

## M. Chirimuuta's Adverbialism About Color

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M. Chirimuuta's *Outside Color* is a rich and lovely book. I enjoyed reading it and benefitted from reflecting on its provocative ideas. I begin by briefly placing the book's principal thesis in its historical context, and I go on to reflect on two objections that might be lodged against this thesis.

### I. Color Adverbialism

Adverbialism arose in the philosophy of perception as an attempt to overcome the perceived metaphysical excesses of the act-object analysis of sensation. According to this analysis, an experience of red, whether ordinary or hallucinatory, involves a mental act through which the subject becomes acquainted with an instance of red. The mental act was called a *sensation* or a *sensing* and the object of acquaintance was called a *sense-datum*. C. J. Ducasse, the originator of adverbialism, argued that a more parsimonious analysis was to be preferred. On this analysis, *red* is viewed as qualifying not the object of sensation, but the sensation itself. When one experiences red, Ducasse suggested, one does not sense something red; instead one senses *redly*.

Wilfrid Sellars improved Ducasse's adverbialism in important ways, rendering it more coherent. First, Sellars recognized that complex adverbs such as 'red-square-ly' must be allowed; only thus could adverbialism account fully for ordinary experiences (e.g., of red squares). Second, Sellars rejected the idea that sensings are acts of knowing, acts in which the subject becomes acquainted with things. This move dissociates adverbialism from the strange conception that adverbs such as 'redly' and 'red-square-ly' qualify acts of knowing. Sellars's motivations for these moves lay in his epistemology of perception (he allowed sensings only a causal role in cognition, not any epistemic role) and in his synoptic, naturalist ambitions (he took sensings to be brain processes).

Chirimuuta's adverbialism is different from that of Ducasse and of Sellars, both in its motivation and in its content. Chirimuuta is not concerned with an analysis of perception of the sort that occupied Ducasse. Nor is she concerned to set out an epistemology of perception. Furthermore, she does not share Sellars's synoptic, naturalist ambitions. Chirimuuta's motivations are entirely empirical. She is concerned to provide an account of color that accords with the discoveries in the sciences investigating color. Chirimuuta thinks these discoveries warrant a move to adverbialism. (I like Chirimuuta's style of argument much more than that of Ducasse and of Sellars.)

Chirimuuta differs from Ducasse and Sellars also in the type of adverbialism she advocates. Unlike Sellars, Chirimuuta is not committed to a general adverbialism about sensings. Her focus is on color, and she commits herself only to an adverbialism about color. More importantly, Chirimuuta does not take colors to be adverbs that qualify mental acts or brain processes. She argues at length against color subjectivism. On the other hand, she argues also against color objectivism. Chirimuuta rejects, on empirical grounds, what she calls "the Detection model" of color perception, according to which the function of color vision is to detect color properties inhering in external objects. She rejects also, again on empirical grounds, what she calls "the Coloring-in model," according to which the visual system detects shapes independently of colors and then colors them in with detected colors. Chirimuuta expresses dissatisfaction with the framework within which the current philosophical debate about color is conducted and the dichotomies that it fosters, such as realism vs. anti-realism and subjectivism vs. objectivism. Chirimuuta thinks we need to go outside this framework if we wish to obtain an account of color that accords with perceptual science. We need to bring in *both* the subject and the object, she thinks, and we need to recognize the pragmatic role of color perception in guiding action. Colors are properties neither of outer things nor of inner things, she holds; they are instead properties of *perceptual interactions* between subjects and objects. This is her principal thesis, and it sets her adverbialism apart from that of Ducasse and of Sellars.

I suppose, as a critic, I am expected to attack Chirimuuta's thesis. I am sorry to disappoint expectations, but my plan is to reflect on how Chirimuuta's thesis might be *defended* against two general objections, which I shall label "Objection from Experience" and "Objection from Common Sense."

## II. The Objection from Experience

*Objection:* Chirimuuta's adverbialism conflicts with the deliverances of our visual experiences. Phenomenologically, our experience is a presentation of things, and furthermore, this presentation is reason giving. If, in an experience, a *K* is presented as *F*, then the experience provides the subject with a reason for accepting that a *K* is *F*. Now, an ordinary visual experience of a red tomato, for example, presents a tomato as red, and this is a part of its phenomenology. Such an experience provides us with a reason to take a tomato to be red. Hence, it provides a reason to take red to be a property of a tomato. Chirimuuta's theory has it, however, that red is a property of certain perceptual interactions, not of ordinary things such as tomatoes. There is thus a conflict between Chirimuuta's adverbialism and the deliverances of our visual experience. Visual experience provides us with a reason to deny adverbialism.

A related point is this: the phenomenology of a visual experience, which grounds its reason giving role, is constituted by visible properties and relations of external objects. Chirimuuta's adverbialism denies that colors are properties of external things. It must deny, therefore, that colors constitute the phenomenology of visual experiences. So, Chirimuuta's theory does not square with the evident phenomenology of visual experiences.

The objection rests on ideas that are central to prominent representationalist and naive-realist theories of experience. For consider the following extracts, taken from some prominent representationalists:

Phenomenal character just is the complex of external qualities. (Michael Tye, *Consciousness Revisited*, p. 119)

Experience provides its subject with reasons for first-order empirical belief. (Kathrin Glüer, "Looks, Reasons, and Experiences," p. 80)

The phenomenology of color vision clearly makes claims about objects in the world.  
(David Chalmers, “Perception and the Fall from Eden,” pp. 409-10)

Consider also the following extracts, taken from some prominent naive realists:

The qualitative character of perceptual experience . . . is simply the qualitative character of the world observed. (John Campbell in *Berkeley’s Puzzle*, p. 18)

Acquaintance in perception provides evident ground for concept application in judgement. (Bill Brewer, *Perception and Its Objects*, p. 144)

Chirimuuta does not consider in her book the particular objection formulated above. She does consider related objections, however, and two different kinds of responses to the above objection can be recovered from what she says.

The first kind of response is conciliatory towards current theories of experience. Chirimuuta argues that both naive realism and representationalism can be rendered consistent with adverbialism. I myself had difficulty seeing how this can be done in a viable way. According to naive realism, experience acquaints the subject with various ordinary things and their properties and relations. Now, adverbialism denies that colors are properties of ordinary things. So, the salient option that remains is that colors qualify acquaintance. For acquaintance, according to the naive realist, is the relevant perceptual interaction between the perceiver and the perceived. Acquaintance, however, is a relation of knowing, and while it makes sense to speak of knowing of blue and red things, it makes little sense to speak of red and blue knowings. (As noted above, this difficulty does not arise with Sellars’s adverbialism, for Sellars rejects the idea that sensings are knowings.)

Next representationalism: Chirimuuta sketches a version of it—she calls it “complex Fregean representational theory”—that she thinks accommodates adverbialism. On this version, experience is a representation with two kinds of content. One kind of content is modeled on Fregean reference; the other kind, called *phenomenal content*, is modeled on Fregean sense. As with Fregean sense, phenomenal content is a mode or manner of presentation of worldly items.

Colors, according to the complex Fregean representational theory, are parts of phenomenal content; they are manners of presentation of worldly items. The difficulty here is to see how this can be so if adverbialism is true. For adverbialism takes colors to be properties of perceptual interactions, and properties of perceptual interactions (e.g., occurring partly inside the head) are not generally modes of presentation of anything. Frege, himself, placed modes of presentation in a shadowy third realm, beyond the mental and the physical. I myself think it is best to confine them to that realm.

A second kind of response can be recovered from Chirimuuta's book, and it is not conciliatory. It is prepared to abandon central tenets of current theories. Thus, Chirimuuta says that visual phenomenology is neutral about the nature of color—it is neutral, for example, about the relationality or non-relationality of color (188).<sup>1</sup> Chirimuuta is prepared to say even that visual experience does not present color properties; it presents only *things* (208). Her remarks on p. 210 suggest that the idea that color appears to be instantiated in external objects “is a theoretical spin on phenomenology.” All this runs counter to current orthodoxy, and I think it points to the right way of responding to the Objection from Experience.

Let me spell out a little how I see the response going. The response is that a visual experience (and its phenomenology) is neutral on the issue between adverbialism and its rivals. In particular, the experience does not pronounce on the proper bearer of color. (For if it did, then it would not be neutral between adverbialism and its rivals.) It follows that the visual experience of a red tomato does not pronounce on whether the tomato is red. Since color and shape are not relevantly different, we should say also that the experience does not pronounce on the proper bearer of shape, either. The experience does not make any claim, or warrant any claim, about the roundness of the tomato. In short, the response to the Objection is that experience makes no claims; it issues no judgments; it provides no reasons for beliefs. There is no conflict between adverbialism and experience, because experience is not an issuer of claims or of reasons for claims.

Two points of clarification. First, the response is not rejecting the idea that in a perceptual situation the subject often has a reason for her perceptual judgments. The response is rejecting

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<sup>1</sup>Parenthetical numerals refer to the pages of *Outside Color*.

only a claim about the source of this reason, namely, that the reason issues from experience *alone*. Second, the response is not rejecting the idea that experience is a presentation of things, only that it is a *reason-giving* presentation of things. If in an experience a *K* is presented as *F*, the experience is not thereby *acquainting* the subject with the fact that a *K* is *F*. It is not thereby making it *known* to the subject that a *K* is *F*. It is not thereby *representing* to the subject that a *K* is *F*.<sup>2</sup>

I think the Objection from Experience fails. However, it does leave Chirimuuta with some substantial homework. Chirimuuta needs to provide an account of experience that sustains the idea that it is not a reason-giving presentation of things and that, at the same time, respects its phenomenology. This account is not to be found among the mainstream theories of experience. If you are going to go for outside color, you need to go also for outside experience.

### III. The Objection from Common Sense

**Objection:** *Even if Chirimuuta's adverbialism does not conflict with color experiences, it does conflict with our commonsense view of things and our common way of talking about things.* The commonsense view is that red is a quality of some physical things, and in the common way of talking we take 'red' to denote this quality. Chirimuuta's adverbialism denies all this. This fact, even if it does not render Chirimuuta's proposal unacceptable, weighs heavily against it.

Chirimuuta considers an objection similar to this one, and she is rather impatient with it. She writes:

While it is a problem for me if perceptual experience by itself is somehow inconsistent with color adverbialism . . . , inconsistency with ordinary color language is not troublesome. (186)

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<sup>2</sup>The rejection of the idea that experience is a reason-giving presentation of things sits well, it seems to me, with Chirimuuta's perceptual pragmatism.

Chirimuuta says her concern is “to work out the ontological commitments of perceptual science” (212), and these may well not be the commitments of common sense, or of physics. Chirimuuta declares herself a pluralist (212). She allows that one ontology may be required by perceptual science, another one by physics, and a yet different one by common sense. She says:

The motivation for this rather different theory of color comes largely from consideration of the theoretical commitments and conceptual needs of perceptual science. As such, color adverbialism is not intended as an exposition of the ontology assumed by ordinary color discourse . . . . (159)

Chirimuuta also has little patience with the commonsense conception of color. She suspects that this conception is a remnant of the scholastic theory of intentional species, and it “can be relegated to the same fate as the scholastics’ occult qualities and powers” (32). I am not sure that Chirimuuta is correct in her suspicion. It may be that the scholastic theory is a speculative enrichment of, rather than a source of, the commonsense conception. In any case, Chirimuuta seems to me right in thinking that a scientific investigation of color can lead to a thorough rejection of the commonsense conception. Scientific investigations have led to large-scale transformations of our view of air, the earth, and the cosmos. They can lead also to a large-scale transformation of our view of color. One possible outcome of these investigations, we should allow, is Chirimuuta’s adverbialism. Neither experience nor the contrary conception embodied in commonsense rules Chirimuuta’s theory as out of play.

Let us notice also this. When scientific investigations transform our view of things, they do so for empirical reasons. It is because of reasons provided by empirical observations — observations such as those of the behavior of columns of mercury as they are moved up mountains, of sediments deep underground, and of the night sky—that we change our view of air, the earth, and the cosmos. Without such reasons, we would not, and should not, change our commonsense view. Let me express this by saying that to transform our commonsense view we require a *transformative empirical reason*. In order to accept Chirimuuta’s adverbialism, we need a transformative empirical reason for it. This generates two different demands on Chirimuuta, one general and the other specific.

The general demand is to explain how there can even be such a thing as a transformative empirical reason if experience is not a reason-giving presentation of things. We met the Objection from Experience by denying that experience provides reasons for such ordinary judgments as that a tomato is red. Now, if no experience provides reasons even for ordinary perceptual judgments, then how is it that an experience, or a series of experiences, can provide a reason for radically transforming our view of color—or, indeed, our view of anything?

The specific demand is to provide an empirical reason for the particular transformation Chirimuuta is recommending, i.e., the move to her version of color adverbialism. In her book, Chirimuuta draws attention to fascinating empirical research on color. The results here take us a part of the way to Chirimuuta's adverbialism, but not, as far as I can tell, all the way.

To my mind, the most interesting research Chirimuuta points to shows, on the one hand, the relative *independence* of color processing in the visual system from the physical attributes of perceived things. And, on the other hand, it shows the *interdependence* of color perception and the perception of other attributes such as shape and distance. The output of the rods and cones in our eyes bear little correlation either with SSRs (surface spectral reflectances) or with perceived color. Even when we delve deeper into the visual system, there is at least at the level of LGN (lateral geniculate nucleus) little correlation between neural behavior and perceived hues. (Chirimuuta cites here the work of Valberg.) Furthermore, contrary to the views of earlier researchers—Chirimuuta mentions Livingstone and Hubel among others—there is neither a separate neural pathway for color nor a group of neurons in the visual cortex dedicated solely to color processing. (Chirimuuta cites the work of Mollon and others.) There is no neural channel, it appears, transmitting information about surface properties of perceived objects, which information is then integrated with, say, shape and distance perception to yield a perception of a scene. Neither the Detection model nor the Coloring-in model has, it appears, any physical basis. Chirimuuta also draws attention to research that tends to show that the two models have no psychological basis, either. Perceived color of a surface is affected by a variety of environmental and subjective factors and has little correlation with any intrinsic property of the surface. Despite this lack of correlation, studies show, that color perception plays a vital role in the perception of, for example, shape and distance. The function of color perception, it appears, is not to enable the subject to see color properties but, paradoxically, to see better certain non-color properties.



Chirimuuta mentions (on p. 84) a striking proposal of Campenhausen that color sensitivity evolved “to ensure *lightness constancy* (i.e., the stable perception of the brightness of objects) in all lighting conditions.” That is, color sensitivity evolved to enable the subject to detect better a non-chromatic quality of things.

These findings together with others to which Chirimuuta draws attention put in serious doubt physical realism about color as well as the Detection and Coloring-in models of color perception. The findings show also that color perception, though it is dependent on the subject in diverse and idiosyncratic ways, serves vital cognitive functions. The findings do not provide, however, a sufficient reason to move to adverbialism. For, *first*, the findings do not establish that colors are genuine properties of *anything*. Once we reject the idea that colors are genuine properties of ordinary objects, it is a live possibility that they are not genuine properties at all. We need, therefore, an empirical reason to rule out this possibility. The possibility cannot be ruled out on the ground that it renders visual experience illusory: it does so no more than adverbialism. Nor can the possibility be ruled out on the ground that it is inconsistent with the usefulness of color perception: there is no inconsistency here. The usefulness of color perception is amply explained by the usefulness of color appearances; there is no need for the idea of colors as genuine properties. (An aside: Chirimuuta says that both sides in the realism/ antirealism debate presuppose the Coloring-in model of color perception. I fail to see this. Some versions of antirealism—e.g., a simple projectivism—may presuppose the model. But viable forms of antirealism are available, it seems to me, that do not presuppose the model at all, and indeed that are consistent with Chirimuuta’s perceptual pragmatism.)

*Second*, once empirical reasons are provided for the idea that colors are genuine properties, we will need further reasons for thinking that colors are properties of perceptual interactions. In her book, Chirimuuta does not specify the properties of perceptual interactions that are to be identified with colors. We will need this specification and also empirical reasons for the identification. Only then will there be sufficient rational force in play to transform the commonsense conception to the new color adverbialism.

#### IV. Conclusion

The Objection from Experience as well as the Objection from Common Sense can, I think, be met. To meet them adequately requires, however, a couple of things:

- (i) an account of experience that rejects the idea that experience is a reason-giving presentation of things and that, nevertheless, makes sense of the phenomenology of experience and of the existence of transformative empirical reasons; and
- (ii) an *empirical* reason for shifting to the view that colors are genuine properties and, moreover, properties that are best attributed to perceptual interactions.

I see no in-principle difficulty in meeting the two requirements. Hence, I see Chirimuuta's adverbialism as a novel and viable position in the debate over color.<sup>3</sup>

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<sup>3</sup>This essay is a slightly revised version of my contribution to a symposium on *Outside Color* held at the Center for Philosophy of Science, University of Pittsburgh, in January 2016.

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