

# PERCEIVED COLORS AND PERCEIVED LOCATIONS: A PROBLEM FOR COLOR SUBJECTIVISM

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Color subjectivism claims that colors attributed to external physical objects in virtue of visual experience—or *perceived colors*—are not instantiated by those objects. Instead, perceived colors are wholly explained in terms of visual experience itself. (Subjectivism is often called eliminativism or irrealism.)<sup>1</sup>

Subjectivism is a theory of the nature of color and is, strictly speaking, independent of a theory of color perception. But a theory of the nature of color sets constraints on a theory of color perception. For example, subjectivism sets the extremely strong constraint that color perception does not involve a causal relation between perceivers and colors instantiated by physical objects external to the mind. The question that this essay will address is whether there is a plausible theory of color perception that meets the subjectivist constraint. If not, and assuming that any theory of the nature of color is simply untenable if it cannot be combined with a plausible theory of color perception, subjectivism is untenable.

The argument here will be that there is no plausible subjectivist account of color perception. Consequently, color perception does involve a relation between perceivers and colors instantiated by external physical objects and some version of *color realism*, the view that colors are (physical, dispositional, functional, sui generis, or some other) properties of physical objects, is correct.

Any theory of color perception introduces the consideration that colors are perceived as spatially located (in two or more dimensions). Thus, perceived colors are combined in perception with *perceived locations*—locations attributed to the external world in virtue of perceptual experience. And consequently, the questions arise: What are the properties so attributed? What is the nature of perceived location?

At the broadest level, the options for the nature of perceived location are: physical location external to the mind, or something distinct from external physical location. Color subjectivism is consistent with either option. However, on either option, an account of color perception runs into serious problems.

Objections to subjectivist theories of color perception often take as a starting point the standard division of subjectivist theories into sense datum theory and adverbialist projectivism (see, for example, Shoemaker 1990, 1994).<sup>2</sup> But the objections developed here take an alternative and orthogonal division of subjectivist theories of color perception as their point of departure. According to this alternative perspective, the basic problem for subjectivism is in coordinating the metaphysics of perceived colors with that of perceived spatial properties, including perceived location.

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## I. COLOR SUBJECTIVISM AND PERCEIVED LOCATION

The subjectivist's general claim is that perceived colors are not instantiated by external physical objects. Yet combining this subjectivist claim with the claim that perceived location is *external physical location* has the result that perceived color is not intelligibly related to perceivers. Since perceived color is neither instantiated by external physical objects perceived nor intelligibly related to perceivers, this version of subjectivism renders perceived color mysteriously free-floating.<sup>3</sup> Alternatively, assuming that perceived location is instantiated, if perceived location is *distinct from external physical location*, subjectivism is committed to a mysterious causal relation between physical events in physical space and perceived location in a nonphysical space.

These two problems—the problem that perception involves a mysterious causal relation between physical and nonphysical relata, and the problem that perceived color is not intelligibly related to perceivers—cut across the sense datum theory/adverbialism divide. For the claim that perceived location is external physical location has been proposed by subjectivists of the sense datum variety (e.g., Jackson 1977) and the adverbialist variety (e.g., Baldwin 1992). Similarly, the claim that perceived location is distinct from external physical location has been proposed by both sense datum theorists (e.g., Russell, 1959 [1912]) and adverbialists (e.g., McGilvray 1994). Thus, whatever objections sense datum theory and adverbialist subjectivism face, subjectivist views about color also face a fundamental problem that cuts across these traditional perceptual theories: how a subjectivist view can give an account of color perception which plausibly coordinates the metaphysics of perceived colors with that of perceived spatial properties.

Furthermore, this fundamental problem generalizes to an intentionalist version of sub-

jectivism which claims that perceived colors are merely represented properties which are not instantiated at all (e.g., Pautz MS). For assuming intentionalist subjectivism holds that perceived location is instantiated, the basic dilemma remains. Perceived location either is external physical location or is distinct from external physical location. If perceived location is external physical location, then whether perceived color is instantiated or not, perceived color is not intelligibly related to perceivers. And if perceived location is distinct from external physical location, then whether perceived color is instantiated or not, there is a mysterious causal relation between physical and nonphysical relata.

Subjectivist endeavors to account for color perception without appeal to colors instantiated by external physical objects faces mystery—not simply problems of working out details—at every turn. These mysteries mark dead ends, driving us to conclude that subjectivist metaphysics is misguided, and that colors of external physical objects play a necessary role in color perception.

## 2. PERCEIVED LOCATION DISTINCT FROM EXTERNAL PHYSICAL LOCATION

If perceived location is distinct from external physical location, it might be mental location. However, there are two very different ways of characterizing perceived location as being mental: as being a location in a mental space altogether distinct from physical space, or as being a mental event identified with a neural event that represents external physical location. (Those who see no merit in this side of the subjectivist family of perceptual theories should proceed to section 3. But be aware of how attractive subjective perceived location has been to some vision scientists; see, for example, Hoffman 2001, p. 76; Hoffman 2008; and Hoffman Forthcoming; also see Lehar 2003.)

If perceived location is distinct from external physical location, it might also be sui

generis, and thus neither mental nor physical location. However, the argument in section 2.1 below applies to perceived location altogether distinct from physical location, whether it is mental or sui generis. Thus, the views that take perceived location to be distinct from external physical location subdivide into two types of view: those which propose that perceived location is altogether distinct from physical location, and those which hold that perceived location is physical location in the head.

These types of views seem sharply distinct. Russell provides some intuitive support for a version of the former type of view in *The Problems of Philosophy* (1959 [1912]). Nevertheless, it faces a problem that can be readily identified, namely, the problem of a causal relation between locations in physical space and nonphysical space. By contrast, the view which holds that perceived location is physical location in the head, defended by McGilvray, seems to offer an option that is both distinct and better, in both cases due to its apparent repudiation of nonphysical space. However, McGilvray's view, in its attempt to capture the first-person aspect of visual experience, ends up invoking a nonphysical space nonetheless, and is thus vulnerable to the same problem as Russell's view.

### 2.1 Perceived Locations in Nonphysical Space

In *The Problems of Philosophy*, Russell proposes, in connection with his version of sense datum theory, that there is a private space of sight of which a person who was blind from birth would never have knowledge, and which is altogether distinct from physical space (1959 [1912], pp. 28–32 of “The Nature of Matter”).<sup>4</sup> Despite this proposal's intuitive appeal, the challenge of clarifying and defending a nonphysical space is formidable. In fact, in defending his own version of sense datum subjectivism, Jackson (1977, p. 103) derides Russell's variety of

sense datum theory as appealing to a “mysterious space.”

However, for the purposes of the argument here, the charge of mystery does not target nonphysical space per se. Instead, the charge pertains to the involvement of nonphysical space in perception: how can we understand the relation between perceivers' neural events, which are located in physical space, and perceived locations in an altogether distinct private space?

More specifically, Russell assumes that neural events are causal intermediaries between external physical space and nonphysical space. He says “if our sensations are to be caused by physical objects, there must be a physical space containing these objects and our sense-organs and nerves and brain” (1959 [1912], p. 30), and he claims that sensations are caused by physical objects (*ibid.*, pp. 27–32). But how can we understand the causal relation between neural events and perceived locations taken to be locations in an altogether distinct nonphysical space?

As Kim (2005, chap. 3, esp. pp. 81–82) maintains in a recent argument against substance dualism, a physical spatial framework is necessary for understanding causality. From this standpoint, there is a problem for Russell's (early) sense datum theory that is similar to the problem of mind-body interaction for Cartesian dualism. For Descartes, the problem stems from claiming that the mental is altogether nonspatial. For Russell, the problem stems from claiming that perceived location is in a private space altogether distinct from physical space. But in both cases we run up against the problem that we have no understanding of causal relations involving relata that are not encompassed by physical space. In particular, we have no understanding of a causal relation between properties (or events) except in terms of a continuous causal chain between them; furthermore, we have no understanding of a continuous causal chain except in terms of spatial contiguity; but

1 spatial contiguity can only be understood in  
 2 terms of a physical spatial framework (Kim  
 3 2005, pp. 78–88). Consequently, Russell’s  
 4 proposal of a private space distinct from  
 5 physical space commits his (early) sense  
 6 datum theory to construing perception as  
 7 involving a mysterious causal relation.

## 8 2.2 *Perceived Locations Identical* 9 *with Neural Events*

10 Yet McGilvray’s (1994) view, an adverbialist  
 11 view that purports to identify perceived  
 12 locations with neural events, fails to dispel  
 13 the mystery. Indeed, this view, which is one  
 14 of the most sustained recent attempts to give  
 15 a subjectivist account of color perception,  
 16 ends up invoking a mental space altogether  
 17 distinct from physical space.

18 McGilvray claims that so-called phenom-  
 19 enal objects, which are phenomenologically  
 20 like sense data (1994, pp. 211–212, 216–218)  
 21 and so include perceived spatial properties  
 22 and perceived colors, represent external phys-  
 23 ical objects (1994, p. 219). However, unlike  
 24 (early) Russellian sense data, phenomenal  
 25 objects are complex combinations of neural  
 26 events, including neural events identified  
 27 with perceived spatial properties and neural  
 28 events identified with perceived colors (1994,  
 29 pp. 211–212). According to McGilvray, these  
 30 combinations of neural events are displays: “I  
 31 as a rational agent do not do a thing to ‘build’  
 32 this display; if anything ‘makes’ it, my neural  
 33 mechanisms do—without interference or aid  
 34 on ‘my part’—in and while carrying out their  
 35 function of displaying physical things in the  
 36 external world” (1994, p. 218). The idea of a  
 37 display, or, as McGilvray puts it, a “built-in  
 38 ‘user interface’” (1994, p. 226), is phenom-  
 39 enologically compelling. But this image of  
 40 a display leads McGilvray to inadvertently  
 41 invoke a mental space not identifiable with  
 42 physical space at all.

43 McGilvray contends that the perceived  
 44 locations of the display are not identifiable  
 45 with external physical locations. However,  
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he does not identify perceived locations with  
 the physical locations of neurons, either. And,  
 in fact, there are empirical reasons to deny  
 that perceived locations are identifiable with  
 physical locations in the brain. For example,  
 Clark (2000, p. 99) points out that while there  
 are neural maps which are to some extent  
 spatially organized similarly to the organi-  
 zation of perceived locations, there are also  
 important dissimilarities; for example, neural  
 maps are discontinuous between the portion  
 of the map that represents the left part of the  
 field of view and the portion that represents  
 the right field of view.

Instead, McGilvray’s idea of perceived lo-  
 cation is modeled after his idea of perceived  
 color. McGilvray claims that perceived colors  
 are neural events. But, of course, perceived  
 colors are not the colors of the neurons  
 involved in these neural events. According  
 to McGilvray’s adverbialist view, perceived  
 colors are identified with our undergoings of  
 these neural events rather than static proper-  
 ties of anything at all (1994, pp. 211–213).  
 He states, “While the external object, the  
 intended object, and the neuron are not col-  
 ored, some neural events are colored. By this  
 I mean that they are the same things as (are  
 identical with) what I call ‘colorings’” (1994,  
 p. 211).

Similarly, perceived locations are not the  
 physical locations of neurons or the events in  
 which they participate, but rather are identi-  
 fied with our undergoings of certain neural  
 events. Thus, taking phenomenal objects  
 to be combinations of neural events (those  
 neural events identified with perceived spatial  
 properties and those identified with perceived  
 colors), McGilvray speaks of “phenomenal  
 objects undergone” (1994, p. 224).

Nevertheless, it is unclear how we are  
 to understand perceived locations as being  
 our undergoings of certain neural events. In  
 considering the question “what does my un-  
 dergoing of a neural event look like?” there  
 is a way of answering in terms of physical

spatial properties of neurons and their events. But this is the idea just rejected as empirically implausible. Rather, McGilvray's proposal is that our undergoings of certain neural events are, from the first-person perspective, perceived locations. In that case, however, he introduces a first-person aspect of undergoing neural events that, in order to avoid the implausible physical spatial description of neural events, must be removed from a physical spatial context. While part of the appeal of McGilvray's account is its capturing of the first-person aspect of perception with the display image, because the spatial properties of the display are not physical spatial properties, either internal or external to the brain, McGilvray inadvertently appeals to a Russellian private and nonphysical visual space.

McGilvray does not propose that visual space is private and nonphysical; the point is that it is difficult to see how he can escape the charge that he renders visual space private and nonphysical. McGilvray would contend that, unlike Russell, he appeals to the techniques of multidimensional scaling (MDS) to characterize perceived spatial properties (1994, pp. 214–215), and consequently, perceived spatial properties are neither private nor nonphysical (1994, p. 215). However, MDS merely provides a method for showing the dimensionality of a range of perceived properties and is neutral with respect to the nature of perceived locations. For example, MDS would show that spatial properties have dimensions of azimuth, altitude, and depth (1994, p. 214). Yet Russell also describes private and nonphysical visual space according to these dimensions (1959 [1912], pp. 30–31). And since MDS does not tell us what the perceived properties are metaphysically speaking, MDS is compatible with Russell's proposal of a private and nonphysical visual space. (Also, consider that MDS is compatible with Frank Jackson's Fred's colors [Jackson 1982]; still, Fred's colors are claimed to be private—only Fred knows what it is like

to have them—and nonphysical. Thus, MDS is compatible with private and nonphysical properties or entities.)

Indeed, if, as McGilvray holds, visual spatial properties cannot be identified with physical space internal or external to the brain, but are a first-person aspect of undergoing neural events, then they cannot be known by a person blind from birth. Visual spatial properties are nonphysical as well as private in just the way that Russell proposed. McGilvray's view renders perceived location a simulacrum of external physical space with no home in physical space at all.<sup>5</sup> And thus it presents the problem of understanding causal relations involving relata that are not encompassed by physical space. With respect to relating physical spatial properties and perceived spatial properties, no real improvement has been made on Russell's sense datum theory.

The problem of the mysterious causal relation between neural events in physical space and locations in a nonphysical space is a general difficulty for subjectivist views which claim that perceived location is distinct from external physical location.<sup>6</sup> Thus, it is worth examining the alternative claim, namely, that perceived location is external physical location.

### 3. PERCEIVED LOCATION IDENTICAL WITH EXTERNAL PHYSICAL LOCATION

If perceived location is external physical location, problems with respect to nonphysical space do not apply. However, a variety of other problems arise for these views. The general difficulty for them is that perceived color is not intelligibly related to perceivers.

#### 3.1 *Against Sense Datum Theory*

According to Jackson's sense datum theory, sense data are located in physical space external to our minds (1977, pp. 73, 102–103). In this case, perceived locations, i.e., the locations of sense data, are external physical locations (*ibid.*, pp. 72–74). Since Jackson's

(erstwhile) view is that perceived colors are properties of sense data, he claims that perceived colors are situated in external physical space (ibid., pp. 128–129).

Jackson's view does not face Russell's problem with causal relations involving nonphysical space, since both neural events and perceived locations are encompassed by physical space. Instead, it faces a problem that results from locating sense data, which are mental objects, in external physical space. If one sees a green highway sign thirty feet away, then, according to Jackson, one has a sense datum which is thirty feet away. But how do mental objects located thirty feet away from a perceiver causally relate to that perceiver?

Jackson himself does not suggest an account of how sense data, and consequently how perceived colors, are related to perceivers.<sup>7</sup> However, Jackson could offer an account which holds that the relation between sense data and perceivers involves primitive causal relations (as there might be primitive causal relations among elementary physical particles). (As the argument against Russell's sense datum theory states [in section 2.1], we have no understanding of a causal relation except in terms of a continuous causal chain between relata. But since Jackson claims that the relata [neural events and sense data] are both in physical space, he could propose that a causal relation between sense data and perceivers is mediated by a causal chain between spatially contiguous events, where the intermediate causal relations are primitive.)

However, primitive causal relations between nonphysical and physical entities would generally be considered implausibly mysterious. For example, an appeal to a primitive causal relation to resolve Descartes's problem of mind-body interaction would be charged with implausible mystery. Furthermore, the appeal to primitive causal relations among sense data and physical entities, even if they are both in physical space,

would face the same charge. Because one relatum of these causal relations is a sense datum, we can have no evidential grip on these causal relations' existence or nature.

Jackson has merely switched the mystery of a causal relation between brains and locations in nonphysical space for the mystery of a causal relation between brains and nonphysical objects in external physical space. This trade avoids Russell's problem due to nonphysical space, but it renders perceived colors—which are nonphysical properties situated in external physical space—mysteriously related to perceivers.

However, the most popular recent subjectivist theories of perception have been so-called projectivist theories, in which perceived colors are said to be projected onto (as opposed to located in) external physical space. (See, for example, Baldwin 1992; Pautz MS; and Wright 2003. Averill 2005 might also hold a view of this sort.) Nevertheless, the next two sections will show that these theories also face the problem that perceived colors are not intelligibly related to perceivers.

### 3.2 Against Literal Projectivism

Shoemaker calls the view claiming that perceived color is instantiated by visual experience and projected onto the external physical world *literal projectivism* (1994, p. 231). According to a version of literal projectivism—call it *singly determinable property (SDP) literal projectivism*<sup>8</sup> to distinguish it from McGilvray's view<sup>9</sup>—mental objects do not become located at some physical distance from the perceiver, but instead, while perceived spatial properties are external physical spatial properties, the mental events identified with perceived colors merely seem to be located in external physical space. In this case, the mystery is not how one is related to colors of mental entities in external physical space, since this view holds that perceived colors are instantiated inside the head. The

mystery, rather, is how one's mental events seem to be instantiated by physical objects in external physical space.

In favor of SPD literal projectivism, Baldwin proposes that although perceived locations are external physical locations, these physical locations are encoded by properties of visual experience that play a role in making us aware of colors as located in external physical space (1992, pp. 183, 184–187). Baldwin states “the idea is that the intrinsic spatial reference of sense experience converts the subjective sensory quality of sense experience into the apparently objective quality of a physical object located before the subject” (1992, p. 185).

But it is not clear how this conversion might work. In fact, Shoemaker (1994, p. 231) claims that literal projectivism seems to be unintelligible. He contends that since visual experiences (which are complex events or states of perceivers) and objects are such different sorts of entity, “It seems no more intelligible to suppose that a property of such an entity [that is, visual experience] is experienced as a property of extended material objects than it is to suppose that a property of a number, such as being prime or being even, is experienced as a property of material things” (1994, p. 231; also see 1990, p. 128).

In response to Shoemaker's worry, an advocate of this view can point out that, strictly speaking, the claim need not be that color is a property of visual experience. Instead, the claim can be that color is a type of mental event which is part of visual experience, a more complex type of mental event. Accordingly, what is attributed to particular external physical objects is not a property of visual experience, but tokens of an event type that are parts of visual experiences. And if the literal projectivist takes event types to be properties and event tokens to be property instances, then there is no problem with attributing color to physical objects. Thus, the claim that color is a type of mental event that

we attribute to external physical objects can be made intelligible.

Nevertheless, literal projectivism is vulnerable to collapsing into an unintelligible view. SDP literal projectivism, unlike other subjectivist perceptual theories, contends that perceived colors are properties instantiated in the head while perceived locations are external physical locations. While one might describe the misperception of color's location as a spatial illusion, ordinary spatial illusions involve mislocations within external physical space. And this divergence from ordinary spatial illusion indicates a problem.

SPD literal projectivism claims that in having a visual experience of color, the color is a mental event which is part of that very experience. For example, in having a visual experience of a green highway sign, the green is a mental event that is a part of the very experience in virtue of which we see the external physical location of the sign. Thus, according to this version of subjectivism, classifying an external physical object by color category (such as green or orange) involves classifying parts of visual experiences themselves. And consequently, classifying an external physical object as green or orange is like classifying a headache as mild or severe—it involves introspection rather than perception. (Although there are theories claiming that pain is a nonmental property or event of the body—a kind of bodily damage—for the sake of argument, assume that pain is a mental property or event. Also, assume that introspecting does not require that one actually believe that one is introspecting. When classifying physical objects as green or orange, one normally would not believe that one is introspecting. Furthermore, the nonrequirement of an introspective belief here is independently motivated to avoid a regress: if introspecting required an introspective belief, then the introspective belief itself would require a further introspective belief, and so on infinitely.) And since this

1 view holds that perceived spatial properties  
 2 are external physical properties, locating an  
 3 external physical object is different from  
 4 classifying it by color category; it does not  
 5 involve introspection, but rather perception.

6 As a result, this view holds that visually  
 7 locating a highway sign as being a dark green  
 8 object directly ahead involves simultaneously  
 9 perceiving external spatial properties in virtue  
 10 of a visual experience and introspecting colors  
 11 of this same visual experience. The SPD  
 12 literal projectivist can attempt to account for  
 13 this by proposing that there are hybrid perceptual  
 14 and introspective states. If there are hybrid  
 15 states of this sort, there is no conceptual  
 16 problem with simultaneously perceiving  
 17 (a location) in virtue of and introspecting (a  
 18 color) of the very same hybrid state. Thus far,  
 19 this view is intelligible.

20 However, there is an empirical reason  
 21 against simultaneous perception and introspection  
 22 being the norm; consequently, the hybrid state  
 23 proposal does not end up helping the SPD  
 24 literal projectivist. Simultaneous visual  
 25 perception in virtue of and introspection  
 26 of the same state would be difficult.<sup>10</sup> This  
 27 is supported by empirical studies which indicate  
 28 that there is interference between visual  
 29 perception and introspection of visual states.

30 Using fMRI, Ganis, Thompson, and Kosslyn  
 31 (2004) “found extensive overlap between  
 32 the brain areas engaged by visual perception  
 33 and visual mental imagery” (p. 236). Such  
 34 overlap predicts that visual perception and  
 35 attending to visual mental imagery interfere  
 36 with one another, making this combination  
 37 difficult (Ganis, Thompson, and Kosslyn  
 38 2004, p. 226). And this prediction has been  
 39 borne out (see Matlin 2005, pp. 218–219).  
 40 For example, seeing a target object while  
 41 simultaneously visually imaging a shape is  
 42 difficult (*ibid.*, p. 219; also see Craver-Lemley  
 43 and Reeves 1992, pp. 635–636 for additional  
 44 similar examples). Furthermore, Ganis and  
 45 Schendan (2008) propose that while visual  
 46 perception and visual imagery use the same

neural machinery (i.e., neural populations),  
 we are normally able to distinguish what is  
 visually experienced from what is visually  
 imaged because different neural mechanisms  
 are involved in visual perception and visual  
 imagery (bottom-up mechanisms and top-  
 down mechanisms, respectively) and have  
 opposing effects on this same machinery (in-  
 hibiting and activating effects, respectively)  
 (pp. 1723–1724).

But these empirical findings involve  
 perceptual states that are separate from the  
 introspected state. Connecting these findings  
 to literal projectivism, can simultaneously  
 visually perceiving while introspecting that  
 same perceptual state be taken as a special  
 case of the experimental contexts? There are  
 two clear differences, but neither undermines  
 the point about interference.

First, the experimental studies need not  
 assume that there are hybrid perceptual and  
 introspective states, as literal projectivism  
 does need to assume. Nevertheless, if there  
 is interference between simultaneous visual  
 perception and introspection of a visual  
 state—and, in particular, interference is  
 a result of overlap of brain areas—there  
 should be interference in a case where vi-  
 sual perception and introspection occur as  
 a single hybrid state.

Second, in the experimental contexts, sub-  
 jects were instructed to call up visual images,  
 for example, of a tree, while simultaneously  
 attempting to visually identify whether a  
 small blue arrow was present. Thus, the  
 object imaged was different from the object  
 to be visually identified. However, the literal  
 projectivist’s case involves simultaneous vi-  
 sual perception of (for example) a green  
 highway sign and introspection of that very  
 state; so the object whose attributed colors  
 are introspected is the same as the object  
 whose location is perceived. Even so, the  
 experimental findings tell us that what matters  
 with respect to interference is not the demand  
 to represent multiple objects, but rather the



multiple demands on a single sensory modality (involving, for example, visual perception and introspection of visual imagery). For example, there is no interference between calling up an auditory image (such as the sound of a typewriter) while simultaneously attempting to visually identify whether a blue arrow is present (Matlin 2005, p. 219). But then interference should occur in a case of simultaneous visual perception and introspection of that visual state, whether it involves a single hybrid state or not.

Take the difficulty involved in simultaneous visual perception and introspection to be an empirical constraint. This constraint indicates that since visually locating a highway sign as being a dark green object directly ahead is not difficult, it does not involve simultaneous visual perception and introspection.<sup>11</sup>

Accepting this empirical constraint, SPD literal projectivism collapses into an unintelligible view. Since the SPD literal projectivist claims that perceived colors and spatial properties are of different metaphysical constitution (perceived colors being mental and perceived spatial locations being external physical), locating colored objects involves different sorts of mental state, both introspective and perceptual. But accepting the empirical constraint, SPD literal projectivism collapses into an unintelligible view that simply conflates perception and introspection. For if, as the empirical constraint indicates, perception of colored objects does not involve simultaneously perceiving in virtue of a visual state and introspection of that same state, the SPD literal projectivist is stuck with claiming that the state is either simply perceptual or simply introspective. But if the state is simply perceptual, this projectivist holds that the colors of a green highway sign, despite being mental, are not introspected but rather perceived. And if the state is simply introspective, this theorist claims that spatial properties of the sign, despite being external physical properties, are

not perceived but introspected. Either way, this projectivist ends up conflating perception and introspection, which, because these are distinct mental processes that produce distinct types of mental states, makes the perceiver's relation to perceived colors unintelligible.

### 3.3 Against Figurative Projectivism

According to what Shoemaker calls *figurative projectivism*, perceived colors are not instantiated by anything, but rather are merely visually attributed to objects. Figurative projectivism is thus an intentionalist version of subjectivism. Since perceived colors are uninstantiated, figurative projectivism seems to welcome the idea that colors are metaphysically disconnected from perceivers. The aim here is to emphasize how mysterious this disconnection is.

Representation of uninstantiated properties—such as that of being a unicorn—is unremarkable, and there are familiar accounts of how we do this. But figurative projectivism's claim is not just that in the case of colors, we represent uninstantiated properties; the claim is that we visually represent them as instantiated by objects in external physical space. So the focal question is: how does an uninstantiated property get to be visually represented as being in external physical space?

How do we tell whether this question can be given a satisfactory answer, or, instead, whether it rests on mistaken presuppositions and should be rejected? A satisfactory answer would be helped considerably by an independent model for visual representation of uninstantiated properties. So consider whether there is such a model.

A distinction can be drawn between token visual illusions and type visual illusions. With token visual illusions, a token visual experience is illusory because it represents a property that is sometimes instantiated, but not in the case of the particular visual experience. With type visual illusions, a type of visual experience is illusory because

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1 it represents an uninstantiated property. Is  
 2 there an independent model of the type visual  
 3 illusion that figurative projectivism claims is  
 4 involved in color perception? No; visual illu-  
 5 sions independent of color are all token visual  
 6 illusions. And while examples of uninstan-  
 7 tiated types (e.g., being a unicorn) are easy to  
 8 come by, these are all conceptual creations  
 9 (where this means, at least, that no particular  
 10 functioning sensory modality is required to  
 11 represent them), not visual illusions (which  
 12 require a functioning visual system).

13 Assuming (uncontroversially, compared  
 14 to perceived color) that perceived spatial  
 15 properties are instantiated,<sup>12</sup> visual illusions  
 16 of spatial properties are thereby token visual  
 17 illusions. Consequently, visual illusions of  
 18 spatial properties do not provide a model for  
 19 visual representation of uninstantiated colors.  
 20 Furthermore, no other sensory modality pro-  
 21 vides an independent model. One might claim  
 22 that perceptual illusions of so-called primary  
 23 qualities (such as spatial properties) are token  
 24 illusions, while perceptual illusions of so-  
 25 called secondary qualities are type illusions.  
 26 But given the widely accepted idea that the  
 27 so-called secondary qualities (color, smell,  
 28 sound, and so forth) are treated together, they  
 29 do not provide independent models.

30 Yet without framing our ability to see  
 31 uninstantiated properties in terms of an inde-  
 32 pendent model, this ability is presented as a  
 33 brute fact. Furthermore, since uninstantiated  
 34 properties are not causally efficacious, they  
 35 are metaphysically disconnected from both  
 36 objects perceived and perceivers. Thus, this  
 37 ability is not a brute fact in the sense that it  
 38 involves a primitive causal relation. There is  
 39 complete metaphysical disconnection, mak-  
 40 ing it a mystery that perceivers could visu-  
 41 ally attribute colors to objects.<sup>13</sup> The point is  
 42 not that an intentionalist way of accounting  
 43 for perceptual illusion is not intelligible, but  
 44 the standard way it is made intelligible is in  
 45 terms of causal relations between perceivers  
 46 and instantiated properties. But figurative

projectivism denies such causal relations  
 are involved in visual attributions of color.  
 Moreover, a diagnosis of how we have gotten  
 into this mystery helps show that color real-  
 ism offers a better option. The argument for  
 figurative projectivism holds, very generally,  
 that requirements for being a perceived color  
 are inconsistent with instantiation.

For example, if being simple (the feature  
 of having no component structure) is a re-  
 quired feature for being a perceived color,<sup>14</sup>  
 then (debatably) we know from general  
 scientific and commonsense considerations  
 that no perceived color is instantiated. This  
 is because general scientific and common-  
 sense considerations (debatably) tell us that  
 a requirement for (at least macro) property  
 instantiation is that the property has some  
 component structure. For another example, if  
 being a nondisjunctive physical property is a  
 required feature for being a perceived color,<sup>15</sup>  
 then we have found from visual science that  
 perceived colors are not instantiated. This  
 is because visual science tells us that every  
 instantiated property that is a candidate for  
 being a perceived color (even a very specific  
 perceived color such as unique green, that is,  
 a green that is not at all bluish or yellowish)  
 is a disjunctive physical property.<sup>16</sup>

But why accept that a given feature is re-  
 quired for being a perceived color? A reason  
 for thinking that perceived color is a simple  
 property is that perceived color (unlike per-  
 ceived texture, for example) appears to have  
 no component structure.

To the contrary, however, it could be that  
 some instantiated properties are perceived  
 colors, but that the apparent simplicity of  
 perceived color is an illusion. The diagnosis  
 is that the mystery of perceptual attribution of  
 uninstantiated colors is due to metaphysical  
 speculations about the features of perceived  
 color. But if the mystery is due to specula-  
 tions that, for example, perceived colors  
 must be simple or nondisjunctive, then it  
 seems these metaphysical speculations are

thereby vulnerable to suspicion and eventual rejection. For example, if the motivation for nondisjunctivity is due to a worry about the causal efficacy of disjunctive properties, it is worth reconsidering this worry (Clapp 2001 and Antony 2003 do exactly this).

In the end, subjectivists are left without a plausible account of color perception. Perceived location distinct from external physical location (even on McGilvray's view) invokes a mental space altogether distinct from physical space. But then there is a mysterious causal relation between neural events and perceived location in a nonphysical space. If perceived location is external physical location, then there is no problem with a causal relation between perceivers and perceived location. But now there is no place to situate perceived color such that perceived color is plausibly related to perceivers. As properties of mental entities, perceived colors are not plausibly located at the external physical object. Also, perceived colors are not plausibly located in the head, since this would require that classifying external physical objects by color and spatial categories involves simultaneously perceiving in virtue of and

introspecting the same state—something that empirical evidence indicates would be difficult and so does not happen in the normal case. However, acceptance of this empirical evidence has the result that introspection and perception are conflated, making color perception an incoherent mix of different mental processes.

If we resort to claiming that perceived color is not instantiated at all, we admit that perceived color cannot plausibly be situated as a relatum of a causal relation between the mind and world. But now it is a mystery as to how perceivers could visually attribute an uninstantiated property to external physical objects. Being neither instantiated by external physical objects perceived nor intelligibly related to perceivers, perceived color becomes mysteriously free-floating.

Serious problems for a subjectivist theory of color perception have been met at every turn. Therefore, the conclusion is that some version of color realism is true.

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## NOTES

I am very grateful to Derek Brown, Robert Schroer, Dale Turner, Michael Cholbi, Ericka Tucker, and an anonymous reviewer for helpful comments on earlier versions of this essay. I presented a part of this essay at the APA Pacific Division meeting in April 2011; I am grateful to James Genone for formal comments as well as informal discussion at that event.

1. A terminological point: the label 'subjectivism' is preferable in that it avoids a purely negative label for this family of views, which, after all, must show that the claim that the external world is colorless can be combined with a plausible positive account of color perception. According to Cohen's usage, color 'irrealism' means that (a) color is proposed to be a property, for example, a primitive property or a disposition, and (b) this property is not exemplified at all (2009, pp. 1–2, 5–6). But typically, 'irrealism' (or 'eliminativism') is used to mean that colors are not exemplified by physical objects external to the mind (see, for example, Pautz 2009, p. 154; and Byrne and Hilbert 2003, pp. 6–7). This more common reading of 'irrealism' is assumed here and will be called subjectivism.

2. Shoemaker (1990) also considers what he calls figurative projectivism (p. 127), which suggests a third option, namely, an intentionalist variety of subjectivism. As will be shown in the next section, the problems for sense-datum and adverbialist subjectivist theories of color perception generalize to intentionalist varieties of subjectivism as well.

1 3. The characterization of a view as ‘making color mysteriously free-floating’ is from McGinn (1996,  
2 p. 549).

3 4. Russell (1959 [1912]) does not state that the private space of vision is a mental space, and he even  
4 suggests that it is a *sui generis* space (pp. 42–43).

5 5. An anonymous reviewer claims McGilvray holds that visual space is a variety of commonsense space  
6 that cannot be identified with physical space (that is, space as described by physics). Thus, McGilvray  
7 would reject the attempt to identify perceived location with physical location.

8 While McGilvray claims that commonsense misinterprets perceived colors and spatial properties,  
9 it seems that he equivocates on the misinterpretation involved. At points, when he claims that phe-  
10 nomenal objects are complex neural events, he seems to say that commonsense gets things wrong by  
11 mistaking neural events to be colors and spatial properties external to the mind. In this case, the attempt  
12 to identify perceived location with physical location is pertinent, and McGilvray faces the objections  
13 already stated. At other points, however, he seems to say that commonsense gets things wrong by taking  
14 perceived colors and locations to be identifiable with anything at all. According to this alternative, it  
15 is not that neural events are mistaken to be colors and spatial properties external to the mind; instead,  
16 neural events, by way of a process of projection, produce perceived colors and locations that are not  
17 instantiated at all. (This alternative is suggested by McGilvray’s denial that commonsense space can be  
18 studied by science [2001, pp. 70–71].) This alternative proposes what is called figurative projectivism  
19 for both perceived colors and locations. Problems for figurative projectivism—at least with respect to  
20 perceived colors—will be discussed in section 3.3.

21 6. Again, this is assuming perceived location is instantiated. If perceived location is not instantiated,  
22 then both perceived location and perceived color are mysteriously free-floating. Also assumed is that  
23 physical space exists. By contrast, Hoffman (2008) offers an approach to visual perception in which  
24 he rejects the existence of the physical world in order to avoid the mind-body problem (p. 103). How-  
25 ever, less radical approaches to the mind-body problem are worth pursuing before opting for a form of  
26 idealism.

27 7. Rosenthal (1985) provides a helpful presentation of Jackson’s argument for sense datum theory and  
28 identifies this problem with it (pp. 36–37).

29 8. Singly determinable properties are properties (such as color and sound) perceived by only one  
30 sensory modality. Spatial properties, which are not projected according to this version of projectivism,  
31 are multiply determinable. This terminology is derived from Grice (1962).

32 9. Thus, McGilvray’s view claims that both perceived colors and perceived spatial properties are  
33 instantiated by visual experience, and SPD literal projectivism claims that perceived colors, but not  
34 perceived spatial properties, are instantiated by visual experience. Averill (2005) proposes a form of  
35 literal projectivism, but because he says very little about perceived spatial properties, it is not clear  
36 which version of literal projectivism he holds.

37 10. Assuming that pain is a mental property, it might seem that classifying a pain as a mild pain in a  
38 location on one’s right index finger would also involve simultaneously introspecting a mental property  
39 and perceiving a spatial property, and thus show that there is no difficulty involved in this sort of case.  
40 However, if one classifies a pain by location and severity, it is plausible that the location in question  
41 would be that represented by a pain state. Thus, classifying a pain (at least through touch) involves  
42 introspection for both location and severity. (The location of a pain might also be seen, but this visual  
43 state is not the same state in virtue of which the severity of pain is felt.)

44 11. Lormand (2006) incorporates the interference between perception and introspection noted here into  
45 a projectivist theory of perception. He claims that when attending to a perceptual state, simultaneous  
46 introspection of that state is thereby weakened. The result, Lormand contends, is that the weakened

introspective state would be “treated as applying to the (alleged) environmental objects themselves” (p. 335). Consequently, properties that the introspective state represents, namely, properties of the perceptual state, are taken to be “stuck on environmental objects” (p. 335). Thus, properties of perceptual states are projected. However, Lormand claims that both perceived colors and perceived spatial properties are projected in this way. Thus, he holds a version of the McGilvray-type projectivism and faces the objection from section 2.2.

12. Sometimes, as with Escher-style ‘impossible objects,’ a whole complex object is uninstantiated, but nevertheless its spatial parts are instantiated.

13. These objections are presented in a way to avoid Chalmers’s preemptive replies (2006, pp. 83–84).

14. For usage of ‘simple’ along these lines, as well as consideration of the constraint that perceived colors are simple, see Chalmers (2006), p. 66.

15. For application of this constraint, see Wright (2003, p. 522). Also see Maund (1995), who notes this feature at pp. 154–155, but claims that perceived colors are not instantiated on the basis of other features.

16. See Ross (1999, 2001, 2010) for more discussion of these features taken as unsatisfied constraints.

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