

Color Realism: Toward a Solution to the “Hard Problem”

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Ross (this issue) has made a useful contribution to the case for color realism (or “physicalism” as he prefers). It is a difficult case to make, and it would be premature to claim that Ross, or anyone, has yet solved all the difficulties of the position or made a case strong enough to convince a skeptic. As with any academic work, a diligent reader could surely find weaknesses in the argument, but rather than trying to either pull it apart or patch it up I think it might be more useful to speculate on the potential significance of Ross being right. Does it matter to consciousness researchers whether colors are “really” on the surfaces of objects or “really” in the mind? I believe it may matter a great deal. I want to suggest that color realism could prove to be a vital component of a solution to the notorious “hard problem.” It is certainly not the whole story or even the final piece of the puzzle, but I think it is possible to discern the overall architecture of a satisfying solution to the problem, even though we do not yet know how to make all the structural members (including color realism) as strong as they will need to be.

There is a widespread suspicion that something went seriously wrong with our thinking about the mind at around the time of Descartes. The problem, however, is not that Descartes’s arguments for dualism were so persuasive, and convinced so many people, that materialists have been a lonely minority fighting an uphill battle ever since. The defects of his position, particularly but not only the seeming impossibility of mind–body interaction, were well known to his contemporaries, and despite his continuing influence, materialism has now long been the dominant position, at least among analytical philosophers, scientists, and the scientifically inclined. But Descartes’s mind–body dualism was not really the heart of his philosophy. He was very much a part of the intellectual movement of the 17th-century scientific revolution, and dualism was really a mere corollary (albeit, to him, a welcome corollary) of ideas about the nature of matter that were emerging at the time and which he helped to crystalize. Descartes’s sin was to have seen and developed the consequences of these ideas for the philosophy of mind more fully and consistently than his contemporaries. The protoscientists of the time wanted to be able to fully describe matter in mathematical terms, which, to them, meant geometrical, spatiotemporal terms. Matter and material objects came to be regarded as having *in reality* only spatiotem-

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poral qualities—things like shape, size, position, and velocity; what Locke (1700) would call *primary qualities*. Any other qualities that things might *seem* to have were relegated to the status of *secondary qualities*, which Locke described as powers that objects have, due to the shapes, arrangements, and motions of their microphysical parts, to produce *in our minds* ideas or experiences of things like colors, tastes, sounds, and smells. Within this picture of things it seems odd to identify the distinctive qualitative raw feel of red, for example, with the disposition and motions of the inherently colorless particles comprising the tomato skin; rather the red *quale* seems to inhere in the sensation that the light reflected from the tomato causes in one's mind.¹ The temptation to color subjectivism is strong. Although the canonical formulation of the theory of primary and secondary qualities is due to Locke (the self-appointed philosophical "under-labourer" to "the incomparable Mr. Newton") the underlying theory is already well formed in Descartes's writings and, indeed, in those of Galileo and other scientific pioneers of the era. (It had been foreshadowed, of course, in the thinking of ancient Greek atomists, such as Democritus.)

In his penultimate paragraph Ross seems to be willing to accept a distinction (which he ascribes to the color subjectivist Hardin) between "sensed colors" and "sensory qualities." This seems to be essentially the same as Locke's distinction between secondary qualities, as powers in objects, and the ideas of these qualities (the qualitative experiences) as they occur in our minds. Ross is apparently led to accept this distinction because he thinks it is the same as the unquestionably real distinction between surface reflectances and the neural processes involved in color perception. But although it does not contradict his main argument, I think Ross is ill advised to be following Hardin here. In doing so he is buying into the Lockean/Cartesian *representative theory of perception*, which may, perhaps, be a corollary of the notion of secondary qualities, but is surely not necessary for color realism. Indeed, once we allow that "sensory qualities" are in the mind then the issue between color realists like Ross and subjectivists like Hardin becomes little more than a trivial verbal dispute over whether the distal causes of color experiences ("sensed colors") or the experiences caused by them ("sensory qualities") are more truly deserving of being honored with the simple name "colors." What is more (inasmuch as it would matter) *prima facie*, at least, the subjectivist would seem to have the stronger case (for the reasons already noted when discussing Locke's version of the distinction).

But Ross need not and should not accept the terms of Hardin's distinction. There is no need for him to allow that "the neural processes which give us perceptual access to sensed color" are to be identified with "sensory qualities." If this is avoided, Ross's color realism becomes decidedly *nontrivial*. Where Locke, Descartes, and Galileo would locate color qualities in our minds, color realists will put them back out there in the world, among real, "primary" things like size, shape, and motion. The representative theory of perception, however, is, by now, very well en-

¹ Indeed, many subsequent philosophers have followed Berkeley rather than Locke in using "secondary quality" to refer to experiences themselves rather than the distal causes of experiences. But, of course, Berkeley did not believe that there was any physical world outside the mind, so for him the *primary qualities* were equally mental and the primary/secondary distinction was otiose.

trenched into our thinking, and it is associated, as noted, with some of the greatest culture heroes of science, such as Galileo and Newton. That is why I said that color realists have a difficult case to make.

But it may be that the primary/secondary distinction (and the representative theory of perception that goes along with it) is the main source of the conceptual difficulties that have dogged physicalist accounts of the mind since Descartes's time and that have constantly tempted philosophers toward metaphysical dualism of some form.² After all, if sensory qualities, *qualia*, are really in minds rather than in the physical world, then there must be minds, *distinct from the physical world*, in order to accommodate them.

The usual physicalist response has been to suggest that minds are really certain special (and peculiarly complex and mysterious) parts of the physical world, namely brains, and to identify qualia with certain brain states. But it is at this point that the explanatory gap yawns. Nothing about brain states, whether characterized functionally or physically, seems to fit them for being embodiments of qualia. No doubt our brains, in some sense, process the information delivered to them by our sense receptors, and no special problem attaches to investigating this processing scientifically, but if we want to understand consciousness itself we are inevitably confronted with a further baffling question: "Why doesn't all this information processing go on 'in the dark', free of any inner feel? Why is it that when electromagnetic waveforms impinge on a retina and are discriminated and categorized by a visual system, this discrimination and categorization is experienced as a sensation of vivid red?" (Chalmers, 1995). This is the notorious "hard problem": It seems impossible to understand why a brain state or process should embody one quale rather than another, or, indeed, how it might embody any quale at all: after all, brain states are physical states like any others and are thus to be described entirely in terms of *primary* qualities. Perhaps (on some interpretations) modern science has added a few qualities, such as electrical charge or quantum "spin," to Locke's original list, but these certainly do not include or add up to colors or other secondary (i.e., actually experienced) qualities or qualia.

But if the color realist is right, and colors are "really" out there on the surfaces of objects, rather than *in here* in our minds, then we no longer need to postulate color qualia in the mind or the brain, and the problem of explaining how brain states could embody such qualia disappears. Instead of experiencing *qualia*, in our minds, we experience *qualities*, out there in the real world. As Dennett (1988) has argued, qualia simply do not exist. The words "qualia" and its singular "quale" are no more than rather recently invented pieces of philosophical jargon, with no real referent, a sort of philosophical phlogiston.

I think there are good reasons, however, why Dennett's version of qualia eliminativism has not found widespread acceptance. He fails to give us a sufficiently robust alternative account of the nature of qualitative experience. For Dennett, experiencing something is really a matter of obtaining information about it, and information remains, ultimately, information about what is assumed to be all that is really out there: things with primary qualities, but with no real colors, timbres, scents, or tastes.

² Or toward idealism if, following Berkeley, the distinction is collapsed in the opposite direction such that *no* experienced qualities are considered primary, in the sense of really existing outside the mind.

The alternative I want to sketch (in very broad strokes, it should be admitted) is that colors (and all other experienced qualities) really exist out there in the world, just as do shape, size, and motion (or whatever properties are sanctioned by the latest physical theories). Furthermore, rather than merely mentally representing these qualities (or information about them), we are able to *know* or *be in touch with* them, as they exist outside of us, in a quite concrete sense. Qualitative experience, I am suggesting, may consist in being in contact with qualities rather than in the “having” of qualia.

To make this fly we will need a much more robust conception of *intentionality* than we get either from Dennett (who is irrealist about it) or from more conventional cognitive theories, which explain the fact that a thought or experience can be of or about some X by appeal to the presence of a mental representation of X. “Intentionality” is, essentially, the philosophical jargon term for the way in which the mind is in touch with the world, and if we are going to get a satisfying account of color experience out of color realism and the rejection of qualia, we are going to need to be able to justify a much stronger sense of “in touch” than we can get from theories that hold that to perceive something is to appropriately produce a mental representation of it. In the relevant respects the representation mediated theories of perception of much modern cognitive science are not very different from the idea mediated theories of Locke and Descartes, and if, as such theories seem to maintain, our direct experience is of the representations or ideas rather than of the external things, the case for color subjectivism will be much strengthened.

Fortunately, 20th-century cognitive science does provide us with alternative accounts of perception, whereby it is depicted as a matter of direct, active interaction with the things in the environment rather than as the production of inner representations. I am thinking not only of the seminal work of Gibson (1979) and his followers, but also the more recent accounts of active perception coming both from visual science (O’Regan, 1992; Landy, Maloney, & Pavel, 1996) and from robotics (Ballard, 1991; Blake & Yuille, 1992; Aloimonos, 1992; Swain & Stricker, 1993; Ballard, Hayhoe, Pook, & Rao, 1997). As I have argued elsewhere (Thomas, 1999), instead of viewing perception as a matter of the inflow of information into the brain, and eventually into the proper format of mental representation that will be available to consciousness, such theories treat it as a continual process of purposeful interactive interrogation of the environment. Rather than the mind being the brain and its activities, mind consists in this constant process of reciprocal interaction between organism and environment. The role of the brain is not to receive representations but to coordinate the organism/environment interaction so that it is responsive to the organism’s needs and the actual environmental situation, as this is progressively discovered. By rejecting the idea that any of the brain processes or states involved in perception are to be identified with the percept or the experience, theories of this type allow a color realist like Ross to evade Hardin’s “sensed color”/“sensory quality” distinction and thus avoid triviality. On this view, the mind is *there* in the world (Clark, 1997) rather than being a spectator locked away in the skull, merely reflecting the world in its representations. Clark and Chalmers (1998) even go so far to speak about an “extended mind,” the boundaries of the self, as a cognitive system, extending beyond the skull and the skin to encompass the things with which we interact. Taking this

literally, it would even make sense to say that color experiences exist in the mind after all, but as qualities of the surfaces of the objects around us rather than as mysterious qualia inside the brain. (Clark & Chalmers deny that their theory applies to consciousness, as opposed to cognition, but this may reflect prior authorial commitments more than the logic of their argument. In any case, they do not seem to have noticed the relevance of quality realism to the issue.)

Of course, the Lockean/Cartesian picture of the mind has had about 3 centuries to work out its kinks and to hone its defenses, and it is not going to be easily replaced by any upstart alternative. For example, it is widely believed that the “argument from illusion” provides a knockdown refutation of any theory of perception that depicts our minds as in direct touch with the world and dispenses with mediating representations. If perception is direct, it is asked, how can it possibly even be occasionally mistaken, let alone systematically misleading (as it seems to be, for instance, in the case of metameric colors)? Clearly we do often misperceive things. Hallucination is perhaps the most worrying example of this. Since, by definition, there is no stimulus in the real environment to which it corresponds, how could it possibly be explained except in terms of the presence of aberrant mental representations? I would like to think that the materials for an answer to this (and related problems) may lie in the “active perception” based theory of mental imagery that I have recently proposed (Thomas, 1999). Hallucination is, very arguably, merely mental imagery that we somehow fail to distinguish from veridical perception, and if imagery can be explained without appealing to mediating representations (as I think I have shown) then hallucination (and other sorts of nonveridical perceptual experience) can too.

But although much relevant work has already been done, by many people, plenty of details of the “quality realist”/“extended mind” view of consciousness that I have tried to outline remain to be worked out. Not only do we need to further refine our accounts of active/direct perception and the extended mind, we will also need to extend the argument for quality realism beyond the realm of color, not only to odors, tastes, sounds, and feels (where the case will surely be difficult enough to make), but also to things like pains and pleasures, where the problems arising may be substantially different. There is, however, reason to believe that physical science needs to include qualitative properties in its ontology, quite apart from any special considerations arising from the problems of consciousness (Martin, 1997). With work, the explanatory gap may yet be closed.

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