

## Color and Color Experience: Colors as Ways of Appearing

Joseph LEVINE<sup>†</sup>

### ABSTRACT

In this paper I argue that color is a relational feature of the distal objects of perception, a way of appearing. I begin by outlining three constraints any theory of color should satisfy: (i) physicalism about the non-mental world, (ii) consistency with what is known from color science, and (iii) transparency about color experience. Traditional positions on the ontological status of color, such as physicalist reduction of color to spectral reflectance, subjectivism, dispositionalism, and primitivism, fail, I claim, to meet all three constraints. By treating color as a relational property, a way of appearing, the three constraints can be met. However, serious problems for this view emerge when considering the relation between illusory color experiences (particularly hallucinations) and veridical color experiences. I do not propose a solution to these problems.

### 1.

Why is the ontological status of color such a difficult problem? In fact, color is not the only property at issue. The problem basically surrounds all of what are traditionally known as the ‘secondary qualities’. Are objects really colored, or is it all in the mind? If a tree falls in the forest with no one there to hear it, does it still make a sound? These questions are puzzling, and part of the puzzle is why they are so puzzling. In this paper I want to argue that though one can, and for many purposes should, distinguish color from color experience, the problem with color, and the rest of the secondary qualities, is inextricably bound up with the mind-body problem.

Though this paper is not intended as a detailed response to Alex Byrne’s contribution to this volume, it was inspired by the question he asks. Byrne wants to know why philosophers think there is a mind-body problem in a way that they don’t think that there is, or don’t worry about, a color-body problem. Color, after all, is normally thought of as a property of physical objects – their surfaces (restricting ourselves to reflectance color for now). The ontological question, how do we locate color in the physical world, seems to be a problem about the metaphysics of color itself. Yet philosophers seem to think it’s somehow derivative from the mind-body problem, or maybe an aspect of it. Why is this? This paper is an attempt to answer that question, to show why it is, after all, really all about the mind and conscious experience.

---

<sup>†</sup> Department of Philosophy, Ohio State University, 350 University Hall, 230 North Oval Mall, Columbus, OH 43210-1365; Email: levine.120@osu.edu

Of course in a sense this is obvious. That is, no one disputes the claim that our primary means of accessing the colors of things is through our conscious visual experiences of them. If everyone we knew suffered from achromatopsia – the inability to see color at all – we wouldn't be having this discussion. But it's one thing to acknowledge that color is known to us through color experience, and quite another to go on to claim that color is essentially a mental phenomenon in some way. It is this latter claim I want to make. Basically, I want to say that color is a way of appearing to a conscious subject. It is a relation that holds between objects and conscious subjects, and without conscious subjects there is no color.

Of course I realize that the claim that color is essentially a way of appearing to a conscious subject is not crystal clear as it stands. My plan is to work up to an explication and defense of the thesis by first exploring the problem of color as it has been developing of late in the literature – or at least present my perhaps idiosyncratic take on that development. After winding our way through the dialectic surrounding the problem of color, I hope my thesis will emerge more clearly and seem at least more reasonable than it might seem at first. (See Byrne and Hilbert 1997; 2003 and Hardin 1988 for presentation and critical discussion of all the major positions on the status of color.)

## 2.

Let's begin by surveying the various constraints that seem initially plausible to place on any theory of color, constraints that have certainly been influencing the course of the current disputes:

- (i) Physicalism concerning the extra-mental world – with the possible exception of mental events (okay, moral ones too), whatever happens in the world does so by virtue of, indeed supervenes on, whatever happens at the microphysical level.
- (ii) The psycho-physical facts – by these I mean the facts as established to date by color scientists concerning the features of objects and the psycho-neural mechanisms that are responsible for color experience.
- (iii) Transparency – visual experience presents us with a representation of the way the world is around us, in that part of our environment accessible to our sensory mechanisms.

Not everyone accepts all three constraints. Primitivists about color, as we'll see, may, depending on just what their primitivism comes to, refuse to abide by constraint (i). Many philosophers in one way or another refuse to accept (iii) as well. Almost everyone, of course, will want to say only what is consistent with well established science, so (ii) is probably the most widely accepted. But I myself think all three are pretty reasonable, so I want to proceed on the basis of, at least

provisionally, accepting all three. But before going on it would help to say a few words about each one.

The debate over the mind-body problem takes place against a backdrop of a general physicalistic outlook about the non-mental realm. (Again, I note that the moral realm may be another exception, but let me just ignore that for present purposes.) Now some take issue with this, arguing that we have no well-defined conception of the physical against which to contrast our notion of the mental. Perhaps. But by and large most philosophers agree that when it comes to the ordinary properties of physical objects they are determined by the underlying micro properties posited by physical theory. On this view, if color is a property of tomatoes and shirts, then it's by virtue of their microphysical properties that they have the colors they do.

A primitivist about color is someone who doesn't think color is reducible to other properties. Color is a primitive property of the objects that have it. Now it isn't totally clear to me what primitivism comes to. One way of reading it, on which it would be in direct conflict with constraint (i), is that to be a primitive property is to be a 'basic' property. By 'basic', I mean a property that is instantiated in an object (or, if a relation, in an n-tuple of objects) not by virtue of realization through other properties. The ultimate physical properties – say spin, electric charge, certain spatio-temporal properties – are basic in this sense. Biological properties, like being a cell, or digesting, are not. These latter are realized by more basic physical properties.

I will not try to be more precise here, as I think the idea is fairly clear. I take it that the main thrust of constraint (i) is to say that the fundamental physical properties posited in physical theory are the only basic properties. Presumably, assuming no truly revolutionary change in physics in the requisite direction, color is not among these fundamental physical properties. So if a primitivist means to claim that color is truly basic, he/she is at odds with constraint (i).

There might be other ways of being a primitivist that don't entail conflict with constraint (i). If so, fine. These versions of primitivism will suffer from the same problems that their non-primitivist cousins do, simply by virtue of satisfaction of constraint (i). So long as one thinks that color is realized by, or at least metaphysically supervenient on microphysical properties, the relevant problems will arise, as we will see. So from now on I will use 'primitivism' to stand for the position that color is a basic property.

Aside from wishing to avoid ontological extravagance, the principal reason for abiding by constraint (i) is a wish to adhere to constraint (ii). Our best science tells us that our color experiences, on which are based the vast majority of our color judgments, are determined by the interaction between certain neural mechanisms and the light reflected off of the surfaces to which we attribute the colors. If colors weren't either identical to, constituted by, realized in, or at least metaphysically

supervenient on the relevant microphysical properties, this dependence of color experience/judgment on these neural-optic interactions would be totally mysterious. Thus constraint (ii) serves to support constraint (i).

But constraint (ii) does much more as well. Our best theories of color vision, including the popular opponent-process theory, tell us that color experience is a very complicated process indeed. Rather than a straightforward response to types of light waves reflected off of surfaces, visual experiences of color are determined by a large number of parameters, such as spectral reflectance of the target surface, spectral reflectances of surrounding surfaces, the kind and intensity of illumination, the state of adaptation of the relevant neural mechanisms in the visual system, and certain specified properties of the individual perceiver. Let us just call this overall phenomenon the ‘relativity’ of color experience.

Constraint (iii), transparency, has to do with the nature of color experience itself. In particular, to adopt transparency is to take a stand on the nature of qualia, the qualitative characters of conscious sensory states. With regard to color experience, consider the visual experience of seeing a red tomato. As philosophers are used to saying now, following Nagel, there is something it’s like to see the redness of the tomato. How should we understand this feature of our experience? Is it a property of our mental state? If so, what kind of property? The advocate of transparency says that we shouldn’t think of what it’s like to perceive the redness of the tomato as other than the perception’s representing the tomato as possessing a certain property: namely, redness. Our experience presents the redness as in the tomato, not in us. The only property of us, or of our mental state, that is constitutive of the qualitative character is the intentional property – the property of representing redness. What it is like to see something red is precisely to see it as red, nothing more.

As I said above, not everyone accepts constraint (iii); it is undoubtedly the most controversial of the three constraints. But I think there is something right about it. What’s more, I think it particularly interesting to explore what happens to one’s theory of color if we incorporate it as one of the constraints that theory must satisfy. What we will find, as I will argue below, is that none of the standard theories can satisfy all three constraints. At that point we can see whether it behooves us to relax any of them, and if so, which one. I will contend, however, that this investigation will point the way toward another type of theory entirely; one that is quite mysterious in its own right, as we will see.

### 3.

The most straightforward view that meets constraints (i)–(iii) is color physicalism: the view that the colors of objects are certain physical properties of those objects. Which physical properties? Well, this is where things get messy. For one thing,

we know that there won't be any intrinsic or structural property of surfaces by virtue of which all red objects count as red. The reference of 'red' is clearly fixed by our visual response, and what we respond to is the light reflected from surfaces. If it turned out that there was a well-behaved natural physical property that corresponded to the disposition to reflect the relevant light, we could then identify that property as the referent of 'red'. But we know there isn't such a property. In fact, there isn't even a specific kind of light package that normally gives rise to the visual experience of red. The best we seem able to do is identify color with a fairly abstract disposition of physical surfaces, their spectral reflectance. So the most popular physicalist theory of color identifies particular colors with (classes of) spectral reflectances.

But even this seems to run afoul of constraint (ii). As mentioned above, our best theories of color vision emphasize the relativity of that experience to a number of parameters. It might seem that one could overcome the problem of relativity by appealing to 'standard', or 'normal' conditions, but, as Hardin<sup>1</sup> has argued, there seems to be no basis for privileging certain parameter settings as the 'normal' ones. His favorite example is the location of 'unique green'. If we take a series of chips and are asked to order them from yellowish green, to unique green (neither yellowish nor bluish), to bluish green, different observers – in the same light, etc. – will disagree about which chip is unique green. These surfaces differ clearly in spectral reflectance, so which one do we choose as the referent of 'unique green'? It seems that there is no basis on which to choose one person's judgment as veridical over another. Hence, identifying colors with spectral reflectances seems unpromising.

An alternative to the physicalist approach is the dispositional view. On this view, which I take to be Locke's notion of a secondary quality, the color red is the very property of being disposed to cause experiences of a certain type (reddish ones) in us. There are two clear problems with this view. First, it seems to sit uneasily with transparency. If being a reddish experience could be fixed independently, as defined, say, by an intrinsic mental property, then there would be no problem. (Again, I take it this was Locke's view.) But the transparency theorist wants to identify being a reddish experience with something's looking red to one, with representing a property of the requisite distal surface. So now we have the following situation. To be red is to be disposed to cause something to look red. If 'red' in 'looks red' is used in the same sense as 'red' in 'to be red', we have failed to provide a reductive identification, which is what we were after (not being primitivists).

There is a way around this problem. 'Looks red' can refer not to the property of representing red, but rather to a certain internal representational state,

<sup>1</sup> See Hardin 2004.

identifiable independently of its content. That is, if we assume that the color vision system is a representational system, we can type its internal states in terms of internal functional roles, and then use the relevant dispositional properties of objects to cause these states to be tokened as their contents. So, for instance, on the opponent process theory a certain state of the three channels represents a particular color. We can characterize that state of the three channels without appeal to what it represents, and then interpret it as a representation of the disposition to cause the visual system to go into that state. Nothing circular about that.

Still, as Byrne and Hilbert 2003 argue, the dispositional position is unmotivated. It's really unclear why one would take the dispositional property to be what's represented by a visual experience rather than the categorical property that grounds the disposition, which is the physicalist position. After all, the principal problem we've found for the physicalist position, the problem of relativity, is equally a problem for dispositionalism. The very same surface that is disposed to cause R-experiences in me is disposed to cause R'-experiences in someone else. Furthermore, if one assumes that some sort of nomic dependence condition is going to underwrite the interpretation of color experiences, it's unclear that it even makes sense to say that a certain representation is nomically dependent on a dispositional property. That the disposition holds is itself a reflection of the nomic dependency, a dependency that presumably holds between the disposition's ground and the representation.

Can the physicalist make room for relativity? Sure, just relativize. Take a particular surface with spectral reflectance SR-1. Instead of saying that having SR-1 makes that surface unique green, we can say that it makes the surface unique green for Jones, bluish green for Smith, and yellowish green for Brown (of course we can relativize to parameters other than observer as well, such as viewing conditions and state of adaptation). In this case we can truly say that all three are right, which seems to be the preferred option since there doesn't seem to be a basis for saying that any of the three are perceiving more accurately than the other two.

However, there are two problems with going relative. First, and this seems to be Byrne and Hilbert's (2003) problem, relativizing opens the door to saying that there is never a case of non-veridical color perception, and that every object literally has (nearly) every color, since one can always relativize to the relevant viewing/observer/adaptation conditions at hand. Something can look any way you want if you appropriately manipulate the state of the observer and the viewing conditions. So not only is the relevant surface yellowish green, unique green, and bluish green at the same time (each of course relativized to appropriate conditions), but it's also purple, orange, and scarlet as well. This seems to rob the idea that color perception represents the world of any meaning at all.

While I see that a potentially serious problem lurks here, it's not clear to me that it can't be overcome. As we noted above when discussing the straight physicalist proposal, one natural response to the phenomenon of relativity is to appeal to certain optimum, standard, or normal conditions. We found this unpromising because there didn't seem to be any plausible candidate for such conditions that didn't leave a good deal of relativity in place. So, for instance, if you want to specify certain illuminants and surrounds, well you still get disagreement about unique green. To then pick one observer and call him/her the 'normal' one seemed hopelessly chauvinistic. But once we relativize at least to individuals, it isn't clear that the task of specifying normal conditions is hopeless. At least it seems a much less daunting task than to specify such conditions interpersonally. Of course whether it can be done even intrapersonally is an empirical issue.

But the second problem seems decisive to me. Going relative will certainly violate constraint (iii), and undermine the representationalist strategy for reducing qualia to intentional contents. Again, consider the case of a single surface that Jones judges to be unique green, Smith judges to be bluish green, and Brown judges to be yellowish green. Presumably this surface looks different to each of Jones, Smith, and Brown. What it's like for Jones to see the surface is different from what it's like for Smith and Brown. Now how do we capture this difference? After all, on the relativist's theory there isn't a disagreement about what the surface looks like. Since what it's like to see it is supposed to be reducible to what it looks like, then if they don't differ in what it looks like, they don't differ in what it's like for them to see it. But that's absurd, since it looks clearly different to Jones and Smith.

In a way, the point can be made even stronger by considering the inverse case. That is, suppose we have surfaces S1 and S2. Jones sees S1 as unique green and S2 as bluish green, while Smith sees S1 as yellowish green and S2 as unique green. Clearly, S1 and S2 differ with respect to spectral reflectance, since in the same conditions they look different to both observers. Also pretty clearly, what it's like for Jones to see S1 (with respect to hue) is identical to what it's like for Smith to see S2. How do we capture the way these two experiences are alike? It certainly can't be captured in terms of representational content if you're a relativist.

Of course if you insist that one of them is right and one of them is wrong, then you could say that they agree in representational content. Or, if you give up transparency and allow that what it's like to see color is an intrinsic property of one's experience, then you can keep the relativity in your account of representational content. But what you can't have together is transparency – including a representational account of qualia – and relativity. (Of course one could just deny that any interpersonal comparisons of qualitative character make sense. But that seems ad hoc to me, only motivated by saving whatever theory demands it.)

## 4.

So we have come to this. Color perception seems to present us with information about the external world – that objects have certain properties – but we can't find a place for these properties in our theory of the world. Okay, so maybe colors are illusions, like witches and phlogiston. Our perceptual system is guilty of describing the world in terms of a false theory. There really are no colors, just, as Hardin says, chromatic experiences.

Is that so bad? I'm not awfully offended, on behalf of my visual system, by the charge of illusion. The idea that the common things we say – for instance, that bananas are yellow – are false isn't that hard to swallow, at least for me. It's not the mere inaccuracy alone that troubles me, the mere indictment of the visual system. What does trouble me, however, is how to understand this illusion.

What I mean is this. Look, as in standard cases of color-coding, where the representational vehicles are actually colored, in the visual representation of the world there just is something yellow. The yellow is out there: you can see it. Despite analogies with words, there really does seem to be a crucial difference between the way yellowness is involved in the visual representation of color and the way it's involved – i.e. not involved – in the verbal representation of color. So how do we deal with this manifest presence of color in experience? Many philosophers like to appeal in such cases to the idea of intentional inexistence. One can look at it this way. The visual system is constructing a picture of a world that doesn't really exist. It is presenting us with a virtual world.

Let's consider for a moment the notion of intentional inexistence, or the idea of a merely intentional object. Standard examples of such entities are the pink elephants hallucinated under the effect of drugs or alcohol, or the characters in fiction and mythology, like Hamlet and Santa Claus. But all of these cases, where there doesn't seem to be much of a problem of how to think about them (of course there are problems about the semantics of fictional discourse, but no real ontological or epistemological problem), involve empty singular terms – objects, individuals, that don't exist. It seems to me that there's a real contrast when it comes to properties and predicates. We have a clear idea of what it is for an individual not to exist, but not at all for what it is for a property not to exist.

Sure, there are cases like phlogiston. But I think they can be handled through reference-fixing mechanisms that appeal to genuinely instantiated properties. But colors are presented right there in experience. So, why is it different from pink elephants? Notice, by the way, that on some views of sensory representation, such as Clark's (2003) 'feature-placing' account, even pink elephants don't necessarily involve intentional inexistence. If we take the objects of sensory predication to be space-time regions, then seeing pink elephants is a matter of incorrectly attributing some properties to some actually existing regions of space-time. So long as



the properties are genuine, the hallucination turns out to be no different than any other inaccurate predication. The object, insofar as it is something over and above the space-time region, is not what's immediately presented in experience, and it is as cognitively mediated as Santa Claus. But the pinkness is another matter. If pink isn't a property that is genuinely instantiated in any space-time region, then what the hell is it that I'm seeing? Something certainly seems to be instantiated here.

5.

The central problem about color, as with all the secondary qualities, is that it doesn't sit easily either out in the world or entirely within the mind. Our perceptual experience clearly presents us with a world 'out there', but on closer inspection it's hard to see how the features of that world it presents to us can be truly, objectively, wholly in the objects that populate that world. Consider again that old saw, if a tree falls in a forest with no one there to hear it, does it make a sound? Sure, there's a clear sense we can make of an affirmative answer, especially if we're willing to identify sounds with patterns of airwaves. Yet, if you really think about it, is the sound just the airwaves? Isn't there something about what a sound is that seems to require a hearer? Isn't a sound, or a color, somehow essentially something experienced?

Transparency, derived mainly from attention to the phenomenological facts, makes color something *of which* we are aware, and therefore not a property of the state of awareness itself. What pushes us in the other direction though? Where does the pressure to locate color in the mind come from? It seems to me that there are two sources. The first, which has been the subject of the first four sections of the paper, is the problem of finding a decent physical candidate with which to identify color. The clear implication of that discussion, as with most of the discussion in the literature, is that were the psycho-physical facts to be more agreeable – suppose, contrary to fact, that nothing looked red unless it reflected a particular wavelength – then the ontological problem of color would go away. But as I was hinting above concerning sound, I don't think this is the case at all.

It's my view that what is really behind the push to locate color in the mind is not the messiness of the psycho-physical facts. Rather, it's that color seems to be nothing more than a way of appearing to a conscious perceiver; a way things look. Now, this is a deceptively simple way to put it because we've been emphasizing all along, through the transparency constraint, that the contents of visual color experiences are ways things look. But there is a subtle difference between saying that things look red and saying that red is simply a way things look. This latter formulation makes red into something essentially mental. It is this fact about the

nature of color – that what it *is* is a way of appearing to a conscious subject – that really motivates our pushing it back into the mind.

The very terms ‘qualia’ and ‘secondary *qualities*’ evoke this dual aspect of colors, sounds and the rest. On the one hand, they seem to be the very stuff of the qualitative character constitutive of conscious sensory experience, the ‘what’ of ‘what it’s like’ to have these experiences. On the other hand, they also seem to be the ‘what’ in ‘what we are aware of’, which tends to locate them in the objects we perceive. I want to say there’s both something right and wrong about both positions. The ‘qualia freak’ is right in seeing colors and sounds as grounded in the nature of conscious experience, but wrong in thinking this demands that they be thought of as intrinsic properties of experience. The representationalist is right in insisting on transparency, but wrong in thinking that this therefore entitles her to treat secondary qualities as extra-mental.

The picture I have, which, again, seems to me very much in the spirit of the Moderns’ take on the primary/secondary quality distinction, is this. Before there are conscious subjects, the world is populated with objects having mass, motion, charge, and the like, including whatever aggregative properties are built out of these. Colors and sounds are not among the world’s features. (So when that tree falls, it doesn’t make a sound, at least in the sense I’m intending. Of course something does happen, which, were a hearing subject around, would be heard as a sound. But that isn’t itself a sound.) When conscious subjects enter the world, what also enters are the ways things appear to those conscious subjects. Not only does the ‘y’ term in ‘x looks Q to y’ now first enter the scene, but the ways of looking themselves, the values for ‘Q’, also make their entrance.

When Locke argued that secondary qualities were not really in the objects we perceive, he drew an analogy with pain. Just as you wouldn’t claim that the pain caused by a knife penetrating the skin is in the knife, so too the color you see isn’t really in the tomato. Many philosophers today disagree. They mark a principled distinction between pains, as bodily states, and colors, properties of perceived objects. However, under the pressure of the task to naturalize qualia, philosophers who take the Representationalist route to naturalization have pushed the transparency argument to bodily states like pain as well. On their view, where Locke went wrong was in thinking that the pain had to be in the knife if it was anywhere outside the mind. Rather, when a knife penetrates the skin and it hurts, one is perceiving a state of the body (when veridical, a state of that part of the body that hurts) in the same sense in which one is perceiving a state (or feature) of the tomato when it looks red.

I too think that the cases of color and pain are fundamentally alike, though I want to try to combine Locke’s position with the Representationalists’. The difficulty in understanding how to treat pain is manifested beautifully by the apparent ambiguity of the word ‘feeling’, as it occurs in ‘feeling pain’. David Lewis

famously said that pain is essentially a feeling (I've heard Bill Lycan quote this many times, but don't know any written source); but what is a feeling anyway? Is it a qualitative mental state, or is it an awareness of a qualitative mental state? Now one might see this as just a verbal issue, a straightforward ambiguity. On the one hand, we talk of 'feeling a pain', which makes the pain seem like the object of awareness, and the feeling the act of awareness. On this view, it makes perfect sense to talk of unfelt pains. Feeling the pain doesn't any more bring it into existence than seeing a tomato brings it into existence. On the other hand, if one adopts Lewis's slogan, 'pain is a feeling', then it's the feeling that is the object of awareness, it is not the act of awareness itself. So while there aren't unfelt pains, on this reading, there are feelings we are not (consciously) aware of.

Treating the possibility of unfelt pains as a matter of verbal ambiguity (either of 'pain' or 'feeling', or both) certainly eases the naturalization task; but I think it hides what is in fact the very puzzling nature of pain, and feelings generally. They seem to involve an act-object structure, so that there is something one is feeling when one is having a feeling. On the other hand, what's being felt, the apparent object, seems to itself be a mode of conscious experience, not an extra-mental feature of an extra-mental object. If you just contemplate that throbbing in your finger when, say, you jam it in a door, you know what I mean. You are aware of the throbbing, it is the object in that sense, but throbbingness seems to be itself part of the very stuff of conscious experience. I think this is indeed puzzling, and I do not know how precisely to understand the phenomenon. My main point here, however, is that I think color is puzzling in just the same way as throbbing.

On my view, then, colors and pains are both appearance properties; i.e. essentially ways of appearing to conscious, sentient beings. When I jam my finger in the door, its throbbing is the way the damaged state of my finger 'appears' to me, the subject of this conscious state. When I see a ripe tomato, its color is the way it appears to me, again the subject of this conscious state. This is how I bring Locke and the thoroughgoing Representationalists together.

There's one other phenomenon that I think helps support the view I'm trying to articulate. This has to do with the concept of color, not color itself. One significant divide in philosophical views about concepts is whether or not there are substantive epistemic constraints on concept possession. For years, Jerry Fodor and Ernie LePore (see Fodor and LePore 1992 and 2002) have argued against the idea that concept possession entails anything other than possession of a mental representation that has the relevant content. So to think RED, on their view, is to have a mental representation that means red – period. Other philosophers, most notably Chris Peacocke (1992), believe that fairly substantive epistemic constraints – dispositions to engage in various inferences involving the concept,

taking certain facts as evidence for application of the concept, etc. – must be satisfied before someone can be credited with possession of a concept.

One way this controversy is played out has to do with the notion of a ‘recognitional concept’. A recognitional concept is one that is possessed by a subject if and only if the subject is disposed to apply the concept directly in response to certain experiences. So, for obvious reasons, color concepts are taken to be recognitional. Fodor (1998), however, denies that even RED is a recognitional concept, arguing that the powerful weapon of compositionality slays all candidates for epistemic constraints on concept possession. We need not go into this debate, interesting as it is, but there is one aspect of it that seems relevant to our present concerns.

Fodor’s idea about RED is that so long as you possess a mental representation that refers to the appropriate color, you have the concept. On this view, blind people can have the concept as well. Now it certainly seems right that there is a sense in which blind people can possess color concepts. An atomistic informational semantics for concepts of the type Fodor defends seems apt for this kind of case. While I find myself generally on Fodor’s side of the debate over epistemic constraints on concept possession, I do find that with respect to RED I don’t quite buy it. That is, it seems to me that those who say that without ever seeing red one can’t have the ‘full concept’, or a ‘genuine concept’ of the color are on to something. Well, if one doesn’t buy the general line about epistemic constraints, why buy the line that RED, or the ‘full concept of RED’, is recognitional after all?

Well, here’s a reason. One might argue that in fact one can’t have the concept RED without having had experiences of red because red is an experiential property, an appearance property of the sort I’ve been trying to describe. It isn’t that you need to accept the idea that there are epistemic constraints on possession of the concept; that if one isn’t disposed to judge ‘that’s red’ in response to seeing something that looks red one hasn’t mastered the concept. On the contrary, what one takes as evidence may be only contingently related to concept possession, even for RED. Rather, the idea is that since being red is essentially a matter of how something appears, one can’t have a representation which bears the appropriate relation to that appearance – and therefore has that content – unless one is capable of being appeared to in that way. If this is right, it vindicates the strong intuition that there is indeed a constitutive connection between having reddish experiences and having the concept RED without buying into a generally epistemicist conception of concept possession. I take this to be a virtue of the view of color I’m trying to present that it underwrites this sort of position.

Not surprisingly, probably the most straightforward implementation of the idea that colors are essentially ways of appearing is with sense data. On the sense data view, the conscious mind is a theater in which mind-dependent objects with mind-dependent properties are there to be ‘viewed’ by the conscious subject, the lone

member in this theater's audience. If colors were features of sense data, they would certainly fit my description of being essentially appearance properties. But, also not surprisingly (I hope), I do not want to be committed to sense data. Is there another way to make sense of this view that doesn't posit objects over and above the ones that occupy real space-time and with which we physically interact?

I think there is. But first let me emphasize that I'm not claiming that color experience can be naturalized – I have no clue about how to do that, or if it's indeed possible. What's more, given my claim about the essential link between color and color experience, I also have no clue whether or not color itself can be naturalized. So in looking for a model of the relation between color and color experience that avoids sense data, I'm not also taking on the task of providing a naturalization of the phenomenon. Rather, I just want to see how to understand what an appearance property is, assuming that the objects to which we attribute them in experience are the genuine physical objects we encounter in real, physical space-time. How this property, or relation can then be reduced to the physical mechanisms that clearly give rise to it is another matter.

One idea is to see looking-red as a primitive relation, and then to treat redness as a disposition to enter into that relation with a conscious viewer. Manifest color, then, is essentially a term in a relation, never instantiated as an intrinsic property in either term of the relation. One might think of looking-red as similar in a certain way to the manifest relation of dissolving, and its relation to solubility. An object is water-soluble if it's disposed to dissolve in water. Notice for the relevant manifest property to be instantiated, the substance in question must be in solution with water. It can't manifest that disposition without standing in that relation to water. Here too, the relevant relation is looking-red, and that can only be instantiated when an object is being observed by a conscious subject. So yes, objects can be red on their own, but the real phenomenon, the manifestation, is located in the looking-red.

Notice that this view differs significantly from the dispositional view described above in section 3. On that view, the manifest property by reference to which color as a dispositional property was constituted was a property of the subject, her being in a certain qualitative state. Looking-red on that view was just a matter of one's sensory state possessing a certain qualitative character, an intrinsic property of the state. This of course loses the intentional aspect of color experience that the transparency constraint brings with it. The present view, though, is to treat the manifest property as a genuine relation holding between the subject and the object, and for that relation to be mental and intentional, a matter of the object looking a certain way. Again, just as the disposition to dissolve isn't merely a disposition to cause a change in the state of the water, but rather to be in solution with water, so too the disposition to look red is not merely a disposition to cause a change in the observer's state, but rather to look a certain way to the subject.

If we take properties like colors and sounds to be instantiated only as relata of conscious observations – appearance properties – then a number of questions arise. First, how are these properties represented in experience? Doesn't looking red at least seem to be looking to have an intrinsic property, being a certain way independent of the observation? Is this a mistake? Second, how should we think of the primary qualities, especially spatial properties, which also seem to have particular looks or appearances? Third, how should we think about hallucinations, when the object that is supposed to be the second relatum in the looks-red relation doesn't exist? Finally, and this is connected to the other three questions, to what extent is the view presented here a kind of color eliminativism? How is it related to the idea that colors are projected properties, or mere intentional properties?

In order to flesh out the view and make it at all convincing, these questions need to be answered. I leave this task for another project. What I've tried to do here is to suggest a way of thinking about color that explains why its status has always seemed so problematic, and, even more important, why it really is all about the mind after all.

#### REFERENCES

- BYRNE, A. and HILBERT, D. (eds.) 1997, *Readings on Color, Vols 1 & 2*, Cambridge, MA: MIT Press.
- BYRNE, A. and HILBERT, D. 2003, 'Color Realism and Color Science,' *Behavioral and Brain Sciences* **26**, pp. 3–21.
- CLARK, A. 2003, *A Theory of Sentience*, Oxford: Oxford University Press.
- FODOR, J. 1998, *In Critical Condition*, Cambridge, MA: MIT Press.
- FODOR, J. and LEPORE, E. 1992, *Holism: A Shopper's Guide*, Oxford: Blackwell.
- FODOR, J. and LEPORE, E. 2002, *The Compositionality Papers*, Oxford: Oxford University Press.
- HARDIN, C. L. 1988, *Color for Philosophers: Unweaving the Rainbow*, Indianapolis/Cambridge: Hackett Publishing Company.
- HARDIN, C. L. 2004, 'A Green Thought in a Green Shade', *Harvard Review of Philosophy*, **XII**, pp. 29–39.
- PEACOCKE, C. 1992, *A Study of Concepts*, Cambridge, MA: MIT Press.