

## Colors and the Content of Color Experience

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*In previous work, I have defended a non-standard version of intentionalism about perceptual experience. According to the doxastic account, visual experience is a peculiar kind of belief: belief with “phenomenal” or looks-content. In this paper, I investigate what happens if this account of experience is combined with another idea I find very plausible: That the colors are to be understood in terms of color experience. I argue that the resulting phenomenal account of color experience captures everything essential to what has been called the “natural concept of color”. And I show that circularity worries are not aggravated by adopting this account instead of more standard forms of intentionalism—rather, they can be dispelled along the same lines.*

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### 1 Introduction

Intentionalism is the view that perceptual experiences are mental states with representational content. Standardly, intentionalists construe an experience as of  $p$ —an experience as of a red book in front of you, say—as an experience with the content that  $p$ . In previous work (Glüer 2009; Glüer 2012b; Glüer 2012a), I have defended a non-standard version of intentionalism: a particular kind of doxastic account of perceptual experience. According to this account, visual experience is a (peculiar) kind of belief. One of its peculiar features is the type of content experience takes. An experience as of  $p$  is not construed as having the content that  $p$ , but as having what I have called “phenomenal content”. For visual experience, this is content of the type  $x$  looks  $F$ , where

$x$  ranges over material objects and  $F$  over sensible properties.<sup>1</sup> Let's call this account of perceptual experience "the phenomenal belief account".

I have also defended the possibility of understanding the colors (and the meaning of color terms) in terms of experiences of color. In "Colors without Circles" (2007), I argued that redness can be understood in terms of looking red without (too much) circularity. This can be done, or so I argued, even if we subscribe to a standard form of intentionalism about experience construing the colors as the properties that color experiences ascribe to objects, i.e. even if we think of the content of, for instance, an experience of redness as of the type *x is red*.

In this paper, I shall investigate how to think of both the content of color experience and of the colors themselves if we instead work with the phenomenal belief account.

## 2 Color, Color Terms, and Color Experience

How do the colors, their nature, our pre-theoretical color concepts, and the meanings of our natural language color terms relate? There is no consensus in the philosophical literature on color. Here is one view:

What is most obvious about the colour terms (...) is that we use them to denote properties that we take to be presented to us in visual experience. (...) Both shapes and colours present themselves in visual experience—things look green and look round—but only in the case of terms for colours is this fact plausibly the only essential ingredient in giving an account of their meaning. (...) We thus get the following clause for 'red': 'red' denotes the property presented in the experience of looking red, or, in more natural English, redness is the property objects look to have when they look red (Jackson and Pargetter 1987, 128f).

According to Jackson and Pargetter, the meaning of the color terms is as intimately related to color experience as the colors themselves are. Not everyone seems to agree, however. Byrne and Hilbert write:

The problem of color realism concerns various especially salient properties that objects visually appear to have. It does not concern, at least in the first instance, color language or color concepts. (...) [T]he problem of color realism is primarily a problem in the theory of perception, not a problem in the theory of thought or language (Byrne and Hilbert 2003, 3).

The view that questions concerning the nature of color is not primarily a problem in semantics is, of course, compatible with the view that "which semantics is the correct semantics for color discourse will depend on the nature of the colors" (Brogaard 2010, 259). But I think what Jackson and Pargetter have in mind is a relation of interdependence, not just one of dependence: It's not just that the semantics for color

<sup>1</sup> Of course, *x looks F* is only an open content schema. I have chosen this presentation to keep mostly neutral on the question whether the content of experience is singular, general, or can be either. Also, on the assumption that there are sensible relations, phenomenal contents should strictly speaking be represented as of the type  $F(x_1, \dots, x_n)$ , where  $x_i$  ( $1 \leq i \leq n$ ) ranges over material objects and  $F$  over sensible properties and relations.

terms has to follow wherever the metaphysics of color leads. Rather, a metaphysics that completely divorces redness from looking red just won't be acceptable, and this is so at least partly for semantic reasons. It is far from implausible to make such a claim of interdependence. But, opinions do diverge on this. Byrne and Hilbert, I take it, do not agree.<sup>2</sup> And Boghossian and Velleman quite clearly seem to agree with Byrne and Hilbert on this point:

The role in which colors command attention, of course, is their role as the properties attributed to objects by a particular aspect of visual experience. They are the properties that objects appear to have when they look colored. What philosophers want to know is whether the properties that objects thus appear to have are among the ones that they are generally agreed to have in reality (Boghossian and Velleman 1991, 68).

But even if views diverge on the relation between the metaphysics of color and its natural language semantics, there is remarkable agreement on the claim that, as Boghossian and Velleman just put it, colors “are the properties that objects appear to have when they look colored”. In fact, this idea is formulated under only slightly—but as we shall see later importantly—different guises in all the passages so far quoted. According to Byrne and Hilbert, colors are “properties that objects visually appear to have”, and Jackson and Pargetter told us that “redness is the property objects look to have when they look red”. Even if we disregard natural language semantics, that is, the relation between redness and looking red does not lose any of its significance for the metaphysics of color. Let's call this “the looks link”.

It is quite natural to interpret the looks link as ultimately being semantic, however. The semantics relevant here might not be the semantics of natural language color terms. But even so, it might still be the *semantics of color experience*. At least this way of thinking of the looks link will be natural for intentionalists—all those philosophers of perception thinking of visual experience as a mental state with representational content. This is quite clearly what Boghossian and Velleman have in mind when they gloss “properties that objects appear to

<sup>2</sup> An interesting case here is Jonathan Cohen (cf. Cohen 2003, Cohen 2004, 469ff). His color relationalism is subject to a number of objections from the ordinary use of color terms. These objections assume that certain patterns of use—such as intuitive truth value assignments to sentences containing color terms and ascriptions of agreement and disagreement—are data to be explained by the correct semantics for color terms. They also assume that the semantics for color terms does follow the relationalist metaphysics defended by Cohen, and therefore gets into conflict with the data. And Cohen in fact lets the semantics follow the metaphysics; according to him, colors are relational properties of the kind *red-for-subject-S-in-circumstances-C* and his semantics for color terms construes them accordingly as containing contextual parameters for *S* and *C* not visible in their surface form. He then tries to explain away the recalcitrant data as purely pragmatic effects. However, the pressure of the data clearly remains felt—Cohen, I take it, would not like his semantics to diverge further from the data than pragmatics plausibly allows. In my opinion, a semantic explanation would be preferable, however.

have when they look colored” as “properties attributed to objects by a particular aspect of visual experience”. And it is in this guise that the looks link makes its appearance when Barry Maund in the *Stanford Encyclopedia* formulates two important desiderata on any philosophical account of color in the following way:

[T]here appear to be two prominent facts about colors that any theory would need to respect: (1) that colors are properties in the world (i.e., properties of physical objects), to which one’s color vision is sensitive; (2) that colors are qualities that perceptual experience represents (or presents) objects as having (Maund 1997/2008).

The suggestion is to understand the looks link along the lines of (LL<sub>1</sub>):

(LL<sub>1</sub>) Redness is the property perceptual experience represents objects as having when they look red.

The claim that experience has representational content, just by itself, does not yet give us (LL<sub>1</sub>) as the way to think of the looks link, however. To get that, we need to add a claim about the form or type of content that either experience in general, or color experience in particular, takes. In line with previous work, I shall call this a “naive semantics” for color experience. According to naive semantics, an experience as of something red has a content of the type:

(1) *x is red,*

where *x* ranges over material objects.

If we take all this on board, (LL<sub>1</sub>) quite naturally can be seen as an integral part of our “natural” or pre-theoretical concept of color. Maund nicely sums up what many take to be the most important features of this concept:

(NC<sub>c</sub>) The natural concept of color:

(LL<sub>1</sub>) Redness is the property perceptual experience represents objects as having when they look red.

(O) Redness is an objective, perceiver-independent and manifest kind.

(IS) Together with the other colors, redness forms an internally related 4+2 structure. (Cf. Maund 1997/2008.)

I am not sure how “natural” or pre-theoretic the idea of color being a manifest kind is. But many theorists of color find the doctrine of “revelation” (cf. Johnston 1992) very intuitive indeed. On the other hand, I am all for thinking of experiences as mental states with representational contents. In this paper, I shall simply assume that intentionalism is true.<sup>3</sup> But, as we shall see in the next section, I do not agree that (LL<sub>1</sub>) is the best way of construing the looks link for an intentionalist.

<sup>3</sup> Arguably, intentionalism amounts to the claim that perceptual experiences are propositional attitudes, a claim that I defend in Glüer 2013. For further discussion and defense of intentionalism, see for instance Siegel 2005, Siegel 2011, Pautz 2009.

This is because I do not think we should construe experience in general as having a naive semantics. In what follows I want to explore what happens when we apply the version of intentionalism I favor for experience in general to color experience in particular. I want to explore its consequences both for the content of color experience, and for the concept of color in general. But first, I need to quickly recapitulate the main elements of the account of experience I have suggested.

### 3 *A Doxastic Account of Experience*

I think that perceptual experience is best construed as a type of propositional attitude. Moreover, I think that perceptual experience is best construed as a (peculiar) kind of belief.<sup>4</sup> One of the most important and immediate advantages of thus construing the attitude component is that it allows us to subscribe to (R):

(R) Experience provides its subject with reasons for first-order empirical belief.

(R) is an integral part of our pre-theoretic conception of perceptual experience. It is a desideratum on any satisfactory account of experience that it accommodates (R).<sup>5</sup> If experiences are beliefs, they provide reasons for (further) belief in the relatively well understood, traditional sense in which beliefs provide reasons for (further) beliefs.<sup>6</sup>

But even though (R) provides a strong reason for holding a doxastic account of experience, there are, of course, well-known reasons against such accounts, too. Or rather, there are well-known reasons against *traditional* belief theories of experience.<sup>7</sup> Traditional belief theories identify having an experience as of *p* with forming or having a belief that *p*. This not only makes it difficult for them to account for the “modularity” or so-called “belief-independence” of experience, but ironically enough also makes a hash of the reason-providing role of experience.

A phenomenon often cited when it comes to the modularity of experience is the phenomenon of known illusion. There are any number of perceptual illusions that are stable with respect to background belief. The Müller-Lyer is a standard example here, but the color literature

<sup>4</sup> No deep metaphysical commitments are intended by this talk of kinds. All I mean is that every perceptual experience is a belief (but not every belief is a perceptual experience). There are characteristic differences between those beliefs that are experiences and those that aren't. Experiences have a particular kind of sensory phenomenology, for instance, that other beliefs do not have (whether or not they have any cognitive phenomenology). Moreover, it is a desideratum on any satisfactory account of experience that it be satisfied by all and only experiences. Nevertheless, such an account may well fall short of cutting the mental kinds at their metaphysical joints.

<sup>5</sup> Other proponents of (R) include McDowell 1994, Brewer 1999, Heck 2000.

<sup>6</sup> For much more on this, see Glüer 2009 and Glüer 2013.

<sup>7</sup> Proponents include Armstrong 1968, Pitcher 1971, Craig 1976, and most recently Alex Byrne.

provides many more—for instance, all those colored diagrams in which two patches of the same color look as if they had different colors due to contrast or shadow effects. In such illusions, it does not matter whether the subject knows she is subject to an illusion or not. The experience is not changed by such knowledge. The patches look to be of different color, and the lines look to be of different length, no matter what the subject believes or knows about their color and length. We can give a neutral characterization (KI) of such cases:

(KI) In cases of known illusions, the subject *S* knows that not-*p*, but nevertheless has an experience as of *p*.

If we assume a traditional belief theory of experience, however, (KI) puts the subject in a very uncomfortable spot, indeed. Here is the *argument from known illusion* against such a theory. It has the form of a reductio:

(B<sub>T</sub>) Experiences as of *p* are beliefs that *p*.

(KI) In cases of known illusions, the subject *S* knows that not-*p*, but nevertheless has an experience as of *p*.

(2) In cases of known illusion, *S* has contradictory beliefs.

The force of this argument depends on how absurd (2) is, of course. I find it quite absurd—even though it is quite possible to have contradictory beliefs, it is absurdly difficult to have contradictory beliefs of this kind. Not only is there nothing irrational about the subject of a known illusion, but a traditional belief theory would allow such a subject to be fully conscious of simultaneously holding outrightly and irresolvably contradictory beliefs. Beliefs just don't behave that way.

To show that a traditional belief theory—despite its initial promise with respect to accommodating (R)—in fact also makes a hash of experience's reason providing role, we can use a *stuttering inference argument*. Deriving from John McDowell (McDowell 1998, 405f.), a version that would be relevant here goes as follows:

(B<sub>T</sub>) Experiences as of *p* are beliefs that *p*.

(R) Experience provides its subject with reasons for first-order empirical belief.

(3) These reasons are defeasible.

(4) An inference from an experience as of *p* to a belief that *p* is a 'stuttering' inference:

$p \rightarrow p$ .

(5) Stuttering inferences are not defeasible.

(6)  $\perp$

An argument like this need not be targeted at belief theories in particular—it could be employed against any account construing experiences as of *p* as having content *p*. Nor does the premise up for reductio need to be (B<sub>T</sub>). It might as well be (R), or rather, the particular conception of epistemic warrant in terms of "inferential" reasons by means of which (R) is interpreted here.<sup>8</sup> Nevertheless, these arguments do make

<sup>8</sup> That is how McDowell himself uses the argument.

a rather strong prima facie case against belief theories of experience. But they are premised on the traditional version of such theories, and they do not go through if we replace (B<sub>T</sub>) with (B):

(B) Experiences as of  $p$  are beliefs.

This is because (B) just by itself does not yet tell us what the content of an experience as of  $p$  is. (B) is silent on the semantics of experience.

It is precisely here, that the doxastic account of experience I have suggested diverges from the traditional account. Intuitively, experience is “about” ordinary material objects and their properties. Usually, experience is therefore given what I have called a “naive” semantics above:

(EXP<sub>N</sub>)  $x$  is  $F$ ,

where  $x$  ranges over ordinary material objects and  $F$  over sensible properties. Such a semantics is precisely what traditional belief theories work with. The alternative belief account I have suggested works with a “phenomenal semantics” instead. It uses “phenomenal” properties instead of sensible properties:

(EXP<sub>Ph</sub>)  $x$  looks  $F$ ,

where ‘looks’ is to be construed phenomenally.<sup>9</sup> I shall call such contents “phenomenal contents” or “looks-contents”.<sup>10</sup> What results is a phenomenal belief account of visual experience:

(B<sub>P</sub>) Experiences are beliefs with phenomenal contents.

As I have argued elsewhere (Glüer 2009), naive and phenomenal semantics are “phenomenally equivalent”. That is, no difference in the phenomenology of visual experience results from construing experience as having contents of one or the other type. Consequently, introspection will not be able to determine which construal is the right one. This needs to be decided by other means. More precisely, it will depend on the comparative overall theoretical virtues and vices of the competing accounts. Here, I cannot do more than brag—i.e. list the most important virtues the phenomenal belief account has. It accommodates modularity phenomena such as known illusion: There is no contradiction in believing that something looks  $F$  and believing that

<sup>9</sup> I shall simply assume that there is such a thing as the phenomenal use of ‘looks’ in natural language. For more on this, see Maund 1986, Byrne 2009, Brogaard 2012. Note, however, that nothing essential hangs on this assumption. Should it turn out that there is no such use, I’ll simply define a predicate modifier (and a corresponding sentential operator) that works in the desired way. For more on this, see my (2012).

<sup>10</sup> There is a question whether phenomenal ‘looks’ as it figures in experience contents is to be construed as a sentential operator—‘it looks <sub>$p$</sub>  as if  $Fx$ ’—or as a predicate modifier—‘ $x$  looks <sub>$p$</sub>   $F$ ’. Here’s my suggestion: The analytically primary use of phenomenal ‘looks’ can be construed as that of a sentential operator:  $L_1(p)$ . This has the advantage that veridical perceptions, illusions, and hallucinations all can have the same basic phenomenal contents:  $L_1(\exists x (Fx))$ . Then, the predicate modifier  $L_2$  can be defined on the basis of the sentential operator by means of the following equivalence:  $\exists x ((L_2(F))(x)) \equiv_{df} \exists x L_1(Fx)$ .

it is not *F*. Moreover, assigning phenomenal contents to experiences *explains why* they display the kind of “modularity” or independence from further belief that they do.  $(B_p)$  accounts for the reason-providing role of experience by construing this role as that of belief, thus keeping our account of theoretical reasoning unified and traditional. It has no problem with stuttering—an inference from *x looks F* to *x is F* does not stutter. Rather, believing the former very plausibly provides its subject with defeasible (prima facie) reason to believe the latter.  $(B_p)$  can preserve the uniformity of content across veridical and non-veridical experience. It has the consequence, however, that experience contents will be (mostly) true.<sup>11</sup> Nevertheless, the intuitive distinction between veridical and non-veridical experience can be accounted for in terms of misleadingness: Illusions, for instance, are such that they provide (prima facie) reasons for false beliefs.  $(B_p)$  thus is compatible with the intuition that non-veridicality somehow is “downstream” of experience, a matter of (non-experiential) belief (cf. Brewer 2006, Travis 2004). It also accommodates various phenomenological observations regarding experience, for instance what is sometimes called its “immediacy”, its “presentational” or “committal” character.  $(B_p)$  captures this by construing experience as belief.  $(B_p)$  also captures experience’s “particularity”, i.e. the claim that the veridicality of an experience depends on the intuitive object of the experience, not on some other object that happens to make its content true. Looks-contents naturally construe experiences as about those very objects they intuitively are about: Those objects causally responsible for them (in the right way, of course). Moreover,  $(B_p)$  accommodates what is reasonable about the so-called “transparency” of experience: Introspectively, it is as if experience was only about ordinary material objects and their properties. Phenomenal properties, whatever their ultimate analysis, are properties of ordinary material objects, not properties of experiences. Finally, and on the assumption that there is such a thing as a phenomenal notion of looks,  $(B_p)$  quite easily (or rather, trivially) satisfies the desideratum—if it is one—that experience content be “looks-indexed”, i.e. that experience content is determined by the looks of things (cf. Travis 2004).

And of course, the phenomenal belief account is supposed to apply to color experience. In the next two sections of this paper, I shall investigate some of the consequences this has for the looks link.

#### 4 *The Content of Color Experience*

According to the phenomenal belief account, an experience as of something red is to be construed as a belief with the content *x looks red*. This means that the phenomenal belief account does not accommodate  $(LL_1)$ :

$(LL_1)$  Redness is the property perceptual experience represents objects as having when they look red.

<sup>11</sup> Falsity could result from misapplication of concepts, however.



It does not mean, however, that we cannot account for the looks link. As pointed out earlier, (LL<sub>1</sub>) is a natural formulation of the looks link—but only if we assume a naive semantics for experience. The phenomenal belief account replaces naive semantics with phenomenal semantics. Its version of the looks link accordingly is the following:

(LL<sub>2</sub>) Redness is the quality objects are represented as looking to have when they look red.

Is (LL<sub>2</sub>) any less “natural” a formulation of the looks link than (LL<sub>1</sub>)? I don’t think so. Both formulations make highly theoretical assumptions about the semantics of color experience. Both use the theoretical term “represented as”. There should therefore be more natural or pre-theoretic ways of formulating the looks link, ways of formulating it that are neutral between (LL<sub>1</sub>) and (LL<sub>2</sub>). And to be sure, there are. We do not need to look any further than the quotations we started out with. Here are Jackson and Pargetter again, with emphasis put on their formulation of the looks link in what they themselves call “more natural English”:

What is most obvious about the colour terms (...) is that we use them to denote properties that we take to be presented to us in visual experience. (...) Both shapes and colours present themselves in visual experience—things look green and look round—but only in the case of terms for colours is this fact plausibly the only essential ingredient in giving an account of their meaning. (...) We thus get the following clause for ‘red’: ‘red’ denotes the property presented in the experience of looking red, or, *in more natural English, redness is the property objects look to have when they look red* (Jackson and Pargetter 1987, 128f., *emph. added*).

This provides us with the following neutral formulation of the looks link:

(LL) Redness is the property objects look to have when they look red.

Clearly, both (LL<sub>1</sub>) and (LL<sub>2</sub>) are compatible with (LL). And both involve taking substantive philosophical steps from (LL). That (LL<sub>1</sub>) involves taking such a step, a step not motivated by mere introspective familiarity with color experience in combination with intentionalism, can maybe best be brought out by reflections like the following. Assuming intentionalism, an experience as of something red can either be construed as an intentional state with the content *that x is red*. Or it can be construed as an intentional state with the content *that x looks red*.<sup>12</sup> These two construals are phenomenally equivalent. Both obey (LL). Taking either construal thus involves a substantive philosophical step. Because of the phenomenal equivalence of the alternatives, this step is not motivated by the phenomenology of experience. Further theoretical merits will have to decide the issue.

Arguably, the most important theoretical issue when it comes to color is the looks link. As we have just seen, the phenomenal belief ac-

<sup>12</sup> No doubt there are further alternatives, but the two on the table suffice for making the point.

count does accommodate a perfectly “natural” formulation of the looks link, i.e. (LL). In the remainder of this paper I want to look into two further, closely connected questions: The second concerns the account’s ability to capture the “natural” or pre-theoretic concept of color reasonably well. Will understanding the looks link in terms of (LL<sub>2</sub>) allow for that? But before we go there, a more fundamental worry needs to be raised: We might worry that construing color experiences as ascribing “phenomenal” colors to objects will make it impossible to understand redness in terms of looking red without running around in vicious circles. And I personally might worry that my own earlier suggestions (in Glüer 2007) for avoiding such circles work only on the assumption that experience has a naive semantics.

### 5 *Looking Red and Being Red*

So far, we have been concerned with the looks link as a constraint on the semantics of color experience. The looks link has struck many as at least equally significant when it comes to the metaphysics of color, however. Isn’t looking red essential to being red? Or at least actually looking red? Relationalists about color, be they dispositionalists or functionalists, try to understand the nature of color itself in terms of its relations to color experience.<sup>13</sup> But the combination of such views with intentionalism about color experience spells circularity troubles. Moreover, some such troubles also loom for many of those who think of the colors in more materialist terms—for instance as physical properties realizing a certain functional or folk-psychological role or as the categorical bases of dispositions to cause color experiences of a certain type.<sup>14</sup> Here, I shall exclusively focus on one such common problem, the problem of non-wellfoundedness.

To illustrate the problem, consider what we might call “the relationalist schema”:

(Red)  $x$  is red (for subject  $S$  in circumstances  $C$ ) iff  $x$  looks red to  $S$  in  $C$ .

A wide variety of positions on color can be derived from manipulating one or more of the elements of this schema. If the relevant subject is any “normal” or standard human observer, and the relevant circumstances are “normal” or standard circumstances, you get the basic formula of dispositionalism for red simpliciter:

(Red<sub>2</sub>)  $x$  is red iff  $x$  looks red to normal subjects in normal circumstances.

But whatever version you prefer, as long as such a clause is supposed to play a semantic role, its combination with intentionalism about color experience raises the problem of non-wellfoundedness.

<sup>13</sup> For a recent defense of dispositionalism, see Gert forthcoming. For a functionalist account of color, see Cohen 2003.

<sup>14</sup> More precisely, such troubles loom as long as the looks link plays any reference determining (or even fixing) role in the semantics of experience.

Take standard intentionalism about color experience. On such a view, an experience as of something red has the content *that x is red*. That is, on such a view something looks red to a subject *S* precisely when *S* has an experience with the content *that x is red*. Combining such “naive” intentionalism with (Red), we get something like (Red<sub>N</sub>):<sup>15</sup>

(Red<sub>N</sub>) *x* is red iff *x* causes an experience with the content *that x is red* in *S* in *C*.

The problem with this is strictly speaking not circularity. The problem is, rather, that if we both analyze looking red in terms of having an experience with a naive color content and analyze redness in terms of looking red, the result is a “content” that, so to speak, contains itself.<sup>16</sup> But such a “content”—being a kind of non-wellfounded object—is, of course, no content at all.<sup>17</sup>

The question then is whether the problem of non-wellfoundedness does arise even if we replace naive semantics for color experience with phenomenal semantics. On a phenomenal semantics, we get (Red<sub>P</sub>) instead of (Red<sub>N</sub>):

(Red<sub>P</sub>) *x* is red iff *x* causes an experience with the content *that x looks red* in *S* in *C*.

And that only pushes the problem one step farther away. For the next pressing question for phenomenal semantics is, of course, the following: What are these “phenomenal properties” the semantics is working with? In particular, what is looking red? So, here, too, we need a further analysis of looking red.

Something like the following should be uncontroversial:

(LR) *x* looks red to *S* at *t* iff *x* causes *S* to have an experience of a certain kind *k* at *t*.

But what kind of experience? Of course it is as tempting to specify *k* by means of the *content* of the relevant experiences on this version of intentionalism as on any other. But then we get:

<sup>15</sup> In what follows I shall talk of the object(s) of an experience simply as the object(s) causing the experience. This is rough, of course. For one thing, there might be more than one cause, so what we are interested in is something like the salient cause. For another, there is the perennial problem of deviant causal chains. I shall abstract from all such problems here.

<sup>16</sup> The problem is first spelled out in Boghossian and Velleman 1989, 88ff. They describe it as an infinite regress resulting in color experience having no determinate content whatsoever.

<sup>17</sup> Cohen argues that the problem isn’t a serious one (cf. Cohen 2003, 10ff). Even if an explanation of redness in terms of looking red is uninformative, he argues, that does not prevent us from acquiring these concepts by means of paradigm cases and thus breaking into the conceptual circle. That might, or might not, be an acceptable answer to a charge of theoretical or definitional circularity, but I don’t see how it could help with the problem of non-wellfoundedness. The problem is not how to understand or acquire the concepts we might think of as involved in the relevant experiential content. The problem is that there is no content to begin with.

(LR')  $x$  looks red to  $S$  at  $t$  iff  $x$  causes  $S$  to have an experience with the content *that  $x$  looks red at  $t$* .

And (LR') leaves the content of color experience as non-wellfounded as (Red<sub>N</sub>).

Elsewhere, I have made a suggestion as to how to solve the problem for naive intentionalism (Glüer 2007). Since it amounts to a suggestion as to how to understand looking red without specifying the kind of experience it involves in terms of its content, this solution works as well for phenomenal intentionalism as it works for naive intentionalism. The ingredients to be used are the following: primed predicates traditionally used for attributing phenomenal qualities to experiences (cf. Peacocke 1984), and a (non-reductive) functionalist understanding of sensation predicates (cf. Pagin 2000). Using primed predicates, we get:

(LR'')  $x$  looks red to  $S$  at  $t$  iff  $x$  causes  $S$  to have a red' experience at  $t$ .

However, as long as primed predicates are associated with phenomenal kinds, (LR'') gives rise to inversion problems. To deal with these, we need to interpret primed predicates as associated with functional phenomenal kinds.

Functional phenomenal kinds are first order, second level properties—to employ the terminology of Russell's ramified theory of types. They are instantiated by objects on the basic level, but can be specified in terms of their own second order properties along the following lines:

(7)  $y$  is red' iff  $\exists P (GP \ \& \ Py)$ .

Applying the kind of non-reductive functionalist understanding of sensation terms suggested in Pagin (2000), we get as a first shot:

(Red')  $y$  is red' iff  $y$  is an experience of a phenomenal type  $P$  such that

- i) (under standard conditions and in the absence of beliefs to the effect that experiences are not to be trusted) having a sensation of type  $P$  disposes the subject to classify its cause as red, and
- ii) red objects are disposed to cause experiences of type  $P$  (under standard conditions and in a given subject).

But as long as we want to use looking red in our account of being red, (Red') threatens our account of the colors with circularity. We need to eliminate the use of 'red' from the right-hand side. Earlier, I suggested to do that by switching from use to mention. For variable language  $L$ , we then get:

(Red'<sub>2</sub>)  $y$  is red' iff  $y$  is an experience of a phenomenal type  $P$  such that

- i) (under standard conditions and in the absence of beliefs to the effect that experiences are not to be trusted) having an experience of type  $P$  disposes an  $L$ -speaking subject to hold ' $x$  is red<sub>L</sub>' true iff  $x$  is the salient cause of  $y$ , and
- ii) objects classified as 'red<sub>L</sub>' by  $L$ -speaking subjects are disposed to cause experiences of type  $P$  (under standard conditions

and in a given subject), where ‘red<sub>L</sub>’ is the translation of ‘red’ from English into *L*.

This at least partially solves the problem. Some circularity might remain as the conditions contain reference to a language, which might need reference to colors for being identified. However, the problem has at least been significantly limited as the identification of a language does not solely depend on its color predicates. As Peter Pagin suggested, the problem might also be limited further by requiring that to be a speaker of *L* one applies ‘red<sub>L</sub>’ to paradigm objects (such as pillar boxes and ripe tomatoes), and in general to objects emitting light of certain wavelengths (cf. Lewis 1997), and similarly for causes of *P* experiences.<sup>18; 19</sup>

(Red’<sub>2</sub>) allows us to use ‘red’ in our semantics for color experience. We can plug (Red’<sub>2</sub>) into (LR’’) without making experiential contents non-wellfounded:

(LR’’) *x* looks red to *S* at *t* iff *x* causes *S* to have a red’ experience at *t*.

And—at least as far as circularity problems are concerned—that allows us to think of the colors in terms of our preferred version of the relational schema—for instance (Red<sub>2</sub>):

(Red<sub>2</sub>) *x* is red iff *x* looks red to normal subjects in normal circumstances.

There are, of course, a host of further problems with the dispositionalism suggested by (Red<sub>2</sub>), but my aim here was not to defend any particular account of color. What I was interested in looking into was whether adopting a phenomenal belief account of experience somehow aggravates the circularity problems besetting attempts at understanding color in terms of color experience. I hope to have given some plausibility to the claim that it does not. What remains is the worry that the phenomenal belief account of color experience forces us to revise the

<sup>18</sup> Personal communication. Note that even if we make some use of what Lewis called “parochial knowledge” (Lewis 1997, 336) here, the appeal to paradigm objects and wavelengths does not reduce the explanation to directly characterizing colors in those terms. For a direct definition would not require the existence of a phenomenal types correlated with such paradigm objects. Rather, the paradigm objects figure in the conditions on being a speaker of language *L*.

Observe, too, that even if we think of our clauses as part of the (experiential or natural language) semantics of ‘red’ and ‘red’’, it will not necessarily be the case that *tomatoes are red* is part of the meaning of ‘red’. Applying ‘red<sub>L</sub>’ to tomatoes may be a condition on being a speaker of *L*, but that does not mean that it is part of the meaning of ‘speaker of *L*’.

<sup>19</sup> Gert (forthcoming) suggests yet another way of characterizing color sensations by means of the publicly accessible descriptions “in terms of locations in 3D color spaces such as HSB space” (10) that people can be trained to provide. These characterizations, he argues, “do not characterize the objective colors that objects appear to have” (ibid.) because they do not show the constancy phenomena objective colors are subject to. Even so, it does not become completely clear how this is supposed to allow us to avoid the problematic circularity: To see that, we would need to know how a notation giving locations in 3D color space is to be interpreted in the first place—and without reference to the objective colors.

“natural” concept of color beyond all recognition. That would be a heavy price to pay for any account of experience. I would like to end this paper by some reactions on this.

Earlier, I presented an explication of the “natural” or pre-theoretical concept of color provided by Maund. Here it is again:

(NC<sub>C</sub>) The natural concept of color:

(LL<sub>1</sub>) Redness is the property perceptual experience represents objects as having when they look red.

(O) Redness is an objective, perceiver-independent and manifest kind.

(IS) Together with the other colors, redness forms an internally related 4+2 structure. (Cf. Maund 1997/2008.)

As pointed out above, on a phenomenal belief account, we cannot accept the formulation of the looks link in (NC<sub>C</sub>). But as we saw, there is a neutral, more “natural” formulation of the looks link that the phenomenal belief account accommodates: (LL).

Moreover, if redness is not represented in color experience at all, one might think that it can hardly be a manifest kind, either. But that is not so clear. For one thing, it depends on what exactly a manifest kind is. If it is a kind that, as David Lewis puts it, has a “simple, ineffable, unique essence that is instantly revealed to each beholder” (Lewis 1997, 338) then neither redness nor looking red can be construed as manifest kinds according to the phenomenal belief account of experience. But if that is what it is to be a manifest kind, it is hard to see how colors could be manifest kinds—at least if their forming a 4+2 structure is essential to them. For surely, an experience as of something red, just by itself, does not reveal to you the totality of the relations that shade of red stands in to all the other colors and shades (cf. Boghossian and Velleman 1991, 103). On the other hand, if there is an understanding of manifestness on which it intuitively is manifest that the colors form an internally related 4+2 structure, this just might be manifest even if what color experience represents is not the colors, but their looks.

In any case, what clearly forms an internally related 4+2 structure are the color looks or appearances themselves. Leaving the question whether colors can be construed as manifest kinds to the side for a moment, we can explicate the concept of color that the phenomenal belief account clearly allows us to capture as follows:

(PC<sub>C</sub>) The phenomenal concept of color:

(LL) Redness is the property objects look to have when they look red.

(O') Redness is an objective, perceiver-independent kind.

(IS') Together with the other color-appearances, looking red forms an internally related 4+2 structure.

To my mind at least, the phenomenal concept of color does not seem any less natural than (NC<sub>C</sub>). To the extent that (PC<sub>C</sub>) appears re-

sionary, I might just be prepared to argue that it captures everything philosophically respectable in the “natural” concept.

But what about the colors themselves forming an internally related 4+2 structure? Can we really be satisfied with this just being an artifact or a projection of the relation between the color appearances? Here, I only want to point out that the phenomenal belief account just by itself does not have this consequence. Whether or not the consequence ensues depends on how the relation between the colors and the color experiences is construed. If we construe this relation as merely semantic, for instance, it becomes at least so much harder to avoid thinking of the 4+2 structure as merely projected onto the colors.<sup>20</sup> But the relation might be semantic and essential to the colors at the same time. In any case, adopting the phenomenal belief account is perfectly compatible with construing the looks link as essential to color. If we do that, it seems reasonable to expect the 4+2 structure essential to their appearances to be essential to the colors themselves as well. Moreover, it might be the case that to the extent that the structure of the color appearances is manifest in experience, the structure of the colors themselves would be so manifest. These considerations have to remain highly speculative here. I shall leave further investigation of these matters for some other occasion. But if all this speculation is on the right track, it would seem to favor combining the phenomenal belief account of experience with a form of color dispositionalism, or at least of color relationalism.

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<sup>20</sup> This is the conclusion reached in Boghossian and Velleman 1991. Mohan Matthen (Matthen 2005, Matthen 2010) offers a suggestion for avoiding it. According to his “semantic theory”, color experiences denote colors, and the denotation relation is (metaphysically) contingent. According to Matthen, the denoted color properties are “wavelength productances” (Matthen 2010, 75). They can be understood as having the relevant 4+2 structure—but only in the somewhat attenuated sense of being located in a similarity space the parts of which are denoted by color experiences (ibid. 86f.). Note that a phenomenal belief theorist can subscribe to Matthen’s general semantic view of color experience. The main difference would be that the phenomenal belief theorist thinks of a red’ experience as representing the property of looking red, not that of being red. And, of course, the phenomenal account, by itself, carries no commitment to color physicalism.

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