

# Phenomenal Projection

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**ABSTRACT:** In this paper I shall defend a projectivist view of sensory experience. The case I shall focus on is that of color experience. Projectivism has recently been criticized by some authors who claim that it is unintelligible, or at least implausible, and that it makes a severe category mistake. I shall argue that despite some prima facie impressions of implausibility, projectivism can be made intelligible, and plausible, if its details are spelled out in a reasonable way. In addition, projectivism is ubiquitous in human psychology, and certain cases of projection are reasonably viewed as making a category mistake. Viewed from this perspective, sensory projection is just one instance of projectivism, brought about by low-level perceptual processing. Whether sensory projection is one that makes a category mistake is not obvious. However, even if it does, this is perfectly compatible with the evolutionary advantage of sensation and perception.

## 1. Introduction

Projectivist views of color experience are typically linked to subjectivist views of object color. Subjectivism, or eliminativism, about object color denies that external objects are colored, and proposes to understand the fact that external objects look to us colored as a grand illusion or misrepresentation. On subjectivism, color experience is a product of our brains, with its phenomenal character determined by properties and processes of our brain. Objects look colored to us, and what it is like for objects to look colored is essentially determined by the phenomenal character of color experience. When objects look colored to us, they look to have salient, spatially homogeneous surface properties -

properties that look to belong, inherently and inseparably, to external surfaces located in space. But it is exactly these surface properties that are illusory, or so the subjectivist claims. Given this theoretical scenario, the subjectivist has to tell us a story about how the phenomenal characters of our sensory states "get out there", that is, how it is possible that these phenomenal characters look to us to be inherent attributes of external objects and surfaces. Projectivists contend that there is a plausible story to be told in terms of phenomenal projections.

Roughly, such a projectivist account is proposed, albeit in a crude form, by Boghossian and Velleman (1997, pp. 94-98). A more detailed projectivist account is formulated by McGilvray (1994). In McGilvray's view, visual projection is quite comprehensive: it actually creates its own illusory, fictitious objects (he calls these illusory objects, created by visual processing, *perceptual objects*). According to McGilvray, the idea of assigning illusory color attributes to external, physical objects is very difficult to make sense of, since (1) this idea implies that colors (which, to him, are illusory and arise from phenomenal color experiences) are located both in the head and on external physical objects. Moreover, (2) organisms with different visual systems perceive different colors on looking at the same stimulus, and this makes it necessary to assign to physical objects a set of different properties that it does not have (McGilvray, 1994, p. 226). For these reasons McGilvray finds it a better alternative to assume that each organism creates its own world of fictitious perceptual objects. These visual fictions, or virtual objects act as interfaces between inner, perceptual states and external physical objects (McGilvray, 1994, p. 227).

Georges Rey (1995) offers a rather different perspective on projectivism. He discusses projectivism in general, drawing attention to cases other than sensory experience - cases that are compelling examples of mental projection.<sup><1></sup> For instance, people project psychological mechanisms into themselves and others to explain their own and others' behavior, and such projections of folk-psychological explanatory theories are often entirely mistaken. As Nisbett and Wilson (1977) pointed out, experimental subjects are unanimously mistaken about mental factors that govern their choices and decisions, reasoning and problem solving, or emotional reactions. The most typical error subjects made in a large number of experiments is confusing memory recall and introspective access to mental states and processes with applying or generating causal theories about what could plausibly evoke one's own or someone else's behavioral response. We tend to believe that we successfully introspect or access reliable memory traces whereas we "instinctively", that is, automatically, apply explanatory schemas.

In what follows I shall propose a projectivist view that is nevertheless much less radical than McGilvray's. I do not find McGilvray's reasons for embracing full-scale projectivism remotely convincing. First, colors on his view are actually located in the head. But from the idea that colors are illusory perceptual attributes of external objects the subjectivist need not arrive at the (patently problematic) conclusion that colors are actually located both on external objects and in the head. Colors only look (illusorily) located on external objects and surfaces. This looking located, or felt location, is a result of how our perceptual systems work (more on this below), and it does not imply anything like actual

location (of the subjectivist's colors, i.e., phenomenal color experiences) on external objects. Second, attributing, by different organisms, different illusory properties to the same external object seems an innocent idea as well. The external object need not actually have any of those illusory properties, so no double location and multiple properties problems arise contrary to what McGilvray seems to suggest (1994, p. 226). Therefore, the idea of visually constructing whole virtual worlds seems unnecessary.

However, in this paper I shall still contend that we do need a subtle form of projectivism to properly understand color perception. The rest of this paper offers my reasons for endorsing specifically the projectivist view. To save space I shall simply assume, and proceed from, a more general approach: non-dispositionalist realism (physicalism) about color and internalism about color experience. A detailed defense of these views would go way beyond the limits of the present paper. For such a defense see McLaughlin (2002a, 2002b). For opposing views see Hilbert (1987), Dretske (1995), Tye (1995, 2000), Byrne and Hilbert (1997), and Hilbert and Kalderon (2000). For a critique of Dretske's, Tye's, Byrne's and Hilbert's views see Jakab, 2001. For some critical remarks that are relevant to the Hilbert and Kalderon paper see Jakab, 2002. To emphasize, the present paper argues simply that projectivism is a coherent and unproblematic consequence of internalism about color experience.

My principal aim here is to argue that, despite some fierce criticism of the projectivist view (Shoemaker, 1997, 228-233; Tye, 2000, 165-167), this view remains in good shape. Shoemaker and Tye argue that projectivism is unintelligible or at the very least profoundly implausible; in addition, it commits a category mistake by assuming that what look to us to be surface properties of external objects are really properties or states of our nervous systems. In response, I shall argue that the idea of projections made at different levels of cognition is not at all unintelligible. What is more, there are undeniable actual cases of such projections - cases where we attribute to the external world properties, states and entities that it does not actually have. It is also arguable that some (but not all) cases of projection make an inherent category mistake. That is, it is certain actual psychological mechanisms themselves that make a category mistake, not our theory of them. Placed in Rey's broader perspective, I shall primarily focus on sensory projection, trying to solve the problems that have been raised specifically against that kind of projection.

In the rest of this paper I shall first support my position that internalism about color experience needs to assume a subtle form of sensory projection. Then I attempt to answer at least a selection of the most important worries that are commonly raised against the idea of projectivism.

## **2. If Color Physicalism, Then Why Projectivism?**

As I argued elsewhere (Jakab, 2001, 2002; see also McLaughlin, 2002b), representational externalist views of phenomenal color experience (as I will call them, *phenomenal*

*externalist* views) face serious (in my opinion, fatal) problems. Some of these problems arise from the externalist assumption that the so-called reflectance theory of object color (Hilbert, 1987; Byrne and Hilbert, 1997; Tye, 1995, chap. 5, 2000, chap. 7; Hilbert and Kalderon, 2000; Bradley & Tye, 2001) is correct - since this theory may well be incorrect (see Jakab, 2001). Other problems for phenomenal externalism are independent of this assumption. In what follows, based on my own and others' arguments, I shall take an anti-externalist stand about phenomenal color experience. On this view, the phenomenal character of color experience is supervenient on (i.e., roughly, is determined by, in any theoretically interesting sense of the term) properties of our visual system.

The core idea of phenomenal, or sensory projection is this: *object colors look to us the way the phenomenal character of color experience is*. Traditionally, phenomenal character is understood as the way things look to us, so, on the traditional reading, this definition is circular: object colors look to us the way they look to us. I propose to escape from this circle in the following way. In my understanding, perceptual states, or what is the same, (perceptual) experiences, are psychological states of something looking a certain way. Phenomenal characters, that is, the what-it-is-like- to-undergo-them aspect of perceptual states are neuro-computational properties of perceptual states, or so I assume here. I make this assumption on the basis of what I see an inference to the best explanation, even though I shall not offer a defense of this view of phenomenal character here. In general, the neuro-computational properties that are the phenomenal characters include the complex functional property of *being related to the rest of one's brain in the appropriate way* (e.g., being a state of activation of one's color-vision system; see Jakab, 1999 for a little more). The specific neuro-computational properties that constitute phenomenal color character derive largely from the opponent processing mechanisms of color perception (see DeValois and DeValois, 1997; Hardin, 1988, pp. 34- 35; Werner and Wooten, 1979; Hunt, 1982). Perceptual states are neuro- computational states themselves; by assumption, some of their neuro- computational properties are crucial to instantiating phenomenal characters - phenomenal characters are identical with (or, perhaps, merely supervene on<2> these key neuro-computational properties.<3>

In general, projection is systematic misattribution: taking the world to have a property that is really an illusory, non-existent property generated by some real properties of our brain states. Sensory projection is a perception-generated form of intentional inexistence. The illusory properties created in sensory projection are not identical with sensory experience (or its phenomenal character), just as Santa Claus is not identical with mental representations of Santa Claus. For the illusory properties are by definition nonexistent, whereas the experiences that generate them exist. Still, the systematically illusory properties supervene on (are generated by) phenomenal color character.

Perceptual states and their phenomenal characters are the result of mandatory, encapsulated processing that takes place in perceptual modules. Phenomenal experience is the final state in these modules, their output that is then passed on to central, non-mandatory processing - processing that involves concept application. I take it that automatic, encapsulated, modular perceptual processing<4> does not involve concept application, merely analog transformations of transducer outputs (i.e., outputs of sensory

cells in the retina, the cochlea, the skin, and other places). These analog transformations are describable by mathematical functions (often by non-linear ones).

Corresponding to this distinction I wish to distinguish *modular* (automatic, encapsulated) versus *central*, non-mandatory, 'transparent', concept-involving perceptual processing. The latter is built on, or includes (necessarily), the former, plus adds to it concept deployment. The former can exist without the latter: perception is possible without concept deployment - arguably it is possible without having any concepts.<5>

In what follows, by the contexts 'looks\_\_' (e.g., looks red), 'looks like\_\_' (e.g., shapes look like types of spatial distribution), 'looks to belong to', and 'looks to have\_\_' (e.g., looks to have an attribute) I will refer to perception that is non-concept-involving, or purely modular. I will use 'looks to be' and 'is perceived as' to refer to perception that is concept-involving. This distinction is admittedly close to Chisholm's and Jackson's distinction between *phenomenal* and *epistemic* uses of 'looks' (Chisholm, 1957; Jackson, 1977), though I prefer to formulate it in a different, "levels-of-processing" terminology.

However, since I endorse a non-dispositional realist (physicalist) view of object color, the following question arises immediately: I accept that objects are colored, and they look colored to us. So where's the projection?

Reply. It is not the existence of object colors with regard to which color perception is illusory. Color perception is illusory with respect to what kind of properties object colors are. In general, what it is like to see colors is largely undetermined by what object colors themselves are like. Object colors look to us in ways in which they are not. There is an interesting list of ways in which colors look to us - even though they, that is, the relevant physical surface properties that are the object colors - aren't that way. Here it is.

First, even though most of the instances of the color red are instances of a particular type of surface reflectance, it (i.e., the object color red) does not look that way - it does not look like surface reflectance of some sort. This sounds uncontroversial despite the fact that I have no idea what a surface would look like if it looked like a surface reflectance. By the way, nor do we perceive colors as surface reflectances. We have to independently learn, from empirical science, that the tomato's relevant color property is its surface reflectance. This feature of color perception is termed by Johnston lack of revelation (Johnston, 1997, pp. 138-142).

The positive side here is that colors look simple, primitive, or "atomic" features of the world; they do not look like (nor are they perceived as) dispositions or complexes of other causal features (Harman, 1997, pp. 253, 260; McGinn, 1996, p. 542).<6> But of course, in no sense are surface reflectances or other surface color properties atomic or primitive attributes of objects. Reflective object colors (surface reflectances) visually look atomic or primitive; they are perceived as atomic or primitive; these ideas seem to make sense. But the idea that they are atomic or primitive seems to lack sense.

Prima facie, the fact that colors do not look like reflectances is not extremely surprising. However, notice the following contrast. (i) Shapes are types of spatial distribution (of matter), and (ii) we do perceive them as types of spatial distribution. What is more, shapes arguably look like types of spatial distribution. Argument: Our very concept of shape is largely perceptual in origin. Just think of how long it took from the conceiving of Euclidean geometry to formulating non-euclidean geometries - the latter make assumptions that contrast with perception-driven intuition (e.g., changing Euclid's fifth axiom). So, if we assume that shapes look like spatial distributions, that helps to explain how shape perception gave rise to our concept of shape.

Second, even though object colors are, as a matter of fact, highly derivative, anthropocentric, "uninteresting" properties (Tye, 2000, p. 161; Hilbert, 1987, pp. 13-5; 115; 119-120; Gibbard, 1996), they do not look derivative or uninteresting. To the contrary, colors look salient, attractive, interesting, often enjoyable properties of objects.

Third, certain object colors look binary (they look like mixtures of two other chromatic colors) whereas others look unique (they do not look like chromatic mixtures). The unique-binary distinction is not underlain by any corresponding structural feature in the object colors themselves. Nor is unity, the perceptual similarity relations of the colors. Purple looks more similar to red than to yellow; however, at the level of emitted wavelengths or surface reflectances, one can find no measureable relations that parallel such perceptual similarity judgements.<7>

Fourth, the opponent organization of perceived colors is not underlain by any physical attributes of object colors. For instance, red and green as surface reflectance or light emission profiles can physically mix and result in intermediate patterns. So can red and yellow ones. However, most physical (additive or subtractive) mixtures of red and yellow will look reddish yellow (i.e., orange), whereas no physical mixture of red and green (indeed, no surface ever) will look reddish green. Additive mixtures of red and green typically look yellow (i.e., neither reddish nor greenish); subtractive mixtures of red and green can look brownish, yellowish or achromatic gray. Red and green, just as red and yellow, mix physically; but only red and yellow mix psychologically, at the level of color experience. Psychological color mixing has features arising from opponent processing that are arbitrary in the sense that they do not indicate any corresponding features (like compatibility vs. incompatibility) in the object colors themselves.

In sum, there is a whole list of color attributes that derive from the phenomenal character of color experience. Next point: these attributes are illusory attributes of object colors. Why is this so? First, we can perceptually detect, hence perceive, these attributes of colors. Based on color perception we can also judge (i.e., form beliefs about) the color attributes of surfaces. We can, for instance, perceive whether a particular color is binary or unique; how similar it is (perceptually) to other colors; or that it is a salient color that pops out of many backgrounds. But, as we have just seen, object colors do not, inherently, or observer-independently, have these attributes. These attributes arise from how we perceptually react to object colors - that is, from the phenomenal character of color experience. Yet, for instance, binariness looks to us to inseparably belong to object

colors; in general, the ways object colors look to us look to belong to the surfaces of spatially located objects. So, these illusory attributes, arising from phenomenal color experience, are, by mechanisms of perception, projected onto the surfaces that have the corresponding object colors. It is by means of such sensory projections that we see surfaces at all. This is the mechanism by which what it is like to see colors arises.

It is important to note that what we perceive are object colors and their illusory attributes, but not the phenomenal character of color experience. That we do not perceive. Object colors look binary or unique (and do so by means of the way the phenomenal character of color experiences is), but the phenomenal character of color experience does not look that way (indeed, it does not look any way). In general, 'A looks B', or even 'A is perceived as B', need not imply that one perceives B. Therefore, 'object colors look to us the way the phenomenal character of color experience is' need not imply that we perceive phenomenal characters themselves or the ways in which they are in a particular situation. A quick example is as follows.

I am drugged and (mis)perceive my dog as Pegasus. This need not imply that I perceive, or misperceive, Pegasus. What I (mis)perceive is my dog. The *perceiving A as B* relation is asymmetric: A causally affects my perceptual systems, B does not. I am successful in perceiving the dog in the sense that its presence causally affects my perception - though it does so via a misidentification.

There is arguably a non-concept-involving counterpart of this phenomenon: my dog looks like a horse with wings (or *a horsey-wingy thing*) to me. This can be the result of a hallucination - a distortion of my perceptual (non-conceptual) representation - there need be no conceptual involvement here.<8>

## 3. Details of the Projectivist View

### 3.1. The Analogy with Gauges

Phenomenal color characters are modes of presentation that are intentially supervenient. There are two possible approaches at this point. The first is to say that phenomenal character is part of the representational vehicle, hence it is not content of any sort. There are obvious examples of non-representational differences in modes of presentation: for instance, purely syntactic differences in two names that have the same referent (i.e., two concepts that refer directly, not via a description). In a Fodorian vein, we can generalize this idea to concepts and other kinds of mental representation (Fodor, 1998, chap. 1). The second approach is to hold that phenomenal character is an aspect of content (or aboutness) that is nevertheless internally supervenient. Though aboutness itself is an organism-environment relation, in this particular case it supervenes on what's within the skin. This is a version of narrow intentionalism about phenomenal character. I prefer this second option, for the following reason. As I shall argue below, when we perceive colors, we are directly or primarily aware of surfaces and their properties (even though some of

those properties are systematically illusory). It is the external surfaces themselves that look to us in ways the phenomenal character of color experience is.<9> There is, in addition, a second, externalist aspect of aboutness of color experience: this arises from the lawlike covariation between colors and color experience types. Color experience still reliably indicates color, that is, carries information about color. What I am denying, however, is that this externalist component of content plays any role in determining the phenomenal character of color experience. Phenomenal color character is not identical with externalist content, nor does it supervene on externalist content (see Jakab, 2001 for argument). For instance, the experience of violet reliably indicates the object color violet. However, it makes violets look more similar to reds than to greens, whereas at the level of the colors - the causally effective surface properties that normally elicit experiences of red, violet, and green - quite the opposite similarity relations obtain (i.e., violets are more similar to greens than to reds, in terms of, say, surface reflectance).

Think of the problem thus: phenomenal experiences are the needle positions of our sensory gauges: as such, they are supervenient on the internal constitution of the organism. Just like the needle positions of a fuel gauge: the gauge can point to "FULL" even if there's water in the tank, or the tank of the wreck has long been removed, and the needle is stuck in the FULL position. Needle position itself is not a relational property of the gauge (only the information it conveys is). Similarly, the same fuel level can be indicated by different fuelgauges that have differently looking needle positions (analog, digital, mechanical, electronic, etc.) that nevertheless convey the same information.

Now comes the key worry. How can it be that, although phenomenal character belongs to our perceptual states (it is an attribute of our perceptual states), yet we experience that phenomenal character as located in outer space, as intrinsic properties of stimuli?<10> (Ross, 2000, p. 52n11, p. 54; Tye, 2000, pp. 165-166; Shoemaker, 1994, p. 25; McGilvray, 1994, pp. 226-227).

General answer: *felt location* is a key part of the act of projecting. Felt location amounts to the taking (by non-concept-involving perception) of the internalist content of our perceptual states to be a state of affairs in the external world. The systematically illusory color-attributes that arise from the phenomenal color characters look to belong to external objects and surfaces exactly by virtue of the phenomenal color characters' being coupled with felt locations.

Detailed answer, part 1: the reason why the phenomenal character of color experience comes with a felt location, that is, why it gives rise to illusory attributes that look to belong, inherently, or inseparably, to external objects, is that this is evolution's solution to the problem of assigning these needle position analogs to what they are about: the corresponding stimuli. We perceive the object colors by undergoing the needle-position-analog phenomenal experiences that in turn come with felt location.

Detailed answer, part 2: how is it possible for experiences to have felt location? Our color experiences are perceptual states within our heads; they are experiences as of spatially located things. They convey information about spatial location and are, as particular



perceptual states, interpreted by the rest of the visual system as indicating some spatial location at which a perceived stimulus is located. This interpretation-as-indicating-location results in the felt location<11> (at the level of phenomenal character) that in turn represents physical location. Here is a little more detail; for the sake of simplicity I speak about the perception of depth instead of location in general.

Color experiences are representationally atomic. Perceptual states that are particular color experiences either do not have constituent (or syntactic) structure at all, or they have only a rather minimal one.<12> Color experiences reliably indicate object colors, but do not map, or depict, any complexity that characterizes particular color stimuli in terms of physical properties. Color experience simply scales object colors in a 3D sensory space (i.e., color space). On the contrary, visual experiences (perceptual representations) of shapes have rich constituent structure, and this constituent structure is there to systematically map, or depict (in the form of analog representations like symbol-filled arrays), particular shapes and spatial patterns that obtain in the perceived spatial layouts.

Depth cues are typically relational: the depth from the perceiver of a particular item (e.g., an object O) within a scene is estimated from O's perceived relations to the background, and other parts of the scene. Monocular depth cues like relative size, partial occlusion, or movement relative to other objects in the scene are relational attributes. In order to extract monocular depth information about the depth of a particular object O, O's relation to the rest of the scene has to be represented. This happens by building up complex perceptual representations with constituent structure that are interpreted by processes that operate on them as analog maps of the perceived spatial layouts. Similarly for binocular depth cues (i.e., small differences in the two retinal projections of the same object). Such differences obtain only in sufficiently complex retinal projections. In a Ganzfeld-like perceptual situation the single color experience that we have has no determinate felt depth, because in the retinal projections that a Ganzfeld stimulation gives rise to no monocular or binocular depth cues are available. To summarize, felt depth arguably arises only when we undergo sufficiently complex perceptual states that encode, in their constituent structure, relational information (spatial relations) about different entities in the perceived scene. This sounds like a standard representationalist account of depth perception. I offer it as an account of how felt depth (felt location) can possibly arise. Felt depth (and, in general, felt location) arises from processing complex perceptual representations in our visual system. These complex states encode information about depth, and are interpreted by the processes that operate on them as conveying such information. Whether this account is externalist about felt location (a particular aspect of phenomenal character) is another question.<13>

Object colors look to us the way the phenomenal character of color experience is. They - the colors - also look to us spatially located, quite veridically. Somewhat less veridically, the illusory perceptual attributes of the colors that are products of our color vision system also look to belong to, or look like attributes of, external objects and surfaces - they also look spatially located. For instance, it is a purple surface - the surface itself - that looks more similar to a red surface than to a yellow one, even though, in terms of perceiver-independent properties (i.e., excluding relational properties with perceivers as a relata; in

terms of stimulus properties that are causally responsible for color perceptions), these similarity relations need not obtain. We see the colors by means of undergoing phenomenal color experiences that come with felt location - and phenomenal color experiences with their felt locations are products of our brain. But from this it does not follow that phenomenal color experience is actually located in outer space - so no double location problem arises. All that's said is that the phenomenal character of color experience most often (though not necessarily) includes a felt location. Object colors are located in external space. Phenomenal color experiences are located in the brain. Colors as we perceive them, that is, illusory properties produced by phenomenal color experience (but not identical with color experience) appear located in external space. What is located in the brain (states and events) create the perceptual impressions that we call felt depth, felt redness, and so on. These impressions successfully, that is, veridically, indicate conditions in the environment, namely actual distance from the perceiver, and object colors.

I propose to understand the story I have told so far in terms of an adverbial account, as opposed to a sense datum theory. Sense datum theories have it that sense impressions are the direct objects of perception. They are the only objects of which we are aware when we hallucinate, for instance. On the adverbial theory, sense impressions are ways or modes of perceiving, or ways of being appeared to. They are not in any sense objects of perception. Rather, sense impressions are perceptual reactions to the objects of perception - the external stimuli. Sense impressions are states and events in our brain. I endorse the adverbial theory. In my view, the only objects of perception are external physical objects.

### **3.2. How About Category Mistakes?**

What I have said so far, may seem to imply this: color perception attributes properties of our experience (its phenomenal character) to external objects. Moreover, as certain authors emphasize (Shoemaker, 1994; Tye, 2000, pp. 165-167), in this assumption there is already a severe category mistake. For this view simply confuses properties of mental states with those of stimuli. Felt redness, the phenomenal character of red experiences (i.e., a property of mental states), cannot possibly be instantiated in external objects. There is no room for such a property in the external world - how could the external world host a property of a mental state? The whole projectivist idea smells like nonsense. I have three points in reply to this objection.

1. We can immediately introduce a twist and say that if there is a category mistake somewhere around here, then it is a category mistake inherent in low level perception itself, not in my theory of it. Assume that there is indeed such a category mistake inherent in sensation. But why shouldn't color perception present to us the world in a way in which it cannot literally be, given that this inherently misleading presentation has its own evolutionary advantages? Color perception still endows us with a powerful means of discriminating objects and surfaces that are not (or not easily) discriminable via other perceivable aspects.

2. It is also arguable that sensory projection commits no category mistake at all - even though it still commits a systematic mistake of some sort (though one that does not reduce fitness). Here is some argument. Phenomenal projection would be ruled out if phenomenal externalism were right, that is, if there were ordinary stimulus properties that played a key role in the determination of the phenomenal characters of color experiences. But, as I argued elsewhere (Jakab, 2001), there are no such stimulus properties, and this effectively falsifies phenomenal externalist positions. However, what phenomenal color experience might be taken to mistakenly suggest to us, upon reflection, is that there exist such stimulus properties in the physical objects we perceive. What sort of stimulus properties should these be? Well, they should be natural kind essences or at least physical types of some sort. They should be inherent, non-disjunctive, causally effective properties of surfaces and volumes that are specifically causally responsible for our color perceptions in ordinary circumstances. They should, in terms of causally effective stimulus properties that are specifically causally responsible for our color perceptions, exhibit exactly those similarity relations, unique-binary division, and compatibility-incompatibility relations which colors as we perceive them do. But if all that color experience suggests to us is that object colors are such physical types, then it seems that there is no category mistake involved in phenomenal projection at all. Consider the parallel with shape perception. What our visual (and tactile) experience of shapes suggests to us is that there are causally effective, non-disjunctive properties, or physical types (namely the shapes) out there such that they play a key role in determining our phenomenal (visual or tactile) experiences of shapes. The key difference is that this suggestion is correct in the case of shape perception whereas it is incorrect in the case of color perception.

Here is another line of argument to support the "no category mistake" response. The phenomenal character of color experience gives rise to illusory surface properties, alright, but these illusory properties are not identical with the phenomenal characters. Therefore it does not follow that the illusory properties that we perceive surfaces as having are themselves mental. For one thing, the illusory properties are, by definition, non-existent, whereas the phenomenal characters that generate them exist. So the two can't be the same. What sounds a lot better is the idea that the illusory properties supervene on the phenomenal characters. Obvious cases of systematic perceptual illusion are the best analogies here. In the case of the Müller-Lyer illusion, for instance, the illusory attribute (the length difference between the two segments) is brought about by perceptual processing in the brain; arguably, I think, this illusory attribute is supervenient on what's happening in the brain. Still, the illusory length difference and the perceptual processing that creates it are not the same thing. To summarize, object colors exist, but the way in which they look to us includes a systematic illusion (or system of illusions).

3. Projectivism, that is, attributing to the external world properties and entities that it does not actually have, is ubiquitous in human psychology. Paranoid subjects attribute hostility and malevolence to others. Children (and adults in numerous cultures) attribute psychological states to inanimate objects - an example of animistic thinking. Paranoia is a form of projection that does not make a category mistake (even though it does make a

systematic mistake of some sort). Even if, in particular cases, some other person is not actually hostile to the paranoid subject, he might be so.<14>

Animistic thinking, on the other hand, is a case of projection that does seem to commit a category mistake. Animistic projections are often quite literal. For instance, when a native person thinks that the Holy Mountain is angry at her tribe, that's why it is sending lightning bolts (coughes up lava and smoke, etc.) for over three days now, she is arguably not using the concept of anger in a metaphorical sense, but rather, in a quite literal one. Instances of such animistic thinking in tribal cultures involve a literal attribution of mental states to inanimate beings, not just a metaphorical one. The native would reject the idea that the Holy Mountain does not really have any emotional states like anger at all. The opposite sounds like a contradiction: false attribution cannot include the insight that there is a false attribution going on. Animistic projection is more than mere metaphor application (e.g., "Funny, it looks like the Holy Mountain is angry at us - but of course that is an absurd idea, taken literally.")

It is arguable that such phenomena are not limited to tribal cultures. For instance, it might occur to an atheist that the idea of an omnipotent, omniscient creator of the world is just a projection - a manifestation of animistic thinking widespread in western culture adult population. However, those who do believe in God think that God literally exists, that is, our world literally includes such an omnipotent creator (who is actually the origin of everything else in the world) - there is no metaphoric sense involved here.<15> Staying with the example of the native woman for a moment, assuming (at the conceptual level) that a mountain is literally angry is no less nonsense than assuming (at the stage of low level perception) that surfaces actually have attributes that are, as a matter of fact, illusory, and are products of our color vision system. Or, perhaps, neither case is nonsense.

In sum, it seems that projection appears at different levels of psychological organization. Whether or not it involves an inherent category mistake, it is a phenomenon of psychology whose existence is difficult to deny. If there is also a category mistake inherent in such a low (modular) level of mental organization as sensation, it is certainly adaptive: it has endowed us with a powerful discriminatory capacity. The fact that sensory projection is completely resistant to intellectual insight (i.e., object colors just look to us the way the phenomenal character of color experience is, no matter how we reflect upon this phenomenon) is well explained by cognitive impenetrability. Low level perceptual processes are largely uninfluenced by conceptual ones.

### **3.3. Exercises: Forms of Awareness**

#### **3.3.1. Perceptual Awareness**

Perceptual awareness is direct or primary; it is awareness of external stimuli. We are perceptually aware of object colors by means of their being reliably indicated to us by

color experience. Object colors look to us the way the phenomenal character of color experience is. However, color perception by no means makes this projective identity relation epistemically transparent to us. This is my view of transparency: sensory projection (and, plausibly, other sorts of projection) are not self-revelatory. For example, it is typically not obvious to paranoid subjects that they merely (i.e., falsely) attribute hostility and malevolence to others in particular cases - if this were obvious, then there would be no projection.<16> Sensory projection serves to give us some sort of direct access to stimulus properties. In the case of object color, this "some sort of" direct access includes reliable indication, but it does not include veridicality in every aspect, with respect to the properties indicated (see Akins, 1996, p. 364, for a similar suggestion).

### **3.3.2. Introspective Awareness**

Introspective awareness is secondary: it is awareness of what is going on in one's mind. It arises from "extra" processing of our occurrent perceptual states; processing that is not necessarily part of perception. This may mean belief formation (e.g., "I am currently undergoing such and such a perceptual experience"), but it can mean other things as well. For instance, it can mean constructive imagination (e.g., Jakab, 2000, Sec. 5), or focusing attention (processing efforts) on constructive imagination; the recall of perceptual memory traces, or the maintaining of traces of perception formed a moment ago, as opposed to information gathering through the senses.

For a typical example, introspective awareness can take the following form: (1) undergoing an experience of type E; (2) forming the belief that one is undergoing an experience of type E; (3) knowing or believing that there is no corresponding external stimulus present that is responsible for the occurrence of E. Here (2) and (3) are "extra" processes not necessarily involved in perception. Therefore, this sort of awareness - a version of introspective awareness - is secondary, in comparison with perceptual awareness. By (3) the "usual immediate epistemic import" of the experience E is secondarily suspended, as when we learn that there's no tank in the wreck, just the needle of the fuel gauge is stuck in the FULL position. This sketchy account of introspection is in some respects similar to representationalist accounts (e.g., Dretske, 1995, chap. 2, esp. p. 63; Tye, 2000, pp. 51-54), even though I do not think that in the case of introspective visual awareness our attention goes outside, onto external stimuli (Tye, 2000, p. 51).

### **3.3.3. Hallucination**

When we hallucinate there is no object, or relevant, causally effective stimulus property (the normal causal antecedent of appearance), in addition to the systematic illusion that's inherent in normal, successful instances of color perception. Hallucination is mistaken perceptual awareness: awareness of an object where there is no corresponding object to be aware of.

## 4. Contrast and Summary: Views Opposing Projectivism

As I said earlier, the point of this paper is made in a framework of specific assumptions. One group of assumptions is about perception in general (i.e., early vision and the idea that much of perceptual processing is uninfluenced by top down, concept-driven mechanisms, and does not presuppose concept deployment). I take it that these ideas are quite firmly established in the literature. The other key assumption, namely internalism about color experience, has a more controversial status: many, including leading experts, believe, and have argued thoroughly, that phenomenal externalism is the right view to take. Yet I assume that phenomenal externalism is incorrect and internalism is correct, because at other places I made detailed arguments to this effect (Jakab, 2001, 2002). Moreover, I am not alone in holding such views (among others see McLaughlin, 2002b; Block, 1997, 1999; Kirk, 1994).

However, as a means of summarizing, it is worth looking out of this framework to briefly consider those views that oppose projectivism. There are at least three main anti-projectivist approaches to color experience: representationalism (Dretske, 1995; Tye, 1995, 2000; Byrne and Hilbert, 1997; Hilbert and Kalderon, 2000), revelationism (Campbell, 1993; see also Byrne, 2001, p. 245; McLaughlin, 2002a, 2002b; Atherton, 2002), and Shoemaker's view of phenomenal character (Shoemaker, 1994). Shoemaker's approach is, in a way, representationalist, though it is importantly different from Dretske's and Tye's (see Tye, 2000, chap. 5 for a critical discussion). Shoemaker attempts to avoid projectivism despite accepting an internalist approach to color experience.

Revelationism is quite close in spirit to representationalism. Both views hold that object colors themselves crucially determine what it is like to see them (i.e., the phenomenal character of color experience), therefore on these views there is no need to posit a sensory-level projection of internally generated phenomenal characters. Note however, that Shoemaker denies this determination relation (see Shoemaker, 1994, pp. 35-36, and other places). Still, Shoemaker wants to avoid projectivism by saying that color experience veridically represents some properties of perceived objects other than their colors. Shoemaker calls these properties *phenomenal properties*.

Campbell's Simple View (Campbell, 1993) is a paradigmatic exposition of revelationism (see also Byrne, 2001, p. 245; McLaughlin, 2002a, 2002b; Atherton, 2002). Revelationists hold that color perception gives us access to the essential nature of colors and whatever conceptual knowledge we might acquire about color is only secondary. This conceptual knowledge cannot affect or correct the knowledge by acquaintance that perception gives us about color; color perception is the best guide to the very nature of object color. For critique of the Simple View see Smith, 1993; Tye, 2000, p. 149, and Jakab, 2001, pp. 22-26, 159-161. For a more general critical discussion of revelationism see McLaughlin, 2002b. For some defending lines see Atherton, 2002. For a brief reflection on Atherton's view see Jakab, 2002, note 4.

The key point of all these views is that (1) there's no need for assuming sensory projection - a kind of systematic misrepresentation - because phenomenal color experience veridically represents object colors (or, in Shoemaker's view, his phenomenal properties). Representationalists hold that color experience represents colors in such a way that its representational content can explain the attributes of phenomenal color character (unity, the unique-binary distinction, opponent organization, and so on). Revelationists agree with representationalists that unity, the unique-binary distinction, and opponent organization in color experience veridically represent corresponding relational properties of the colors. In addition, some representationalists also claim that (2) projectivism is an inherently problematic view. I reject both (1) and (2). As against (1), I argue in Jakab, 2001, 2002. In the present paper I have focused on arguing against (2).<17>

## Notes

<1>. Rey's own definition of projection is this: "*...we expect there to be phenomena in the world correlative to stable psychological states in ourselves, but there turn out not to be any*" (Rey, 1995, p. 136; his italics). I will offer a similar definition of projectivism later in this paper.

<2>. I'd rather prefer the identity version. Again, I do not claim to offer here a defense of a neuro-computational account of phenomenal character (although the present paper as a whole can be taken as part of such a defense).

<3>. I use 'experience' inclusively, as referring to a neural/perceptual state that carries its phenomenal character. For a brief discussion of this terminological issue, see Tye, 2000, p. 15. I follow S. Kosslyn (1980, 1990, 1994) and others like Marr (1982) and I. Biederman (1990) in assuming that visual perceptual representations are maplike, analog ones, built out of some basic set of primitive symbols.

<4>. In the case of vision, I think of processing up to Marr's 3D representations (Marr, 1982). Alternatively, later stages of modular processing are perhaps better understood in terms of Biederman's model (Biederman, 1990).

<5>. The distinction between modular, nonconceptual, and central, concept- involving representations is a well-supported one. Think of the notion of early vision, or low-level vision (Marr, 1982; Stillings et al., 1995, pp. 464-490). As a phenomenon closely related to early (or intermediate-level) visual processing, think of random dot stereograms (Julesz, 1971). On looking at the stereograms in the stereoscope we suddenly see shape and depth, merely on the basis of binocular disparity cues. Very likely indeed, the binocular integration underlying this phenomenon does not include concept deployment, yet it results in conscious perceptual experience (as of shape and depth). Binocular integration happens in the visual cortex, so early (or intermediate) visual processing is by no means equivalent to pre- cortical processing. However, in the case of color processing,

some steps that are of key importance in shaping our experience of color happen pre-cortically. Opponent recombination of the cone signals is an example: it happens in the LGN of Thalamus (DeValois and DeValois, 1997). See note 8 for further support of the distinction between non-conceptual and conceptual levels of representation.

<6>. There is no general agreement on this issue, however. For instance, Langsam (2000) argues that colors look like dispositions (in the non- conceptual, or phenomenal, sense of 'looks': see Byrne, 2001, p. 239). Byrne, however, finds Langsam's reasoning inconclusive, and argues that one interesting reading of his claim is false: it does not appear that colors are dispositions (Byrne, 2001, pp. 242, 243; note that 'appears' is used by Byrne in the same sense as conceptual - or epistemic - 'looks'). Tye (2000, pp. 55-57) argues that colors look like types of reflectance (again, in the non-conceptual sense of 'looks'). In claiming this, Tye assumes the reflectance theory of color that he defends in other parts of his book. This latter issue is critical for my view, so I have to take a stand on it. I flatly deny Tye's idea that colors look like reflectances on the following grounds. In my view, phenomenal color characters are internally generated, and they are modes of presentation (of object colors), though non-conceptual ones. Therefore, on the phenomenal internalist approach, the non-conceptual (phenomenal) 'looks' context is hyperintensional (because its operand includes internally supervenient modes of presentation to which the context is sensitive, thus the principle of substitutivity breaks down in this context). That is, contra Tye, even if one assumes that redness in objects is surface reflectance such-and-such, a red object, in looking red, does not look like surface reflectance such-and- such. Just like we can think that water is wet without thinking that H<sub>2</sub>O is wet.

<7>. Some authors (Byrne and Hilbert, 1997, pp. 279-281; Tye, 2000, pp. 162-165; Bradley and Tye, 2001) argue that the unique-binary distinction is paralleled by physical attributes of object colors. Tye's proposed solution (2000, pp. 162-165) is, on empirical grounds, badly mistaken (Jakab, 2001, pp. 68-81; 229-230). Bradley and Tye (2001) repeat the same proposal and offer some clues of how it might be fixed (p. 482). However, these authors do not even mention the problem of unity. Unity and the unique-binary distinction are closely linked phenomena, but even assuming that Bradley and Tye are right about the objective bases of the unique-binary distinction, it is by no means obvious that their proposal generalizes to the much more complex issue of unity. Matthen (1999, pp. 65-66) argues thus "Because violet looks reddish, it looks more similar to orange with which it shares a component, than to greenish yellow, with which it shares no similarity. However, violet is at the opposite end of the visual spectrum from orange. In actuality, it is closer to greenish yellows than to orange. Thus, opponent processing distorts the ordering of colors by wavelength". Hilbert and Kalderon (2000) argue that representational externalism about color experience can handle unity. I agree with Matthen (and Thompson, 1995, pp. 122-133; 2000) that it cannot (see Jakab, 2002 for my argument).

<8>. The arguments supporting this case are well known. Perceiving shapes does not presuppose having shape concepts. Think of Marr's (1982) or Biederman's (1990) models of shape perception. For instance, geons and their complexes are not shape concepts; they



are non-conceptual perceptual representations. This is because geons are not available for reasoning (as opposed to concepts), and the representation of shapes at this level seems uninfluenced by whatever beliefs or conceptual knowledge one might have about shapes. (Think of figural aftereffects, the Müller- Lyer illusion, and other shape illusions). Therefore one can represent the shape of one's dog at this level, without deploying any shape concepts. This perceptual representation can also be severely distorted, due to drug influence. For another example, think of perceiving very complex shapes like a fractal picture. The richness and complexity of the shape percept here is not likely to be fully captured by any concept we might recall to represent such shapes - therefore it is reasonable to posit a separate level of perceptual representation to account for this richness. See Kirk, 1994, pp. 124-125; Tye, 1995, pp. 137-143; 2000, p. 11; Raffman, 1995, for similar points on the richness of perceptual representations. Note also that philosophers holding different views of the phenomenal seem to unanimously endorse the distinction between conceptual and nonconceptual (perceptual) representations (Tye, 1995, Chs. 4-5; 2000, pp. 56, 62 - Tye is a representational externalist about the phenomenal; see however Kirk, 1994, Chs. 4-5, esp. pp. 128, 130, 136 for a very similar distinction in an anti-externalist account of the phenomenal). Of course, a primary source for understanding this distinction is Fodor (1983, 1990).

<9>. I am grateful to Brian McLaughlin for illuminating this point to me.

<10>. By 'experiencing' I mean undergoing (an experience), but not perceiving. I do not like this formulation of the problem; I only intend to paraphrase Ross, Tye and Shoemaker here. The view just cited in the main text is called by Shoemaker (1994, p. 25) literal projectivism. The view I'm defending in this paper is closer to figurative projectivism (Shoemaker, 1994, pp. 25-26).

<11>. That is, felt location comes from the interpretation by the rest of the system of a token perceptual state (narrowly individuated), and not from the relation of that perceptual state to environmental stimuli. By 'interpretation' here I mean, for instance, some (implemented) computational process - simply some causal interactions between the narrowly individuated perceptual state and the rest of the system. That is, theoretically, there is room even for the claim that felt location, as an aspect of phenomenal character, is supervenient on internal constitution, even though this aspect of phenomenal character still systematically correlates with information picked up by vision about actual location.

<12>. The experience of a unique hue with maximum saturation is, in my opinion, an example of a perceptual state with no constituent structure. The experience of a binary hue is a perceptual state with a rather minimal constituent structure. For more on this topic, see Jakab, 2000, sections 3 and 4.

<13>. It need not be: one might argue that as long as the same internal states and processes obtain in the subject (starting at the retina), she undergoes the same perceptual experience with the same felt location, no matter what external circumstances produce those internal states. Brains in vats too have experience with felt location (or so the

intuition goes), even though their visual representations do not covary with anything like real depth of perceived objects from the subject.

[<14>](#). Paranoid subjects sometimes make other people become angry of them - an instance of self-fulfilling prophecy.

[<15>](#). See Rey (1995, p. 136) for more on projection and religious experience.

[<16>](#). This case is a little more complex than my presentation suggests. Psychotherapists know well the phenomenon when a patient has insight of his/her paranoia, yet on leaving the session and returning to "real life" continues to make paranoid attributions spontaneously. An insight of paranoia at a certain point in time does not immediately "pervade" the subject's personality, obliterating paranoid thinking. After the first catharsis of insight on the analyst's couch is gone, it remains difficult for the patient to continue to believe, "deep down", that other people are indeed so different from what he has thought about them all along. (I think even rational insight of paranoia and emotion-based paranoid attributions that in turn influence behavior can continuously coexist in subjects.) Personality and (rational) intellect are quite separate aspects of human minds, however, both influence the ways we think about the world.

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