

## Perspectival Truth and Color Primitivism

Berit Brogaard  
August 3, 2009

### *Contents*

0. Introduction
  1. Monadic Truth vs. Perspectival Truth
  2. Truth, Veridicality, and Deflationary Perceptual Content
  3. Color Objectivism and the Color Variability Argument
  4. Color Perspectivalism
  5. Perspectivalism and Color Discourse
  6. Relationalism and Color Discourse
- Appendix: R-Primitivism, Permuted Earth and Strong Necessities

### 0. Introduction

Perspectivalism is a semantic theory according to which the contents of utterances and mental states (perhaps of a particular kind) have truth-values only relative to perspectives (or standards) determined by the context of the speaker, assessor, or bearer of the mental state. I have defended this view for epistemic terms, moral terms and predicates of personal taste elsewhere (Brogaard 2008a, 2008b, forthcoming a).

The main aim of this paper is to defend perspectivalism about color perception and color discourse. The paper's main argument runs as follows. Evidence indicates variation in the color experiences of normal-range perceivers exposed to the same color stimulus in the same viewing conditions. But the only theories that can accommodate this sort of variation are theories that take the colors to be properties which have extensions only relative to perceivers and viewing conditions or just are relations to perceivers and viewing conditions. To adjudicate among the views that can accommodate the color-variability data, I argue, we must consider how well they fare on the plausible assumption that the content of color discourse contains or picks out colors. The view that fares best in this regard, I argue, is a version of color primitivism, viz. the view that the colors are purely qualitative properties directly revealed in color perception and possessed by objects relative to perceivers and viewing conditions. Given the hypotheses that the colors are properties possessed by objects only relative to perceivers and viewing conditions and that the content of color discourse contains or picks out color properties, perspectivalism about color perception and color discourse inevitably ensues.

Before turning to the paper's main argument, I will address a number of semantic questions concerning perspectivalism, what perspectivalism is, whether it applies to every discourse (beyond those for color, moral, and epistemic terms), whether it entails pluralism about truth, what the contrast is between perspectivalism and relativism about truth-apt discourse, and so on. I will also briefly address the questions of what it means to say that perception has content and whether one can give a deflationary account of perceptual content.

In the appendix I will address some specific problems that arise for color primitivism, viz. that it runs into permuted earth problems and requires us to posit what David Chalmers calls 'strong necessities'. I will argue that primitivism avoids both problems.

## 1. Monadic Truth vs. Perspectival Truth

We often speak of specific discourses as perspectival/relativistic, for instance, discourse about taste or conditionals. So, the question naturally arises whether these sorts of views apply only to the specific discourses they are said to apply to or whether they apply more generally. The answer is not straightforward. There is a sense in which perspectivalism applies to every discourse. However, when a sentence does not contain a property that has an extension only relative to a centered world, the perspectival nature of truth is redundant.<sup>1</sup> For example, 'Brit (if she exists) is human' is true relative to a centered world in which Brit is marked but it is also true relative to a centered world in which John is marked. So which individual happens to occupy the center does not affect the truth-value of the sentence, and which world we are at does not affect it either.

Perspectivalism thus entails a version of pluralism about truth. Some propositional contents are genuinely perspectival, some not. And some contents are more perspectival than others. For example, attributions of truth to contents containing non-perspectival properties such as *being human (if one exists)* attribute one way of being true: a non-perspectival-monadic truth-property. Attributions of truth to contents containing world-relative properties such as *being a bachelor at time t* attribute another way of being true: a dyadic-truth-property (truth-at-a-world). And attributions of truth to contents about color or moral decency attribute yet another way of being true: a perspectival-polyadic truth-property (e.g., truth relative to worlds, times, and perceivers).

Elsewhere I have argued that pluralism about truth of propositional content does not entail pluralism about truth of truth-apt discourse (Brogaard 2008b). This is only partially right. When truth of content depends only on parameters of a context *c* one can define a monadic truth-property as follows: *S-in-c* is true-simpliciter iff *S* expresses *p* relative to *c*, and *p* is true relative to *i*<sub>1</sub>, *i*<sub>2</sub>, ..., *i*<sub>*n*</sub>, where *S* is a sentence, *p* a proposition, and *i*<sub>1</sub>, *i*<sub>2</sub>, ..., *i*<sub>*n*</sub> contextual parameters of *c*. So, even if the proposition that theme parks are fun is true only relative to speaker/assessor standards, the sentence 'theme parks are fun', taken-relative-to-context, is true-simpliciter.

However, in most cases of perspectival discourse, non-standard contextual parameters are required for propositional truth-assignment. For example, as we will see, color discourse has truth-values only relative to perceptual systems and viewing conditions. Though perceptual systems and viewing conditions in some cases are parameters of the speaker's utterance circumstance, this is not true in general, and perceptual systems and viewing conditions certainly are not features of the speaker's context, as 'context' is traditionally construed (as a sequence of a world, a speaker, a time, and a location).

Moreover, regardless of whether one's semantics contains a monadic truth-property that applies to sentences-in-contexts or a polyadic truth-property that applies to sentences-in-isolation, there will be more than one kind of truth-property: one that applies to sentences-in-contexts and one that applies to sentences-in-isolation. So, if perspectivalism is true for a given discourse but not all, pluralism about truth-apt discourse seems inevitable: Attributions of truth to truth-apt sentences containing only non-perspectival predicates like 'is human (if they exist)' or 'is prime' attribute a non-perspectival-monadic truth-property, and attributions of truth to sentences or sentences-in-context concerning colors or personal taste attribute a different kind of monadic truth-property, or a polyadic truth-property, for example, truth for a perceiver.

As I construe the terms, semantic relativism is a species of semantic perspectivalism. Perspectivalism takes truth of a discourse fragment/type-of-content to be relative to whichever parameters are required in order to determine the extension of the discourse fragment/type-of-content. Relativism takes truth of a discourse fragment/type-of-content

---

<sup>1</sup> A centered world is here to be understood in the standard way as a world in which certain features are marked and required to determine the extension of the expressions in a given discourse.

to be relative to whoever is assessing the discourse fragment/type-of-content for truth. So, perspectivalism is more all-encompassing than relativism. Relativism is simply a version of perspectivalism.

It is sometimes claimed that relativism is substantially different from perspectivalism in that the former but not the latter takes the extensions of sentences-relative-to-a-context-of-utterance to depend on assessor-parameters. I myself have made this claim in the past. However, I am now convinced that this difference has little significance. If we define a context-simpliciter as a sequence of parameters some of which are features of the speaker-context and some of which are features of the assessor-context, we can either attribute a monadic truth-property to sentences-taken-relative-to-this-sequence or attribute a polyadic truth-property to the sentence-in-isolation. Either way sentences containing perspectival/relativistic expressions do not have monadic truth-values apart from parameter-sequences. So, perspectivalism/relativism and hence pluralism is guaranteed (at least assuming that not all discourses are perspectival/relativistic).

What does make a semantic difference is whether propositional content varies with contextual parameters. If it does, we have a version of indexical perspectivalism. If it does not, we have a version of non-indexical perspectivalism.

Here I will defend a mixed view: Pure indexicals ('I', 'now', 'here') and true demonstratives ('this' and 'that') have contents (and extensions) that vary with contextual parameters. Color terms have extensions but not contents that vary with context.

It is sometimes thought that whether truth-properties that apply to propositional-contents are monadic or polyadic partially depends on whether there are contextual parameters shiftable by modal operators (Kaplan 1989). If none are shiftable, then the only truth-property that applies to contents is monadic. However, all contextual parameters are shiftable by modal operators in some possible language. So, to determine whether truth applicable to content is monadic or polyadic we need to look at whether the language expressing the content contains shiftable operators. The world parameter is shiftable in English. 'Possibly there are blue swans' can be true even if 'there are blue swans' is actually false. The speaker parameter as such is not shiftable. 'John believes I am hungry' is never true in circumstances in which John believes he is hungry but I am full. However, 'John believes theme parks are fun' is sometimes true in circumstances in which John believes theme parks are fun by his standards. So, 'John believes' plausibly shifts a speaker/assessor-standard parameter. So, these kinds of contents are plausibly true only relative to speaker/assessor-standard parameters.

## 2. Truth, Veridicality, and Deflationary Perceptual Content

Part of the aim here is to defend the view that perceptual content is perspectival. For perceptual content to be perspectival, it must be truth-evaluable, and for it to be truth-evaluable, it must convey information about the world. But some may object to this. Representationalists typically treat perceptual experiences as non-cognitive propositional attitudes with substantive (non-deflationary) contents (Russellian, Fregean or possible-worlds contents). But the view is controversial. Direct realists hold that good perceptual experiences are relations to external objects. Sense-data theorists hold that perceptual experiences are relations to sense-data. Adverbialists hold that perceiving R is engaging in the activity of perceiving R-wise. Raw feel theorists equate perceptual experience with mere sensation. So, on these views, perceptual experience does not have substantive truth-evaluable content.

However, the assumption that perceptual experience has truth-evaluable content is less despicable if we take a deflationary approach. We might equate the contents of perceptual experiences with either their accuracy (or 'veridicality') conditions (see Siegel 2008, forthcoming) or the contents of 'that'-clauses of phenomenal reports.

As for the first proposal: On a natural way of construing it, experience *e* has the proposition *p* as a content iff necessarily, if *e* is accurate, then *p* is true (see Pautz 2008). As for the second proposal: On a natural way of construing it, experience *e* has the proposition *p* as a content iff necessarily, 'in having *e* it visually seems to me that *p*' is an accurate (first-person) phenomenal report.

There may seem to be no interesting difference between the two ways of deflating perceptual content. However, there are some. The first approach rules out views that deny that perceptual experience has non-derivative accuracy conditions. The first approach also entails that every necessary proposition is the content of every experience (Pautz 2008). The first approach furthermore rules out centered-worlds contents. One can possibly avoid this consequence by construing accuracy conditions as in (Pautz 2008): Experience *e* has the centered proposition *p* as a content iff *p* is true at every centered world at which *e* is accurate. But this conception assumes that there is a way to understand 'perceptual accuracy at a centered world'. Since one aim here is to defend just this claim, I cannot assume it up front.

The second approach is neutral on what the correct theory of perception is and whether content is centered, and it does not entail that every necessary proposition is the content of every experience. For these reasons I shall assume this approach.

One drawback of this approach is that it only gives us an account of content that reflects phenomenal appearance. I shall allow for the possibility that experiences have non-phenomenal content.

Another drawback of the second approach is that it plausibly faces problems when the debate concerns whether content is singular or contains high-level properties (e.g. kind-properties) (Pautz 2008). It may also face problems when it comes to debates over whether perceptual content is perspectival.<sup>2</sup> It may seem that, on the second conception, the debate over whether the content of color experience is perspectival amounts to a debate over whether the content of an English sentence in the scope of 'it visually seems that' is perspectival, which presumably just amounts to the general issue of whether we should give a perspectival semantics for color reports. This, it may be said, is less than ideal because many would want to separate perceptual content from linguistic content, and in particular would want to say that the issue of whether perceptual content is perspectival is a further issue distinct from that of whether linguistic content is.

Obviously more needs to be said about whether perceptual reports reflect perceptual content. However, I am not worried. I think it is quite plausible that first-person visual seemings reports reflect perceptual content. Furthermore, I think that the sort of content we get on the second approach reflects phenomenal appearance, and there is an interesting question about whether this sort of content (linguistic or not) is perspectival. Finally, I think that, for the purposes of this paper, there is no real reason to worry, as I believe the arguments I offer would go through had we assumed that perceptual content is substantive.

### 3. Color Objectivism and the Color Variability Argument

I will now offer an argument for the view that the colors are perspectival properties. Call it 'the color variability argument'. The most popular realist theories of color, objectivist reflectance physicalism and objectivist dispositionalism, familiarly run into the problem of color variability.<sup>3</sup> Reflectance physicalism takes the colors to be dispositions to reflect certain proportions of the incident light or more plausibly equivalence classes of these, for instance,

---

<sup>2</sup> Thanks to Adam Pautz for discussion.

<sup>3</sup> For a defense of physicalism, see e.g. Tye (2000), and Byrne and Hilbert (2003). Objectivist dispositionalism is the standard version of dispositionalism. This and other versions have been defended by e.g. McGinn (1983), McDowell (1985), and Johnston (1992).

disjunctive properties of reflectances that give rise to certain phenomenal effects in normal human perceivers in normal viewing conditions. Objectivist dispositionalism takes the colors to be dispositions to give rise to certain phenomenal effects in normal human perceivers in normal viewing conditions.

Objectivist reflectance physicalism and objectivist dispositionalism are objectivist, because they assume that, relative to the world as a whole and the human species, there is a fact of the matter as to what counts as a normal perceiver and a normal circumstance and hence, that relative to the world and the human species, there is a fact of the matter as to what an object's color is.

However, empirical evidence calls this assumption into question. Gokhan Malkoc, Paul Kay and Michael Webster (2005), for example, report vast individual differences in which stimuli are chosen as the best examples of a unique hue (e.g. red) or a binary hue (e.g. orange).<sup>4</sup> One stimulus chosen as one individual's best example of orange, for example, was chosen by other individuals as their best example of red. Call such cases 'shifted-spectrum cases'.

It may be complained that shifted-spectrum cases do not directly show variability in color perception across individuals. But for present purposes we just need to grant that it could. Color variability data are not adequately accounted for by objectivists.

There are several ways for objectivists to respond to the color variability data. One is to insist on evolutionary grounds that some normal-range individuals are deficient. Michael Tye entertains this line in the following excerpt:<sup>5</sup>

many of today's human perceivers are not Normal. Their colour detection systems are not operating as Mother Nature originally designed. Genetic mutations have resulted in a shift in such humans' colour experiences. So, where some stimulus looks red to me and orange to you, for example, one of us is subject to a normal error or misperception, that is, an error or misperception occurring under everyday viewing conditions in a human perceiver who passes the usual perceptual tests for normality (2006: 342-343)

The color vision of colorblinds, for example, is not operating the way Mother Nature designed it to operate. So, on the envisaged view, colorblinds' deviant color experiences are falsidical.

---

<sup>4</sup> For a more comprehensive discussion of the evidence for variation in color perception across individuals of different national origin, different biological sex, etc. see Brogaard (forthcoming b).

<sup>5</sup> Tye's own view is captured in the following excerpt from his (2006):

"The upshot is that there is nothing in the Malkoc results that requires the admission that there is error at the level of coarse-grained colour experience for *Normal* perceivers under design conditions. Error arises, (as noted in Tye 2006), at the level of very fine-grained hue experiences such as that of true blue. Where at least one of John and Jane *must* be wrong is at the level of their experiences of different, determinate, finegrained hues; for *S* cannot have both the determinate, fine-grained hue John experiences it as having and the determinate fine-grained hue Jane experiences.

The truth about true blue and other determinate hues at its level of grain is that Mother Nature did not bother to design us so as to detect *them*. There was no point in Her doing so. No selectional advantage would have accrued. Thus, even when everything is working as it should, still sometimes a surface can look true blue and not be. This did not worry Mother Nature; and it should not worry us either (p. 344)."

There is something to be said for this line of argument. However, I think that the considerations I set out below and in Brogaard (forthcoming b) should raise a worry even for Tye's view.

There are two problems with reply. First, the variability data concern individuals who pass standard normality tests. This suggests, not that some normal visual systems are not as Mother Nature designed them, but rather that Mother Nature did not design vision to operate in just one way. Second, the envisaged view cannot easily account for cognitive development. Suppose humans develop tetrachromatic color vision. Modern humans then can distinguish colors in, say, the red region of the visible spectrum. But Mother Nature designed humans to be trichromats. So, when human tetrachromats experience two ripe tomatoes whose colors are indistinguishable to trichromats as having different colors, their experiences are falsidical. This is odd. After all, tetrachromatic color vision is, by all important measures, better than trichromatic color vision.

A different sort of response is to insist hardheadedly that there is a fact of the matter about normality and hence about colors. Here is Byrne (responding to Cohen):

Suppose that normal human observers S1 and S2 are viewing a chip C ... C looks unique green to S1, and bluish green to S2. The problem, as Cohen has it, is to explain "what would (metaphysically) make it the case" that S1, say and not S2, is perceiving C correctly. He purports to find the explanation "extremely hard to imagine", and so concludes that *both* S1 and S2 are perceiving C correctly. ... what "makes it the case" that S1, not S2, is perceiving C correctly, is that S1 is representing C as being unique green, S2 is representing C as being bluish green (no problem so far), and C *is* unique green, not bluish green (likewise no problem). (2006: 337)

On Byrne's view, whenever two individuals disagree about an object's color or sameness of color, at least one is wrong, but we cannot know who (Byrne and Hilbert 2003: fn 50). But for any colored object, there are bound to be normal-range individuals who disagree about an object's color. But if there is potential disagreement about all questions of the form 'what is that object's color?', then answers to all such questions are unknowable. So, radical-color-epistemicism is true.

One may have doubts about epistemicism. However, even if standard-variety epistemicism is true, radical-color-epistemicism is likely false. Epistemicists about vague terms such as 'heap' and 'bald' insist that there are precise cut-offs (see e.g. Williamson 1994). For any number of hairs, there is a fact of the matter as to whether someone with that number of hairs is bald. But not all facts about baldness are knowable. While we know that a man with zero hairs is bald and that a man with a full head of hair is not, we do not know the precise cut-off between baldness and non-baldness. But if there are unknowable baldness facts, how then do we know the meaning of 'bald'? Simple enough: We come to know its meaning via exposure to definite cases. If all cases were borderline cases, its meaning would be unknowable.

However, radical epistemicism entails that all answers to questions of the form 'what is O's color?' are unknowable. This raises the question of how we know the meaning of color terms. For example, how do I know the meaning of 'red'? One plausible answer is that I know it through introspection of my own phenomenally red experiences. However, the redness of my own red experiences needn't be correlated with redness. Objects that normally give rise to phenomenally red experiences in me could be orange. If spectrum inversions are possible, they could be green. Byrne and Hilbert, it seems, must deny either that most of us know the meaning of color terms or that the meaning of color terms is correlated with color facts. Both options seem implausible.

In light of these problems it is tempting to reject realism and turn to non-realism. Non-realism entails an error-theory: Objects are not colored.<sup>6</sup> So, the color variability data

---

<sup>6</sup> Chalmers (2006) argues that objects are imperfectly colored but not perfectly colored.

do not seem to present a problem for non-realism. There is, however, a lurking problem. Non-realism seems to collapse into imperfect realism, and the color-variability data pose no less of a problem for imperfect realism.

Here is the argument. Non-realists deny that vision detects external colors; colors partially constitute perceptual content (Chalmers 2004, 2006a), or are instantiated in a visual array (Velleman and Boghossian 1989). However, non-realists grant that color vision detects *some external properties or other*. It's just that these properties are not to be equated with the colors. In fact, non-realists probably should grant this. Otherwise, they cannot account for the difference between cases of falsidical and deviant experiences and falsidical yet non-deviant experiences. For example, non-realists need to account for the difference between forming false beliefs on the basis of an experience of a snowflake illuminated by red light and forming true beliefs on the basis of an experience of a snowflake in standard lighting conditions. The experience in the first scenario is faulty in a way that the experience in the second scenario is not. One way to account for the difference is to allow for falsidical yet imperfectly veridical experiences (Chalmers 2006a).

There are several ways to cash out the notion of imperfect veridicality. One could follow the objectivist's lead and take experience to be imperfectly veridical if it is of a kind that a normal perceiver would have in normal conditions. But now the non-realist is no better off than the objectivist. She is forced to single out a type of perceiver as normal. But, as we have seen, this probably cannot be done in a principled way. Non-realism by itself is not the answer to color variability.<sup>7</sup>

#### 4. Color Perspectivalism

How should we respond to the color variability data? I propose that we treat colors as perspectival properties, properties which objects possess relative to centered worlds. Call this view 'color perspectivalism'.

It is still open to perspectivalists to treat colors as reflectance types.<sup>8</sup> 'Blue' might denote that disjunction of surface reflectances which normally give rise to phenomenally blue experiences in the perceiver. There is then an objective fact of the matter as to whether O possesses reflectance type T. O possesses T iff O possesses one of the disjunct reflectances. But whether T = red depends on which centered world we look at. Relative to a centered world in which I am marked, T = red, and relative to a centered world in which you are marked, T = orange. So, while O instantiates T relative to the world as a whole, O instantiates red relative to some centered worlds but not relative to others.

Though better than the original, I still find this proposal unattractive. I believe the colors (and their intrinsic nature) are normally directly revealed to us in color experience. For this reason I prefer a centered version of realist primitivism.<sup>9</sup> Call it 'perspectival r-

---

<sup>7</sup> Chalmers (2004) allows that normal perceivers exposed to the same stimulus and who disagree can have non-faulty experiences. But he avoids the objection from color variability not because of his (2006) non-realism about perfect colors but because he takes the physical properties in the content of perception to be picked out under different centered modes of presentation.

<sup>8</sup> Views closely related to perspectival physicalism have been defended by e.g. Jackson and Pargetter (1987) and McLaughlin (2003). I also think Chalmers' view (2006) of ordinary color discourse can be construed as a version of perspectival physicalism. Though Chalmers denies that objects possess perfect colors, he allows that objects possess imperfect colors. The imperfect colors are the properties that normally cause the corresponding phenomenal experiences. This view seems to entail that the same physical property may count as imperfect red in one perceiver and as imperfect green in a different perceiver. For example, the reflectance type of ripe tomatoes normally causes red experiences in nonverts and hence counts as imperfect red relative to nonverts but it normally causes green experiences in inverters and hence counts as imperfect green relative to inverters.

<sup>9</sup> The view is defended in Brogaard (forthcoming b) and Brogaard (manuscript). There is also some discussion of the view in Brogaard (forthcoming c). The Appendix defends r-realism against a popular

primitivism'. On this view, the colors are purely qualitative properties directly revealed to us in color perception and instantiated by objects relative to perceivers and normal viewing conditions. For me, red is that purely qualitative property which ripe tomatoes normally seem to have.

One consequence of relativising to individuals rather than species is disturbing at first sight. If the colors are properties instantiated only relative to perceivers, then colorblinds' deviant experiences are veridical and their first-person color attributions true.

However, I am not too worried about this consequence. Colorblinds may still use color terms deferentially or generically. As we will see, colorblinds' generic attributions of red to tomatoes may be true, even if their first-person attributions are false. In public discussion forums, we naturally assume that color attributions are generic.

Primitivism reintroduces the problem of saying what a normal viewing condition is. However, I think the answer to this question is easier to come by than the answer to the question of what a normal perceiver is. I propose that normal conditions are *publicly* appropriate conditions. What counts as a public condition depends in part on arbitrary conventions in the linguistic community and may vary from object to object. A normal condition for a kind of object that is always spinning will be different from a normal condition for a kind of object that is usually at a standstill (cf. Harvey 2000: 144). There is no one normal type of condition even for a particular kind of object. The range of types of normal conditions for Australian mailboxes is not limited to bright uniform sunlight at noon. Owing to color constancy, conditions that leave Australian mailboxes partially shaded and partially lit by bright sunlight are included in the range of normal types of conditions.

## 5. Perspectivalism and Color Discourse

Let's turn now to color discourse. What the correct semantics is for color discourse plausibly depends on the nature of the colors. Plausibly the colors simply are the contents of color terms. Below I will consider an alternative. But given this assumption, color perspectivalism entails a perspectival semantics for color discourse. The utterance context determines which centered worlds and hence which perceivers are relevant.

For first-person uses, the relevant perceiver is the speaker. If I say 'that is red', the utterance content is true if the demonstrated object possesses primitive redness relative to a centered world in which I am marked. More precisely: We can assign a monadic truth-property to 'that is red' as follows. Relative to a world @, a time t, a speaker S, a first-person use of 'red' U, a function  $f_1$  from S to a linguistic community C, a function  $f_2$  from C to an publicly appropriate viewing condition V, an object O, a function  $f_3$  from S and O to a viewing W, and a demonstration D by S of O, the sentence 'that is red' is *true-simpliciter* iff the proposition expressed by 'that is red' given D and U is true-relative-to-W-in-V. Alternatively, we can assign a polyadic truth-property to 'that is red' as follows. The sentence 'that is red' is true relative to  $\{ @, t, S, U, D, O, f_1, f_2, f_3 \}$ . As mentioned, whether one assigns a monadic truth-property to sentences-relative-to-sequences-of-parameters or a polyadic truth-property to sentences-in-isolation does not affect the conclusions about perspectivalism or truth pluralism.

Color terms may also be used deferentially. Utterances of sentences containing color terms used deferentially are true if their contents are true relative to centered worlds in which the perceiver deferred to is marked. For example, if a perceiver with only black and white experiences says 'that is red', using 'red' to defer to me, the content expressed by her utterance is true if the demonstrated object is red relative to a centered world in which I am marked.

---

objection to the view. Versions of r-primitivism have also been defended by e.g. Campbell (1993), Maund (1995) and Yablo (1995).

Generic discourse, e.g. 'In Australia, mailboxes are red', is also deferential. But the perceiver deferred to is a perceiver within a linguistically-agreed-upon normal range. Generic utterances are true if their contents are true relative to centered worlds in which a normal-range perceiver is marked.

Sentential operators can shift the parameters of the circumstance of evaluation, for instance, 'As dichromats see things', 'As far as the inverted perceiver is concerned', 'In view of the perceptual perspective of a tetrachromat'. 'As dichromats see things' chooses as an evaluation-circumstance a centered world in which a dichromat is marked. An utterance of 'as dichromats see things, Australian mail boxes are gray' is true only if the content of 'Australian mail boxes are gray' is true at a centered world in which a dichromat is marked.

The extension of color terms also sometimes shifts when they occur in visual seeming and seeing reports. 'It visually seems to John, who is a dichromat, that Australian mailboxes are gray' can be true even if it doesn't visually seem to me that Australian mailboxes are gray. Likewise, 'John, who is unable to distinguish red from green, saw the candle change its color from red to green' seems plainly false even if John observed a candle that underwent a change in color relative to me.

Of course, it is possible that color terms do not have color content. One could hold that color terms express color concepts (similar to the individual, generic, demonstrative, pure and direct color concepts discussed in Chalmers 2003) which then pick out primitive colors.<sup>10</sup> This approach also yields a perspectival semantics. An utterance of 'that is red', where 'red' is used non-deferentially, is true only if, relative to the speaker, the demonstrated object possesses the property picked out by the first-person color concept red.

The conceptual view is motivated by the fact that someone who does not perceive in colors can use color discourse competently. Frank Jackson's Mary can speak competently about the color of blood and cooked lobsters, whether red is more similar to orange than to blue, etc. A defender of the non-mediated view might point out that the envisaged scenario can also be explained on the assumption that Mary is using color terms deferentially. However, a defender of the conceptual view could rejoin that the fact that color terms can be used both deferentially and non-deferentially shows that color terms are associated with different concepts. So, the conceptual view possibly has a slight advantage in this respect.

The non-mediated view, on the other hand, offers a better account of shared content. On the non-mediated view, if I point to O and say 'that is red', using the term 'red' non-deferentially, and a perceiver who does not perceive in colors points to O and says 'that is red', using the term deferentially, then our utterances express the same proposition. Not so on the conceptual view. On the conceptual view, my use of the term 'red' expresses one color concept, and the black-and-white person's use expresses a different concept. So, our utterances express different propositions.

We are now in a position to give veridicality conditions for color experience. Recall that on the deflationary approach assumed in this paper, an experience *e* has *p* as a content iff 'in having *e*, it visually seems to me that *p*' is an accurate (first-person) phenomenal report. So, the content of color experience either contains or picks out the colors, depending on whether color terms in phenomenal reports pick out colors via concepts. For example, the content *R is red* either contains or picks out the color red. But objects possess colors only relative to a perceiver. It follows that the contents of color experiences have truth-values only relative to a perceiver. For example, the content of my experience as of *R* being red is true relative to me only if *R* is red relative to me, and the content of your

---

<sup>10</sup> The concepts discussed in Chalmers (2003) are phenomenal concepts. They pick out phenomenal properties, not primitive color properties. However, I believe similar distinctions could be made with respect to color concepts that pick out primitive color properties. E.g. a direct color concept is one that is partially constituted by a primitive color property with which one is directly acquainted.

experience as of R being red is true relative to you only if R is red relative to you. Color perspectivalism thus entails that the semantics for color content is perspectival. As for veridicality, we can say that a perceptual experience is veridical just when (all of) its content is true relative to the perceiver and an appropriate viewing condition. So, setting aside non-phenomenal content, my experience as of R being red is veridical only if R is red relative to me, and your experience as of R being red is veridical only if R is red relative to you.

## 6. Relationalism and Color Discourse

Let me conclude by considering an alternative account of color discourse offered by Jonathan Cohen (2004). On Cohen's view, the colors are relational properties that integrate perceivers and viewing conditions.<sup>11</sup> No object is simply red, though it may be red-relative-to-me-and-my-current-viewing-condition. Of course, we normally use non-relativized color terms. But Cohen's theory is not an error-theory. For, it is assumed that there are tacit argument places in the sentence structure of color attribution sentences which get filled in context. My utterance of 'tomatoes are red' in viewing conditions C has the content of 'tomatoes are red-relative-to-me-in-C', and John's utterance of 'tomatoes are red' in C has the content of 'tomatoes are red-relative-to-John-in-C'.

Cohen's view is a kind of indexical perspectivalism (or contextualism). It treats color discourse as having different contents in different utterance-contexts. Because it treats colors as relational properties that integrate perceivers and viewing conditions, the view can easily accommodate the color variability data.

To adjudicate between perspectivalism and relationalism we must go beyond color variability considerations. We might, for example, consider which view offers the better treatment of color discourse. It may be said that there is no expectation that a theory of color should offer an account of color discourse. I disagree. Though I cannot argue for it here, I believe a good theory of color needs to tell both a story about what the colors are and a story about what our color words refer to. Moreover, relationalists are quite happy to say that color terms refer to colors. So, one way to adjudicate between relationalism and perspectivalism is to look at how the views fare in this respect. Of the two I believe perspectivalism offers the better account.

One problem for relationalism is that it violates the shared-content intuition. For example, it cannot easily accommodate the intuition that when John says 'That is red' and I respond with 'No, it's not', there is a proposition whose truth-value we disagree about faultlessly.

Cohen considers this objection but replies that ordinary folks can agree/disagree because ordinary color attributions are tacitly relativised to less fine-grained indexical-values. However, surely there are cases in which one speaker says 'that is red' and another replies 'No, it's not', and where they tacitly disagree about what sort of visual system or viewing condition is standard. In such cases, Cohen is required to deny that there is an object of disagreement. But that seems false. Even if the disagreement is faultless, intuitively there *is* a proposition that is the object of disagreement.

A second problem for relationalism is that it doesn't offer a straightforward account of deferential uses of color terms. The content of my utterance of 'In Australia mailboxes are red' in C isn't that of 'In Australia mailboxes are red-relative-to-me-in-C'.

---

<sup>11</sup> Relationalism just says that the colors are relational properties that integrate perceivers and viewing conditions, it does not say anything about the nature of the relational property. A dispositionalist view that takes the colors to be relational properties that make reference to perceivers is a kind of relationalism. Strictly speaking, dispositionalism that takes the colors to be relational properties that make reference to normal perceivers is a kind of relationalism but this version, of course, runs into the objection from color variability.

Cohen could perhaps account for deferential uses by appealing once again to less fine-grained indexical-values. But his view does not seem to yield a satisfactory account of generic statements such as ‘As far as dichromats are concerned, Australian mailboxes are gray’ and ‘Ripe tomatoes visually seem to instantiate the color red to both inverts and nonverts’. If I utter the first sentence in C, I am not saying that as far as dichromats are concerned, Australian mailboxes are gray-relative-to-perceivers-like-me-in-viewing-conditions-like-C. Likewise, if I utter the second sentence in C, I am not saying that ripe tomatoes visually seem to instantiate the color red-relative-to-perceivers-like-me-in-viewing-conditions-like-C to both inverts and nonverts.

Cohen could now say that the values assigned to the tacit indexical variables are dichromats, inverted perceivers, etc. But that would make the operators context-shifting operators or *monsters*, as they would bring about a shift in context, which in turn would bring about a shift in the default semantic value of an indexical expression. Yet, if David Kaplan (1989: 510) is right, then there are no monsters in English. And Kaplan is quite plausibly right. For example, you cannot use the sentence ‘As far as you are concerned, I am hungry’ to say that as far as you are concerned, you are hungry.

In sum: relationalism can accommodate the color variability data but unlike perspectivalism it fails to offer a satisfactory account of color discourse.

#### Appendix: R-Primitivism, Permuted Earth and Strong Necessities

R-primitivism has had few defenders.<sup>12</sup> One consideration against it is set out in Byrne and Hilbert (2007): suppose the r-primitivist holds that for any color *c*, there is a reflectance type *P* such that *P* is merely nomologically coextensive with *c*. A Permuted Earth objection then would seem to arise. Permuted Earth is a physical replica of Earth. On Permuted Earth there are unripe tomatoes, cucumbers, spring leaves, etc. They possess the same reflectance tokens as the analogous objects on Earth but are not primitively green. Unripe tomatoes are primitively blue, cucumbers primitively pink, etc. But because Permuted Earth perceivers are replicas of us, primitively pink objects do not look pink to them.

The possibility of Permuted Earth seems to pose a problem. The problem, as I see it, is this. On Permuted Earth there are no interesting connections between instantiated primitive colors and how things look (i.e., the “grasped” colors do not match the instantiated primitive colors). So, on Permuted Earth red may be more similar to green than to orange. For example, suppose Russellian physicalism is true. According to Russellian physicalism, one can hold all physical facts fixed and still have zombie worlds, because to hold all physical facts fixed just is to hold the physical properties to which our best physical theories commit us fixed. The intrinsic (non-functional and non-measurable) physical properties can still vary. So, if the primitive colors supervene on the intrinsic nature of things, then primitive red could be more similar (intrinsically) to primitive green than to primitive orange. Yet, despite Permuted Earth being a physical replica of the actual world, Permuted Earth perceivers cannot come to know that red is more similar to green than to orange (if it is)

---

<sup>12</sup> Some people find it intuitively implausible that objects possess primitive colors. I do not share those intuitions. However, there are several things one can say to make it easier for the opponent to swallow the claim that objects possess primitive colors. First, the intuition that they do not is not pre-theoretic. Pre-theoretically I think people have the intuition that objects are primitively colored. Second, there are lots of properties which objects possess only in virtue of possessing other more fundamental properties. A few examples: being achy, being itchy, being attractive, being tasty, being tall, being bald, and being old. Third, primitive color properties are not instantiated relative to possible worlds; they are instantiated relative to centered worlds. Fourth, the assumption that objects instantiate primitive color properties helps to explain psychological properties of people. E.g. the fact that the ball was primitively red relative to Lisa explains why Lisa wanted it and what motivated her to steal it.

through careful reflection on their color experience. To them red visually seems more similar to orange than to green. So, if the actual world is different from Permuted Earth in this respect and Revelation actually obtains, then the 'r-primitivist must admit that there is some kind of pre-established harmony or bizarre cosmic coincidence' (2007: 35).<sup>13</sup> But this sort of pre-established harmony is absurd.

R-primitivist can avoid this objection by positing stronger bridge principles, for instance: for any color *c*, there is a reflectance type *P* such that *P* metaphysically necessitates *c*. But, Byrne and Hilbert say, this only leads to further trouble. For, if the reflectance-type/color-connections are metaphysically necessary, then arguably the primitive colors just are the reflectance types.

How might the r-primitivist reply? I suggest that she takes the primitive colors to supervene on physical-phenomenal facts. Revelation is true at physical-phenomenal replicas of the actual world. However, there are possible worlds in which the instantiated primitive colors are not revealed in color perception but in which objects still cause us to experience objects as possessing primitive colors. In these worlds Revelation is false (or true by sheer luck). But such worlds are presumably very different from ours evolutionarily and nomologically.

Two related objections to the proposed version of r-primitivism here arise. First, it may be said that it'd desirable if things could look one way to us but have different primitive colors, even in physical-phenomenal copies of our world. Most r-primitivists allow for illusions. A case in which things looked one way to us but had different primitive colors would just be a case of systematic illusion.

Second, it may be thought that even if Permuted Earth is impossible, at least it's conceivable. But if the primitive colors supervene on physical-phenomenal facts, then Permuted Earth is impossible. So, the r-primitivist who takes the primitive colors to supervene on physical-phenomenal facts seems committed to what Chalmers (2003) calls 'strong necessities', i.e. necessary, yet (ideally) conceivably false, truths which involve no so-called twin-earthable concepts. Chalmers defines 'twin-earthability' thusly:

We can say that two possible individuals (at times) are twins if they are physical and phenomenal duplicates; we can say that two possible expression tokens are twins if they are produced by corresponding acts of twin speakers. Then a token is Twin-Earthable if it has a twin with a different 2-intension. (2006b: section 3.5)

A twin-earthable concept has a different 2-intension (or Russellian intension) when possessed by physical-phenomenal duplicate thinkers. The concept of water is twin-earthable. When possessed by Oscar its 2-intension yields H<sub>2</sub>O at every possible world. When possessed by Twin-Oscar its 2-intension yields XYZ at every possible world. Non-twin-earthable concepts are by definition concepts which, when possessed by twins, have the same 2-intension. For conceivability and possibility to come apart, a twin-earthable concept is required. For example, 'water (if it exists) is H<sub>2</sub>O' is necessarily true but conceivably false;

---

<sup>13</sup> R-primitivism is to be understood as being conceptually committed to revelation. Byrne and Hilbert divide Revelation into the following two principles:

Self-Intimation: If it is in the nature of the colors that *p*, then after careful reflection on color experience it seems to be in the nature of the colors that *p*.

Infallibility: If after careful reflection on color experience it seems to be in the nature of the colors that *p*, then it is in the nature of the colors that *p*.

Reflectance physicalism and dispositionalism violate Self-intimation.

its actual 2-intension yields 'true' as its extension at every scenario, but its 1-intension (or Fregean intension) yields 'false' at Twin Earth scenarios. Strong necessities involve no twin-earthable concepts. So, there are no strong necessities (see e.g. Chalmers 2003).

However, our envisaged objector might continue, our r-primitivist is committed to there being necessary, yet conceivably false, truths that do not involve any twin-earthable concepts, for instance, 'primitive color properties supervene on other primitive properties'.

By way of reply: I don't think the r-primitivist needs strong necessities or should allow for systematic illusions in physical-phenomenal copies of our world. The r-primitivist should hold that it is ideally inconceivable that the physical-phenomenal facts are as they actually are but somehow objects do not have their actual primitive colors.

As for systematic illusions, primitivism is motivated by the view that we can determine second-order color facts by reflecting on color experience (e.g., the fact that red is more similar to orange than to green). But if there could be systematic illusions in physical-phenomenal copies of our world, then setting aside pre-established harmony, we could not actually come to know second-order color facts reflectively. Hence, Revelation is actually false.

It might be replied that the r-primitivist who denies that the colors supervene on physical-phenomenal facts and hence allow for Permuted Earth scenarios can tell the same story about knowledge of second-order color facts as an irrealist primitivist and hence can say that Revelation is actually true. The idea is this. R-primitivists who deny the supervenience story do not need to know that what gives rise to red experiences is similar to what gives rise to orange experiences in order to know that red is similar to orange.

Regardless of how redness is distributed in the external world, one grasps redness directly in experience, and through one's concept of redness.

However, I don't think that is right. Consider a weird world—a physical-phenomenal but not, say, proto-phenomenal (or color-wise) copy of ours:

Ripe tomatoes: primitive green.	Grasped: primitive red
Pink ribbons: primitive red	Grasped: primitive pink.
Blueberries: primitive orange	Grasped: primitive blue

The following story is consistent. Primitive red is more similar to primitive green than to orange because primitive red has more intrinsic proto-phenomenal properties in common with primitive green than with primitive orange. One cannot then say: but primitive red *is* more similar to orange because of how the primitive colors we grasp (illusively) look to us when we grasp them.

Physical-phenomenal copies of our world cannot be systematically illusory if r-primitivism is right. To say this, however, is not to say that the r-primitivist cannot accept systematic illusions, but only that systematically illusory worlds are not physical-phenomenal copies of our world. In systematically illusory worlds the primitive colors grasped in experience are not instantiated, or perhaps are instantiated by objects other than those that cause experiences as of those properties. Either way these worlds will fail to be physical-phenomenal copies.

As for conceivability, if it were (ideally) conceivable both that r-primitivism is true and that there are physical-phenomenal replicas of our world in which primitive color properties have some proto-phenomenal nature that goes well beyond what is grasped in experience, then it would be conceivable both that r-primitivism is true and Revelation false at physical-phenomenal copies of our world. As pre-establish harmony is inconceivable, it would be conceivable both that r-primitivism is actually true and Revelation false. But r-primitivism, as construed here, is conceptually committed to Revelation. So, if r-primitivism is true, then a weird world (like that above) is (ideally) inconceivable.

R-primitivism, of course, fares no better than reflectance physicalism with respect to the objection from color variability, hence the need for perspectivalism.<sup>14</sup>

## References

- Boghossian, P. A. and Velleman, J. D. (1989). Colour as a Secondary Quality. *Mind*, 98: 81-103.
- Brogaard, B. (2008a). Moral Contextualism and Moral Relativism". *Philosophical Quarterly*, 58: 385-409.
- Brogaard, B. (2008b). "In Defense of a Perspectival Semantics for 'Know' ". *Australasian Journal of Philosophy*, 86: 439-459.
- Brogaard, B. (Forthcoming a). "The Trivial Argument for Epistemic Value Pluralism. Or How I learned to Stop Caring about Truth". In D. Pritchard, A. Millar, and A. Haddock (eds.), *Epistemic Value*, Oxford University Press.
- Brogaard, B. (Forthcoming b). "Color in the Theory of Colors? Or: Are Philosophers' Colors All White?". In G. Yancy (ed.), *The Center Must Not Hold: White Women on The Whiteness of Philosophy*.
- Brogaard, B. (Forthcoming c). "Centered Worlds and the Content of Perception". In S. Hales (ed.), *The Blackwell Companion to Relativism*.
- Brogaard, B. (Manuscript). "R-Primitivism Defended".
- Byrne, A. (2006). "Comments on Cohen, Mizrahi, Maund, and Levine". *Dialectica*, 60: 337-40.
- Byrne, A and Hilbert D. R. (2003). "Color Realism and Color Science". *Behavioral and Brain Sciences*, 26: 3-21.
- Byrne, A and Hilbert, D. R. (2007). "Color Primitivism". *Erkenntnis*, 66: 73-105.
- Campbell, J. 1993. "A Simple View of Colour". In J. Haldane and C. Wright (eds.), *Reality Representation, Projection* (257-268). Oxford: Oxford University Press.
- Chalmers, D. (2003). "The Content and Epistemology of Phenomenal Belief", *Consciousness: New Philosophical Perspectives*, ed. Q. Smith and A. Jokic, Oxford: Oxford University Press, 220-272.
- Chalmers, D. (2004). "The Representational Character of Experience", In B. Leiter (ed.), *The Future for Philosophy* (153-81). Oxford: Oxford University Press.
- Chalmers, D. (2006a). "Perception and the Fall from Eden". In T. Gendler and J. Hawthorne (eds.), *Perceptual Experience* (49-125). Oxford: Clarendon Press.
- Chalmers, D. J. (2006b). "The Foundations of Two-Dimensional Semantics". In M. Garcia-Carpintero & J. Macia (eds.), *Two-Dimensional Semantics: Foundations and Applications*. Oxford University Press.
- Cohen, J. (2004). "Color Properties and Color Ascriptions: A Relationalist Manifesto". *The Philosophical Review*, 113: 451-506.
- Harvey, J. (2000). "Colour-Dispositionalism and Its Recent Critics". *Philosophy and Phenomenological Research*, 61: 137-155.
- Jackson, J. and Pargetter, R. 1987. "An objectivist's guide to subjectivism about color", in: A. Byrne and D. R. Hilbert, Editors, *Readings on Color. Vol. 1: The philosophy of Color*, MIT Press, Cambridge, 1997: 67-79.
- Johnston, M. (1992). "How to Speak of the Colors". *Philosophical Studies*, 68: 221-63.
- Kaplan, D. (1989). "Demonstratives". In J. Almog, H. Wettstein, and J. Perry, (eds.), *Themes from Kaplan* (233-249). New York: Oxford University Press.

---

<sup>14</sup> I am grateful to Kent Bach, David Chalmers, Mylan Engel, Dimitria Gatzia, Patrick Greenough, Peter Klein, Hallie Liberto, Alastair Norcross, Nikolaj Nottelmann, Bruce Russell, Susanna Schellenberg, Susanna Siegel, and Rene van Woudenberg for helpful comments and discussion of these and related issues. Special thanks to Adam Pautz, Peter Ross and Cory Wright for written comments on an earlier draft of this paper.

- Malkoc, G., P. Kay, and Webster, M.A. (2005). "Variations in Normal Color Vision. IV. Binary Hues and Hue Scaling". *Journal of the Optical Society of America*, A 22, 2154-2168.
- Maud, J. B. (1995). *Colours: Their Nature and Representation*. Cambridge: Cambridge University Press.
- McDowell, J. (1985). "Values and Secondary Qualities". In T. Honderich (ed.), *Morality and Objectivity* (100-129). London: Routledge and Kegan Paul.
- McFarlane, J. (2009). "Non-Indexical Contextualism". In B. Brogaard (ed.), *Relative Truth*, special issue of *Synthese*, 166: 231-250
- McGinn, C. (1983). *The Subjective View: Secondary Qualities and Indexical Thoughts*. Oxford: Oxford University Press.
- McLaughlin, B. P. (2003). "The Place of Color in Nature". In R. Mausfeld and D. Heyer (eds.), *Color Perception: Mind and the Physical World* (475-505). Oxford: Oxford University Press.
- Jackson, J. and Pargetter, R. (1987). "An objectivist's guide to subjectivism about color". In: A. Byrne and D. R. Hilbert (eds.), *Readings on Color. Vol. 1: The philosophy of Color* (67-79). MIT Press, Cambridge, 1997.
- Pautz, A. (2008). "What are the Contents of Experiences", *The Philosophical Quarterly*, doi: 10.1111/j.1467-9213.2008.584.x.
- Ross, P. W. (Forthcoming). "Fitting Colors into the Physical World". *Philosophical Psychology*.
- Siegel, S. (2008). "The Contents of Perception". *The Stanford Encyclopedia of Philosophy* (Winter 2008 Edition), E. Zalta (ed.), URL = <http://plato.stanford.edu/archives/win2008/entries/perception-contents/>.
- Siegel, S. (Forthcoming). "Do Visual Experiences Have Contents?" In B. Nanay (ed.s), *Perceiving the World*. New York: Oxford University Press, 2010.
- Tye, M. (2000). *Consciousness, Color, and Content*. Cambridge, MA: MIT Press.
- Tye, M. (2006). "The truth about true blue". *Analysis*, 66: 340-44.
- Williamson, T. (1994). *Vagueness*. London: Routledge.
- Yablo, S. (1995). "Singling Out Properties". In J. Tomberlin (eds.), *Philosophical Perspectives*, 9, *AI, Connectionism, and Philosophical Psychology*: 477-502.