

Abstract

The philosophical debate over the nature of color has been governed by what we have learnt from color vision science and what color phenomenology suggests to us. It is usually thought that color eliminativism, which maintains that physical objects do not have any properties that can be identified with colors, can account for the former but not the latter. After all, what could be more obvious than the external world to be colored? Here I outline one color eliminativistic response to the objections based on phenomenology.

Introduction

To talk about colors is to talk about properties that our color vision affords us. Accordingly, the debate over the question what kind of properties colors are – what kind of fact we are describing when we say that something is red – is governed by two aspects. First, the main reason why we have shown interest in the nature of colors for thousands of years is that our visual experiences of the external world are colorful. In accordance with this, the phenomenology of color experiences suggests a number of beliefs or intuitions that any acceptable theory of color should accommodate in some way. More recently, our increased knowledge in science has exposed new things that theories of color have had to incorporate in one way or another. Examples of these include the knowledge of the properties of objects that influence the reflected spectrum, the existence of metamers, and the extent of variation in color vision.

The philosophical theories of color come in two sorts: color realistic and color eliminativistic theories. Color realists hold a common sense view claiming that colors are properties of physical objects. These theories in turn can be classified into two groups depending on their view whether colors are defined in relation

to the observer's experiences (relational color theories¹) or not (objective color theories²). Color eliminativism, on the other hand, denies that physical objects have any properties that can be identified with colors. Rather, colors should be identified either with some neural properties or with phenomenal properties³.

The discussion about color has mostly focused on arguments against and for specific accounts of color realism. This is partly because there have been reasons to hold that a color realist cannot provide an acceptable account for all the key features of our color phenomenology and what is known about color vision at the same time. While recent color realists have addressed these concerns commendably, their theories have turned out rather complex, which in turn has lessened the satisfactoriness of the developed theories.

Given all the objections put forward against color realistic views, one could assume that color eliminativism would be a popular theory. Yet this is not the case. Rather it has been thought that it should be endorsed only if no color realistic account can be provided. The explanation for this surprising fact is that color eliminativism does not appear to be able to account for many of the intuitions that color phenomenology affords us. Possibly the most basic one of these is the idea that the external world is filled with colored objects. Since color eliminativism rejects this idea, it is a rarely defended account despite the problems with color realistic theories. After all, as long as we see colorful objects, it is hard not to believe in color realism.

Due to the implausibility of color eliminativism, it has remained far less developed and less defended than its color realistic alternatives. The objective of this paper is to take first steps towards amending this situation. This will happen by outlining how color eliminativist can overcome the tension between color eliminativism and color phenomenology by accommodating different intuitions governing our conception of colors. The background idea here is that even though the color eliminativist cannot acknowledge that most of the intuitions that phenomenology suggests are true, it can explain why we have these intuitions. If the color eliminativist succeeds in that, he can come into the terms with the intuitions and they should not be counted as adding to the implausibility of color eliminativism. Quite the contrary, if the color eliminativist framework suggests that we have certain intuitions, then the existence of those intuitions might even strengthen its case!

In what follows, I will begin by describing intuitions that all theories of color should try to explain. After that I will show how the color eliminativist can address them. I do not consider the reasons favoring one version of color eliminativism over the other or the success of color eliminativism as compared to color realism

¹ See for example Cohen 2003, Jackson and Pargetter 1997.

² See for example Bradley and Tye 2001, Byrne and Hilbert 1997, 2003.

³ See for example Hardin 1988, 1992, McGilvray 1994.

in general. Nor is the empirical matters related to color vision discussed because it is commonly assumed that a color eliminativist can address them.

Intuitions about colors

Taking phenomenology seriously means of course focusing on how colors appear to us and what we can learn by reflecting on these experiences. Philosophers have usually thought that a great deal can be learnt in this way. Paul Boghossian and David Velleman⁴ (1991: 85) for example claim that *it is our experiences* that provide us the knowledge that colors are «properties that things visually appear to have» and that colors can be sorted by their relations to one another. Red and orange for example are more similar to each other than either one of them is to blue. Boghossian and Velleman are not the only ones to have made these claims. In fact, similar claims also appear in Mark Johnston's list of our color intuitions⁵:

- 1) Paradigms: Some of what we take to be paradigms of canary yellow things (e.g. some canaries) are canary yellow.
- 2) Explanation: The fact of a surface or volume or radiant source being canary yellow sometimes causally explains our visual experience as of canary yellow things.
- 3) Unity: Thanks to its nature and the nature of the other determinate shades, canary yellow, like the other shades, has its own unique place in the network of similarity, difference and exclusion relations exhibited by the whole family of shades.
- 4) Perceptual availability: Justified belief about the canary yellowness of external things is available simply on the basis of visual perception.
- 5) Revelation: The intrinsic nature of canary yellow is fully revealed by a standard visual experience as of a canary yellow thing⁶.

There are two noteworthy differences in Boghossian and Velleman's view, and the intuitions in Johnston's list. First, while the former argue that reflection on our color experiences provides all that is necessary for the knowledge about colors they list, the intuition of revelation in Johnston's list makes even a bolder claim: color experiences provide us all the knowledge that is possible in general to have about colors.

The intuition of revelation intuition, held already by Bertrand Russell (1912) and more recently by Galen Strawson (1989), has been much disputed because it challenges some versions of color realism. It has been argued, for instance, that

⁴Boghossian and Velleman 1991: 85.

⁵Johnston called these beliefs, Boghossian and Velleman as epistemological constraints.

⁶Johnston 1992: 222-223.

colors cannot be dispositions, since they do not look like such (or otherwise the intrinsic nature of colors is not fully revealed in our standard visual experiences). Likewise, if colors are disjunctions of primary properties we would only see part of the color, one part of the disjunction at a time, which would again violate the intuition of revelation.

Color realists have a ready answer at their disposal for these objections: as all color realists claim our color experiences to represent colors as properties of physical objects, they can argue that the intuition of revelation concerns only our visual experiences, not their causes. It is argued, thus, that even though colors as represented reveal themselves as simple, their causes (the content of experiences) do not have to. Therefore, these causes (i.e. colors) can still be, for instance, dispositions or disjunctions of primary properties. However, in order for this reply to hold, color realists need to maintain two-layer picture of colors where the colors as represented need not match with the intrinsic nature of colors as properties of physical objects. Since color eliminativists endorse only the existence of experiences of color, the reply given by color realists to the revelation intuition also helps their cause.

As quoted above, Boghossian and Velleman argue that our experiences suggest that colors are «properties that things visually appear to have». However, they put this idea forward as a matter that our phenomenology suggests, not as a truth. Here lies the second noteworthy difference between them and Johnston, as the latter takes this assumption as his starting point. Although this probably results from the fact that his article concentrates only on color realistic theories, it is illustrative that our belief about the existence of colored physical objects appears to be so strong that it need not even be included in the list of beliefs or intuitions we have concerning colors! This is particularly remarkable considering that the first, second and fourth intuitions in Johnston's list appear to have an implicit commitment to the intuition of color realism (as discussed below). However, if we want to make a real choice between color realism and color eliminativism, we cannot obviously take this color realist assumption for granted. Instead, it must be stated as an intuition we have about colors:

6) The intuition of color realism: colors are properties of physical objects.

The intuition of color realism says, thus, that the property of being red, for instance, is a property that inheres in physical objects. While this is something that cannot be assumed to be true, we can assume that we have that intuition, and require an explanation of it.

The intuition of color realism is easily confused with a claim that colors are properties of things external to us. Indeed, those who endorse color realism

sometimes express their views with a reference to externality. Peter Bradley and Michel Tye⁷ for example remark that

[t]he obvious view of color, at least as far as common sense goes, is that the colors we see objects and surfaces to have are external properties of those objects and surfaces. We think of colors as inhering in surface.

Nevertheless, while it is natural to liken external objects and surfaces with physical objects, especially when the sense-datum theory has been repudiated, it is worthwhile to express this phenomenological point in a way that is more neutral:

7) The intuition of externalism: colors are properties of the bearers that are external to us.

The rationale behind this intuition is simply that this is what phenomenology tells us, how things appear to us, not what we learn from textbooks or believe based on inference. We see our own bodies, and we perceive objects that are separate from the bodies. These separate objects are external to our bodies and as they appear to be colored, we have experiences of colored objects as external to ourselves. The challenge that this intuition poses for the color eliminativist is this: if colors are neural states, then how come we are so mistaken that we mislocate color to the external world?

There are two other intuitions that relate closely to the intuition of color realism and make the task of accounting color phenomenology more difficult for the color eliminativist. The first one concerns an often-held idea that sometimes we perceive the color of an object correctly and sometimes we do not:

8) The intuition of veridicality: More often than not, we perceive the colors of objects veridically.

The notion of veridicality used here is simple. Our visual experience may represent for example that there is a red ball at some location. This experience is veridical if there really is a red ball at that particular location, otherwise it is nonveridical. As a support for the existence of the intuition of veridicality, Byrne and Hilbert (who have used the notion of veridicality in this sense (1997)) have argued why this intuition may not hold and why that would not be such a bad thing as philosophers often think. That is, they appear to take this intuition seriously enough to address the question why it is wrong. While they do not try to explain why the intuition is held, it is obvious that this lends support for the idea that we do endorse such intuition.

⁷Bradley and Tye 2001: 479.

Where does the intuition of veridicality come from? I would like to propose that it relates to a commonly held belief that the color of an external object (or its parts) remains the same. It is not as if the color we attribute to some object changes all the time and differs from one moment to another. Rather, we associate most objects with some specific color that we can then perceive veridically (or nonveridically). Consequently, an important intuition related to the intuitions of veridicality and color realism concerns color constancy. We have the intuition that objects have only one color, at least for one perceiver, and that this remains by and large constant and does so regardless of considerable changes in observing circumstances:

9) The intuition of color constancy: The color possessed by an object remains the same regardless of circumstances (illumination, surroundings etc.).

It should be mentioned that the question how to define color constancy has become an increasingly debated topic in recent years, partly because the phenomenon has been used in arguments for objective color theories. The intuition of color constancy is not intended to contribute to this debate. Rather, its purpose is to make explicit an intuition that the color of an object does not change, say, when you change another object nearby from red to orange or when an object is moved one meter closer to a window (i.e. when the observing conditions change slightly). To a certain degree, it is motivated by the fact that in everyday life the changes in the appearance of colored objects are often too small to draw one's attention. On the other hand, in those rare cases when such change is noticed, it is more common to think that the way the object appears for one has changed than the color of the object itself – as illustrated by comments on how some cloth appears different rather than comments on how its color has changed when we step out from our homes to outdoors. This does not mean of course that the intuition of color constancy is correct and color functionalists for instance would disagree with the claim the intuition makes. Yet, I would like to suggest that it is something that most people who are not affected by philosophy would believe and hence something that color eliminativists and certain color realists too (i.e. color functionalists) need to address.

Altogether, there are thus nine intuitions about colors, all of them somehow originating from our reflection on color experiences. Any account of color that strives for phenomenological plausibility needs to meet these nine intuitions, or at a minimum needs to explain why we have them. For the color eliminativists this means addressing all the other intuitions except the intuitions of unity and revelation. This is because they can explain the relations between colors by referring to the way in which color vision system functions and the intuition of revelation by explaining how it applies to our color experiences. Yet they are faced by accounting for seven other intuitions. Not every intuition is of equal importance in this task though, because the intuition of color realism plays a

central role in the task of explaining most of the intuitions. On the other hand, I think one can explain why we are inclined to have this intuition if it can be explained why the intuitions of color constancy and externalism are held. Accordingly, what follows, those intuitions are discussed first.

The intuition of color constancy

The intuition of color constancy raises the question what ensures that objects appear to have relatively constant colors. A common answer relies on the properties of objects. More particularly, it has been postulated that colors are objects' surface spectral reflectances, their sets, or at least somehow related to them. As these properties are illumination-independent properties of objects, they remain the same under every illumination, and we thus see them constant if our color experiences represent them correctly. The illumination-independence of properties we identify colors with in objects thus ensures relatively constant colors and provides the main bulk of the explanation. Of course one still needs to explain how the detection of those properties actually takes place, but this does not involve any substantial explanatory work with regard to the constancy of perceived colors.

While the color appearance of objects is not entirely constant, it is stable enough for the intuition to be justified. Indeed, the fact that colors of objects appear constant despite considerable changes in circumstances is so remarkable that it has been regarded as one of the most significant observable facts about colors. Accordingly, the color eliminativist is better off accepting this intuition in some form. Yet it is challenging for the color eliminativists for the following reason: If external objects are not colored, why are our color experiences unvarying? On the other hand, if the answer were somehow related to physical properties of physical objects, then why would we not regard these properties as colors (contra color eliminativism), as it is them that explain the constant (representational) states we have?

The color realistic answer above widens to include an account of the proposed function of color vision what can be called *the detectionist view*: Our color vision is specialized in determining certain properties of physical objects, in this case colors. When our color vision functions properly, we perceive those properties and can determine what color a seen object is. Since the color eliminativist renounces the idea of colored physical objects, this answer is not open to them.

There is an alternative suggestion for the function of color vision however. Instead of detecting some surface properties of objects, the primary function of color vision can be understood to be *to maximize the number of useful (or evolutionarily meaningful) visual discriminations* of objects that we can make. The idea behind this is that the function of color vision is to enhance other parts of the visual system, especially object detection, by making discriminations among stimuli. Accordingly, I call this *the discrimination view*.

An analogy between vision and photography clarifies this idea. As many photography enthusiasts know, objects appearing red and green often have very similar luminescence values. As a consequence, they look equally gray when they are photographed with a black and white film. There simply does not seem to be any difference between them. With a color film, on the other hand, there is. Accordingly, what I am proposing is that – just as in the case of color versus black and white film – color vision has evolved to facilitate our making visual discriminations in cases that would be difficult to handle with achromatic vision.

Obviously, in order to make discriminations, color vision has to have something on the basis of which it makes those discriminations. However, unlike in the detectionist view, here color vision need not concern itself with detecting some real properties of objects nor trying to reduce the effects of illumination of the spectra that reaches the retina. Instead, what is important according to the discrimination view is that we can separate objects from each other, utilizing whatever means are necessary in doing so; not that there are some colors in the objects that are important in themselves.

Although it may seem odd at face value, relatively constant colors result to a great extent from the idea of maximized ability to discriminate. Obviously, for any one creature, given its physiology, only one method of encoding visual properties can be right if the purpose is to maximize its discrimination ability. Hence, if illumination conditions remain the same, things are always encoded in the same way from the beginning – otherwise there would be unjustified changes from the maximized discrimination ability to one of un-maximized (or vice versa). When observing conditions change though, things are quite different. Yet in these situations too, color vision works to restore the situation to one in which the number of possible discriminations that can be made is maximized or at least to one in which the *differences between objects are preserved regardless of illumination*.

The idea is then that when the relation between the color appearances of two objects is perceived to be something under one illumination, color vision tries to maintain that same difference in other illuminations too. Imagine, for example, two objects that we consider blue and turquoise under certain illumination. In accordance with the discrimination view, it would be normal to suppose that these two are distinguishable under most observing conditions. In theory, however, the difference and relation between these objects can be presented in other ways too, like presenting one object as red and the other as orange.

This idea becomes important in the context of color constancy when it is understood that because the differences between each stimuli have to be presented, the degree of freedom for color vision to express the differences in stimuli depends on the number and nature of distinct stimuli present. The more distinct and differing stimuli there are, the less there are possible ways to present the difference between the objects by the means of colors they appear to have. Further, given the empirically justified hypothesis that spectra emitted by objects

usually change linearly, their order in relation to our color space stays the same. Then, even though objects emit various kinds of spectra, the place coded for them begins to settle, and the object appears to show constant color even in very varied illumination – as is the case in everyday surroundings on the basis of which we have the intuition of color constancy. On the other hand, when the objects in the visual field emit only a few different spectra, their distinctiveness can be expressed better, and colors they appear to possess are likely to be different than in a previous occasion – as the case is in many color constancy experiments.

The discrimination view therefore claims that our color vision does not concern itself with veridicality in the sense the detectionist view does (it does concern with differences though). Accordingly, the intuition of color constancy can be explained with a means that is not based on any specific property of the object with which physical colors could have then been identified (and color realism would turn out to be unavoidable). Rather than regarding color constancy as a consequence of the illumination-independent properties of objects, the discrimination view regards it primarily as a consequence of the processes of perception. This also means that the color eliminativist can adopt this explanation of the existence of relatively stable color experiences. Hence the intuition of color constancy can be both agreed on and explained by the color eliminativist⁸.

The intuition of externalism

The rationale behind to the intuition of the externalism, according to which colors are properties of external objects, is simply that things are how they appear to us. As Boghossian and Velleman (1997: 94) put it: «[v]isual experience is ordinarily naively realistic, in the sense that the qualities presented in it are represented as qualities of the external world». Yet, if there are no such properties and colors are only states of our brains, how can we explain this intuition?

As our visual experiences are full of phenomenal qualities, almost always arranged in some spatial fashion, it is difficult to see how the color eliminativist could deny this intuition. Thus, it appears that the best and only viable choice for the color eliminativist is to admit it. Fortunately the color eliminativist also has means to account this intuition. This happens by acknowledging that the intuition concerns two separate issues that need to be addressed, and that one

⁸ Arguably things are not as simple as sketched above, and many things could be said both about other factors influencing the color constancy and the plausibility of the discrimination view. While I think that the discrimination view is more plausible if considered in the framework of evolution and color vision than the detectionist view, due to limited space it is not my aim to press this point here. Hence without going into details, let me simply note that as a matter of fact achromatic vision functions in the way the discrimination view pictures and given that the difference in luminance influences the perceived hue of wavelength, part of chromatic vision does function this way too. These matters lend some empirical plausibility for this view. For more extended discussion on the pros-and-cons of the detectionist view and the discrimination view, see Arstila 2005.

of them can be addressed easily and the other one does not take a stand between color eliminativism and color realism.

The easy question to answer, which Ian Gold (2001) calls the why-question, asks “why does our visual experience of color represent color being located in space”. If one is a color realist, the obvious answer to this question is that colors being properties of physical objects, our vision represents them as being such – otherwise our vision would be unveridical as regards location.

The color eliminativist appears to have at least two different ways to respond to this question. First, Gold argues that the color eliminativist can adopt similar reasoning as the color realist: because the surface properties of objects cause color experiences, they are located on the surface of the objects. The challenge here for the color eliminativist is of course to explain why one would not then regard those surface properties as colors. Arguably other considerations, say based on the variation between color perceivers and the structure of color space, prevents this move⁹.

The previous consideration of the discrimination view provides another way to address the why-question without this challenge. If the discrimination view is correct, then the function of color vision is to separate surfaces. Naturally this separation must be presented in some way as otherwise the processed information is lost. The natural idea then is to consider experiences of color (the end result of separation processing) as modes of presentation of represented objects and their surfaces. As colors in our experiences are thought to characterize and separate the surfaces of objects that are external to us, they appear to be located in external space just as these objects are represented as being located in external space.

The difficult question to answer, the how-question, asks “how does our visual experience of color represent color being located in space”. This is difficult because all the proposed solutions to account for the spatiality of our perceptions (such as projectivism and the ones based on adverbialism¹⁰) appear to have their share of insurmountable problems. This problem applies equally to the color eliminativist and the color realist however.

Consider, for example, how the color realist might explain a perception, a hallucination, or a dream of a red ball five meters away. This explanation would include an account of how the location of the ball is represented in addition to how its color and shape are represented. This is because otherwise we would only be aware of the latter properties, not the location of the ball. Hence, without an explanation of how things are represented as being located somewhere, the color realist cannot address the how-question. On the other hand, once the color eliminativist or the color realist provides a plausible explanation, the other can simply adopt it. Thus, as Gold (2001) emphasizes, the how-question is neutral

⁹ See Hardin 1988.

¹⁰ See Ross 2001.

between color eliminativism and color realism, and the lack of explanation for this question does not prevent accepting either of these accounts.

As a summary, we can say that the presented version of color eliminativism agrees with the intuition of externalism. Indeed, if the discrimination view is correct, then it seems that the color eliminativist needs to argue that our color experiences incorporate spatial features – otherwise experienced colors could not be means to separate objects that are (truthfully) represented being external to us. Although the color eliminativist cannot provide the account how this representation is accomplished, this shortcoming touches color eliminativists and color realists alike. While this treatment of the intuition of externalism has been brief, and there is one more thing to be discussed about the externality of colored objects, but let us do this in relation to the intuition of color realism. While this treatment of the intuition of externalism has been brief, and there are two other things that needs to be discussed about, this will be done in relation to the intuition of color realism.

The intuition of color realism

According to the intuition of color realism, colors are properties of physical objects. This intuition is very strong and is probably held by everyone who has managed to avoid exposure to philosophy and cognitive neuroscience. However, if color eliminativism is true and physical objects are not colored, we are systematically mistaken and the colors we see objects as possessing are illusory. For many, this is reason enough to reject color eliminativism.

But what does this intuition really amount to? Assuming that the intuition is true and colors are properties of physical objects, how does this fact appear to us? Consider the analogical case with shape: arguably the phenomenology related to this property is that it appears to be the inherent property of things that appear to be external to us. Moreover, this property does not phenomenologically appear to be dependent on us or the observing conditions – it appears to be a real property of objects.

Presumably the same holds for color. However, if this is indeed the case, then the color eliminativist can explain the phenomenology related to the intuition of color realism. To begin with, the discrimination view suggests that our color experiences are coupled with representation of spatial and locational properties, and for this reason colors appear to be properties of objects external to us (even though colors are “only” means of presenting objects). Moreover, given that the experienced colors of objects appear to be constant – just like their shape – colors simultaneously appear to be like other properties of objects. Properties that by nature inheres in objects. The intuition of color constancy therefore strengthens the idea yielded by the intuition of externalism (that the bearers of color are

external to us), since it suggests that colors are persisting properties of objects on a par with the other properties of objects¹¹.

To put this somewhat differently, the rational consequence of the type of color eliminativism where it is agreed that we have the intuitions of color constancy and externalism, and where it can be explained why we have them, is to claim that we have an intuition that colors are similar properties of objects as shape, size and so forth. They are not dependent on us, they are not changing, and our perception of them can be illusory (the intuition of veridicality is discussed below). In short, this sort of color eliminativism suggests that we should have the opposing intuition of color realism. Color realism itself, obviously, may also include some theory concerning the kind of properties colors are, but the intuition of color realism does not comprise such assertions.

This reply obviously relies heavily on the intuition of externalism. Hence a couple of comments on this topic are in order. First, the intuition of externalism does appear to be the main constituent of the intuition of color realism. Ross¹², who endorses color realism, for example, argues that «the most intuitive objection against color [eliminativism] in favor of color realism is just the claim that because colors appear to be properties of objects external to our minds, they are». The similar emphasis of externalism is present also in the other quotations above. Therefore it does appear to be justified to approach this intuition through the intuition of externalism.

Second, the mistake I propose we are making (regardless of whether color eliminativism or color realism is correct) should be made clear. It is the old assumption that we perceive the external physical world directly. There are however good reasons to doubt this. For example, as argued above, the spatial properties of external objects need to be represented in order for us to perceive them. Thus what we are acquainted with is the external physical world the way it is represented, not literally the physical world¹³. Moreover, quite clearly we have the intuition that we perceive the external physical world directly also in the cases of dream and hallucination. In our dreams, for example, we are and act on a world that is in many ways similar to our awoken world. Yet, the most plausible explanation for them is that they exist only in virtue of our mental

¹¹ This interpretation of color realism, where colors are constant properties of objects external to ourselves, appears to be the one that James McGilvray (1994: 209-210) agrees with, as he argues that the color eliminativist needs to do two things: «One is to explain the phenomenological fact that we experience colored objects to be out there. [...] The second task is to explain why these genuine colors seem to be continuing properties of things out there».

¹² Ross 2001: 147.

¹³ This is where the argumentation here differs from projectivism that maintains that we somehow project properties of our sensory states to objects located in physical space. The claim made here is that not only colors, but also sensed locations are mental constructions.

processes and all aspects, the spatial structure included, do not exist outside of our brains – when considered physically¹⁴.

On the face of it, the color eliminativist's reply to the intuition of color realism is then quite simple. To begin with, he agrees with the color realist that we see colored objects outside of ourselves. Thus our intuitions and beliefs are partly justified. However, since that world is not physical, our intuitions are partly false: our error is not that we take the objects we see to be colored (displace colors to the external world), but that we regard the space in which they are located as the real physical world even when considered in a physical context¹⁵. What the color eliminativist should thus do is to merely to deny that this "outsideness" is real when considered physically. Rather, from the viewpoint of physical space, these colored objects are internal. Hence the mistake we make is that we regard the external space as represented to be real physical space.

The mistake we make then is that we further conclude from the externality and constancy of our color experiences that the colored things we perceive are physical objects and that for this reason their properties are physical too. This mistake is natural though, since we often subscribe to the idea that spatiality is the mark of material substance; and as in Ross's quotation above, the discussion changes fluently from the externality of objects to the idea that these objects are physical. It can be further argued that it is natural not to question the nature of this space, and recognize that it is in fact a mental construct, since the perceiver himself does not have any means to attain the physical space directly (in any other way than assuming that mental colors and forms represent external things directly). Thus our illusion does not break even with the most attentive phenomenological reflection.

To summarize, if we want to keep our options about the nature of colors as open as possible, we cannot obviously assume that physical objects have colors. Nevertheless, we can assume that we have that intuition, and require an explanation for it. The color eliminativist can reply that we have that intuition because our experience tells us that external objects have persistent properties that are distinct from ourselves; they are outside of us. This contains two intuitions; and since the color eliminativist can explain them, he can subsequently explain our intuition of color realism. Moreover, by accepting the previous argumentation,

¹⁴For more extended treatment of this idea, see Revonsuo 2006.

¹⁵Even though the language used here suggests an implicit commitment to mental objects, this should be understood only as a facilitating use of language and not as a claim that the only way to give an even slightly plausible account of mental space and the phenomena in it requires the sense-datum theory. On the contrary, the similar notion can also be provided within the framework of adverbialism. Mental objects, for instance, can be understood as a set of sensory qualities that we unconsciously bundle together and treat as a single unit. They are objects only in the sense that their qualities are always combined together due to our sensory processes and we act toward them as if they were objects. No underlying mental substance is needed and nothing previously said necessitates us committing ourselves to the act-object theory of sensory experiences, which is behind the sense-datum theory.

he has a theoretical framework that enables him to say where this intuition, whose endorsement is natural, is mistaken.

The intuition of veridicality

The intuition of veridicality states that we think that we generally perceive the color of objects truthfully. But if color eliminativism is correct, and physical objects are not colored, then we cannot perceive or misperceive these colors and the intuition of veridicality does not hold. Hence according to the interpretation of veridicality given above, color eliminativism clearly cannot account for this intuition.

Fortunately, one can provide another interpretation for this intuition too. While the one above defined veridicality in relation to the physical properties of physical objects, one can also think that we have veridical perceptions in relation to usual appearances. This reference to the perceiver seems especially appropriate here, I think, as the issue ultimately concerns our intuition of veridicality provided by phenomenology, not veridicality over and above the perceiver. Consequently, one way of replying to this accusation is to claim that veridicality does not refer to some real properties of physical objects that we try to detect, but to the most common appearances of colors and our memories of them. In other words, when we think that we have a veridical perception of the color of some object, the veridicality of this experience is assessed in relation to our previous relatively constant color experiences of the object and our memories of these experiences. Since this relies on relatively constant color appearances and our cognition of colors, the color eliminativist can explain the existence of this intuition – we should simply be careful of the way we take our experiences to be veridical.

Johnston's intuitions

Above I remarked in the passing that three of the intuitions Johnston lists make an implicit commitment to color realism (at least assuming that the sense-datum theory is rebutted). Therefore, if the intuition of color realism derives from the intuitions of color constancy and externalism, one would expect that the intuitions in Johnston's list assuming color realism should also be (at least partly) explainable with these two intuitions. Indeed, this appears to be the case.

The intuition of paradigmatic bearers of color state that there are colored objects and that some of those objects are paradigmatic bearers of some colors. The Coca-Cola Company, for instance, has its own registered shade of red. What else than its physical bottle labels could be paradigmatic bearers of this color, given that qualia and sense-data as their bearers are nowadays rebutted? This intuition, however, consists of three independent parts that the color eliminativist can explain. First, there is an assumption that there are colored physical objects that can be paradigmatic bearers of colors. This corresponds to our consideration of

the intuition of color realism and is therefore already accounted for. Second, we consider some of those colored objects to be paradigmatic bearers of the colors they have. This means that some objects have some specific color and we have noticed this fact. Given that objects cannot be paradigmatic bearers of some color if one were to think that their color keeps changing, part of this involves the intuition of color constancy discussed above. The third part is that attention is given to a relatively constant color appearance of some object. Regardless of whether one endorses color realism or eliminativism, this cognitive function needs to be explained. Hence, this Johnston's intuition follows if we agree with the previous explanation how we have the intuition that there are external objects bearing one and the same color.

The intuition of color realism is as evident in *the intuition of explanation* as it is in the intuition of paradigmatic color bearers. This intuition posits the existence of a cause and an effect. If our visual experiences are the effects, their cause must be something else. Moreover, it was assumed that this cause is colored. Hence, this intuition assumes a notion of color that is (at least in some way) independent of visual experiences. Accordingly one is easily led to conclude, for example, that the yellowness of some object explains the fact that we perceive it to be yellow. To the extent this requires external objects to actually be colored, the color eliminativist obviously cannot commit to it. However, he can explain why we have this intuition: according to him, we are merely making an error when we assume that the reason why an object causes color experiences is due to some properties of that object which deserve to be called colors. This error is natural, since we have the intuition of color realism that causes us to regard colors as properties of objects on a par with their other properties. Nevertheless, it does not mean that our intuition is right.

According to *the intuition of perceptual availability*, we are justified in concluding from our experience that an experience of color is caused by an object of some color. The explanation of this intuition is rather straightforward because of the previous discussion. Whereas the intuition of explanation assumed that there is a colored object causing our visual experience, this interpretation of the perceptual availability intuition states that we are also *justified* in concluding from our experience that it is caused by perceiving an object of some color. Hence the difference between these two intuitions is that the one concerning perceptual availability emphasizes our chances of determining the color of some object solely based on our perception. If we now determine the color of a physical object, we rely on the intuition of explanation – even though there may not be a reality behind it – whose existence the color realist can explain. (On the other hand, if we are determining the color of our experience, such as the color of some object in our dreams, this intuition does not trouble the color eliminativist.)

Final considerations

Color eliminativism, as opposed to color realism, argues that colors are not properties of physical objects. This view is often considered implausible due to its (apparent) discrepancy with phenomenology – most of the intuitions about colors we have on the basis of color experiences appear to counter color eliminativism. This is because many of the intuitions either are close or share some kind of commitment to color realism. Consequently, one is not encouraged to endorse color eliminativism if any other viable alternative exists.

I argue here however that the existence of these intuitions does not counter color eliminativism. Rather, they are something that the color eliminativist predicts us to have! Presumably, if a theory predicts the existence of intuitions that we do in fact endorse, then these intuitions should not be counted as objections against this view even if the intuitions would disagree with the theory. This is because the intuitions might not be entirely true, as was the case here: it was shown how the initially persuasive intuition of color realism is a natural consequence of the intuitions of color constancy and externalism, and that the latter two intuitions can be held without that challenging color eliminativism. Thus, if we accept the explanations provided for these two intuitions, and regard them as true, then the intuition of color realism is in fact something to be hoped for. With the intuition of color realism accounted for, the color eliminativist can explain why the other intuitions are held too.

It should be mentioned that the arguments presented here do not challenge color realism in any way. Accordingly, the provided explanation applies equally well to the theories of color realism that cannot now explain why we hold certain intuitions about color. For example, recent relational color theories posit the color of an object to change constantly and to be different in every new observing situation. Yet this is not what our phenomenology suggests, as exemplified by the intuition of color constancy. However, as the provided explanation is theory neutral, these color realists can account this intuition in the same way as color eliminativists. Accepting the intuition of color constancy in turn enables one to address the intuition of veridicality. This holds regardless of the means to explain color constancy, and hence Byrne and Hilbert can adopt the strategy used here to explain the intuition of veridicality, which they have not yet done. In short, it is not only the color eliminativist but also the color realist that would benefit from adopting some of the lines of argumentation presented above.

In a broader context, the main conclusion that we can draw for the previous argumentation is this. Given that the provided explanation for the existence of the intuitions is mostly neutral regarding the distinction between color eliminativistic and color realistic views, philosophers who regard color eliminativism implausible due to the phenomenological reasons have been too fast to consent to the intuitions. Instead of elaborating on the reasons why we endorse the listed nine intuitions, they have readily tried to provide an explanation of colors that would make these intuitions true. In other words, and as exemplified by Johnston, often philosophers have assumed that the intuitions are true without really

questioning whether one could have reasons to hold them even if they are not true. It could be of course that these intuitions turn out to be true. Yet, in so far as their existence does not challenge color eliminativism, one should look other arguments for and against both color eliminativism and color realism.

References

ARSTILA, V.

- 2005, *The Paradox of Colors*, Turku, Reports from the Department of Philosophy, University of Turku

BOGHOSSIAN, P.A. and VELLEMAN, J.D.

- 1991, *Physicalist Theories of Color*, “The Philosophical Review”, 100: 67-107
- 1997, *Colour as a Secondary Quality*, in A. Byrne & D.R. Hilbert (eds.), *Readings on Colour, vol. I*, Cambridge (Ma.), MIT Press: 81-103

BRADLEY, P. and TYE, M.

- 2001, *Of Colors, Kestrels, Caterpillars, and Leaves*. “Journal of Philosophy”, 98: 469-487

BYRNE, A. and HILBERT, D.R.

- 1997, *Colors and Reflectances. Colour as a Secondary Quality*, in A. Byrne and D.R. Hilbert (eds.), *Readings on Colour, vol. I*, Cambridge (Ma.), MIT Press: 265-288
- 2003, *Color Realism and Color Science*, “Behavioral and Brain Sciences”, 26: 3-21

COHEN, J.

- 2003, *Color: a Functional Proposal*, “Philosophical Studies”, 113: 1-42

GOLD, I.

- 2001, *Spatial Location in Color Vision*, “Consciousness and Cognition”, 10: 59-62

HARDIN, C.L.

- 1988, *Color for Philosophers, Unweaving the Rainbow*, Indianapolis, Hackett.
- 1992, *The Virtues of Illusion*, “Philosophical Studies”, 68: 371-382

JACKSON, F. and PARGETTER, R.

- 1997, *An Objectivist's Guide to Subjectivism about Colour Colour as a Secondary Quality*, in A. Byrne and D. R. Hilbert (eds.), *Readings on Colour, vol. I*, Cambridge (Ma.), MIT Press: 67-79

JOHNSTON, M.

- 1992, *How to Speak of the Color*, “Philosophical Studies”, 68: 221-263

McGILVRAY, J.A.

- 1994, *Constant Colors in the Head*, “Synthese”, 100: 197-239

REVONSUO, A.

- 2006, *Inner Presence: Consciousness as a Biological Phenomenon*, Cambridge (Ma.), MIT Press

ROSS, P.W.

- 2001, *The Location Problem for Color Subjectivism*, “Consciousness and Cognition”, 10: 42-58

RUSSELL, B.

- 1912, *The Problems of Philosophy*, Oxford, Oxford University Press

STRAWSON, G.

- 1989, *Red1 and Red*, “Synthese”, 78: 193-232