

Barry Maund, ‘Color’

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1. The Philosophy of Color

In this section, we consider some central puzzles that arise from trying to fit colors into scientific accounts of the world.

1.1 A Problem with Color

The visual world, the world as we see it, is a world populated by colored objects. Typically, we see the world as having a rich tapestry of colors or colored forms—fields, mountains, oceans, hairstyles, clothing, fruit, plants, animals, buildings, and so on. Colors are important in both identifying objects, i.e., in locating them in space, and in re-identifying them. So much of our perception of physical things involves our identifying objects by their appearance, and colors are typically essential to an object’s appearance, that any account of visual perception must contain some account of colors. Since visual perception is one of the most important species of perception and hence of our acquisition of knowledge of the physical world, and of our environment, including our own bodies, a theory of color is doubly important.

One of the major problems with color has to do with fitting what we seem to know about colors into what science, particularly physics, tells us about physical bodies and their qualities. It is this problem that historically has led the major physicists who have thought about color, to hold the view that physical objects do not actually have the colors we ordinarily and naturally take objects to possess. Oceans and skies are not blue in the way that we naively think, nor are apples red, (nor green). Colors of that kind, it is believed, have no place in the physical account of the world that has developed from the 16th Century to this century.

Not only does the scientific mainstream tradition conflict with the common-sense understanding of color in this way, but as well, the scientific tradition contains a very counter-intuitive conception of color. There is, to illustrate, the celebrated remark by David Hume:

Sounds, colors, heat and cold, according to modern philosophy are not qualities in objects, but perceptions in the mind. (Hume 1738/1911, Bk III, part I, Sect. 1, p. 177; Bk I, IV, IV, p. 216)

Physicists who have subscribed to this doctrine include the luminaries: Galileo, Boyle, Descartes, Newton, Young, Maxwell and Helmholtz. Maxwell, for example, wrote:

It seems almost a truism to say that color is a sensation; and yet Young, by honestly recognizing this elementary truth, established the first consistent theory of color. (Maxwell 1890/1970, p. 75)

This combination of eliminativism—the view that physical objects do not have colors, at least in a crucial sense—and subjectivism—the view that color is a subjective quality—is not merely of historical interest. It is held by many contemporary experts and authorities on color. S. K. Palmer, a leading psychologist and cognitive scientist, writes:

People universally believe that objects look colored because they are colored, just as we experience them. The sky looks blue because it is blue, grass looks green because it is green, and blood looks red because it is red. As surprising as it may seem, these beliefs are fundamentally mistaken. Neither objects nor lights are actually ‘colored’ in anything like the way we experience them. Rather, color is a psychological property of our visual experiences when we look at objects and lights, not a physical property of those objects or lights. The colors we see are based on physical properties of objects and lights that cause us to see them as colored, to be sure, but these physical properties are different in important ways from the colors we perceive. (Palmer 1999, p. 95)

Some other examples of experts who say similar things are S. Zeki, E. H. Land, and R. G. Kuehni. We should note that these and other scientists vary between speaking of colors as sensations, psychological properties of visual experiences, mental properties, representations, constructions of the brain, and properties of the brain, so there are different brands of subjectivism.

Not all scientists express eliminativism explicitly, but many of the others tend to accept subjectivism. D. L. MacAdam, for example, is not untypical in writing that physiologists and psychologists use term ‘color’ “to denote sensation in the consciousness of a human observer” (MacAdam 1985, pp. 3–4). Moreover, it is common to find, in authoritative texts, definitions like:

“Color attributes are attributes of visual sensations, e.g., hue, saturation and brightness”; “Hue: attribute of colour perception denoted by the terms yellow, red, blue, green and so forth”; “Brightness is the attribute of a visual sensation according to which a given visual stimulus appears to be more or less intense”.

1.2 Resistance to Eliminativism/Subjectivism

There has been a strong resistance among philosophers, both to the Eliminativist tendency within the scientific tradition, and the related subjectivism. One form this resistance takes reflects the fact that each component of this traditional view is very puzzling. A common response is to say that our color terms—red, blue, purple, orange, yellow, green, brown, etc.—are in order: we have paradigms of colors to which the color terms apply: ripe lemons are yellow, tomatoes and rubies are red, and so on. We have no trouble, by and large, in learning these terms and teaching them in ostensive practices to children and others. In the second place, it is hard to make sense of the claim that colors are properties of sensations or are psychological properties: if they are anything they are properties of objects and light sources—of peaches, and emeralds, of skies, of rainbows, of glasses of wine, of headlamps, and so on.

It should be noted, however, that things are more complex than the earlier remarks of Hume and Maxwell suggest. Descartes and Locke, for example, think that there are no colors in the physical world—no colors, as we ordinarily and naively understand them to be. But they are also widely interpreted as holding a secondary quality view of colors, i.e., holding the view that colors are powers or dispositions to cause experiences of a certain type. It is instructive to try to understand this dual position. We find, for example, this passage in Descartes’ *Principles of Philosophy*:

It is clear then that when we say we perceive colors in objects, *it is really just the same as saying* that we perceived in objects something as to whose nature we are ignorant but which produces in us a very clear and vivid sensation, what we call the sensation of color. (Descartes 1644/1988, para. 70; see also paras 68–70)

The implication of “it is really just the same as saying” is that this is not what it is ordinarily taken to be saying. As Descartes later explains, the ordinary way involves the mistake of “judging that the feature of objects that we call ‘color’ is something ‘just like the color in our sensation’.” However, Descartes

is not implying that we should dispense with our ordinary talk. Instead, it is being suggested, we should go on using our ordinary color talk, but give it a novel interpretation: when we say 'X', then it is as though we said 'Y'. That is to say, we should not understand the sentences literally, but rather translate them into other more appropriate sentences. Descartes, here, is following the principle common to many thinkers of the time, the principle of "talking with vulgar, and thinking with the learned." The justification for this proposal is that it acknowledges that our color language serves very useful purposes: the reconstruction allows the language to continue to serve those purposes, while avoiding metaphysical error. Thus, there is at least a partial response to the common-sense criticism: the reconstruction central to this form of eliminativism embraces a principle of respect for our ordinary language.

There are also complications with respect to the subjectivist component of the traditional view. When philosophers such as Descartes and Locke wrote of sensations of color, or of (sensory) ideas of color, there are different interpretations of what is meant by the terms. The common interpretation is that a sensation of red is a sensory experience in which a certain subjective quality is presented. Expressed in modern terms, the subjective qualities are construed as qualia, or as qualities of sensory individuals such as *sensa* or sense-data or as sensational properties. There is, however, an alternative interpretation: a sensation of color is a sensory experience, which represents something as having a certain quality (the experience has a certain intentional content). On this second interpretation, Descartes' view would be that the relevant quality our color experience represents objects as having is one that no object possesses. Accordingly, it would not be inappropriate to call the theory fictionalist (rather than subjectivist). This interpretation, we should note, allows for qualia or *sensa*, but does not mandate them. And some Cartesian scholars deny that Descartes, in particular, was committed to qualia.

Finally, there is yet another complication. It is in fact possible to combine the two versions in a single interpretation. That is to say, the representationalist view does not rule out a version with subjectivist elements. For such a view allows for a type of projectivism, whereby the experience both presents a sensory quality, and represents a physical object as having that quality. The experience is said to 'project' the subjective, sensory qualities onto the physical objects. A model for this would be the experience of pain: the supposition is that when one has a toothache, the experience represents the

pain as being in the tooth. (This projectivist view seems to suit Hume's thought, but in any case, it fits modern projectivist accounts.)

These considerations suggest a useful way of understanding the definitions offered above, e.g., color attributes are attributes of sensations: to drop the use of 'sensations' and to read them instead as saying, for example: color attributes are attributes of visual perception, i.e., attributes perceivers perceive objects as having. (Or if we retain the use of 'sensations' we can say that the attributes are properties the sensations represent objects as having.) Accordingly, these attributes are putatively properties of objects in physical and public space. (Qualification: there are some experiences of color that do not fit this schema, e.g., experiences had with one's eyes shut.) This way of understanding the definitions leaves it open whether physical objects actually have the properties or not, and whether the properties (that form part of the content of the experiences) might have subjective components.

1.3 The Problem of Color Realism

These complications allow what I have been calling 'the traditional scientific view' to make sense, but it leaves us with the question of what reason is there to accept the view. The quotation above, from Palmer 1999, has the virtue of suggesting an argument for color eliminativism, one that is at least implicit in the scientific tradition. As Palmer states the view, it takes the form: when we see objects as colored, we experience the objects in certain ways, we see them as having certain qualities, but the objects do not have those qualities; the colors we perceive are different from any the physical objects possess. There are two claims implicit here: (i) the colors we perceive objects as having, have a certain distinctive character; (ii) the physical sciences have shown that no qualities with that character play any part in the perception of colors. From this, it is concluded that neither objects nor lights are colored in anything like the way we experience them.

This formulation has the additional merit of fixing the subject matter for the dispute between eliminativists and realists: the debate concerns certain qualities which objects appear to have. It is helpful that there are leading color realists who describe the debate in similar terms. A. Byrne and D. R. Hilbert (2003) say of the problem of color realism, that it "concerns various especially salient properties that objects visually appear to have". By way of clarification, they say:

If someone with normal color vision looks at a tomato in good light, the tomato will appear to have a distinctive property—a property that strawberries and cherries also appear to have, and which we call ‘red’ in English. The problem of color realism is posed by the following two questions. First, do objects like tomatoes, strawberries and radishes really have the distinctive property that they do appear to have? Second, what is this property? (Byrne and Hilbert 2003, pp. 3–4)

The first question concerns the debate between color realists and eliminativists. The second question concerns the debate among color realists (and eliminativists). For both questions, the suggestion is that we focus on the relevant “salient properties that objects visually appear to have”. These properties, they point out, are sometimes called phenomenal colors, and sometimes colors-as-we-see-them. The point of identifying phenomenal colors in this way is to provide a fixed subject matter for both of the debates about the two questions.

It is important to take note that the formulation, by Byrne and Hilbert, of the problem of color realism has an extra advantage: it spells out two ways of characterising the subject matter, i.e., the colors for our debate. The color red, for example, is identified as:

- i. the property which certain paradigms appear to have;
- ii. the property which we call ‘red’ in English.

It is natural to suppose that these are different ways of characterizing the same property (though, as we shall see, there are some philosophers who challenge the assumption). Separating them out has the merit of allowing us to see that different kinds of issues might arise in deciding the answers to such disputes. The second way raises questions about the underlying mechanisms for the linguistic practices whereby color terms name the relevant properties.

1.4 Rival Theories of Color

There are two issues concerning color realism: (1) what sort of properties are colors? (2) do objects really possess those properties? With respect to the first question, there is deep division between color realists (as well as between eliminativists). Setting out the views of major realists and eliminativists, we have the following major rival theories:

1. Colors are 'primitive' properties—simple, *sui generis*, qualitative properties that physical bodies possess or appear to possess: Primitivism.
2. Colors are 'hidden' properties of bodies—complex, physical properties that dispose bodies to look blue, pink, yellow, etc.: Reductive Physicalism.
3. Colors are perceiver-dependent, dispositional properties—powers to look in distinctive ways to appropriate perceivers, in appropriate circumstances: Dispositionalism.
4. Colors are subjective qualities 'projected' onto physical objects and light-sources—qualities which visual experiences represent objects as having: Projectivism.
5. Colors are subjective qualities—either qualities presented in experience or qualities of experiences: Subjectivism.

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