Colors without Circles?[*]

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1. The question of color realism

Today, as probably ever since Locke, there are two main positions in the theory of color:
Realists hold that colors are properties of a certain kind, and even though they don't agree
which properties colors are, they agree *that color properties are instantiated*. Error theorists,
on the other hand, also take a stand on what kind of properties colors are, but they hold *that
color properties are uninstantiated*. As Paul Boghossian and David Velleman put it:

> The dispute between realists about color and anti-realists is actually a dispute about the
> nature of color properties. The disputants do not disagree over what material objects are
> like. Rather, they disagree over whether any of the uncontroversial facts about material
> objects – their powers to cause visual experiences, their dispositions to reflect incident
> light, their atomic makeup, and so on – amount to their having colors. The disagreement
> is thus about which properties colors are and, in particular, whether colors are any of the
> properties in a particular set that is acknowledged on both sides to exhaust the properties
> of material objects (1991, 67).

And Frank Jackson tells us:

> There is an important sense in which we know the live possibilities as far as colour is
> concerned. We know that objects have dispositions to look one or another colour, that
> they have dispositions to modify incident and transmitted light in ways that underlie their
> dispositions to look one or another colour, that they have physical properties that are
> responsible for both these dispositions, and that subjects have experiences as of things
> looking one or another colour. We also know that this list includes all the possibly
> relevant properties (1998, 87).

Now, even though Jackson's list includes the property of having experiences as of things
looking a certain color, he clearly does not mean to suggest this as a candidate for being a
color property.[1] Rather, Jackson agrees with virtually all participants in the current debate,[2]
that, if anything has color properties, it is *material objects,* more precisely, those middle sized
material objects that are the objects of our visual perceptions – 'things' like sense data no
longer figure among the 'live options' in the theory of color.[3] This is already a significant step

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[1] Taken literally, this would make the *subjects* of color experiences themselves into the objects that are
colored. Surely, this is not a 'live possibility'.

[2] A possible exception is his own former self; cf. Jackson 1977 where he defends a sense datum theory of
color. But maybe works from 1977 are sufficiently historic not to count as part of the current debate.

[3] But color experiences, of course, may play a role in determining which properties of material objects, if
any, the colors are. That's why they are included in Jackson's list. More on this very soon.

towards determining which properties colors are: They are properties of material objects like apples, fire-engines and glasses of wine. Or canaries, lemons and New York taxi cabs. So *why* is it that colors are properties of objects of just this kind? Boghossian and Velleman again:

> 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 (1991, 68, emph. mine).

I am not sure that *all* of this actually is a mere matter of course, but again, virtually all participants in the current debate seem to agree. Here is another voice:

> 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 unpubl., 3, emph. mine).

Let's waive all eventual scruples about the notion of experience and agree that "it is helpful to put the problem of color realism in terms of the *representational content* (…) of color experience" (ibid.). Let's agree, that is, that it is the representational content of color experience that determines which properties colors are. And these days, almost everyone agrees that color experience is "naïvely realistic, in the sense that the qualities presented in it are represented as qualities of the external world" (Boghossian and Velleman 1989, 94). This is taken to amount to the claim that the representational content of a visual experience as of something red has, at least on a first analysis, the form *that x is red*, where *x* ranges over material objects.[4] By itself, this is a view about the *form* of the content in question, not it's *kind*. Let's call it the view that color experience has a *naïve semantics*. You can then hold that experience has such a naïve semantics regardless of whether you conceive of its content as conceptual or non-conceptual in kind.

I suggest accepting the view that color experience has a naïve semantics for the purposes of this paper. However, I would like to note that it surely is controvertible. There are actually a number of steps involved here, some of which might easily go unnoticed: We started from the idea that it is the representational content of color experience that determines which properties colors are. The next step consists in claiming that color experience has a naive semantics, that is, in construing for instance the representational content of an experiences as of something red as *that x is red*. Boghossian and Velleman make that explicit when they say that "the kind of experience denoted by 'looks red' is *the kind that represents its object as*

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[4] This view is shared by philosophers as diverse as Byrne, Dretske, Harman, McDowell, Peacocke, the Strawsons, Tye, and, probably, many more.

red" (Boghossian and Velleman 1991, 69, fn. 4, emph. mine). A looking red, that is, is identified as an experience with a content of precisely the form *that x is red,* that is, as an experience ascribing a color property to an object. And then, the step to determining that object as a middle-sized material object is, indeed, pretty obvious and uncontroversial. And so is the starting point. What might not be, however, is the second step, the identification of color experiences as experiences with the content *that x is red*. For we can in fact agree that the representational content of color experience determines which properties the colors are *without* agreeing that it is the color properties themselves that figure in the content of color experience. Most people, however, seem to think that that is what color experiences do; they ascribe colors to material objects, and I shall not pursue my doubts about this here.[5]

The main dispute over color realism now concerns the question whether any of the properties material objects actually have are identical with those that color experience represents them as having. Realists give an affirmative answer to this question, anti-realists or error-theorists a negative one. What I would like to do in this paper is offer a very partial defense of color realism. This defense starts off from a particular problem arising for color realism from the premise that it is the representational content of color experiences that determines which properties colors are in combination with a naive semantics for these experiences. Regardless of what form color realism takes, it is in imminent danger of construing the content of color experience as *circular*. What I would like to explore in this paper is a line of thought promising to avoid this circularity.

2. Varieties of color realism

There are two basic forms of color realism on the market: physicalism and dispositionalism. According to dispositionalism, colors are dispositional properties of material objects, more precisely, dispositions to cause certain responses in suitable observers under suitable conditions. Red objects, for instance, are those that are disposed to *look red* under standard conditions. A first shot at a dispositionalist 'semantics' for visual experiences thus would contain the following clause:

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[5] In fact, most philosophers in the theory of perception these days agree that perceptual experience in general has a naïve semantics. Experiences, that is, are taken to ascribe the very same properties that basic perceptual beliefs ascribe, and they are taken to ascribe them to the very some objects. I think that this view is extremely problematic and most probably false, both in the general and in the color case. But this is not the place to argue for an alternative, less naïve semantics for experiences; I shall try to make that case elsewhere (see my unpubl.). Here, I shall work within a naïve semantics.

(R) x is red iff x is disposed to look red under standard conditions.[6]

Physicalism, on the other hand, identifies the colors with any one of a range of *physical* properties of material objects: 'Australian' physicalism, for instance, opts for *microphysical properties*[7], but certain kinds of *physical dispositions* might be even better candidates, reflectance profiles or some such, for instance.[8]

While both physicalism and dispositionalism clearly are variants of color realism, dispositionalism is often characterized as a kind of *subjectivism* about color. This seems misleading to me. Color dispositionalism does not conceive of color properties as subjective or mind-dependent in any other sense than their being *specified* or *described* in terms of their effects on minded creatures. Such properties surely would not disappear if the minded creatures did, and they could be around even if no minded creatures ever had. Having the disposition to cause certain responses in the minds of suitable creatures thus seems to me as objective a property of material objects as any other.

In general, I think, we should not be overimpressed with the differences between dispositionalism and physicalism. These are variants of color realism, and as such, they share a quite substantial common ground. This is true not least with regard to (R), as Jackson has done more than anyone to make us realize (cf. esp. Jackson and Pargetter 1987, 130f). No reasonable physicalism denies the *truth* of (R). On the contrary, (R) is something like a *truism* about color, a claim that any reasonable theory of color accepts. The dispute between dispositionalism and physicalism is not over the *truth* of (R), but over the ultimate 'semantics' of color properties: Are they the dispositional properties themselves or are they the physical properties underlying these dispositions? In other words, is red the disposition to look red or its categorical base?[9] The physicalist opts for the categorical base, but prima facie all that amounts to in his semantics is a modification of (R) along the following lines:

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[6] A more refined clause would contain a reference to standard observers, too. But in what follows, I shall (mostly) abstract from such refinements. I shall also simply ignore any problems that might be thought to arise about specifying, in an informative way, standard conditions or observers. As a matter of fact, I don't think any deep problems are hidden in these conditions.

[7] Locus classicus is Armstrong 1968, but see also Jackson 1998; Jackson and Pargetter 1987.

[8] For such proposals, see Byrne, unpubl., Tye 2002, among others.

[9] The physical property underlying a disposition to look red might, of course, be itself a disposition, a physical disposition. I mean to remain completely neutral on this question when calling this underlying property the disposition's categorical base. Neither do I mean to imply that the disposition cannot be multiply realized. More on that below.

(R$_{Phys}$)   *x* is red iff *x* has a physical property *P* that makes it disposed to look red under
standard conditions.

And while (R$_{Phys}$) is not part of the dispositionalist's semantics for color experience, it is as
reasonable for him to accept its *truth* as it is for the physicalist to accept the truth of (R).[10]
Physicalists and dispositionalists agree that material objects have both dispositions to look
colored and the physical properties underlying these dispositions; what they disagree about is
which of these are to be identified with the colors, that is, with the properties color
experiences represent objects as having.[11] And in this paper, I am not going to take a stand on
this issue; (R) and (R$_{Phys}$) simply are in the same boat when it comes to those circularity
problems I shall belabor in what follows. And as far as the solution I am going to suggest is
concerned, they sink or swim together, too. All I am going to say should thus be acceptable to
dispositionalists and physicalists alike. I shall come back to their dispute at the end of the
paper, but even then, all I'll do is offer some reflections on what the difference between these
varieties of realism might amount to.

3. Circle Number One

As we said above, any reasonable physicalist agrees that (R) is true, even a truism:

(R)   *x* is red iff *x* is disposed to look red under standard conditions.

But there is a well-known problem with taking (R) to specify the *content* of an experience *that
x is red*: In our biconditional (R), 'red' is *used* on both sides. As a contribution to conceptual
analysis, (R) would simply be circular. How much of a problem *that* is would then depend on
the correct attitude to take towards conceptual analyses involving circles of varying width. In
our context, however, the problem is not so much the circularity of the analysis as such. The
problem is rather, as Boghossian and Velleman have spelled out in detail, "that the proposed
circular definition would imply that the content of color experience is vacuous" (1991, 83, cf.
also 1989, 88ff). If we use (R), that is, to specify a content, this content ends up *containing
itself as a proper part*. Strictly speaking, this is not so much a circularity, but the start of a

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[10] Unless he thinks colors are bare dispositions. As far as I can see, that is not a position currently occupied,
however. Nor is it clear that there are any such things as bare dispositions.

[11] And even putting it like this probably exaggerates the difference between the two positions, or at least
makes it out as more clear cut than it really is. For as far as I can see, so far no agreement on the nature of
dispositional properties has emerged in the relevant literature. One live option there actually seems to consist in
identifying dispositional properties with their categorical bases. And if that is the way to go, the opposition
between dispositionalism and physicalism about color simply collapses. For a subtle discussion of the subtle
differences between physicalism and dispositionalism, see Johnston 1992, 228ff. See also section 9, below.

regress. The proposed content specification involves an infinite regress, and *not* a virtuous one. Therefore, no content is specified by means of (R).

This becomes even clearer on the following reflection: An object's disposition to look red is its disposition to cause experiences of a certain kind. And we have identified the experiences denoted by 'looks red' as those with precisely the content *that x is red.* Consequently, according to (R) having the content *that x is red* is to be analyzed as having a content of the form *that x is disposed to cause experiences with the content that x is red.* The regress is now obvious; instead of (R), we get

(R$_1$)   *x* is red iff *x* is disposed to cause experiences with the content *that x is red* under standard conditions.

Boghossian and Velleman again: "The content of seeing something as red would thus include and depend upon itself; it would characterize the thing, in effect, as having a property that would cause experiences containing this very characterization; and hence it would fail to attribute any property to the object. Circularity in the content of color experience would render that content vacuous" (1991, 83).

Clearly, a structurally completely analogous problem arises for a physicalist semantics employing (R$_{Phys}$) instead of (R) to specify the content of color experience. According to our physicalist, a first shot at specifying the content of color experience is

(R$_{Phys}$)   *x* is red iff *x* has a physical property *P* that makes it disposed to look red under standard conditions.

And an object's disposition to look red consists, as we saw, in its disposition to cause experiences with the content *that x is red*. So, we get

(R$_{1Phys}$)   *x* is red iff *x* has a physical property *P* that makes it disposed to cause experiences with the content *that x is red* under standard conditions.

The result, again, is that no property, and thus no content, has been specified. Whichever way we want to go, we thus need a solution to what I shall call 'circle problem no. 1', the problem of a content that would contain itself as a proper part.[12]

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[12] You might think that this problem does not even arise for a physicalism that construes the contents of color experiences as Russellian, that is, as containing the physical property itself. If that is supposed to be some kind of direct reference, however, you would still need something along the lines of (R$_{Phys}$) to do the reference-fixing for you. And that cannot be done by something vacuous, either. And if you are working with a 'tracking'- semantics you still need to specify those experiences that are, so to speak, the trackers, the type of experience, that is, that you give a semantics for. Again, this cannot be done by specifying them by means of their content, as this would be vacuous. And doing it by means of their representational vehicle (expression in the language of thought) requires determining which *that* is, that is does nothing but put the problem one step off.

It is important at this point to realize the full impact of circle problem no. 1. We are trying to work towards an account of color that takes off from two very basic ideas about color. One of them is that color experience has what I have called a *naive* semantics: Something *x* looks red to a subject iff that subject has an experience with the content *that x is red*. The other idea we have here formulated in terms of the dispositional truism. It is the basic idea of color *realism*: Something *is* red iff it *looks* red under the right circumstances. For want of a better name, let's call this combination 'naive realism about color'. Our problem is that it is this very combination of ideas that immediately gives rise to circle no. 1. It is thus by no means clear that naive realism is a viable position. What is clear, however, is that quite some work is needed here. What is also clear is that we will have to complicate things in unexpected and, to some, unwelcome ways.

One thing that should be obvious by now, for instance, is the need for an *independent specification* of the relevant experiences. To avoid circle no. 1, we need to specify the relevant experiences on the right hand side of our biconditionals without using 'red'. A relevant suggestion to be found in the literature is that we try to understand 'red' as occurring in 'looks red' as a different predicate from 'red' in 'is red'. Peacocke, for instance, introduces primed predicates like 'red'' to be used on the right hand sides (cf. Peacocke 1983; 1983a). These, he suggest, stand for properties of regions of the subject's visual field. But whatever such properties ultimately are construed as, what we need to realize is the general necessity of some such move: We cannot specify the relevant experiences by specifying their representational content; we *have* to do it *in a different way* to have any chance of avoiding circle problem no. 1. Moreover, anyone committed to naive realism about color is from the very beginning committed to the claim that some properties of color experiences themselves *are represented* in the representational content of color experiences: The naive realist's project is to use our biconditionals as the semantics for color experiences. That is, their right hand sides give the representational content of such experiences, and it is precisely there that we need to specify these very experiences by means of the properties in question.

Naive realism, an initially extremely plausible and intuitive combination of basic ideas about color, thus does not seem to go together with the claim that color experience is 'transparent', a claim the plausibility of which many have, in recent years, felt to be simply overwhelming. Before going into more detail here, however, let's briefly take stock of where we are.

If we adopt Peacocke's notation of primed predicates to denote those properties, whichever they are, to be used in characterizing color experiences on the right hand side of our

biconditionals, we of course need to provide a corresponding interpretation for 'looks' in 'looks red'. To this end, we can simply continue to work from (R_1) and (R_{1Phys}). We then get

(R_2) x is red iff x is disposed to cause red' experiences under standard conditions

and

(R_{2Phys}) x is red iff x has a physical property P that makes it disposed to cause red' experiences under standard conditions.

The next step would of course be to give an interpretation for the primed predicates. Whatever we suggest here, will meet with determined opposition from anyone[13] believing in the so-called transparency of experience, however. Let's therefore digress.

4. Transparency

Put in a nutshell, the objection from the so-called transparency of experience is that we are getting the *phenomenology* of color experience wrong. More precisely, any semantics for color experiences involving properties of the experiences themselves does. No such properties are represented in color experience. Why not? And where does this result come from?

Transparency is supposed to be the "result of phenomenological study" (Harman 1990, 39). In other words, it's *introspection* that delivers this result. Here is what Tye instructs us to do: "Focus your attention on the scene before your eyes and on how things look to you" (Tye 2002, 46). You are supposed to realize that experience is "transparent" in the sense that in introspection, it is as if experience saw right through itself and got in direct touch with material objects and their qualities. Introspection thus pulls the veil of appearances from our eyes. Tye again:

> If you are attending to how things look to you, (…) you are bringing to bear your faculty of introspection.
> But in so doing, you are not aware of any inner object or thing. The only objects of which you are aware
> are the external ones making up the scene before your eyes. Nor (…) are you directly aware of any
> qualities of your experience (Tye 2002, 47).

A first result of these considerations is supposed to be that experience in general has a naive semantics; it ascribes properties to external material objects. Now, we are, for the purposes of this paper, granting that color experience in fact has a naive semantics. We might nevertheless register some reservations about using the phenomenology of color experience to support this claim. Clearly, transparency is a good argument for naïve semantics *only* on the assumption

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[13] The locus classicus for the materialist version of transparency is probably Strawson 1979, but a sense-datum version goes back to G. E. Moore who is responsible for transparency's other name: diaphanousness. Cf. Moore 1903. Currently the view is held by, among others, Boghossian and Velleman, Dretske, Harman, Jackson, and Tye.

that introspection is a good method for determining content. And that, it seems to me, is far from clear.

The aspect of transparency supposed to worry us here, however, does not concern the naiveté of color experience. We agree that, as Boghossian and Velleman put it, "[v]isual experience is ordinarily naïvely realistic, in the sense that the qualities presented in it are represented as qualities of the external world" (1989, 94). It is one thing, however, to claim that an experience with the content *that x is red* attributes redness to its object, not to itself. And it is quite another thing to claim that attributing redness to that object does not involve representation of any properties of the experience itself. What we don't agree with is therefore the claim that color properties, as represented in experience, *cannot be further analyzed*. We disagree with the claim that we "perceive colors as simple primitive features of the world" (Harman 1996, 9). It is only if transparency is taken to show that color experience represents colors as *simple* that we in fact have any quarrel with it.

Does the phenomenology of experience do anything to support what I shall call the simplicity claim? Does introspection tell us which properties are simple and which aren't? I doubt it very much. According to the simplicity claim, introspection reveals the *structure* of the content *that x is red*. But this claim is ambiguous. What kind of structure is this? Is it semantic or is it syntactic structure? Is it, in other words, structure in the *content* or structure in the *representational vehicle* that we are supposed to introspect?

Since we are concerned with the phenomenology of how we *represent* things, it might seem plausible to say that it's the latter. Experiences, the claim then is, are tokenings of representations that have a structure analogous to the syntactic structure of simple subject-predicate sentences. In particular, the 'predicates' involved are simple, one-place predicates. However, agreeing with this would by no means preclude us from further analysing such predicates. We surely sometimes *represent* things as simple, even though we can, by reflection and learning, become aware of the complexity of *what is represented*. In the case of language, this seems clear: Agreeing that a predicate is syntactically simple and one-place does not commit us to anything regarding its semantics. Take the predicate '*x* is married'. '*x* is married' is a syntactically simple, one-place predicate, but its *semantics* involves a relation between two objects. Why shouldn't we hold that the same goes for the experiential content *that x is red*? The phenomenology of representation, I submit, does nothing to preclude us from that.

Moreover, it is quite reasonable to deny that we have any conscious access to the relevant vehicles of representation. As Gilbert Harman puts it: "You have no conscious access to the

qualities of your experiences by which it represents the redness of the tomato. You are aware of the redness of the represented tomato. You are not and cannot become consciously ware of the mental 'paint' by virtue of which your experience represents the red tomato" (1996, 8).

It might therefore be more plausible to take the simplicity claim as a claim about the semantics of experience, not its syntax. But is it any more plausible to claim that mere introspection suffices to reveal the final analysis of the contents of our mental states? That focusing on the scene around you reveals the very nature of the properties you see? And even if you think that *in the case of the colors* this possibility is not to be dismissed as easily as these surely rhetorical questions suggest,[14] we should ask: How could introspection possibly do that? The idea must be that the phenomenology of experience would *have to be different* from what it actually is if any analysis involving properties of the experience itself were true. But why should that be so?

The first thing to notice here is that *analysis does not change content*. It preserves it. Thus, the change to the phenomenology of experience an (correct) analysis is supposed to make *cannot* be a change in representational content. Nor can it be supervenient upon such a change. If you are a fan of representationalism, that is, of the view that the phenomenal character of an experience is determined by its representational content,[15] this means that there simply is no phenomenological argument against analysis for you.

If you, on the other hand, think that the phenomenal character of an experience is *not* determined by its representational content, you would still have to come up with an argument

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[14] This doctrine has come to be known in latter days as the 'doctrine of revelation'. This, too, probably goes back to Strawson, who in Strawson 1979 quipped the often quoted "Colours are visibilia or they are nothing" (109). Galen Strawson interprets this dictum as follows: "[A]ny adequate account of the meaning of the colour words must capture the fundamental point that, whatever else they are, colour words are words for properties whose essential nature as properties can be and is fully revealed in sensory (and indeed visual) experience, given only the qualitative character that sensory (visual) experience has" (1989, 213). Mark Johnston makes much of revelation, too. He puts the doctrine thus: "The intrinsic nature of canary yellow is fully revealed by a standard visual experience as of a canary yellow thing" (1992, 223). And even though he concludes that we ultimately cannot hold on to revelation in our account of color, he at one point argued that revelation is the consideration that tips the balance towards a dispositionalist account: It offers the best ersatz for full revelation we can get (cf. 1992, 254ff).

[15] See, for instance, Tye 2002, 45: "Represenationalism is a thesis about the phenomenal character of experiences, about their immediate subjective 'feel'. At a minimum, the thesis is one of supervenience: necessarily, experiences that are alike in their representational contents are alike in their phenomenal character. (...) Strong or pure representationalism goes further. It aims to tell us what phenomenal character *is*. (...) [P]henomenal character is one and the same as representational content that meets certain further conditions".

to the effect that, given the phenomenology color experience actually has, its content cannot be analysed along the lines suggested. You would have to come up with a phenomenological argument to the effect that the suggested analyses are *false*, that is. There seem to be two kinds of argument to this effect on the market. Both are targeted at dispositionalism, but adaptable to physicalism.

The first of these arguments has it that *colours simply do not look like dispositions*. Here is a version from Boghossian and Velleman:

> When one enters a dark room and switches on a light, the colours of surrounding objects look as if they have been revealed, not as if they have been activated. (...) If colours looked like dispositions, however, then they would seem to *come on* when illuminated, just as a lamp comes on when its switch is flipped (1989, 86).

The other argument, for example to be found in McGinn 1997, claims that *we do not (directly) see dispositions*. What we see, are their *manifestations*, but never the dispositions themselves. They are *inferred, not seen*. Therefore, colors cannot be dispositions. The hidden premise here is, of course, that we do (directly) see colors. And precisely that seems to be assumed in the first argument too – for colors to look or not look like something, they have to be seen. Taken literally, this is obviously false. Colors are properties, that is, abstract objects, and thus simply not amongst the (direct) objects of perception. There is a deeper point behind this, however, and that is the point that, just as dispositions are inferred, not seen, so are colors. For what we directly see are not colors, but their *instances*. In both cases alike, there is *a further operation* the mind has to perform on what is directly seen in order to arrive at the property ascription. Clearly, that is not an operation we are (normally) conscious of. We aren't conscious of any inference when we, for instance, come to the perception based judgments *that something is red*, *that it is hard* (a disposition), or *that it is brittle* (another disposition). And if we aren't, phenomenology does nothing to determine whether this further operation is merely that of instance subsumption, that is of subsuming an instance under a type, or that of manifestation subsumption.[16] And the same would hold if the argument were targeted at physicalism, that is, if it were argued that physical properties (of the relevant kind) are not seen, but inferred.

What about the first argument, however? Doesn't it provide a rejoinder here? For even if we aren't aware of the subsumption operation itself, couldn't it, so to speak, color the phenomenology of the relevant experiences in a distinctive way? But in what way? Is there any distinctive phenomenal character experiences of disposition manifestations have in

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[16] Here, I am indebted to Peter Pagin.

common? As far as my introspective abilities reach, there does not seem to be any reason to think so. The color of an object no more 'comes on' when it is illuminated than its hardness 'comes on' when it is touched. Its hardness, however, clearly is a disposition.[17] This last example already contains part of the answer to an analogous argument targeted at physicalism, for hardness is a physical disposition. But equally clearly there does not seem to be any special phenomenology for the experience of the instances of microphysical properties.

To sum this digression up: The so-called transparency of experience is relevant to the semantics of color experience we are considering only as a claim about the phenomenal simplicity of the color properties. This simplicity claim displays a certain ambiguity; it makes a claim about the structure of the contents of color experience, but this can be read either as a claim about the syntactic structure of the representations involved or as a claim about the semantic structure of their content. Either way, however, the simplicity claim turns out to be unpersuasive: The phenomenology of color experience simply does not provide any clues as to whether experience represents colors as simple or as complex properties. Let's therefore return to the main line of thought pursued in this paper.

5. Colors are second level properties

At the end of section 3, I said that the next thing to do would be to offer an interpretation for the primed predicates. And, the objection from transparency removed, so it is. I would like, however, to approach the primed predicated somewhat indirectly. I would like, that is, to first reflect a little more on the formal structure of our proposed semantic clauses and ask what kind of a property color is, according to them. Let's look at the physicalist version first:

(R$_{2\text{Phys}}$) x is red iff x has a physical property P that makes it disposed to cause red' experiences under standard conditions.

We can bring out the formal structure of this proposal as follows:

(R$_{2\text{Phys}}$') x is red iff $\exists P \, (FP \ \& \ Px)$.

Here, F is a second order property, that is, a property of a property. The relevant first order properties in this case are physical properties. A physical property P has the second order property F iff it makes any object having P disposed to cause red' experiences under standard conditions. We could also put this by saying that a physical property P has the second order property F iff it realizes the disposition to look red. And an object is red iff it belongs to a physical type P that realizes the disposition to look red. Thus understood, redness itself is a *first order property*. But since the specification of this property involves quantification over

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[17] The example is Tye's, see Tye 2002, 161f.

first order properties, we can employ the terminology of Russell's ramified theory of types and say that the property thus defined is a first order *second level* property.[18]

Why would a physicalist want to understand redness as a second level property? The reason is the apparent *multirealizability* of dispositions to look a particular color. The physical property that makes Zinka, Mark Johnston's famous canary, yellow, for instance, is not, or might not be, the same physical property that makes a color photograph of Zinka the very same color as Zinka itself. Zinka's yellowness is a different property, physically described, from the yellowness of Zinka's photograph (cf. Johnston 1992, 235). But both realize the disposition to look yellow.[19]

And since an object has a disposition precisely when it has some underlying physical property or other that makes it disposed to cause the effect in question, it should be clear that conceiving of colors as dispositions has the very same formal structure; dispositions themselves are first order second level properties, and so is, for instance, redness if redness is a disposition. It thus seems to me that any reasonable color realism construes colors as first order, second level properties.

6. Interpreting primed predicates

Let's now turn to the interpretation of the primed predicates. On the face of it, this might seem, for sheer want of candidates, an easy task. The properties we are looking for are *identifying* properties of particular color experiences. Moreover, they are represented in these

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[18] This is adapted from Pagin 2000.

[19] The alternative is to try to somehow understand a color as *the* physical property realizing the disposition to look that color. If we take it that a physicalist is committed to reading this as the physical property *actually* realizing the disposition (see below, section 9), this property is (identical with) a *first order first level property*. But why commit to there being just one physical property realizing the disposition to look a particular color? This is either to write a possibly bad cheque on future scientific development. Cf. Jackson 1998, 105ff. Or it requires some purely ad hoc tampering with the semantics like the one proposed by Dretske. In Dretske 1995, he suggests that "[t]he fact that so many different conditions cause us to experience red does not show that what we experience when we experience red is not an objective property. It only shows that which property it is may no longer be obvious from the variety of conditions that cause us to experience it" (93). In order to know which property redness is, we would, according to Dretske, have to know *the conditions in which color vision was selected* to detect this property (cf. 90ff). This is ad hoc because it amounts to simply stipulating that in cases of apparent multirealizability the conditions under which a representational system was selected must have been such that only one of the realizations is detected. Moreover, it would have the (unintended) consequence of making most, if not all, of present day color experiences non-veridical.

very experiences and thus, presumably, *introspectible*.[20] And prima facie, there seem to be only two candidates in the vicinity: the *phenomenal character* and the *representational content* of color experience. But representational content was already disqualified by circle no. 1. Therefore, there does not seem to be any other plausible candidate for an experience's red'ness than its having a specific phenomenal character, a certain *quale*, if you will. That would lead us to

(R$_3$) x is red iff x is disposed to cause experiences of the phenomenal type red' under standard conditions

and

(R$_{3Phys}$) x is red iff x has a physical property P that makes it disposed to cause experiences of the phenomenal type red' under standard conditions.

But now we have, in effect, made red' refer to something like a type of *sensation*. That is, we have opened a whole new can of worms. In the remainder of this paper, I would like to worry about two of them. The first of them concerns, not very surprisingly, the possibility of *inverted spectra*. The undesirable consequences this possibility engenders for analyses along the lines of (R$_3$) and (R$_{3Phys}$) alike, can, I shall argue, be avoided by construing red', instead of a phenomenal kind, as a *functionalist* kind of sensation. But that only seems to give rise to yet another circularity problem: circularity problem no. 2. We shall see about that. But first: inverted spectra.

The first problem the possibility, and I take it it's at least a clear epistemic possibility, of inverted spectra engenders for (R$_3$) and (R$_{3Phys}$) is usually put in terms of color concepts and terms. Harman, for instance, says:

> The suggested analysis of objective color in terms of sensations implies that, if there are relevant differences in people's color sensations, then different people have differen[t] concepts of the colors of objects and do not mean the same thing by their color terms. They do not mean the same thing by 'red', 'green', etc. even though they use the terms in exactly the same way of exactly the same objects, at least as far as their outer usage is concerned (Harman 1996, 5).

And if we assume that color terms refer to the color properties represented in color experience, and that color concepts are concepts of them, as seems natural, then these strange

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[20] If you still are a fan of transparency, you might think that transparency at least provides an argument against the (direct) introspectibility of the properties an experience represents itself as having. You might then try a line like Shoemaker's who reckons with non-introspectible qualia. Cf. Shoemaker 1990; 1994. I tend to think, however, that in introspection we *are* directly aware of certain properties of our mental states, including experiences; their representational content, for instance. And I tend to think that having a primed color, being red', for instance, is among these properties, too. Being red', however, cannot be construed as having a specific phenomenal character, as we shall see in a moment. See also note 26, below.

consequences do ensue. Consequently, Galen Strawson, for instance, takes it that Wittgenstein's point about the beetle in the box is applicable here, too, and should be understood as showing that color sensations cannot play any role in the semantics of color terms (cf. Strawson 1989, 196ff). This is actually mistaken, as we shall see in a moment, but first we should notice that, in the context of our project, this problem is not just something that affects language and communication, but the very content of experience. According to a naive semantics, 'looks red' denotes experiences with the content *that x is red*. Clearly, 'red' here is normal English; thus, if we want to avoid the strange consequences spelled out above, we have to give up (R_3) and (R_{3Phys}) as possible parts of a semantics for color experiences.

Another problem ensues if we remember that the standard conditions in our clauses contain a normalcy condition applying to the perceivers themselves. Normal or standard perceivers are supposed to have experiences with the content *that x is red* under standard conditions. Since there does not seem to be anything wrong with a perceiver with an inverted spectrum, the consequence would be that there are *no red objects*. If there are inverted spectra, no objects are such that they are disposed to cause red' experiences in standard perceivers under standard conditions (cf. Block 1990, 56; Harman 1996, 5).

As far as I am concerned, this is enough to convince me of the falsehood of (R_3) and (R_{3Phys}).[21] It is not enough, however, to convince me that color sensations do not play any role in the semantics of color experience. What we need is an understanding of sensation terms that avoids the unacceptable consequences.

7. Primed colors are second level properties, too

Luckily, we are already somewhat familiar with the basic mechanics of an understanding of sensation terms that has none of the unhappy features sketched above. This proposal is due to Peter Pagin. He works it out for the concept of pain in his 2000 paper "Sensation terms". The point is to reconcile the idea that sensation terms have a denotational semantics, that is, refer to objects, with the idea that there are public criteria for their application. And this, again,

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[21] As I said, I take it that inverted spectra, at this point in time, are epistemically possible even for us. We don't know enough about out visual system to exclude this possibility. Nor does the theory of evolution provide any reason against this possibility; as Galen Strawson puts it: "it is very hard to imagine what kind of selective pressure there could have been on us not only to evolve a high level of discriminatory sensitivity vis-à-vis environmental differences, but also to evolve in such a way that those basic experiences of qualitative difference in which our similar discriminatory capacities are grounded should themselves be qualitatively similar for different people in similar situations" (1989, 198).

proceeds via introducing a second level property, this time a second level property of sensations. This second level property ties them to publicly observable criteria. In the case of pain, Pagin suggests, there are lawlike connections between pain causing events and pain sensations as well as between pain sensations and pain behavior. A sensation of a certain phenomenal type has this second level property just in case there are such lawlike connections between sensations of this type and pain causes and pain behavior (in the subject in question). Both causes and behavior are, of course, assumed to be specifiable without recourse to the concept of pain. And then we say that a particular sensation is a pain iff it is of the phenomenal type that realizes pain for a given individual, that is, iff it is of a phenomenal type that stands in the required lawlike connections. A formal definition of the same structure as that for red above can thus be given:

(PAIN) y is a pain iff $\exists Y (GY \,\&\, Yy)$,

where Y is a phenomenal type and G a second order property lawlikely linking phenomenal types to pain causes and behavior.[22] Adopting this semantics makes pain intersubjectively ascribable and the success of communication by means of the term 'pain' independent of any questions concerning possible inversions among the phenomenal types realizing pain in different subjects.[23]

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[22] This is a kind of *functionalism*, but it is *not* a *physicalist* functionalist account of *sensation* (classical sources here are Armstrong 1968; Lewis 1966). Rather, the existence of sensations, and their having phenomenal qualities, is taken for granted here. As Pagin himself stresses, this means that, at the level of the single person, *no account* is offered at all (cf. Pagin 2000, 181). What *is* offered, is a sort of *interpersonal functionalism*: "a set of actual and possible physical states of an individual give rise to psychological states, because of the fact that these physical states relate the individual to a patter of social psychology. The concept of PAIN allows a theory to generalize over persons, to state laws that hold for populations or for the species. We cannot state interpersonal laws in terms of phenomenal kinds, but we can do so in terms of functional kinds, like PAIN" (ibid.). This kind of interpersonal, but non-reductive functionalism thus seems tailor-made for our purposes.

[23] There is, of course, a question here regarding the relation of the concept of PAIN to that expressed by the normal English expression 'pain'. Galen Strawson tells us that nearly all English speakers "naturally take [the word 'red'] to carry reference to some single, determinate phenomenal quality that all ordinarily colour-sighted people have experience of when they look at things like pillar boxes" (1989, 207; see also Pagin 2000, 197). Then, we might have to say that nearly all English speakers are wrong about the meaning of 'red', a consequence we should not shy away from since "[r]elations between experience, language, and the world are more complicated that we ordinarily suppose" (ibid.). I agree with the latter, but am less sure about the natural tendencies of ordinary speakers. After all, the possibility of inverted spectra is recognized extremely early on, for example by the seven year old daughter of my best friend.

Let's try to apply this suggestion to color sensations. What is it that makes them intersubjectively accessible? Proceeding by analogy, that would be color sensation-causing events on the one side, and color behavior on the other. What are the events causing red' sensations? Visual contact with colored objects, presumably. More precisely, with red objects under standard conditions. And color behavior? Classifying objects as red, at least under standard conditions (and in the absence of any beliefs to the effect that experiences are not to be trusted), I would say.[24] We could spell this out in terms of the following clause for red':

(RED') *y* is red' iff *y* is a sensation of a phenomenal type *Y* such that (a), (under standard conditions and in the absence of beliefs to the effect that experiences are not to be trusted) having a sensation of type *Y* disposes the subject to classify its cause as red and (b) red objects are disposed to cause sensations of type *Y* (under standard conditions and in a given subject).

But now it looks like what we have done in this paper is hopped out of the frying pan (circle no. 1) into the fire (sensations terms) and right on into philosopher's hell: (very narrow) theoretical circularity. For now, we really seem to have analyzed color in terms of color sensation and vice versa. Harman, for instance, claims:

> [W]hen a functional account of color sensations is combined with an explanation of objective color in terms of color sensations, the resulting account of objective color is circular. It reduces to the claim that red objects are those that produce the sort of sensation that red objects produce. This is not only to explain the notion of objective color in terms of itself but to do so in a way that is almost completely empty (1996, 7).

This would be circle no. 2. Appearances can be deceptive, however, so let's have a closer look here, too. What Harman suppresses in his diagnosis is that our clause for red' in fact has *two* subclauses, not just one.

8. Circle number two

(RED') has two subclauses, (a) and (b), both of which prima facie are troublesome since both use 'red'. Let's look at them in turn. (a) links a phenomenal kind *Y* to a certain kind of behavior (in a given subject). And here, it actually does *not* seem implausible to suggest that behavior that counts as classifying objects as red can be described without *using* 'red'. If we

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[24] What does it take to classify an object as red? Forming the *belief that it is red* would surely do. But what about creatures that don't have any beliefs? Can't they have color sensations? I am not going to commit on that one. It might well be the case that any behavior specific and complex enough to count as classifying objects as red at the same time (and thereby) also counts as evincing (possibly non-conceptual) belief.

help ourselves to the notion of a speech community, we can actually do this by *switching from use to mention*.[25] Then we can say that

(RED'₂)   *y* is red' iff *y* is a sensation of a phenomenal type *Y* such that (a), (under standard conditions and in the absence of beliefs to the effect that experiences are not to be trusted) having a sensation of type *Y* disposes an English-speaking subject to hold '*x* is red' true iff *x* is the cause of *y* and (b) red objects are disposed to cause sensations of type *Y* (under standard conditions and in a given subject).

What about (b), however? There is not much to be done about (b), I am afraid. If we want to specify, for a given subject, the phenomenal type that its red' sensations are of, and we want to do that on the basis of its causes alone, we cannot do any better than saying that they are sensations of the type that is caused by red objects. Here, the case of color sensations is and remains different from that of pain. In the pain case, all we were after was the sensational property. There did not seem to be a problem about describing pain-causing events without the use of 'pain'; nor were we especially interested in that class of events. Therefore, we could comfortably wedge pains between two independent bases for their detection. In the case of color, however, what we really are after *are* the *causes of the sensations*. We do think that it is an essential part of our color concepts that we classify objects as colored on the basis of experiences, but we cannot non-circularly determine the relevant types of experience by reference to their causes alone. But that does *not* yet decide the question whether this makes our whole account circular or not.

To avoid circularity, we have to make do with a single intersubjectively available criterion: that of color classifying behavior. We have to, that is, determine both the extension of 'red' and that of 'red'' on this basis. Then we get:

(RED'₃)   *y* is red' iff *y* is a sensation of a phenomenal type *Y* such that (a), (under standard conditions and in the absence of beliefs to the effect that experiences are not to be trusted) having a sensation of type *Y* disposes an English-speaking subject to hold '*x* is red' true iff *x* is the cause of *y* and (b) objects classified as 'red' by English-speaking subjects are disposed to cause sensations of type *Y* (under standard conditions and in a given subject).

In (RED'₃) 'red' is not *used* any more. You might object, of course, that there still remains some circularity. It hides in the notion of belonging to a given speech community. For how do we determine whether a subject is a speaker of English? Presumably by the way he uses

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[25] Galen Strawson employs a somewhat similar maneuver in his 1989, 220ff: He suggests to analyze '*o* looks red', where *o* is an object, in terms of '*x* is such that o looks red to *x*', where *x* is a subject. This in turn is to be analyzed in terms of '*x* is such that *x* is disposed to call o 'red'', which, in contrast to our suggestion above, makes looking red depend on being an English speaker. That might or might not be a problem in the context of Strawson's own project, which concerns the meaning of 'red' in English, but would be rather fatal in ours.

expressions like 'red', that is, by seeing whether he applies them (under standard conditions etc.) to the right, that is, the red objects. That is fair enough. However, determining whether a given speaker belongs to a given speech community is a multi-criterial affair. We can, in fact, determine that sufficiently by checking his use of expressions other than the color expressions. If there is remaining circularity, we have at least diffused it over whole languages.[26]

9. Some further reflections

To obtain our final result for redness, we can now plug (RED'$_3$) into (R$_2$) and (R$_{2Phys}$). Since it has been a while, here they are again:

(R$_2$) x is red iff x is disposed to cause red' experiences under standard conditions

and

(R$_{2Phys}$) x is red iff x has a physical property P that makes it disposed to cause red' experiences under standard conditions.

Reminding ourselves that both the dispositionalist and the physicalist agree on the *truth* of (R$_{2Phys}$), we can then conduct an empirical investigation and determine *which* physical properties redness can, in this world, consist in. [27] Given the causal-dispositional nature of the

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[26] On this proposal, 'being red'' and 'having the content *that x is red'* are necessarily coextensional. As far as I can tell, this might well mean that they refer to the same property. That would *not* make our clauses circular, however, since the property figures under different descriptions. It does not amount to representationalism, either, since red' is *not* a phenomenal type. What is true on this account is that, within every particular individual's introspective sphere, there is a phenomenal character such that every and only experiences with the same representational content have it. These, however, are *not* the same properties.

[27] It might be of some interest to note that, because of the suggested construal of 'red'', the proposal put forward in this paper does *not* countenance the kind of observer-relativism even some physicalists take our color concepts to display. Thus, for instance David Hilbert speaks of 'anthropocentric realism' (Hilbert 1987), a term Jackson borrows for his own version of microphysicalism. Jackson explains: "The colors *per se* are observer-independent properties, but *which* observer-independent properties they are is not observer-independent" (1998, 100). The idea here is, that *which* physical property redness is *varies* with different kinds of observers. Red-for-humans might be different from red-for-cats or red-for-Martians. Given (RED'$_3$), neither (R$_2$) nor (R$_{2Phys}$) can be relativized in this way.

The apparent need for such relativization might stem from the thought that the things that look red to a member of a different species might be completely different from those that look red to us. But if we think that the property such an 'alien' is reacting to is nevertheless *a* property of the kind *redness*, then we need to specify what makes these properties into a kind. All we can fall back to here is the fact that their instances look red to someone. This answer is just not open on the suggested account of red'ness, because no speaker of English is

relations employed, multi-realizability will not amount to anomalism; it will, therefore, be possible to specify these properties in one or the other physical way. This amounts to *determining the extension* of 'red' on either of its interpretations, (R_2) or (R_{2Phys}). In the actual world, that is. Whether we want to hold this extension steady across all possible worlds or allow it to vary depends on our modal intuitions regarding colors, but these are, here I agree with Jackson, not very stable (cf. Jackson 1998, 98). Like him, I would therefore like to remain a fence sitter on this issue.

Does anything hang on that? Well, as long as we do not give the *modal profile* of a concept, we haven't exhaustively specified its content. What we have done is, I hope, shown that we can give an account that allows for determining the extension of color concepts in the actual world. These concepts have been spelled out here in order to allow us to specify the contents of color experiences. In a full account of these contents, we would want to know about the intensions of these concepts as well.

What does *not* hang on the modal profile of our color concepts, however, is the question whether our clauses are *a priori* or not. If you want (or think you have) to think of them as *a priori*, it seems to me you can.[28] If you consider them to be merely extension determining, it should not matter that they do contain contingent matter; that's simply like referring to the standard meter when fixing the reference of the term 'meter' (cf. Kripke 1972, 54ff). If you, on the other hand, have decided to use them for determining the extension of 'red' in other possible worlds, by means of one or the other modal profile, this should not really be problematic, either. You can avoid any funny consequences the contingent matter might engender by simply rigidifying on it.[29] The longer I think about that, the more plausible it seems to me that a lot of our concepts actually work like that.

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disposed to hold 'x is red' true of the objects that allegedly look red to the alien. Not even the alien would were he to learn English.

However, this answer is not open to a lot of other positions, either. For instance, a semantics for color experience that is both naive and of the 'tracking' kind. To simplify a lot: On such a semantics, a type of experience represents that objective property it tracks. And content notoriously is taken to *vary* with tracked property. If our looking-red experiences track one kind of property, it follows that the alien's experiences are not looking-red experiences at all since they track a different property and, thus, do *not* have the content *that x is red*.

[28] If you can provide us with a workable understanding of that notion, that is, which I, for one, despite its current renaissance continue to have grave doubts about.

[29] This used to worry Jackson (cf. Jackson 1977, 34f), and was stressed to me by Andreas Kemmerling. And if you are worried about possible fluctuation in the extension of color concepts over time, you can temporally rigidify as well. This further worry was brought home to me by Jan Österberg.

What I *do* think hangs on the modal profile we choose for our color concepts is the question of dispositionalism versus physicalism. Remaining a fence sitter on the modal profile *is*, it seems to me, exactly what it takes to remain a fence sitter on this question. As long as the dispositionalist does not conceive of colors as bare dispositions, we said, he agrees on the *truth* of (R_{2Phys}), moreover, he can *analyze* having a disposition as having a first order second level property of exactly the kind redness is analyzed as being by (R_{2Phys}) (cf. above, section 5). At the end of the day, the issue of dispositionalism versus physicalism therefore does *not* amount to a decision between (R_2) and (R_{2Phys}). But what does, then? One suggestion is the following, also found in Jackson: "What makes a property a disposition is that it itself is *essentially* linked to the production of certain results in certain circumstances, not whether some open sentence containing it is a priori" (1998, 101). As far as I can make out, this means that a property like redness is a disposition iff it is a matter of metaphysical necessity that it produces a certain result in certain circumstances, that is, that it looks red under standard conditions. Considering redness as a disposition thus commits you to a certain modal profile: red things necessarily look red under standard conditions, and (unless there are no standard conditions in other metaphysically possible worlds and unless there are no metaphysically possible worlds in which any other physical properties realize the disposition to look red) that means that which physical properties are in the extension of 'red' *varies* over possible worlds. By contraposition, we can then say that physicalism holds the physical properties in the extension of 'red' steady across worlds; objects with those physical properties are red, regardless of whether they look red in those other, non-actual possible worlds or not.[30] As indicated above, however, this paper does not contain anything that would decide between these two options.[*]

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[30] Given all this, and given that Jackson argues that dispositionalism is false (cf. Jackson 1998, 90ff, see also Jackson and Pargetter 1987, 130), I don't quite understand how he manages to conceive of himself as a fence sitter on the question of the modal profile of our color concepts.

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