misperceives.

[100] From here on, I will just call it 'phenol'.

properties). Because this chemical property remains constant, non-tasters misperceive phenol. Their experience might attest to its being tasteless but it is actually bitter. However, as Bennett argues, mass micro-surgery might bring about that the standards change—after the surgery, phenol is tasteless to almost all of the population while bitter to only a few. In such a case, he argues, there are good grounds for saying that phenol has gone from being bitter to being tasteless. But, if bitterness just is some physical property, then it has not undergone this change! Rather than settling for this conflicting result, Bennett argues that the way to understand the change that phenol has undergone is as a change with respect to its relational properties. What the phenol argument shows us, Bennett argues, is that taste properties—indeed all of the so-called secondary qualities—are dispositional. He concludes: "We may still call things green or sour or stinking or noisy, but philosophers should bear in mind the essentially relative nature of these adjectives and their like: 'similar in color' means 'looking similar in color to nearly everyone under normal conditions,' and a careful metaphysic will take note of that fact" (106).

As it turns out, issues of perceptual variation arise in a similarly striking way for the olfactory case as well. For example, about 30% of people report that androstenone has no smell, whereas the other 70% report that it has a strong, urinous smell.[101] Another 36% report that isobutyraldehyde has no smell while the remaining 64% claim that it has a malt-like smell.[102] And again, 33% of people claim that 1,8 cineole has no smell while the remaining 67% report that it has a camphor-like smell.[103] Here, then, we have an olfactory analogue of variation in the case of color and taste. Like the color case, we accept

Ground_{sm} the ground for ascribing a certain smell to something is the smell that it appears to have.

But we must also recognize

Variation_{sm} the smell that something appears (smells) to have might be highly variable from person to person.

In each of the three cases I cite above, observers in each group have otherwise normal olfactory acuity.[104] Like both the color and taste cases, there seems to be no non-arbitrary means of

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[101] Androstenone was the first mammalian pheromone to be identified. It is an organic compound that occurs in high concentrations in the saliva of sexually mature male boars and in the sweat of humans.

[102] Isobutyraldehyde is a compound used as a chemical intermediate in the manufacturing of, among other things, solvents, plasticizers, flavor and fragrance chemicals, insecticides, hydraulic fluids, and lubricants.

[103] Also called eucalyptol, 1,8 cineole is a compound found in eucalyptus leaves, bay leaves, and other aromatic plant foliage. It is found in camphor-scented essential oils.

[104] The olfactory analogue of illumination conditions must be something like 'atmospheric conditions'. The combination of different odorants in the air can affect *whether* an observer can detect a certain odorant or *how* that odorant is perceived to be—e.g., how intense of a smell an odorant is perceived to have. In each of the cases I cite above, results were gathered in highly controlled laboratory settings, in which the air inhaled was free other 'contaminant' odors.

deciding which group is right and which group is wrong. After all, as $Ground_{sm}$ states, the ground for ascribing a certain smell to something is the smell that it appears to have. Suppose that androstenone has a urinous smell to Bert and no smell at all to Nellie. According to the dispositionalist, Nellie's claim that what she sniffs has no smell is just as eligible for correctness as Bert's claim that it is urinous. According to the physicalist, both Nellie and Bert cannot be correct.[105] The physical properties of the substance remain the same. According to the physicalist, then, either Nellie or Bert must be wrong. One of them must be misperceiving. But once the physicalist grants that there is no non-arbitrary means of choosing between them, she commits herself to the falsity of her view. Both of them cannot be correct and yet neither of them seems to be incorrect. Again, according to the dispositionalist, the most plausible way of explaining the situation is that *both* Bert and Nellie are correct. Relativized to Bert (or the sub-population of which he is a representative), androstenone is urinous; relativized to Nellie (or the sub-population of which she is a representative), it has no smell at all. Smells, then, are relational properties.

I must note that the relationalist is not the only one who can exploit the existence of perceptual variation. As I characterize it above, the neighborhood of the argument from perceptual variation is realism. As I describe it, it is an argument against one kind of realist view, non-relationalism, in favor of another, relationalism. But it could equally be used by the non-realist—the eliminativist proper or the projectivist. It is open to either to argue that, unlike physicalism and like dispositionalism (e.g.)[106], their view can accommodate the facts about perceptual variation. Remember that, according to the eliminativist proper, nothing whatsoever is colored, tasty, or smelly. Perceptual variation only corroborates this. Rather than multiplying the number of smells and colors beyond belief (e.g. urinous to sub-population S, or Bert, or Nellie, and so on), we ought to concede that they are just not anywhere to be found. They are illusions, and it is a matter of convention that we think and say that things are smelly and colored.[107] As we also know, the projectivist takes a similar stance, but claims that mental particulars (sense-data or sensory fields) are colored, smelly and the like. Perceptual variation is easy to explain, the projectivist claims. In Bert's case, his olfactory field (let's assume) instantiates a certain olfactory property—namely, ruinous. Nellie's olfactory field instantiates no olfactory property whatsoever. Neither is mistaken about the smells that things—namely, olfactory fields—have.

With respect to the argument from perceptual variation, then, the dispositionalist is not the physicalist's only opponent. However, like I claimed at the beginning of this section, non-

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[105] I make the same assumption here as I did earlier. See fn. 98.

[106] See fn. 97 and 98.

[107] Hardin (1993) argues in this way for the case of color. Although he does not use perceptual variation as a central argument for his eliminativism, Hardin does argue that his view is better at explaining it than relationalism. In particular, see his chapter 2.

realist views are plausible only if realist alternatives prove implausible. Given that I will conclude that there is indeed a lively debate amongst realists, I will not consider the non-realist opponent in the chapter.

4. Non-Relationalism Refuted?

Before moving onto assessing the argument from perceptual variation in the case of olfaction, it is important to say something about the difference between the shifted spectra case (i.e. the color case) and the phenol/androstenone cases. To be sure, both are cases of perceptual variation. But they differ in the threat that they pose to non-relationalism. In the case of shifted spectra, the differences in subjective response are minor. To repeat my earlier example, chip 1 is unique *green* to Paul and bluish *green* to Mary. As Byrne and Hilbert (2003) note, these minor differences are of no ecological significance. They are simply the result of pushing our color vision to the limits of its resolution. When it is so pushed, we should expect that the system will make minor mistakes. Given this, the argument from shifted spectra poses little threat to non-relationalism.[108] Unlike what the dispositionalist urges, it certainly is plausible that one of Paul and Mary is wrong (or indeed that they are both wrong).

The same kind of response is not available in the phenol or androstenone cases. It is not that Bert and Nellie's respective experiences differ in slight ways—for example, that they disagree over just what floral scent an odorant has. In such a case, the response would be available. But Bert's and Nellie's subjective responses (as well as those of the populations they represent) are radically different from one another. It is simply not plausible to respond to such a divergence by claiming that large portions of the population have wildly unreliable olfactory systems, that such a large portion of people are simply mistaken about the smell of this substance. The analogue in the visual case would be a situation in which a large portion of the population has achromatic vision. Clearly, this would not be a case in which the visual system is pushed to the limits and that one sub-population is simply mistaken. Like its analogue, then, it is equally implausible that the same is true for the androstenone case. We need some other way to explain the conflict. As we know, the dispositionalist resolves the conflict by arguing that both groups are right. This is the most plausible explanation of the facts, the dispositionalist urges, and one that is unavailable to the non-relationalist.

But now let's put our non-relationalist hats on. Has the dispositionalist shown that our view is false? We know that we cannot defuse the situation by simply appealing to the larger sub-population—the majority 64% in the case of isobutyraldehyde, the 67% in the case of 1-8 cineole,

[108] They continue: "[Relationalism] makes color illusions very rare (just how rare will depend on the details...). The near-infallibility of color vision is a result to be avoided, not embraced" (57).

or the 70% in the case of androstenone. Let's instead take a closer look at the examples of variation themselves. The dispositionalist tells us that, to Nellie, androstenone has no smell. There are two things that 'has no smell' might mean. And the non-relationalist is in trouble only if her experience reflects one of these meanings. 'Androstenone has no smell' might mean 'androstenone has no smell *whatsoever*'. This would be a case in which Nellie's experience reports the absence of a certain kind of property. It is the olfactory version of perceiving nothingness, an experience that reports 'no smell here/now'. This situation is to be distinguished from another—namely, that of Nellie's failing to have an experience of a smell, of failing to detect a property in her vicinity. In this case, 'androstenone has no smell' might also mean 'no smell detected'—for example, no urinous smell detected. This would be a case in which Nellie's experience has nothing to report about the androstenone smell of things. It neither asserts the presence of a property nor does it assert the absence of one. It is simply silent. [109]

In order for the dispositionalist's argument to work, it must be the case that Nellie has an experience of the first kind. The dispositionalist takes herself to be solving (or, better, dissolving) a problem that the non-relationalist cannot. Remember that the problem arises because of tension between Ground_{sm} and Variation_{sm}. Bert and Nellie are supposedly instances of Variation_{sm}. But take a closer look at what Variation_{sm} demands. It requires that there be two (or more) olfactory experiences, each making an assertion about how things are olfactorily (and, of course, each of which seem intuitively correct). If there is no conflict between Bert and Nellie, then there is no problem to solve. Consider an analogy. There is conflict between the theist and the atheist—both make assertions about the existence of God. But there is no such conflict between the theist and the agnostic. The agnostic makes no claim whatsoever about the existence of God; she neither says that God exists nor that he doesn't. If Nellie's olfactory experience is similarly agnostic about the presence of a certain smell, then there is no conflict between her and Bert's respective reports. As a result, there is no problem to solve and the non-relationalist need not worry.

The question for the non-relationalist to ask is: what is the right way to describe Nellie's experience? Obviously we are not Nellie and cannot experience from within her first person point of view. But there are considerations in favor of the view that Nellie's experience is of the second kind. These considerations are both phenomenological and empirical.

Let's begin with a phenomenological one. How do we go about evaluating how things appear in a given experience? One way we can do this is by thinking about the kinds of judgments we are disposed to make on the basis of that experience. Doing so draws attention to the information an experience conveys to us; it highlights what it 'says to us'. There is a key

[109] Martin (2001) and Nudds (1992) discuss this distinction for touch and audition respectively. See also Chapter 1, fn. 12.

difference between our attitudes toward vision and olfaction that can help us to decode what we take our olfactory experiences to be like. Consider vision and, in particular, our experience of color. We take it that we are relatively good at getting at the colors of things. This is one of the reasons why $\text{Ground}_{\text{col}}$ seems so plausible. We think that the ground for ascribing a certain color to something is the color that it looks to us to have *because* we also take it that we are proficient observers of color. If we didn't, why would we ever think that $\text{Ground}_{\text{col}}$ is plausible? In the case of olfactory experience, we are less confident. We do not think that we are as accomplished at detecting smells. Consider how you and I might disagree over whether the smell in the room is lilacy or lavendery or, indeed, whether there is a smell there at all. (I think that the latter circumstance is more common.) Now consider a case in which you and I disagree over the color of something—whether it is blue or purple, say. We are much more willing to give up our position, or admit indecision, in the olfactory case than we are in the visual case. What this belies is the conviction that our olfactory experience isn't telling us the full story—that if, somehow, we could both get all of the information before us, we would be able to determine the matter.[110] Disagreements about color attributions do not typically go the same way. We are more stubborn in our attributions of colors. What this belies is the conviction that experience is telling us the whole story and that, therefore, our stories conflict. We are more confident of the testimony of our visual experiences and, as a result, are not willing to give up so easily.

Given this, it is not obvious that Nellie experiences androstenone as having no smell whatsoever. Moreover, given the kinds of mistrust we place in our sense of smell, it seems plausible, from a phenomenological perspective at least, that she simply does not get the breadth of information that Bert does. This is something that we happily accept might be the case in the average disagreement about smells. Why should we think that it is any less likely in Nellie's case? You and I get different information regarding the flowery smell in the room. Nellie, when presented with androstenone, gets *no* information. Rather than being different in kind, ours and Nellie's experiences differ in degree of informativeness.

Of course, it is *possible* that Nellie's experience differs from yours and mine in that it just does report 'no smell here/now'. But recent empirical research suggests that this is not the case. It is well known to scientists that there are significant differences in the detection thresholds of human perceivers.[111, 112] At its lowest extreme, a subject simply has no experience of a smell[113]

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[110] Consider how we often describe smells as fleeting. We get a whiff of one and just as we do, it is gone.

[111] The olfactory detection threshold is the lowest concentration of an odorant required for detection against an odorless background.

[112] This should not surprise the person on the street. We happily acknowledge our olfactory system's limitations when compared to the capabilities of other animals. Dogs, for example, can achieve olfactory feats that we cannot. Empirical research has uncovered that the average dog has 220 million olfactory receptors compared to our 5 million. As a result, dogs are able to detect odorants at extremely low concentrations. For us, such a concentration would be undetectable. Dogs themselves differ with respect to their olfactory acuity. Why not us as well?

even when the odorant taken in is presented in relatively high concentrations. Those in Nellie's situation fall within this group; Bert does not. Initially, scientists thought that those in Nellie's group must have some kind of genetic mutation which prevented the development of the receptor for androstenone. Nellie's group, it was thought, simply lacked that type of olfactory neuron due to a genetic mutation. This was supported by the fact that many cases of androstenone insensitivity seem to be hereditary, suggesting that it is determined, in part at least, genetically. If this were true, this fact by itself would alleviate any concern for the non-relationalist. If Nellie's group lacks the receptor necessary for the detection of androstenone, then she is unable to detect the compound. And if Nellie is unable to detect the compound, then we have every reason to think that her olfactory experience simply has nothing to say about the androstenone smell of things. If so, then there is no conflict between Bert and Nellie.

However, this is complicated by recent psychophysical research. Studies have suggested that a certain form of insensitivity—in particular, insensitivity to androstenone—is in fact a potentially transitory condition. Wysocki et al. (1989) report that they were able to induce sensitivity to androstenone in half of a group of initially insensitive subjects. Over six weeks, a group of 20 subjects were exposed to a consistent concentration of androstenone as well as a control odorant (in this case, amyl acetate). Each subject smelled each individually, three times a day, for the duration of the study. At the end of the study, 10 of the subjects reported that they now experienced a characteristic smell upon exposure to androstenone. Wysocki et al. argue that the newly sensitive subjects had always possessed olfactory neurons with the receptors for androstenone. The receptors are not missing or defective; they are simply *unexpressed*. They give the immune system as an analogy. Specific immune responses might occur only after exposure (in some cases, repeated exposure) to a certain antigen. It is not that the immune system lacked the capacity for response at the start. It is just that it had to be pressured into action. According to Wysocki et al., the same goes for the olfactory system in some cases. Repeated exposure to androstenone at a relatively high concentration might initiate receptor response, and thus conscious experience, through a currently unknown mechanism. Similar sensitivity shifts have been observed with repeated exposure to citralva and isoborneol[114].

This raises a worry with the non-relationalist's response. Suppose that Nellie is one of these transitory folks. Like the no-receptor scenario, there is something amiss with Nellie's olfactory system. Her androstenone receptor remains unexpressed. Still she *does have* the

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[113] Here I try to describe Nellie's perceptual situation as neutrally as possible—and this seems to be the best way to do so. Had I said that Nellie is *unable to smell* anything, I would beg the question in favor of the view that Nellie receives deficient information about the smell of things. That is, I would beg the question in favor of non-relationalism. Had I said that Nellie *smells nothing*, I would beg the question in favor of the view that Nellie perceives the absence of a property. That is, I would beg the question in favor of relationalism. And, as I stated earlier, saying that isobutyraldehyde has no smell to Nellie is too suggestive of either of these two situations.

[114] See Dalton and Wysocki (1996). To those that can detect it, citralva has a powerful lemony odor and isoborneol a musty, camphoraceous smell.

appropriate receptor. And, given this, we might think that it's being there and yet sending no signal constitutes information that Nellie's olfactory system can use. Consider an analogy. You have a motion detector in your hallway. Sitting in the kitchen, you glance up at it. No signal, no intruder. Unbeknownst to you, however, the squirrels have chewed through the system's wiring outside. The detector is not working. What's more, there is indeed someone lurking in the hallway. Although it is false information, you are getting information about the intruder-status of your hallway. You think that the motion detector is just fine and deduce that there is no one there.

One might think that the same goes with Nellie's olfactory system. Nellie's androstenone detector is there but not working properly. But the olfactory system on the whole is 'unaware' of this fact. Just like the intruder case, it takes the lack of a signal as information in and of itself—'no urinous smell here/now'. It would seem, then, that Nellie's experience does report the absence of a certain property and the non-relationalist's dissolution of the argument does not work. Given this, it would seem that the dispositionalist does have a case for her relational view of the smells.

There are several considerations that we can raise against this kind of move. First, we might draw attention to the fact that the dispositionalist is saddled with the significant burden of motivating this kind of response. It is now widely believed that the human olfactory system contains upwards of 1000 different types of receptors.[115] According to the dispositionalist, each time a significant number of these receptors do not fire, a perceiver allegedly receives a very complicated set of messages (e.g. 'no urinous smell here', 'no malt-like smell here', and so on). Consider a case in which no olfactory receptor is triggered—for example, when you sniff in a sample of pure oxygen. Such a case would seem to inundate a perceiver with a breadth of information that she just does not seem to be getting. If she is, it is up to the dispositionalist to show us why we ought to think that she is.

This first consideration is related to the second, and stronger, consideration in our favor. Secondly, and more importantly, the dispositionalist's retort works only if it is indeed true that the olfactory system provides this kind of information to Nellie and company. We look again to the phenomenological and the phenomenological does not vindicate. We know that the non-relationalist is in trouble if Nellie's olfactory experience reports that there is no urinous smell here/now. She is not in trouble if Nellie is simply smell-blind to androstenone. Visually blind people do not get any information regarding the chromaticity of things (or about specific chromatic values of things). Similarly, 'olfactory-blind' people do not get any information about the smell of things (or any information about particular smells). There are people like Nellie

[115] See, e.g., Glusman et al. (2000, 2001), Howard Hughes Medical Institute (2004) and Zozulya et al. (2001).

whose situation is more severe. Some people lose their senses of smell entirely due to various illnesses and conditions. The olfactory receptors remain intact; it is just that something else prevents the receptors from firing in the presence of the relevant stimulus. Some of these people regain their olfactory abilities; all remember what it was like to smell. It is difficult to find extensive studies of the phenomenology of smell loss in the scientific literature. Most olfactory researchers operate with a simple smell/can't-smell model. The distinction between not smelling a property and detecting the absence of a property is not recognized. [116]

But, personal reports testify to the fact that what these people experience is in fact smell-blindness. Consider, for example, the following testimony in Sacks (1985):

> 'Sense of smell?' he says. 'I never gave it a thought. You don't normally give it a thought. But when I lost it—it was like being struck blind. Life lost a good deal of its savour—one doesn't realize how much 'savour' *is* smell.... My whole world was suddenly radically poorer...'. (159)

To be sure, we have to be careful in interpreting personal reports such as this. For example, although Sacks' subject describes his situation as "like being struck blind", he does immediately follow this with: "[l]ife lost a good deal of its savour". This latter claim could mean one of (at least) two things. First, it might mean that the smells of things are simply muted—less vivid or intense—or that *some* information about them is still coming in—as in the extreme case in which his experience reports 'no smell here whatsoever' . If this is the case, then the physicalist is in obvious trouble. The physicalist's response to the argument from perceptual variation relies on this not being Nellie's situation. The worry is, then: is it?

A second thing that "[l]ife lost a good deal of its savour" might mean is that, in becoming smell-blind, one's total perceptual situation is simply less interesting. And this, I think, is what Sacks' patient is reporting. Many people who lose their sense of smell report that they did not appreciate the sense until it was gone. Another sufferer reports: "[w]e take it for granted and are unaware that *everything* smells: people, the air, my house, my skin" (Ackermann 1990, 42). It is well documented that loss of smell often leads to depression (consider how the sense of smell is connected to memory). Subjects feel as though as an integral aspect of their take on the world is missing. Although I have not found is stated outright, no one speaks of olfactory loss as a change from the world of smells to a world in which we are told that nothing smells. It is not, then, that an aspect of olfactory awareness has changed, as in the first interpretation above. There is *no* olfactory awareness. Indeed, those who unexpectedly regain their sense of smell speak of

[116] This is not to say that there has been no research into the psychological effects that smell loss has on its sufferers. For example, it is a well known fact that those who lose their senses of smell are prone to suffer severe depression and anxiety. For one study of these psychological effects, see Van Toller (1999).

"suddenly [becoming] aware of odors [smells]" (Ackerman 1990, 41) much like someone who has restored sense of vision might speak of suddenly becoming aware of colors again. Blindness, then, is a running theme throughout personal reports of smell loss.[117]

Let's now return to Nellie and see where we have come. Remember that, when she sniffs a sample of androstenone, Nellie has no experience of a smell. Empirical research suggests that she is a member of one of two groups. She might (a) be a member of those with missing androstenone receptors. Or she might (b) be a member of those who have unexpressed androstenone receptors. We know that if she is a member of group (a) then the physicalist need not worry. But we have now seen that the same applies if she is a member of group (b). The dispositionalist is faced with the burden of showing that every time an existent olfactory receptor is not triggered, the olfactory system offers up information to the perceiver about the absence of a range of smells. This simply does not align with the reports of those who have lost their sense of smell (and whose receptors have remained intact). Rather, what phenomenological reports do indicate is that Nellie's olfactory system remains silent. Nellie is smell-blind whether she is a member of group (a) *or* a member of group (b). In each case, her situation is one of *failure* and not one in which her experience positively reports the absence of a property.

5. Further Questions, Future Directions

Where does this leave us? Although this smell/can't smell version of argument from perceptual variation is no worry for the non-relationalist, further work needs to be done to complete her picture. Consider, again, physicalism. Physicalism about smells is, as I stated earlier, the natural non-relationalist position. Questions remain, however. The physicalist needs to consider other cases of olfactory perceptual variation—for example, the possibility of olfactory 'shifted-spectra' or the possibility of mass differences in perceived smell. I take it that, in the case of the former, the same response would likely be available for the olfactory case as it is for the color one. That is, when the olfactory system is pushed to its limits, we should expect that it will make minor mistakes. That said, a greater understanding of what these limits *are* is required and recent empirical research into olfaction shows that such an understanding is indeed in the offing. Moreover, in both of these further cases of variation, another important question needs to be settled before either case can be evaluated. In talking about the olfactory properties throughout the dissertation, I have helped myself to properties like urinous, malt-like, lavendery and lilacy. But pressing questions remain about what smells there are and, more importantly for the current

[117] There is a growing online dialogue between those who have lost, or who have never had, a sense of smell. You can find their personal accounts posted on various web discussion boards. See, e.g., http://health.groups.yahoo.com/group/anosmia/, http://health.groups.yahoo.com/group/dysosmia/, http://www.anosmia.net/, and http://www.anosmiafoundation.org/index.shtml.

issue, what relations they bear to each other. In the case of color, we have a well structured quality space with three primaries spanning a three dimensional space—hue, saturation and brightness. There are three established primary hues within this space. In the case of the smells, we have no structured quality space as of yet. Many systems have been proposed—for example, Linnaeus' (1765; see Harper et al. 1968) system that grouped smells into seven categories, Henning's (1915) smell prism with three dimensions and six primaries, and Crocker and Henderson's (1927) four dimensional space with four primaries. No system has been found satisfactory.[118] Given the breadth of our olfactory discrimination, each system has been accused of oversimplifying olfactory experience. Obviously some sort of consensus needs to be reached before the relationalist can use, and indeed the non-relationalist can attempt to defuse, these further instances of the argument. Still, with the failure of one important version of the argument from perceptual variation, the non-relationalist can focus her attention on these further issues.

[118] Clark (1993) has a condensed discussion of the various systems that have been proposed. For a more thorough discussion, see Harper et al. (1968).

Bibliography

Ackerman, Dianne. 1990. *A Natural History of the Senses.* New York: Vintage Books.

Alexander, Peter. 1977. "The Names of Secondary Qualities." *Proceedings of the Aristotelian Society* 77: 203-220.

Applegate, Roger D. 1990. "Can Turkey Vultures Smell? Turkey Vulture Caught in Cage Trap." *North American Bird Bander* 15: 141-142.

Armstrong, D. M. 1968. *A Materialist Theory of the Mind.* New York: Routledge.

_____. 1999. *The Mind-Body Problem: An Opinionated Introduction.* Boulder, CO: Westview Press.

Austin, J. L. 1962. *Sense and Sensibilia.* Oxford: Oxford University Press.

Averill, Edward Wilson. 1985. "Colour and the Anthropocentric Problem." *Journal of Philosophy* 82: 281-304.

Bang, Betsy G. 1960. "Anatomical Evidence for Olfactory Function in Some Species of Birds." *Nature* 4750: 547-549.

Bennett, Jonathan. 1968. "Substance, Reality, and Primary Qualities." In *Locke and Berkeley: A Collection of Critical Essays,* ed. C. B Martin & D. M. Armstrong, 86-124. New York: Anchor Books.

Berkeley, George. [1713] 1996. *Principles of Human Knowledge and Three Dialogues.* Ed. Howard Robinson. Oxford: Oxford University Press.

Bhushan, Nalini. 2004. "In Search of a Genuine Smell Illusion." Unpublished manuscript, Smith College.

Block, Ned. 1980. "Troubles with Functionalism." In *Readings in the Philosophy of Psychology, Volume 1*, ed. Ned Block, 268-305. Cambridge, MA : Harvard University Press.

_____. 1990. "Inverted Earth." *Philosophical Perspectives* 4: 53-79.

_____. 1996. "Mental Paint and Mental Latex." In *Philosophical Issues* 7, ed. E. Villanueva, 19-49. Atascadero, CA: Ridgeview Publishing Company.

_____. 2003. "Mental Paint." In *Reflections and Replies: Essays on the Philosophy of Tyler Burge*, ed. Martin Hahn and Björn Ramberg, 165-200. Cambridge, MA: MIT Press.

Boghossian, Paul A. and J. David Velleman. 1989. "Colour as a Secondary Quality." *Mind* 98: 81-103.

_____. 1991. "Physicalist Theories of Color." *Philosophical Review* 100: 67-106.

Burge, Tyler. 1991. "Vision and Intentional Content." In *John Searle and His Critics*, ed. Ernest Lepore and Robert Van Gulick, 195-214. Oxford: Oxford University Press.

Byrne, Alex and David R. Hilbert. 1997. "Colors and Reflectances." In *The Philosophy of Color*, Vol 1. of *Readings on Color*, ed. Alex Byrne and David R. Hilbert, 263-288. Cambridge, MA: MIT Press.

_____. 2003. "Color Realism and Color Science." *Behavioral and Brain Sciences* 26: 3-64.

_____. 2007. "Truest Blue." *Analysis* 67: 87-92.

Campbell, John. 1993. "A Simple View of Colour." In *Reality, Representation and Projection*, ed. John Haldane and Crispin Wright, 257-269. Oxford: Oxford University Press.

_____. 2002. *Reference and Consciousness*. Oxford: Oxford University Press.

Chalmers, David J. 1996. *The Conscious Mind: In Search of a Fundamental Theory*. Oxford: Oxford University Press.

_____. 2004. "The Representational Character of Experience." In *The Future for Philosophy*, ed. Brian Leiter, 153-181. Oxford: Oxford University Press.

_____. 2006. "Perception and the Fall from Eden." In *Perceptual Experience*, ed. Tamar Szabo Gendler and John Hawthorne, 49-125. Oxford: Oxford University Press.

Clark, Austen. 2000. *A Theory of Sentience.* Oxford: Oxford University Press.

Cohen, Jonathan. 2003. "Color: A Functionalist Proposal." *Philosophical Studies* 113: 1-42.

_____. 2004. "Color Properties and Color Ascriptions: A Relationalist Manifesto." *The Philosophical Review* 113: 451-506.

Cohen, Jonathan, C. L. Hardin and Brian P. McLaughlin. 2006. "True Colors." *Analysis* 66: 335-340.

_____. 2007. "The Truth About 'The Truth About True Blue'." *Analysis* 67: 162-166.

Dalton, P and C. J. Wysocki. 1996. "The Nature and Duration of Adaptation Following Long-Term Odor Exposure." *Perceptual Psychophysics* 58: 781-792.

Davies, Martin. 1991. "Individualism and Perceptual Content." *Mind* 100: 461-484.

_____. 1992. "Perceptual Content and Local Supervenience." *Proceedings of the Aristotelian Society* 92: 21-45.

_____. 1996. "Externalism and Experience." In *The Nature of Consciousness: Philosophical Debates*, ed. Ned Block, Owen Flanagan and Güven Güzeldere, 309-327. Cambridge, MA: MIT Press.

Deutsch, Diana. 1974. "An Auditory Illusion." *Nature* 251: 307-309.

_____. 1981. "The Octave Illusion and Auditory Perceptual Integration." In *Hearing Research and Theory*, vol. 1, ed. Jerry V. Tobias and Earl D. Schubert, 99-142. New York: Academic Press.

Deutsch, Diana and Philip L. Roll. 1976. "Separate 'What' and 'Where' Decision Mechanisms In Processing a Dichotic Tonal Sequence." *Journal of Experimental Psychology* 2: 23-29.

Dretske, Fred. 1988. *Seeing and Knowing*. Chicago: University of Chicago Press.

_____. 1995. *Naturalizing the World*. Cambridge, MA: The MIT Press.

Evans, Gareth. 1982. *The Varieties of Reference*. Oxford: Oxford University Press.

Gibson, James J. 1983. *The Senses Considered as Perceptual Systems*. Westport, CT: Greenwood Press.

Glusman, G., A. Bahar, D. Sharon, Y Pilpel, J. White and D. Lancet. 2000. "The Olfactory Receptor Gene Superfamily: Data Mining, Classification, and Nomenclature." *Mammalian Genome* 11: 1016-23.

Glusman G., I. Yanai, I. Rubin and D. Lancet. 2001. "The Complete Human Olfactory Subgenome." *Genome Research* 11: 685-702.

Grice, Paul. 1967. "Some Remarks on the Senses." In *Studies in the Way of Words*, 248-268. Cambridge, MA: Harvard University Press.

Hacker, P. M. S. 1982. "Events and Objects in Space and Time." *Mind* 91: 1-19.

_____. 1987. *Appearance and Reality*. Oxford: Blackwell.

Hardin, C. L. 1993. *Color for Philosophers: Unweaving the Rainbow*. Indianapolis: Hackett Publishing.

Harman, Gilbert. 1990. "The Intrinsic Quality of Experience." *Philosophical Perspectives* 4: 31-52.

Hilbert, David R. 1987. *Color and Color Perception: A Study in Anthropocentric Realism*. Stanford: CSLI.

Hodgson, E. S. and R. F. Mathewson. 1971. "Chemosensory Orientation in Sharks." *Annals of the New York Academy of Sciences* 288: 175-182.

Howard Hughes Medical Institute. 2004. "Richard Axel and Linda Buck Awarded 2004 Nobel Prize in Physiology or Medicine." Press release. http://www.hhmi.org/news/2004nobel.html.

Hurvich, L. M. , D. Jameson and J. D. Cohen. 1968. "The Experimental Determination of Unique Green in the Spectrum." *Perceptual Psychophysics* 4: 63-68.

Jackson, Frank. 1977. *Perception: A Representative Theory.* Cambridge: Cambridge University Press.

_____. 1996. "The Primary Quality View of Color." *Philosophical Perspectives* 10: 199-219.

_____. 1998. *From Metaphysics to Ethics: A Defense of Conceptual Analysis.* Oxford: Oxford University Press.

Jackson, Frank and Robert Pargetter. 1987. "An Objectivist's Guide to Subjectivism about Colour." *Revue Internationale de Philosophie* 41: 127-141.

Jacovides, Michael. 1999. "Locke's Resemblance Theses." *The Philosophical Review* 4: 461-496.

Johansen, T. K. 1996. "Aristotle on the Sense of Smell." *Phronesis* 41: 1-19.

Johnston, Mark. 1992. "How to Speak of the Colors." *Philosophical Studies* 68: 221-263.

_____. 2002. *The Manifest.* Unpublished manuscript, Princeton University, Princeton, NJ.

Keeley, B. L. 2002. "Making Sense of the Senses." *Journal of Philosophy* 99: 1-24.

Keller, Helen. 2003. *The World I Live In.* New York: The New York Review of Books.

Kind, Amy. 2003. "What's So Transparent About Transparency?" *Philosophical Studies* 115: 225-244.

Lawless, Harry T. 1997. "Olfactory Psychophysics." In *Tasting and Smelling*, ed. Gary K. Beauchamp and Linda Bartoshuk, 125-174. San Diego: Academic Press.

Levine, Joseph. 2001. *Purple Haze: The Puzzle of Consciousness*. Oxford: Oxford University Press.

Lewis, C. I. 1929. *Mind and the World Order*. New York: C. Scribner's Sons.

Loar, Brian. 2003. "Transparent Experience and the Availability of Qualia." In *Consciousness: New Philosophical Perspectives*, ed. Quentin Smith & Aleksandar Jokic, 77-96. Oxford: Oxford University Press.

Locke, John. [1689] 1975. *An Essay Concerning Human Understanding*. Ed. P. H. Nidditch. Oxford: Oxford University Press.

Lormand, Eric. 1994. "Qualia! (Now Showing at a Theater Near You)." *Philosophical Topics* 22: 127-156.

Lycan, William. 1995. *Consciousness*. Cambridge, MA: The MIT Press.

_____. 1996. *Consciousness and Experience*. Cambridge, MA: MIT Press.

_____. 2000. "The Slighting of Smell." In *Of Minds and Molecules: New Philosophical Perspectives on Chemistry*, ed. Nalini Bhushan and Stuart Rosenfeld, 273-290. Oxford: Oxford University Press.

Mackie, J. L. 1976. *Problems from Locke*. Oxford: Oxford University Press.

Martin, M. G. F. 1992. "Sight and Touch." In *The Contents of Experience: Essays on Perception*, ed. Tim Crane, 196-215. Cambridge: Cambridge University Press.

_____. 2002. "The Transparency of Experience." *Mind & Language* 17: 376-425.

_____. 2003. "Particular Thoughts & Singular Thought." In *Logic, Thought and Language*, ed. A. O' Hear, 173-214. Cambridge: Cambridge University Press.

Matthen, Mohan. 1988. "Biological Functions and Perceptual Content." *Journal of Philosophy* 85: 5-27.

_____. 2005. Seeing, Doing & Knowing: A Philosophical Theory of Sense *Perception*. Oxford: Oxford University Press.

McClintock, Martha K. 1983. "Pheromonal Regulation of the Ovarian Cycle: Enhancement, Suppression and Synchrony." In *Pheromones and Reproduction in Mammals*, ed. J. G. Vandenbergh, 113-149. New York: Academic Press.

_____. 1999. "Pheromones and Regulation of Ovulation." *Nature* 401: 232-233.

McClintock, Martha K et al. 2001. "Pheromones and Vasanas: The Function of Social Chemosignals." In *Evolutionary Psychology and Motivation Nebraska Symposium Volume 48*, ed. J. A. French, A.C. Kamil and S.W. Leger, 75-112. Lincoln, NE: University of Nebraska Press.

McCulloch, Michael et al. 2006. "Diangnostic Accuracy of Canine Scent Detection in Early- and Late-Stage Lung and Breast Cancers." *Integrative Cancer Therapies* 5: 30-39.

McGinn, Colin. 1983. *The Subjective View: Secondary Qualities and Indexical Thoughts.* Oxford: Oxford University Press.

_____. 1996a. "Another Look at Color." *The Journal of Philosophy* 93: 537-553.

_____. 1996b. *The Character of Mind: An Introduction to the Philosophy of Mind.* Oxford: Oxford University Press.

McLaughlin, Brian. 2003. "The Place of Color in Nature." In *Colour Perception: Mind and the Physical World*, ed. R. Mausfeld and D. Heyer, 475-505. Oxford: Oxford University Press.

Mochiyama, Hiromi et al. 2005. "Haptic Illusions Induced by Moving Stimuli." *Proceedings of the First Joint Eurohaptics Conference and Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems*, 645-648.

Moore, G. E. [1903] 1993. "The Refutation of Idealism." In *G. E. Moore: Selected Writings*, ed. Thomas Baldwin, 23-44. New York: Routledge.

Nelkin, Norton. 1990. "Categorising the Senses." *Mind and Language* 5: 149-165.

Nudds, Matthew. 2003. "The Significance of the Senses." *Proceedings of the Aristotelian Society* 104: 31-51.

_____. 2001. "Experiencing the Production of Sounds." *European Journal of Philosophy* 9: 210-229.

O' Callaghan, Casey. 2007. "Constructing a Theory of Sounds." Unpublished manuscript, Bates College.

_____. Forthcoming. "Sounds and Events." In *Sounds and Perception: New Philosophical Essays*, ed. Casey O' Callaghan and Matthew Nudds. Oxford: Oxford University Press.

Peacocke, Christopher. 1983. *Sense and Content: Experience, Thought and their Relations.* Oxford: Oxford University Press.

_____. 1984. "Colour Concepts and Colour Experience." *Synthese* 58: 365-382.

Perkins, Moreland. 1983. *Sensing the World.* Indianapolis: Hackett Publishing.

Porter, Jess et al. 2005. "Brain Mechanisms for Extracting Spatial Information from Smell." *Neuron* 47: 581-592.

Reid, Thomas. [1785] 2002. *Essays on the Intellectual Powers of Man.* Ed. Derek R. Brookes. University Park, PA: Penn State Press.

_____. [1764] 2000. *An Inquiry into the Human Mind and the Principles of Common Sense.* Ed. Derek R. Brookes. University Park, PA: Penn State Press.

Roxbee-Cox, J. W. 1977. "Distinguishing the Senses." *Mind* 79: 530-550.

Sacks, Oliver. 1985. *The Man Who Mistook His Wife for a Hat & Other Clinical Tales.* New York: Harper Collins.

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

Shoemaker, Sydney. 1981. "The Inverted Spectrum." *Journal of Philosophy* 74: 357-381.

_____. 1996a. "Qualities and Qualia: What's in the Mind?" In his *The First Person Perspective and Other Essays.* Cambridge: Cambridge University Press.

_____. 1996b. "Self-Knowledge and 'Inner Sense', Lecture I: The Object Perception Model." In his *The First Person Perspective and Other Essays.* Cambridge: Cambridge University Press.

_____. 1996c. "Self-Knowledge and 'Inner Sense' Lecture III: The Phenomenal Character of Experience." *Philosophy and Phenomenological Research* 54: 291-314

Siegel, Susanna. 2002. "Review of *A Theory of Sentience.*" *Philosophical Review* 111: 135-138.

Smart, J. J. C. 1975. "On Some Criticisms of a Physicalist Theory of Colors." In *Philosophical Aspects of the Mind-Body Problem*, ed. Chung-ying Cheng, 54-63. Honolulu: University of Hawaii Press.

Smith, A. D. 2002. *The Problem of Perception.* Cambridge, MA: Harvard University Press.

Stager, Kenneth E. 1967. "Avian Olfaction." *American Zoologist* 7: 415-420.

Stoljar, Daniel. 2003. "The Argument from Diaphanousness." *Canadian Journal of Philosophy.* supp. vol.: 341-390.

Strawson, P. F. 1963. *Individuals: An Essay in Descriptive Metaphysics.* New York: Anchor Books.

Stroud, Barry. 2000. *The Quest for Reality: Subjectivism and the Metaphysics of Colour.* Oxford: Oxford University Press.

Thompson, Evan. 1995. *Colour Vision: A Study in Cognitive Science and the Philosophy of Perception.* New York: Routledge.

Travis, Charles. 2004. "The Silence of the Senses." *Mind* 113: 57-94.

Triplett, Timm. 2007. "Tye's Missing Shade of Blue." *Analysis* 67: 166-170.

Tye, Michael. 1989. *The Metaphysics of Mind.* Cambridge: Cambridge University Press.

_____. 1992. "Visual Qualia and Visual Content." In *The Contents of Experience,* ed. Tim Crane, 158-176. Cambridge: Cambridge University Press.

_____. 1995. *Ten Problems of Consciousness: A Representational Theory of the Phenomenal Mind.* Cambridge, MA: MIT Press.

_____. 2000. *Consciousness, Color, and Content.* Cambridge, MA: MIT Press.

_____. 2002. "Representationalism and the Transparency of Experience." *Nous* 36: 137-151.

_____. 2003. "Qualia." In *The Stanford Encyclopedia of Philosophy* (Summer 2003 Edition), ed. E. Zalta, <http://plato.stanford.edu/archives/sum2003/entries/qualia>.

_____. 2006a. "The Puzzle of True Blue." *Analysis* 66: 173-178.

_____. 2006b. "The Truth About True Blue." *Analysis* 66: 340-344.

_____. 2007. "True Blue Redux." *Analysis* 67: 92-93.

Urmson, J. O. 1968. "The Objects of the Five Senses." *Proceedings of the British Academy* 54: 117-131.

Van Cleve, James. 2004. "Reid's Theory of Perception." In *The Cambridge Companion to Thomas Reid*, ed. Terence Cuneo and René Van Woudenberg, 101-133. Cambridge: Cambridge University Press.

Van Toller, Steve. 1999. "Assessing the Impact of Anosmia: Review of Questionnaire's Findings." *Chemical Senses* 24: 705-712.

von Békésy, Georg. 1964. "Olfactory Analogue to Directional Hearing." *Journal of Applied Physiology* 19: 367-373.

Wyatt, Tristram D. 2003. *Pheromones and Animal Behaviour: Communication By Smell and Taste.* Cambridge: Cambridge University Press.

Wilson, Donald A. and Richard J. Stevenson. 2006. *Learning to Smell: Olfactory Perception from Neurobiology to Behavior.* Baltimore: Johns Hopkins University Press.

Wilson, Edward O. and William H. Bossert. 1963. "Chemical Communication Among Animals." *Recent Progress in Hormone Research* 19: 673-716.

Wysocki, Charles J, Kathleen M. Dorries and Gary K. Beauchamp. 1989. "Ability to Perceive Androstenone Can Be Acquired by Ostensibly Anosmic People." *Proceedings of the National Academy of Sciences* 86: 7976-7978.

Zozulya, S, F. Echeverri and T. Nguyen. 2001. "The Human Olfactory Receptor Repetoire." *Genome Biology* 2: 1-12.