

COLOUR IRREALISM AND THE FORMATION OF COLOUR CONCEPTS

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According to colour irrealism, material objects do not have colour; they only appear to have colour. The appeal of this view, prominent among philosophers and scientists alike, stems in large part from the conviction that scientific explanations of colour facts do not ascribe colour to material objects. To explain why objects appear to have colour, for instance, we need only appeal to surface reflectance properties, properties of light, the neurophysiology of observers, etc.

Typically attending colour irrealism is the error theory of ordinary colour judgement: ordinary judgements in which colour is ascribed to a material object are, strictly speaking, false. In this paper, I claim that colour irrealists who endorse the error theory cannot explain how we acquire colour concepts (*yellow*, *green*, etc.), concepts they must acknowledge we do possess. Our basic colour concepts, I argue, could not be phenomenal concepts that we acquire by attending to the colour properties of our experience. And, I explain, all other plausible explanations render colour concepts such that our ordinary colour judgements involving them are often *true*. Given the explanatory considerations upon which the irrealist's position is based, this is a severe problem for colour irrealism.

I. Introduction

According to colour irrealism, as I shall understand it, no material object has colour.¹ Limes are not green, lemons are not yellow (nor are they any other colour); material objects only appear to have colour. The appeal of this view stems in significant part from the conviction that the best explanation of everything that is so does not ascribe colour to material objects. To explain why objects appear to have colour, for instance, we need only appeal to the surface reflectance properties of objects, the properties of light, the neurophysiology of observers, etc. Typically attending colour irrealism is the semantic view according to which our ordinary colour judgements (judgements in which we ascribe colour to a material object) are all false. If colour irrealism does not *entail* such an error theory, few irrealists would reject it. I shall argue

¹By 'colour realism', I mean the view that some material objects do have colour. These terms are employed in a variety of ways in discussions on colour. Boghossian and Velleman [1989], for instance, use them as I do. Some philosophers intend by 'colour realism' the stronger view according to which material objects have colour, *and* colour is a mind-independent property.

against colour irrealists who accept it. On no plausible account of propositional content can such an irrealist explain how the contents of ordinary colour judgements could be as he says they are without thereby rendering these judgements often true. Given the sorts of considerations upon which colour irrealism is based, this is a severe problem.

Central to the irrealist's project is the explanation of *psychological* facts involving colour. We do not begin to take seriously the claim that no material object has colour until we think we see how objects could *appear* to have colour, and how we could believe that they do, even if they do not. Indeed, this is how it often is with beliefs tied closely to experience: to abandon them, we must be truly impressed by some explanation of their provenance. Many colour theorists have been so impressed.

Similar considerations about explanation motivate the error theory, which is invariably accompanied by colour irrealism. Galileo held an error theory, as on some interpretations did Descartes, Locke, and Hume; and the view retains considerable popularity today.² In some cases, the error theory comes with the additional prescription for conceptual revision: we should revise our colour concepts so as to make our colour judgements largely true (e.g., by having the judgements be primarily about dispositional or otherwise physical properties that material objects do in fact have, such as the disposition to produce certain visual experiences under certain circumstances [Johnston 1992]).

In an effort to avoid attributing systematic error to our thought and experience, some philosophers have argued against the error theory by proposing that we analyse the contents of ordinary colour judgements in such a way that they are often true. Unlike revisionist proposals, these accounts hold that the contents of our ordinary colour judgements are already primarily about dispositional or otherwise physical properties that material objects do in fact have. On these views, material objects have colour. Error theories remain influential in part because of the difficulties these analyses of colour judgement are thought to face.

If the error theorist's conception of the contents of ordinary colour judgement is a source of its appeal, it is also a source of its vulnerability. Those who resist the error theory largely on account of its uncharitable attribution of systematic error are too accommodating. There is a substantial question as to whether error theorists can explain, even in principle, that which they claim to be able to explain. Error theorists, both modern and contemporary, pay surprisingly little attention to those concepts that figure essentially in the beliefs they deem erroneous: colour concepts (*yellow*, *red*, *green*, etc.). Commonly emphasized are other psychological facts, such as the fact that objects appear to have colour and the fact that people believe that they do. But these latter facts are not

²Contemporary error theorists include Hardin [1993], Boghossian and Velleman [1989], Clark [2000], Mackie [1976], Maund [1995], and Perkins [1983]. Frank Jackson [1977] advanced an influential version of the error theory, although he himself appears no longer to hold it (see [Jackson 1998]). While colour scientists are less likely to articulate a sophisticated semantic account of the contents of ordinary colour judgements, irrealism is the predominant view among them. (See Hurvich [1981]; Zeki [1983]; Backhaus and Menzel [1992]; Cosmides and Tooby [1995]; and Palmer [1999].)

more important *explananda* than the fact that people possess particular colour concepts.

Modern error theorists, such as Galileo, would have proposed that we acquire these concepts by attending to the colour properties of our sensations (or, in Locke's case, our 'ideas'), properties we then mistakenly project onto material objects. However, lessons on the requirements for successful demonstrative reference show that we could not acquire our first colour concepts in this way, as we will see. Galileo and his contemporaries did not have the good fortune to be acquainted with these lessons, but contemporary error theorists do. The question is whether they can offer an explanation that fares any better. I will argue that they cannot. On no plausible account of propositional content can an error theorist explain how we acquire colour concepts.

My arguments suggest there may be problems for error theories concerning certain other qualities as well (though not for all error theories). At the very least, they provide a serious difficulty for error theories about colour, and so for colour irrealism too.³ Realism is correct, I claim; objects have colour.

To be irrealist about a particular phenomenon involves holding not only a certain metaphysical view but a certain semantic view. In order to say, responsibly, that phenomenon *X* is not real, or that nothing is *X*, one must have an understanding of the content of one's concept of *X*. In some cases, there is a tension between holding both views simultaneously. When the tension is interesting, it is not because the two views are inconsistent, but because endorsing the metaphysical view ultimately undermines one's ability to explain how the semantic view could be true. In this paper, I will argue that this is precisely the difficulty colour irrealists face.

II. The Explanation Required

Why do I insist that the error theorist must be able to explain the formation or acquisition of colour concepts? Among the many facts that any error theorist must acknowledge is the fact that human beings possess colour beliefs; otherwise, he would not be acknowledging that which he intends to unmask as erroneous. He must also therefore acknowledge the fulfilment of all conditions upon the fact that human beings possess colour beliefs. One such condition is that human beings possess colour concepts. Not only must the error theorist acknowledge these facts, he must be able to explain them too. At the very least, he must be able to explain them if rival theories can. If adopting the view that objects do not have colour were ultimately to make problematic the acknowledgment of, or the explanation of, basic facts about the world that are otherwise unproblematic to acknowledge or explain (including facts about propositional content and concept acquisition), then this view

³If there *are* irrealists about colour who reject the error theory, my arguments in this paper do not apply to them.

would lose claim to being part of a conception of the world that best explains everything that is so.⁴

How a colour theorist explains the acquisition of colour concepts will depend upon (and be limited by) her conception of the contents of ordinary colour judgement, upon what she thinks we experience objects as having (and believe them to have) when we experience them as having colour. Dispositionalists about content hold that what we experience them as having (and believe them to have) are primarily dispositions to produce certain kinds of visual experiences in observers under certain circumstances.⁵ Physicalists about content claim that what we ascribe to objects in our ordinary colour judgements are certain ‘physical’ properties, properties whose natures are specifiable without mention of the psychology of observers or the employment of our colour concepts.⁶ The error theorist cannot go along with either of these proposals; since objects do have such dispositions and physical properties (even by the error theorist’s lights), many of our ordinary colour judgements are true on these proposals.⁷

How then do error theorists conceive of those contents? What do they think we experience objects as having when we experience them as having colour? Error theorists have less to say on the topic, though not because they lack a view on the matter. They often embrace the traditional conception according to which the properties we experience objects as having—yellow, red, green—are not analysable in non-colour terms and are properties (often ‘simple’ properties) whose natures are entirely transparent to us in our experience of them. The contents of ordinary colour judgements

⁴Two notes are appropriate here, one on the source of error theories, another on the explanation required. First, not all error theorists explicitly emphasize explanatory power; some appeal to the fact that the set of properties attributed to objects by physics does not include colour properties (e.g., Boghossian and Velleman [1989] and Hardin [1993]). However, the inclination to restrict a complete science to a certain set of entities cannot be sufficiently decoupled from a belief in the explanatory power of those entities. For two helpful discussions of the significance of the crucial role that the notion of explanatory power typically plays in inquiries into the nature of reality, see Williams [1985] and Stroud [2000]. (My argument is indebted to Stroud, see note 13.) Moreover, even if there *are* error theories about colour that do not derive their support largely from the explanatory power of such theories (along the lines of Churchland’s error theory concerning heat, perhaps [Churchland 1979]), my arguments will still apply. Any theory that finds people to have colour beliefs that are all false should be able to make sense of people having colour concepts.

Second, it is perhaps too much to demand of the best explanation of ‘everything that is so’ that, for all facts, its explanation of that fact is better than (or as good as) the explanation that any other conception of the world would provide of *that particular fact*. The error theorist has only to claim that his explanation is overall the best. Much will of course come down to what makes an explanation a good one, or the ‘best’ one. One criterion will be parsimony, but that cannot be all.

⁵Peacocke [1984], McDowell [1985], Wiggins [1987], and Evans [1980] all hold influential dispositionalist views. It is a matter of interpretative dispute whether Locke, who certainly emphasized the dispositions objects have to produce certain experiences in observers, is best construed an error theorist or a dispositionalist in this sense.

⁶See Land [1986], Matthen [1988], Byrne and Hilbert [1997; 2001], Jackson [1998], and Bradley and Tye [2001]. It is not always clear, though, whether a particular physicalist intends to provide an analysis of the contents of ordinary colour judgements or merely to prescribe a specific conceptual revision. In order to avoid the attribution of systematic error to colour judgements, the identifications would need to capture the content to some extent. To what extent, and in what ways, are substantive issues.

⁷Nor do error theorists believe that such accounts of the contents of colour judgements are correct. It is precisely because of the difficulties error theorists think these proposals face that they continue to maintain that the error theory has it right. A common objection to dispositionalism is that colours just don’t *look* like dispositions [McGinn 1996; Johnston 1992; Boghossian and Velleman 1989; et al.]. For other objections, see Jackson [1998], Hardin [1984], and Stroud [2000]. A common objection to physicalism appeals to the purported fact that no one has yet identified any physical property that both is causally connected with our colour experiences and models the essential characteristics of colours [Hardin 1984, 1993]. For other common objections to physicalism, see Boghossian and Velleman [1991].

are thus, for error theorists, more difficult to characterize in any enlightening way.

Boghossian and Velleman, for instance, understand the properties ascribed to objects in colour experience to be ‘intrinsic sensational qualities’, in particular ‘intrinsic colour properties’, which belong to regions of a subject’s ‘visual field’, and which she falsely projects onto external objects [1989: 96].⁸ While projectivism is perhaps the traditional form of error theory (the one typically attributed to Galileo, and sometimes to Locke), some non-projectivists do not speak at all of mind-dependent items (patches, data, etc.) of which we are directly aware in visual experience. Rather, they simply hold that experience falsely represents objects as being coloured.⁹

Other non-projectivists do not conceive of experience as conceptual at all. On these views, what gets convicted of error are the subsequent beliefs that such experience prompts [Johnston 1997]. Whichever conception of experience an error theorist favours, he typically conceives of the properties ascribed to objects in ordinary colour judgement as not amenable to adequate description or analysis in non-colour terms, and especially not in terms that mention only dispositions or the sorts of physical properties emphasized by the physicalist. What is required of the error theorist, then—and what I maintain is unavailable to him—is an explanation of the acquisition of colour concepts *as the error theorist understands them* that does not ascribe colour to material objects.

III. The Appeal to Introspective Attention

A theorist who believes that no material object has colour will typically look elsewhere—inward, as it were—to identify the source of our colour concepts. If material objects do not have colour, perhaps we acquire our first colour concepts solely from the colour properties of our *experiences*. Indeed, on a traditional conception of experience, it may be tempting to think that doing this would not be very difficult: consult one’s experiences involving, say, yellow and focus upon their yellow aspect. Focusing upon that yellow aspect, one might declare to oneself, ‘*That* is what I shall from now on call “yellow”’, or ‘My concept *yellow* will apply to all and only things that have *that* property’.

This proposal presupposes a particular conception of experience, according to which (1) a subject who experiences a material object to be yellow has in her visual field something like a patch or region of yellow; and (2) it is possible for a subject to observe such patches by introspection. This model of experience is in considerably less favour than it has sometimes been.¹⁰ However, some philosophers do still endorse it, and so I grant it here

⁸Jackson’s error theory is similar [Jackson 1977].

⁹E.g., Mackie [1976]. I’m inclined to read Hardin this way as well.

¹⁰There are a number of reasons for this. For instance, (2) runs afoul of recent emphasis on the ‘transparency’ or ‘diaphanousness’ of experience. When I attempt to attend introspectively to the yellow aspect of my experience of a ripe lemon, it is said, all I come upon is the yellow aspect of the *lemon*. (For a recent, influential articulation of this point, see Harman [1990].) As for (1), this component is often rejected on account of its alleged commitment to some sort of sense-datum theory.

for the sake of argument.¹¹ An understanding of the difficulties the present proposal faces should place us in a better position to appreciate why other conceptions of experience (e.g., ‘representationalist’ ones) as well as other explanations of the origin of colour concepts (appeals to innateness, for instance) will not help the error theorist.

Even if one *could* turn one’s attention inward, as it were, and point to a patch in one’s visual field that is yellow, doing so would not suffice for picking out the yellow aspect. The patch of yellow has many features and pointing to the patch itself would not settle which feature was being singled out. The reason is made more clear by looking at the case in which one points to a non-mental object, where the notion of pointing is not at all stretched. For me to point to the yellow aspect of a lemon in plain view, it is not enough that I simply raise my hand and extend my finger such that the tip of my finger, my wrist, and the lemon form a straight line. I would make just the same movements whether I wanted to point to the yellow aspect of the lemon or to its ovoid shape, or to the kind of fruit I wanted with my tea, etc. Those movements alone are not sufficient for my pointing to the yellow aspect of the lemon. More must be involved.¹²

What must be added, it seems, is that when I make such movements, I at the same time concentrate upon, or otherwise have in mind, the particular feature to which I’m attempting to point. I must intend, or mean, to point to *that* feature. The same goes for pointing inwardly to a particular feature of a patch in my visual field. Even if I could point to a particular patch of my visual field, my doing only that would not be sufficient for my pointing to its yellow aspect.

A good deal is required, for any property, to be able to have that property in mind. One needs to have an idea as to the sorts of things that can have that property and the sorts of things that cannot, and an idea as to the conditions under which something *does* have that property and the conditions under which it does not. Tied up with any concept is a distinction between the set of circumstances in which the concept applies and the set in which it does not. To possess a particular concept, one needs to grasp the corresponding distinction. One needs to grasp its conditions of satisfaction. Thus, if I am to have a particular feature in mind when pointing inwardly to a patch of my visual field, I need to grasp its corresponding conditions of satisfaction.

The significant question is how I come to grasp the conditions of satisfaction for the concept *yellow* merely by introspectively attending to the yellow patch in my visual field. There are two ways in which it may be

¹¹Boghossian and Velleman [1989], for instance, hold at least (1). Peacocke [1983] appears to endorse both (1) and (2). However, as Peacocke is a dispositionalist about content, he chooses to reserve the term ‘yellow’ for the relevant dispositions material objects have, and he calls the corresponding properties of the patches in one’s visual field (which material objects are disposed to produce) ‘yellow’ (‘yellow-prime’).

¹²Wittgenstein is famous for the point:

So one might say: the ostensive definition explains the use—the meaning—of the word when the overall role of the word in language is clear. Thus if I know that someone means to explain a colour-word to me the ostensive definition ‘That is called “sepia”’ will help me to understand the word.

[1953: §30.]

especially tempting to suppose that I do this. The difficulties with each have been articulated by many philosophers but perhaps most influentially by Saul Kripke [1982, chap. 2]. The first is to appeal to mental items—inscriptions, inner verbalizations, images, etc.—that guide me to grasp the conditions of satisfaction for the concept *yellow*. It should be clear that the mere *presence* of the yellow patch could not itself determine that I grasp one set of conditions of satisfaction as opposed to another. That would be to subscribe to a so-called ‘magical theory of reference’ [Putnam 1981]. But nor could the presence of any other mental item in addition to the yellow patch itself guide me to grasp one set of conditions of satisfaction rather than another. Which conditions of satisfaction the additional mental item would guide me to grasp would depend upon how I understood that additional item, i.e., which conditions of satisfaction I grasped when I attended to it. And so a similar question would arise.¹³

The second suggestion is that when I attend to the yellow patch in my visual field and say to myself ‘*That* is what I shall from now on call “yellow”’, what determines which conditions of satisfaction I grasp is the set of dispositions I have to employ the word ‘yellow’ in various ways (ways describable in non-intentional terms), e.g., my disposition to use the word ‘yellow’ when introspectively attending to yellow patches but not to use it when attending to other patches.¹⁴ This dispositionalist proposal, however, cannot provide for the ‘normativity’ of meaning and concept possession. In discussing the question, ‘What is $68 + 57$?’ Kripke writes,

The point is *not* that, if I meant addition by ‘+’, I *will* answer ‘125’, but that, if I intend to accord with my past meaning of ‘+’, I *should* answer ‘125’. Computational error, finiteness of my capacity, and other disturbing factors may lead me not to be *disposed* to respond as I *should*, but if so, I have not

¹³The list of philosophers who find importance in this negative point is long. The idea has been employed to a panoply of philosophical ends, and in a variety of fields. Kripke [1982], Searle [1983], and McDowell [1984] all draw from it conclusions about the possibility of meaning (and in some cases, the possibility of thought too). Putnam [1981] finds in the idea implications for various sceptical lines of thinking in epistemology. And for an application of the point to issues in ethics, see McDowell [1981].

I am not the first to utilize the idea against error theories of colour. In his recent book, Barry Stroud employs similar considerations in an effort to argue that the position in which the error theorist stands to the proposition expressed by the sentence, ‘People have many colour beliefs, and those beliefs are all false’, is similar to the position in which one stands to the proposition expressed by G. E. Moore’s paradoxical sentence, ‘I believe that it is raining, and it is not raining’. Stroud concludes that the error theorist cannot consistently believe or assert his theory [Stroud 2000: chap. 7]. Stroud’s arguments for this claim, I find, are unpersuasive. At any rate, on my account, there is no suggested barrier to one’s consistently believing both that people have many colour beliefs and that those beliefs are all false. Indeed, many colour theorists arguably do just that.

One might object that all I need to do is place a blue patch in my mind beside the yellow patch (to the left of it, say) and say or think to myself ‘What I shall call “yellow” is the property that the patch on the right has but the patch on the left does not’. But this would not suffice either. For one thing, the yellow patch has *many* properties the blue patch does not have. It has the property of being close to the right edge of my visual field (say), the property of having been in the visual field longer, the property of being either-yellow-or-green, the property of being yellow, the property of being *canary* yellow, and so on. Indeed, once we introduce Kripkean ‘quus’-like terms (or Goodmanian ‘grue’-like terms [Goodman 1955]), we see clearly that there are *infinite* properties that the yellow patch has that the blue patch does not—or, at the very least, that there are infinitely many *concepts* or *predicates* that apply to the yellow patch but not the blue patch. (For instance, define ‘qyellow’ such that it picks out all yellow things that are not triangular and all red things that are.)

¹⁴This dispositionalist proposal concerning meaning and understanding is to be distinguished, of course, from the dispositionalist account mentioned earlier concerning the contents of ordinary colour judgement.

acted in accordance with my intentions. The relation of meaning and intention to future action is *normative*, not *descriptive*.

[1982: 37]

But the relation of dispositions to future action is descriptive. Possessing a set of dispositions to behave in certain ways is not sufficient for grasping any set of conditions of satisfaction, nor thus for possessing any concept. Again, something more would be needed.¹⁵

Respecting these negative considerations about concept possession and concept acquisition is not solely a difficulty for the suggestion that we acquire our first colour concepts merely by introspectively attending to the features of our own experiences. If the considerations are correct, then the colour *realist* could not successfully propose that we acquire our first colour concepts merely by attending to the features of non-mental material objects such as lemons. If we do acquire our first colour concepts by attending to the features of particular objects—whether mental or non-mental—then something more needs to be in place for us to do so. Once we see what that something is, or could be, it will become even clearer why an appeal to the inner is so awkward for the error theorist.

IV. Other Explanations

Philosophers have gone in different directions in the face of these negative considerations. Kripke, for example (or Kripke's Wittgenstein), concludes from them that in fact we do not mean or understand anything by our words; meaning and understanding are not phenomena in our lives. But any colour theorist who does not wish to deny that we possess colour concepts (as the error theorist himself cannot) must go a different route. Indeed, there are other routes open. The question is whether the error theorist can take any of them.

There is more than one view of propositional content that accounts for the normativity of concept possession and thus more than one way in which a colour theorist might explain the acquisition of colour concepts. I shall mention two families of plausible explanation. I shall not argue for either in detail, however. I need not, for my purposes in this paper, show which of the available explanations is the correct explanation; what is necessary is simply that there are such explanations. There are. They all render colour judgements sometimes true.

¹⁵The idea that meaning or concept possession is normative has been emphasized by Blackburn [1984], McDowell [1984], Wright [1984], Boghossian [1989], Brandom [2000], et al. Some philosophers deny that meaning is normative (e.g., Horwich [1998]), but it is not always clear what sense of normativity they are denying. Some who speak of the normative aspect of concepts (or of meaning) have in mind the idea that, for any concept, there are certain ways in which we 'ought' to apply it. All I mean is that, for any concept, there are certain ways of applying it that are correct and others that are incorrect. I think it is implausible to deny that concepts are normative in this sense. Still, a sufficient treatment of dispositionalist accounts of meaning would lead quickly to the heart of current debates in the philosophy of language. It is worth noting, however, that in his paper on rule-following Boghossian himself argues that dispositionalist accounts of meaning cannot provide for the normativity of meaning, which he thinks they must [Boghossian 1989].

A. Semantic Naturalism

The explanation of the normativity of concept possession commonly offered by semantic naturalists appeals to teleology (e.g., [Millikan 1984; Dretske 1995], et al.). Fred Dretske, for example, claims that what determines what a particular brain state represents (i.e., what determines its content) is the information that being in such a state has historically had the function of providing. Once a type of brain state has the function of informing a subject that p , then subsequently being in that type of state amounts to, say, believing that p . That is so, even in cases where p is false. Brain states come to have the function of providing the information they do, only because these states are sensitive to certain features of a subject's environment, the very features about which the brain states provide information. With respect to colour, Dretske is thus led to the conclusion that 'color is whatever property it is the function of color vision to detect' [1995: 93]. Error theorists about ordinary colour judgement cannot accept such a teleological proposal, since error theorists cannot accept the idea that colour beliefs attribute to material objects features in the environment to which brain states are in fact sensitive.

Dretske himself is a physicalist about the content of ordinary colour judgement. However, the teleological view of propositional content is compatible with the other accounts of the content of ordinary colour judgement as well. For instance, a teleologist could be a dispositionalist about the content of colour judgement and maintain that it is the function of colour vision to detect dispositional properties. A teleologist could also agree with the error theorist about the content of colour judgement. In doing so, though, she would thereby adopt a form of 'primitivism' about colour. Dispositionalism, physicalism, and the error theory do not exhaust our options. The primitivist holds that material objects have colour properties, but that these properties are not identifiable with any set of dispositions or properties of the sort physicalists emphasize. On this view, colour properties are *sui generis*, and their nature is entirely transparent in experience. The view is sometimes called 'the Simple View' of colour [Campbell 1993].¹⁶ The primitivist, who can share the error theorist's conception of the contents of ordinary colour judgement, is able to explain the formation of colour concepts, because she can accept the idea that colour beliefs attribute to material objects features in the environment to which brain states are in fact sensitive. Whichever account of ordinary colour judgement a teleologist endorses, she will find colour judgements to be sometimes true.

Teleologists may not be committed to the view that material objects *have* colour. What is guaranteed perhaps is only that when certain brain states first came to represent colour properties, material objects *had* colour. A teleologist could thus consistently maintain that material objects had colour in the past but that they no longer do. If this is a form of error theory, though, I cannot imagine anyone who would wish to endorse it.

¹⁶The primitivist view has received little attention since the rise of modern science. The source of its unpopularity, I believe, also traces back in part to the conviction that the sorts of properties the primitivist emphasizes are not appealed to in the best explanation of everything that is so.

Of course, the teleologist does not suppose that *all* informational brain states come to have the function of providing the information that they do through a process in which the states are sensitive to the very features in the environment about which the states provide information. Once we acquire certain basic concepts, we might subsequently construct other concepts in a way that is not directly sensitive to features in our environment (by concatenation, for example). It is difficult, though, to see how the error theorist could defend the idea that our ancestors acquired *colour* concepts in this way. Were colour concepts such that they could be analysed in, or constructed out of, non-colour concepts, an explanation might be more at hand. But on the error theorist's conception of them, they are not. Some dispositionalists propose that our concept *yellow* be analysed in terms of dispositions to produce certain visual experiences in appropriately placed observers, dispositions that are specifiable entirely in non-colour terms (e.g., Peacocke [1984]). Even if this analysis is plausible, those who support it would not take our colour judgements to be systematically false. Any plausible conception of colour concepts according to which colour concepts are analysable in non-colour terms will render colour judgements sometimes true.

For similar reasons, semantic naturalist views that do not emphasize teleology will be of no more help to the error theorist than those that do. Informational semanticists, for example, according to whom concepts are determined primarily by lawful covariations between tokenings of certain brain states, on the one hand, and certain external conditions, on the other (e.g., Fodor [1990]), will not regard the judgements in which the specified concepts are applied to material objects as systematically false. Those concepts will be applicable to the external properties and states of affairs to which those who acquire the concepts stand in the appropriate relations.¹⁷

We are now in a better position to appreciate the difficulty that an error theorist who is a 'representationalist' about experience would have in proposing that we acquire our first colour concepts from our colour experience. The considerations I outlined in Section III were directed against an appeal to colour experience as it might be advanced by an error theorist who subscribes to a model of colour experience on which our 'visual fields' have 'patches' with 'intrinsic colour properties'. While that is a traditional way to conceive of colour experience, it is not the only one. Representationalism, according to which colour phenomenology is entirely exhausted by the representational properties of colour experience, has gained considerable support in recent years (e.g., Harman [1990], Lycan [1996], Tye [2000], and Dretske [1995]). On this view, there are no introspectively accessible qualities that are not representational. In explaining subjective differences in colour experience, representationalists do not appeal to intrinsic colour properties, only to representational ones.

The difficulty that an error theorist who is representationalist about experience would have in proposing that we acquire our first colour concepts from our colour experience is similar to the difficulty an error

¹⁷Moreover, informational semanticism suffers from the same difficulty concerning normativity that dispositionalism about meaning does: it cannot account for the normativity of concept possession. This is closely related to the 'problem of misrepresentation' often raised in discussions of informational semanticism.

theorist would have in appealing to semantic naturalism to explain the formation of colour concepts. How could colour experience come to represent objects as having properties of the sort the *error theorist* must conceive colour properties to be, if nothing in the material world, nor anything involved in colour experience, has colour properties? All of the plausible ways in which colour experience could *on the representationalist model* come to have representational content would make the properties colour experience represents material objects to have properties they sometimes do have. Sydney Shoemaker expresses the difficulty in this way:

[I]t is a mystery, to say the least, how the content of our experience can include reference to properties whose actual instantiation we have never experienced or had any other epistemic access to—properties we know neither ‘by acquaintance’ nor ‘by description’, unless we have some sort of nonsensory acquaintance with a Platonic realm of uninstantiated properties.

[1996: 117]

It is no surprise, then, that the ways in which representationalists typically understand colour experience render it as often ascribing to material objects properties they in fact possess (see, e.g., Harman [1996] and, again, Dretske [1995: 88–93]).

We are also in a better position now to appreciate the difficulty an error theorist would have in proposing that colour concepts are ‘innate’.¹⁸ My argument against the error theorist does not require that we deny that colour concepts are innate. However, the negative considerations about concept possession from Section III reveal that the nativist must also account for the normativity of concept possession. What is it about us when we are born such that we possess the concept *yellow* and not, say, the concept *qyellow*?¹⁹ It is natural perhaps for the nativist to appeal here to the behavioural dispositions that we might have when we are born. However, any appeal merely to dispositions (or to items in the mind) will be inadequate, as we saw. The nativist could adopt a teleological account of propositional content in order to answer this question satisfactorily; however, her appeal to teleology would render many of our ordinary colour judgements true. The same would go for any nativist’s appeal to the second family of account of the normativity of concept possession, to which I now turn.

B. The Communitarian View

Some philosophers account for the normativity of concept possession by appealing not to teleology but to communal practices. On communitarian views, what grounds all distinction between correct and incorrect behaviour is an established ‘practice’ or ‘custom’ of acting in certain ways. Thus, a subject’s grasping a particular set of conditions of satisfaction (those corresponding to the meaning of a particular word, for instance) on these

¹⁸Fodor [1998] claims that colour concepts are innate.

¹⁹Again, define ‘qyellow’ such that it picks out all yellow things that are not triangular and all red things that are.

views depends, in some way or other, on her actions involving this word being in accord with a social custom or practice. Crispin Wright [1980], John McDowell [1984; 1992], Donald Davidson [1991], and Barry Stroud [1996] each endorse a version of the communitarian account. And it is, of course, a view sometimes attributed to Wittgenstein. On Wright's account, the idea gets articulated as follows:

[I]t is a community of assent which supplies the essential background against which alone it makes sense to think of individuals' responses as correct or incorrect. . . . None of us can unilaterally make sense of correct employment of language save by reference to the authority of communal assent on the matter; and for the community itself there is no authority, so no standard to meet.

[1980: 219–20.]

If meaning and concept possession depend upon agreement with one's community, it is natural to suppose that we acquire our most basic concepts through interaction with this community. Davidson [1991], for instance, claims that we acquire our most basic concepts through a process of 'triangulation', whereby two or more people attend and react to the same material object, where at least one of them also attends and reacts to the other person's reactions to this object. Indeed, with respect to colour concepts, this is perhaps the most natural explanation to give in the first place, the one the philosophically uninitiated might propose: we acquire our first colour concepts by perceiving the different colours that material objects have, and by interacting with others in our environment who help us to sort these objects according to their colours. As children, we acquire the concept *yellow*, say, by being trained by our elders to sort yellow objects from other objects. In our training, we correlate our elders' utterances of particular colour words with those aspects of the environment to which they are reacting. We are able to settle upon which aspects those are, because we can perceive these aspects. These aspects are colours, colours material objects in fact have.

As with the teleologist, the communitarian is not committed to any particular account of the content of ordinary colour judgement. Which account of content she endorses will depend in part upon what properties she thinks we triangulate over in forming colour concepts. The communitarian could be a physicalist about content or a dispositionalist, or she could agree with the error theorist about the content of ordinary colour judgement and thus hold a form of primitivism. In all of these cases, the error theory would be false.

Those who claim that we acquire our most basic concepts by triangulating over the very aspects of our environment to which those concepts apply need not suppose that this is how we acquire *all* concepts. For instance, triangulation is clearly not the process through which we acquire the concept *unicorn* or *government*.²⁰ But we could not acquire our first colour

²⁰Nor is the proponent of this explanation even committed to the idea that the process of triangulation occurs every time we acquire a new *colour* concept. She might suggest that, once we have the general concept of colour (which we attain by acquiring concepts of particular colours, perhaps), we can acquire colour concepts we do not already possess without triangulation.

concepts in the way in which we acquire either of these concepts. Or, at the very least, again, the error theorist cannot think so.

Could an error theorist accept the idea that we acquire our first colour concepts through triangulation yet deny that the properties triangulated over are *colour* properties? Even the error theorist, after all, grants that we are able to distinguish objects according to the surface features responsible for producing our allegedly non-veridical colour experiences. Perhaps in acquiring our colour concepts, what we triangulate over are *those* properties—certain surface reflectance properties, say. But if those reflectance properties are what we triangulate with, then it would seem that the concepts we would thereby acquire would be concepts of those very surface reflectance properties and not concepts such as *yellow*. If we triangulated with surface reflectance properties, why should we think that we would form the concept *yellow*? Indeed, how could we form this concept from such triangulation alone?

It is tempting here to suppose that perhaps those surface reflectance properties are in the end simply what our concept *yellow* is *of*. On the suggestion under consideration, however, that would imply that some material objects are yellow. The error theorist needs to explain how we acquire our first colour concepts without at the same time rendering those concepts such that our ordinary colour judgements are sometimes true. The difficulty is that any property that the error theorist claims material objects do not have is not one over which he could propose we triangulate.

It of course meets with no more success for the error theorist to suggest that the properties we triangulate over are dispositions to produce certain visual experiences under certain circumstances. One would still be left needing to explain why the concepts we would thereby acquire are not simply concepts of those dispositional properties. Indeed, in this case, the error theorist might be saddled with the further difficulty of explaining how we could ever triangulate over those dispositions without already having an idea of the kinds of visual experiences—*yellow* ones (or experiences *of* yellow, etc.)—that those dispositions would be dispositions to produce. Having this idea involves having the concept the acquisition of which the appeal to triangulation would here be meant to help explain.

Now, it might be proposed that what the learner and teacher triangulate over are features material objects do have (e.g., surface reflectance properties) but that, in doing so, the learner somehow forms a concept not of the feature triangulated over but of a colour property of her own ‘subjective visual field’. But even granting the model of experience upon which this proposal would be based, the proposal faces difficulties. For one, if triangulation is essential to the process through which we acquire our most basic concepts, the concepts we acquire would presumably be of the very properties over which we triangulate. This presumption seems especially appropriate in cases where it *seems* to the learner that the concept she is acquiring is of the property over which she is triangulating. That is, it does not seem (to learner or teacher) that what the teacher is helping the learner to form a concept of is not the property over which they are triangulating. The teacher does not say anything like, ‘look inside your

mind and form a concept of what you see'. Moreover, regardless of how things seem to the participants, if the proposal under consideration were correct, the learner would be mistakenly settling on a property of something that the teacher neither points to nor intends the subject to attend to—something completely different from anything that stands in the line made by the teacher's pointing finger.

A variant of this proposal is that what the learner and teacher 'triangulate over' are the colour properties themselves of their own subjective visual fields. Is this possible? It is difficult to know what to say here. This proposal, which shares some of the difficulties of the previous one, is even further removed from the standard understanding of triangulation, according to which triangulation involves perceptual access on the part of all participants to the one object of triangulation. On the model of experience upon which the proposal depends, neither teacher nor learner has perceptual access to the other's visual field. However, a sufficient treatment of this proposal would require looking more closely at precisely what is required by communitarians to account for the normativity of concept possession, and why.²¹ At the very least, it strikes me as an awkward proposal, and one which, I should reiterate, depends on a dubitable model of experience in the first place.

V. Objections and Replies

A

It might be objected that, if my argument against the error theorist is correct, then there would be available an easy argument against scepticism of the external world, and a successful response to threats of scepticism could not be so simple. If we acquire our most basic concepts as either the teleologist or the communitarian claims, then many of our beliefs in which we apply these concepts to material objects would be true. We could infer from the conditions on concept acquisition that our beliefs are not systematically false.

But I have not provided any *proof* that we acquire our colour concepts in one of these ways. I have argued that these two families of explanation of the normativity of concept possession are the most plausible in currency. Neither explanation, however, provides an antidote to sceptical doubt about the existence of colour properties (or anything else), any more than, say, an explanation of the fact that it is raining that appeals to the state of the clouds proves beyond sceptical doubt the existence of clouds. It is possible that we acquired our colour concepts in a different way.

While mere possibility may be enough for the epistemological sceptic's project, though, it is not enough for the error theorist's. The error theorist must claim not only that it is *possible* that we acquire our first colour

²¹Wittgenstein's discussion of the 'beetle in the box' may be illuminating here [1953: §293], though I cannot in this paper explore whether this is so.

concepts in some other way, but that we *do* acquire them in some other way. And he must provide a satisfactory explanation of how we do. Any such explanation would have to fulfil the following conditions: (1) the explanation must be such that it does not render our colour judgements sometimes true; (2) it must be compatible with a plausible account of the normativity of concept possession; (3) it must construe the contents of ordinary colour judgements in a plausible way (i.e., the concepts the acquisition of which it would be explaining must be our *colour* concepts); (4) it must be part of a larger conception of the world that best explains everything that is so. I have been trying to show why meeting all of these requirements at once is a real difficulty.

B

Similarly, one might object to my appeal merely to the most *plausible* theories of the normativity of concept possession. I myself have not endorsed one family of accounts over the other; nor have I defended either from potential objections. Why shouldn't we wait until we have an *excellent* or *uncontroversial* account before we conclude that colour irrealism fails?

The reason has again to do with the motivation behind the error theory, which I have been tracing to explanatory considerations. The truth of our ordinary colour judgements was originally threatened only by the purported discovery that the irrealist's final conception of the world best explains everything that is so. But until we have reason to think that the irrealist is no less able than the realist to provide a satisfactory account of the formation of colour concepts, this discovery will not have been made. That we possess colour concepts is as important an *explanandum* as any of the psychological facts that irrealists typically emphasize, such as the fact that material objects appear to have colour. The fact that teleological and communitarian views are respectable accounts of concept formation which many philosophers endorse is thus significant. No other account on the horizon can explain the normativity of concept possession.

Of course, if the satisfactory explanations of the formation of colour concepts that do attribute colour to objects provide difficulties elsewhere in the explanation of everything that is so, then the threat to the truth of our ordinary colour judgements might still be alive. In fact, one might think that this is precisely the case. It may seem that by attributing colour to material objects, we run afoul of the materialist conviction that all phenomena are fully accountable in physical terms. But explaining the formation of colour concepts in a way that attributes colour to material objects need not contradict any such conviction. Both the teleologist's and the communitarian's explanations of the formation of colour concepts are, after all, compatible with both the physicalist's and the dispositionalist's accounts of the content of ordinary colour judgement. And in any of these cases, the physical or dispositional properties that would be attributed to material objects in the explanation of the formation of colour concepts are properties of the sort that those who hold the materialist conviction do countenance.

C

An irrealist might argue against me in the following way: Isn't it enough for the possession of a concept that there are conditions under which there are criteria for the application of the corresponding predicate? For instance, in the case of the predicate 'yellow', these are when an object *looks* yellow, or appears yellow. When an object looks yellow, the subject has good reason, all else being equal, to apply the predicate 'yellow'. It is just that on the irrealist's view, all else is not equal; the applications of the predicate to material objects are never true.²²

Let me first make explicit the distinction between a concept's criteria of application (as the would-be objector understands them) and its conditions of satisfaction. The criteria of application are epistemological. They are the conditions under which one has good reason to apply the concept. In this case, the criteria of application involve objects appearing yellow. The conditions of satisfaction are the conditions under which the concept in fact applies. In this case, the conditions of satisfaction involve objects *being* yellow. In order to possess the concept *yellow*, a subject needs to grasp its conditions of satisfaction. I have been exploring how a subject accomplishes this.

It is not sufficient for grasping the conditions of satisfaction for the concept *yellow* that one applies the predicate 'yellow' to objects when objects *appear* yellow. First of all, objects' appearing yellow is a criterion of application for the concept *appears yellow* as well, and so merely applying a predicate when objects appear yellow is not sufficient for applying the concept *yellow*; one might be applying the concept *appears yellow*. Indeed, if one were applying the latter concept, the judgements would often be true. But second—and more importantly—a subject's applying (or being disposed to apply) the predicate 'yellow' when objects appear yellow is not, on its own, sufficient for the subject's grasping *any* set of conditions of satisfaction, let alone the set of conditions of satisfaction for the concept *yellow*. One of the lessons of Section III is that no set of behavioural dispositions (non-intentionally described) could itself account for the normativity of concept possession.

It is true that if one already had the concept *appears yellow*, then one might be able to acquire the concept *yellow* on the basis of it. But if the proposal is that we acquire the concept *yellow* from the concept *appears yellow*, then the question is how a subject acquires the concept *appears yellow*. Of course, I do not suggest that a subject cannot acquire the concept *appears yellow*. The issue concerns what needs to be in place for her to do so. How a philosopher who holds that we form the concept *yellow* from the concept *appears yellow* would explain the acquisition of the concept *appears yellow* would depend upon the conception of experience she favours. If she subscribes to the model of experience according to which colour experience involves a visual field populated by

²²I am grateful to a referee for this journal for calling this objection (and the one I discuss in the next footnote) to my attention.

colour patches, then the question is how a subject goes from merely having a visual field with a yellow patch to having the concept *appears yellow*. I have discussed some reasons for thinking that a subject does not acquire the concept *yellow* by introspectively ostending the yellow aspect of a patch in her visual field. The same considerations, I believe, suggest that we do not acquire the concept *appears yellow* in this way either. If, on the other hand, one endorses a representational conception of experience, the question is how experience comes to *represent* the appearance of yellow. On the two families of explanation I have discussed—teleological and communitarian—it is difficult to see how a satisfactory answer could be given that does not ultimately render the content of the concept *yellow* such that the concept does sometimes apply to material objects.

D

Can an argument of the sort I have mounted against error theories concerning ordinary colour judgements be marshalled against *all* error theories (i.e., not just those concerning colour judgements)? Of course not. Nothing I have said in this paper suggests that we cannot acquire a concept that does not apply to any material object. A similar argument would not be effective, for instance, against error theories concerning judgements in which the concept *witch* is applied to someone; likewise for error theories concerning judgements in which the concept *magic* is applied. Nor would it even apply to error theories concerning judgements that posit rainbows, which require those who make these judgements to possess colour concepts. In all of these cases (and in many others), we have little difficulty explaining our acquisition of the concept in question without supposing that there are material objects to which the concept applies.

Indeed, a natural way for an error theorist to attempt to resist my argument may be to apply my argument to other domains of judgement; the error theorist might look for a domain of judgement about which an error theory clearly *is* correct and argue that if my argument against the error theorist about colour is correct, so must be a similar argument against an error theory concerning the identified domain of judgement. If my argument did imply, for instance, that an error theory about judgements in which the property of being a witch is applied to someone is *false*, this implication would presumably provide a *reductio* of my argument. But an error theorist about witches has an explanation available to her that the error theorist about colour does not. In the case of *witch*, it is natural to suppose that we form the concept through concatenation, i.e., by constructing it from other concepts that we already possess (e.g., *female*, *broom*, *cauldron*, etc.). I would tell a similar story about the concept *magic*, though it is more complicated. Such an explanation is not available to the error theorist about colour, however, because colour concepts are not analysable in terms of, or constructible

from, non-colour concepts—or, at least, they are not so *on the error theorist's conception of them*.²³

Perhaps there are other concepts to which an objector of the sort above might appeal that we acquire in an altogether different way than we do the concept *witch* and that still do not apply to any material object. I, of course, cannot address here every potential objection of this kind. Each proposed domain of judgement would require its own investigation. Moreover, it is often difficult to ascertain how in fact we acquire a particular concept. What is important to see at the outset, though, is that a successful objection of this kind would need to provide not only a plausible explanation of our acquisition of the identified concept (and one that never applies the concept to a material object) but also a persuasive argument that we may acquire *colour* concepts in a similar way. It is doing both that is especially difficult.

Are there *any* error theories other than those concerning colour judgements against which the sort of argument I have advanced might be effective? What about error theories concerning solidity, say, or goodness? Perhaps. It would depend upon the nature of those concepts essentially involved in the domain of judgement under scrutiny and upon how one who denied that these concepts ever apply to material objects could plausibly explain our acquisition of them. Again, a new investigation would be required in each domain. In the case of solidity, it is perhaps more plausible than in the case of colour to suppose that an error theorist could give an analysis of the concept in question (the concept *solidity*) in terms of other concepts. This is not clearly so, however, for the concept *goodness*.²⁴

VI. Conclusion

Where then does that leave us? What account of colour should we adopt? That will depend upon how moved we are by the arguments mounted against dispositionalist and physicalist accounts of colour. Physicalists especially should have less difficulty than error theorists explaining the acquisition of colour concepts.²⁵ Physicalists could thus employ the

²³One might object that, for both *yellow* and *witch*, there are two relevant conditions for how the concept operates:

- (1) There are criteria for identification and recognition of instances of the concept,
- (2) There are certain theoretical claims about the referent of the concept, e.g., about its causal role,

and that for both *witch* and *yellow*, we have the criteria of (1) but a failure of some of the theoretical claims (2). But my arguments concern how we *form* these concepts not how the concept operates. Of course, how a concept operates is related to how it is formed, but the fact that two concepts both have criteria for identification and a failure of some of the theoretical claims does not suggest that the concepts are formed in similar ways. Concepts may have similar conditions of operation yet be acquired in different ways.

²⁴An important question worth pursuing, then, is whether my arguments against error theories of colour can be applied to error theories in ethics, which are in fact currently enjoying a revival (e.g., see Joyce [2001]).

²⁵I would not say the same about all dispositionalist accounts. In fact, my arguments against the error theory may be applicable to some dispositionalist views as well. I have in mind views according to which what is ascribed to objects in ordinary colour judgement are dispositions to produce in certain observers' visual fields patches that possess colour or other sensational properties (e.g., Peacocke [1983]). Dispositionalists of this kind might have difficulty explaining how we acquire concepts of those properties.

argument I have mounted against error theories in their own defence against the common complaint made by error theorists (and others) that physicalists do not sufficiently respect the contents of ordinary colour judgement (e.g., [Boghossian and Velleman 1991]). The problem for error theorists turns out to be closely related to the problem these error theorists insist besets physicalists. Physicalist accounts are said to misconceive these contents. If the error theorist gets them right, he renders himself incapable of explaining how they could be as he says they are. Given his central claim that material objects do not have colour, he cannot explain how we acquire the concepts that he believes are essentially employed in ordinary colour judgements. Revisionist proposals share a similar fate. Revisionists should be able to explain how we acquired the concepts we are to revise.²⁶

If it is decided that physicalist and dispositionalist views do fail to depict accurately the contents of our ordinary colour judgements, then none of these accounts would sufficiently respect these contents. In that case, it would still be open to us to adopt a form of primitivism. The primitivist, who can share the error theorist's conception of the contents of our ordinary colour judgements, is able to make sense of how these contents could be as she says they are, because she believes material objects have colour. The primitivist can provide a plausible explanation of the acquisition of colour concepts.

We are now in a position to see why a resolution of the debate about colour realism may, *contra* a common conception of the current state of the debate, involve more than (and, in one sense, less than) simply identifying the contents of our ordinary colour judgements. This common conception supposes that there is little relevant disagreement over the kinds of properties a completed physics attributes to material objects, and that once we have determined precisely the contents of our ordinary colour judgements, it will be but a short step to resolve whether material objects in fact have colour. Indeed, this is how Boghossian and Velleman see it:

The question whether Galileo was right [that modern science implies that grass is not green] is not really a question about the content of modern scientific theory: aside from some difficulties concerning the interpretation of quantum mechanics, we know what properties are attributed to objects by physics. The question is rather about the correct understanding of colour concepts as they figure in visual experience: how do objects appear to be, when they appear to be green?

[1989: 81]²⁷

But if we decide that the contents of ordinary colour judgements are as the error theorist says they are, it will require a longer journey. Do we go with the error theory or with primitivism? Do material objects have colour or do they not? If what I have said in this paper is correct, then if that journey is

²⁶The same goes for cousins of revisionist proposals, according to which the contents of ordinary colour judgements *have already been* revised (gradually perhaps, since the modern era), as have the meanings of our ordinary colour terms.

²⁷For another statement of this conception, see Jackson [1998: 87–8].

required, our destination is primitivism. In any case, the final step is always to realism.²⁸

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