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The Illusory Theory of Colours: An Anti-Realist Theory

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ABSTRACT

Despite the fact about colour, that it is one of the most obvious and conspicuous features of the world, there is a vast number of different theories about colour, theories which seem to be proliferating rather than decreasing. How is it possible that there can be so much disagreement about what colours are? Is it possible that these different theorists are not talking about the same thing? Could it be that more than one of them is right? Indeed some theorists, e.g. Leo M. Hurvich, D. L. McAdam and K. Nassau, say that the term 'colour' is used to identify a range of different properties, e.g. pigments, properties of light, and sensations. Such a view has its attractions, but it raises the question of what it is that *unites* these various concepts – what is it that would make them all concepts of *colour*? What is it that justifies using the same terms, 'yellow', 'blue', 'pink', mauve', and so on?

This paper aims to address this question, arguing that its answer supports the conclusion that the best theory of colour is a form of anti-realism: the Illusory theory of colours. There are two parts to this thesis, one negative, the other positive. The negative part is that there are no colours, as they are ordinarily conceived. The positive part is that, nevertheless, the world is such that 'it is as if there are such colours'. Such a theory has important implications. One is that it doesn't fall neatly into the usual taxonomy of philosophical theories. In particular, it does not deserve the label 'eliminativist'. Another is that it allows some space for the views expressed by Hurvich, McAdam and Nassau, but not quite in the sense that they intend.

Colour, on the face of it, is one of the most obvious and conspicuous and unmissable features of the world. The visual world, the world we see, is a world populated by coloured objects: it is a world with a rich tapestry of colours. Despite this fact about colour, however, there are a vast number of different theories about colour, theories that seem to be proliferating rather than decreasing.

How is it possible that there can be so much disagreement about what colours are? Is it possible that these different theorists are not talking about the same thing, and that the opposition is more apparent than real? Could it be that more than one of them is right? Leo M. Hurvich begins the second chapter of his *Color Vision* by first asking 'What is color?' and then asking a series of questions: Is colour something that inheres in objects themselves? Is it related to the light falling on an object? Is it a photochemical event that occurs in the receptor layer of the eye? Is it a neural brain-excitation process? Is it a psychical event? Hurvich's answer is 'Color is all these things'.[1]

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[1] Hurvich 1981, 2.

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D. L. McAdam and K. Nassau are other well-known colour theorists who, while not being so ecumenical as Hurvich, nevertheless say that the term 'colour' is used to identify different properties, e.g. pigments, properties of light, and sensations.[2] I have some sympathy with the kind of view expressed by Hurvich, McAdam and Nassau, but there is also something that makes me want to resist. It concerns the question of what it is that *unites* these various concepts – what is it that would make them all concepts of *colour*? What is it that justifies using the same terms, 'yellow', 'blue', 'pink', mauve', and so on?

It seems to me that answering those questions is the key to answering the question of what is the right theory of colour. I shall defend this claim, while arguing that the best theory of colour is a form of anti-realism: the Illusory theory of colours. There are two parts to this thesis, one negative, the other positive. The negative part is that there are no colours, as they are ordinarily conceived. The positive part, is that, nevertheless, the world is such that 'it is as if there are such colours'. Such a theory has important implications. One is that it doesn't fall neatly into the usual taxonomy of philosophical theories. In particular, it does not deserve the label 'eliminativist'. Another is that it allows some space for the views expressed by Hurvich, McAdam and Nassau, but not in the sense that they intend.

Part I

1. Realism and anti-realism about colours

Alex Byrne and David Hilbert, in *Readings in Color*, Vol. 1, set out a taxonomy of philosophical theories of colour: eliminativist, dispositionalist, physicalist and primitivist theories of colour.[3] These theories are taken to be rivals, though the last three are said to have something very important in common: they are all realist theories of colour. (In making this claim, Byrne and Hilbert are taking 'realist' to contrast with 'imaginary' or 'false' or 'fictional', rather than 'idealist' 'subjectivist' or 'instrumental'. I would have thought that those forms of dispositionalism where the disposition is perceiver-dependent are non-realist, in some strong sense.) The four theories cannot be understood as rivals, however, unless we understand clearly what the subject matter is that we are talking about, the subject that we are trying to give an account of. I think that identifying this subject matter is more complicated than is often supposed, and that in identifying the proper subject matter, there are a number of important distinctions that need to be made. One reason for making this clear is given by Van Fraassen, who points out that, according to one form of anti-realism, the sentences of a theory are false if interpreted literally, but true if interpreted non-literally.[4] On this account, some

[2] McAdam 1997, 33; K. Nassau 1998, 3.
[3] Byrne and Hilbert 1997, xi–xii.
[4] Van Fraassen 1980/1998, 356–58.

anti-realists are offering a proposal for how the sentences should be interpreted, and do not fit neatly into the Byrne-Hilbert package.

To specify an attitude or position as anti-realist (or realist) requires specifying what it is one is anti-realist about. Usually, one is anti-realist with respect to certain sentences, terms or theories, e.g., sentences of theories about astronomy, atoms, electromagnetic fields or societies. In the case of colour, I take it that one central target is the set of colour-terms, red, blue, mauve, etc., that comprise the colour vocabulary of ordinary competent colour perceivers, who use colour language. It is not arbitrary that this colour vocabulary should be our target, for such terms are at the heart of a wide set of colour-principles and conceptual practices pertaining to colour.[5]

There is, however, more than one way of being an anti-realist with respect to a set of existing terms. One way is to argue that, given the way these terms operate, the way they are understood fits an anti-realist description. With respect to colour terms, this seems to be the position of those philosophers such as M. Dummett, Gareth Evans and John McDowell, who argue, as an analytic thesis, that colour terms apply to dispositions of objects to appear in a certain way.[6]

There is, however, quite a different way of being an anti-realist, e.g., in the way discussed by B. Van Fraassen. Following this approach, one says, in effect, to the people using a theory and its related terms, something like the following: 'Look, I know that you believe that the sentences in the theory, literally understood, to be true, but there is no need to hold those beliefs. There is a way of understanding the statements that you want to make so that it is not necessary to believe that they are true, and yet you can achieve all that you could (should) possibly want to achieve, with your theory'. This being said, there are, as Van Fraassen also points out, two ways for the anti-realist to go:

(1) The terms and sentences in the theory should not be understood literally, but their meaning replaced by a new meaning: statements ostensibly about electromagnetic fields should be interpreted as statements about dispositions to affect measuring instruments, and other macroscopic devices; statements about the Resurrection of Christ's body should be interpreted as statements about the profound changes made in the lives of people closely related to Christ, and so on.

(2) The sentences in the theory should be understood literally, but should be treated not as true, but rather '*as if they are true*'.[7]

Or possibly, s/he might combine both approaches.

[5] See Broackes 1992; Johnston 1992; Maund 1995.
[6] Dummett 1979, 28; Evans 1980, 272; McDowell 1985, 111–12.
[7] Van Fraassen 1980/1998, 357–58.

Let me apply some of the points raised here to the specific case of colour, illustrating some of the problems. I have defended a certain theory of colour. The theory is that our visual perception has a certain character. The world we visually perceive is a world of coloured things, of skies, oceans, ground, objects, faces, clothing, fruit and so on. We perceive these things as having a variety of colours. Our visual experiences represent things as being yellow, purple, brown, golden, and so on. There is a common character to these colours. The properties purport to be properties of a certain type: to be objective properties which are sensuous, qualitative, manifest properties possessed by skies, lemons, oceans etc.

The thesis is that objects do not have the colour properties that our experiences represent them as having. In an important sense, our colour experiences are illusory. There are no colours in the world, so conceived. This theory is sometimes referred to as an 'error theory', and sometimes described as committed to 'colour eliminativism'. Both of these labels are, however, misleading. They are appropriate, if at all, only if qualified. The label 'error theory' is misleading because the implication of calling something an error, at least in an unqualified sense, is that it should be eradicated or eliminated. It is true that, on my theory there are errors in perception, but the theory would be better thought of as an 'illusion theory'. The point about illusions is that many of them are harmless, and others are actually beneficial: they serve a valuable function, e.g. the illusions of the theatre or cinema. Colours are a case in point, or so I argue. They are illusions to be celebrated, to be enjoyed, fostered, shared, the subject of poetry, and so on. They are no more to be eliminated than are the illusions of the theatre and cinema, and of the novel. (Here I go against Plato in his attack on the poets.)

A similar point can be made about the label 'colour eliminativism'. I would be unhappy with the suggestion that, according to my theory, there are no colours, i.e. that there are no colours *tout court*, or no colours *period*. I think that a qualification needs to be inserted. What I claim is that the world contains no colours, as traditionally conceived, i.e., as traditionally understood and as represented in perception. That leaves open the possibility that there might be a non-traditional conception of colour, say, a technical one. Nor does it imply that the traditional conception should be eliminated – because, for one thing, given the point about illusions above, that concept may have a central role to play in how the illusion works, and for another it might otherwise be valuable. Indeed, one of the possibilities is the one outlined by Van Fraassen: that one should treat the sentences about colour, firstly as literally understood, and secondly, 'as if they are true'. There is a vast difference between saying of a sentence 'it is false' and 'it is as if it is true', even if with both statements, the sentence is false. This

discussion, it seems to me, throws light on some of the discussions of colour and its problems by well-known figures in the scientific tradition.

The thesis that I defend with respect to colour is best thought of as an Illusory theory rather than to describe it as an 'error theory' or as 'colour eliminativism'. It is important, that is, to stress the illusory character of colour experience rather than its making errors. One point about illusions is that they can be beneficial and have wonderful, or at least pleasing side effects. A second point is that the illusions can have important functions to play, either biologically or psychologically. A third point, which may be involved with the second, is that even illusions can be involved in the acquisition of the truth. That is to say, truth and error can be entwined to the advantage of the former. A number of perceptual examples illustrate this last point: the bent stick illusion; the phenomena of perceptual constancies; (iii) the experience of pain; (iv) the images in mirrors.

(1) *The Bent Stick*: The way in which truth can be cloaked in error is illustrated by the hoary example of the bent stick in water. The straight oar admittedly does not look straight, but the way it looks still carries information that one can extract. For although the oar looks bent, there is a specific degree of bentness that it looks: it does not look any old way. The point is neatly captured by Edmond Wright in a discussion of how illusions are often misinterpreted in debates between direct and indirect realists:

> An expert on refractive indices walks by a row of beakers each illustrating the so called 'illusion' of the Bent Stick and confidently reports as he taps them one by one 'Water, petrol, benzene, acetone, alcohol' (Wright 1996, 34).

The stick does not merely appear bent, it appears bent to a certain degree. The fact that it is bent to a certain degree means that we can draw an inference about the density of the liquid in which the stick is placed.

(2) *Pain*: The experiences of pain are both illusory and truthful. That we know the pain is not in the tooth may lead us to take a tablet, but our belief that there is something wrong in our tooth leads us to the dentist. But unless the pain is felt in the tooth, I won't be led to the dentist. In other words, my true belief that something is wrong in the tooth is brought out by the illusion – that the pain is in the tooth, i.e. the pain is represented as being in the tooth. The point of pain experiences is that the illusion leads the sufferer naturally and immediately to do something about the place at which the pain is felt: where the shoe pinches, the bee stings, etc. The experiences of pain are illusory in that pains are represented as being in places in which they are not, and thereby provide us

with the means for forming the true belief that there is damage in those parts of the body.

(3) *Mirrors*: In the case of mirrors, I have the illusion of there being a tortured soul remarkably like myself the other side of the painted glass, a certain distance away. That illusion can tell me something truthful: that my tie is straight, my grin is crooked and my eyes are watery.

The point about colour illusions is that even if objects do not have colours, they appear to have them, and for many purposes, that is good enough. For those purposes, it is sufficient that objects appear to be coloured: they do not have to actually have them. The point about colours is that for many purposes, the colours serve the purposes, by being a sign – for the perceiver – and of course, the illusion can function as well, as a sign, as the real thing.

2. *Problems with colour: the scientific tradition*

There is a famous remark in the writings of David Hume:

> Sounds, colours, heat and cold, according to modern philosophy are not qualities in objects, but perceptions in the mind (D. Hume 1738/1911, Bk III, part I, Section I, 177)[8]

What Hume says is literally false – at least it is tempting to think so. There are passages in the texts of Descartes and Locke, to take two of the philosophers that he had in mind, in which they seem to speak of colours as secondary qualities, as powers to cause sensations or sensory ideas of colours, and the secondary qualities are qualities of physical bodies. Their official position would seem to be that there are two kinds of colour: colour as a sensory quality, inherent in sensations or in sensory experiences, 'colour-as-it-is-in-experience' (or 'colour-as-it-is-in-sensation'), and colour as a quality of physical bodies, 'colour as-it-inheres-in-physical-bodies'.[9] Colours, as they inhere in physical bodies, are secondary qualities, powers to induce experiences that have colours of the other, subjective kind. Some physical bodies are yellow, in the secondary quality sense, since they have the power to cause, in the right circumstances, experiences that have yellow-as-it-is-in-experience.[10]

I do not think that this view fully captures the views of Descartes and Locke. Even if it did, however, we might well feel that Hume still has a point. For at the basis of the distinction Descartes and Locke make between the two kinds of colour, is a more fundamental thesis about colour terms and colour concepts. For

[8] See also Bk I, IV, IV, 216.

[9] Descartes 1954, A & G, LXVIII–LXX; Locke 1961, BK II, Ch.VIII.

[10] This view has been challenged by Alexander 1985, esp. Ch. 8, who claims that, for Locke and for Boyle, colours are not secondary qualities, which are physical textures, but Ideas in the mind.

them, there are also two kinds of ways in which colour terms and concepts are used. The primary application is to the sensory quality, to colour-as-it-is-in-experience, but there is a secondary application as well. Colour terms are also applied to physical bodies, but in a way that is derivative on the first. Descartes, for example, says 'when we say we perceive colours in objects, it is really *just the same as though we said* (my emphasis], that we perceived in objects something as to whose nature we are ignorant but which produces in us a very manifest and obvious sensation, called the sensation of colour' (Descartes 1954, LXX). The proper use of colour terms when applied to physical bodies should be understood, following Robert Boyle, as following a principle of metonymy, e.g, as in the use by waiters in a cafe: 'the egg-burger did not leave a tip'; 'the ham sandwich spilt the tomato sauce', 'the two fried eggs made a pass at me'. (I borrow the example from George Lakoff.) According to the principle of metonymy, as applied to colours, physical bodies have colours, but only in a derivative sense. The statement that a ball is yellow is elliptical for the statement that the ball has a power, to induce experiences that are experiences of yellow. The primary sense of colour terms is to apply to the colour in the experience. Hence the physical objects no more have colours than do ham sandwiches have desires or make passes, and we can understand the point of the Humean view.

Therefore, though Hume is not sensitive to the complexities of the Descartes-Locke position, we might feel, nevertheless, that he is making an important point. The undeniable implication of their position is that, with respect to the primary sense of colour terms, physical objects do not have colours, a view that is surely counter-intuitive. What brings the point out more clearly is the often-quoted passage from Galileo:

> I think that tastes, odours, colours and so on, are no more than mere names so far as the object in which we place them is concerned, and that they reside only in the consciousness. Hence if the living things were removed, all these qualities would be wiped away and annihilated (Galileo 1623/1957, 274).

We might note also that many modern scientists express themselves in the Humean way by saying that colours are not in the world, e.g. E. H. Land, S. Zeki, Rolf Kuehni, Alain Chrisment.

> Zeki:
>
> The nervous system, rather than analyze colours, takes what information there is in the external environment … and transforms that information to construct colours, using its own algorithms to do so. In other words it constructs something which is a property of the brain, not the world outside (Zeki 1983, 764).
>
> Kuehni:
>
> The present outline implies that color experience is entirely subjective. The world out there is not colored. Colors are symbolic representations of localized spectral

> power structures in comparison to neighbouring different spectral power structures (Kuehni 2001, 24).

Alain Chrisment:

> Color is all around us and it conditions us. So what is color?
> There is no simple answer to this, since color is not a physical reality … the color is in the brain rather than in the material. Color is an interpretation by the cortex, of sensations detected by the eye (Chrisment 1998, 5).

The Humean interpretation is supported by the fact that the use of colour terms in the secondary quality sense is a sophisticated use. Although Descartes gives the secondary quality account when, as quoted above, he says 'it is just as though we said, . . . ', he concedes, as does Locke, that the naive perceiver, or the philosophically-innocent, is unlikely to think this way. Instead, he or she thinks of physical bodies as having the sort of quality that is the same as the colour-as-it-is-in-experience. Descartes and Locke say that we are subject to a tendency to make a hasty judgement, without reflection, or from habit that we fell into in our youth:

> So we easily fall into the mistake of judging that the feature of objects that we call colour is something just like the colour in our sensation; i.e. of thinking that we clearly perceive something which in fact we do not perceive at all (Descartes 1954, 195–96).

It is because we are prone to make such mistaken judgements, Descartes and Locke argue, that many of us feel that the philosophical/scientific account of colour is so implausible. Once we acquire the philosophical understanding to correct that mistake, the account should no longer be seen as counter-intuitive. (Old habits, however, die hard.)

It is important to note that on this account, Descartes and Locke are not rejecting the ordinary concept, and replacing it by a new. Their account of what is required to truly ascribe colour terms to physical bodies presupposes that the old concept is retained. It is crucial both in the primary application of colour terms, to subjective qualities, and in the secondary application, to physical bodies.

Thus, on my reading of the Cartesian-Lockean position, it is quite complex. There is a primary application of colour terms such that they apply to experiential qualities, qualities inherent in sensations or experiences, and a secondary, derivative, metonymic sense, in which colour terms are legitimately applied to physical bodies. It is tempting but mistaken to say that the first use is a naive, unreflective, 'vulgar' use, and the second a sophisticated, reflective, philosophical use. (We need another term besides 'naive' and 'sophisticated', to capture the attitude one

can adopt when one becomes sophisticated, of acknowledging the legitimate, if restricted, role of the naive attitude.)

The view, rather, is that there is a primary fundamental use of colour terms, which is legitimate and proper, when restricted to experiential qualities. There is, however, a mistaken and illegitimate use: when the term is applied, naively and unreflectingly, to physical bodies. What is mistaken is the way the term is understood, when so used. There is, however, a secondary, derivative application of colour terms, to physical bodies, which requires a more sophisticated understanding. Both the primary and the secondary applications, properly understood, are 'philosophical'.

On the Descartes-Locke position, sentences such as 'bananas are yellow', and 'that dress is claret-red' can be understood in different ways. In the ordinary understanding of 'yellow', such sentences are false. However, there is another way of understanding the sentences – as elliptical for 'bananas have the power to appear yellow, in appropriate circumstances', 'that dress has the power to appear claret-red, in normal circumstances'. These sentences should be understood as operating according to a principle of metonymy, as presupposing the ordinary concept of colour, of yellow, or of claret-red. Accordingly, the sentence 'bananas are yellow', understood in the literal way, is false, while understood in the metonymic way, is true. This account provides an up-to-date expression of the 18th century slogan that one should aim to 'speak with the vulgar and think with the learned'. My comment on that slogan is that it should be modified so as to take account of the fact that the learned should combine being learned with being 'vulgar'.

We might note that, on this account, there is no need to revise the practice of uttering sentences such as 'that dress is claret-red' or 'ripe bananas are yellow'. We simply have to take them metonymically, not literally. So understood, the sentences are true. And we can leave the 'vulgar' to think as they do: we should learn 'to speak with the vulgar and think with the learned'.

We should note that this form of dispositionalism allows for two versions. According to one, objects may be said to have a 'true' colour – it has the disposition to appear in a certain way, under normal conditions and to normal observers. According to the second version, colours are treated as relativised, to circumstances and to observers, and no disposition is picked out as privileged.

Given the complexities of this position, the original framework set out by Byrne and Hilbert needs modification. The Descartes-Locke position does not fit neatly into that framework, being partly realist and partly eliminativist. I think, however, that it is better described as a version of anti-realism, with respect to the colours of physical bodies. I think, moreover, that it points the way to a different version of anti-realism.

3. A reconstruction of the traditional scientific view

The Cartesian-Lockean position, as I have presented it, is quite complex. The position has not been popular in philosophical circles. Given its complexities, however, there are different reasons why we might feel dissatisfied. Many of us, for example, will disagree with its account of the primary application of colour terms, but we might have different conceptions of what the right account is. And even if we agree on what the right account should be, we might disagree on whether physical bodies have colours, in that sense. Or then again we might think that the position is hopelessly confused.

I think that Descartes and Locke are right in their instincts, but wrong in the way they formulate their thesis. In particular, I think they go wrong in how they characterise the primary use of colour terms. I think that Descartes and Locke mischaracterise the conflict with the scientific/philosophical account of colour and the common-sense account. The problem, as I see it, is that once we understand the primary quality/secondary quality distinction central to the scientific tradition, it seems to us that, while intuitively colour is one of the primary qualities, equally with shape and number, nevertheless, within the scientific tradition, colour is excluded from the list of primary qualities. Intuitively, colours seem to be an objective part of the world, to be intrinsic, qualitative features of the objective world.

I think we should reject the scientists' account of the natural/folk concept of colour, construing it instead in such a way that colours are taken to be perceiver-independent, intrinsic, qualitative features of physical surfaces, volumes and other physical entities such as skies, rainbows and flames. This is the kind of colour that our visual experiences represent objects as having. The Descartes-Locke position therefore should be reframed so as to adopt this formulation of the folk concept, and to argue that no instances of this concept are physically actualised.

According to this way of thinking, Descartes and Locke were right that, given the natural (naive, pre-reflective) concept of colour, we can conclude that objects do not have colours. Their way of characterising the concept, however, is at fault. It should not be described as 'colour as it is in experience'. It would be better termed 'colour-as-we-see-it'. The ordinary concept is more plausibly construed as a concept of a certain kind of property: a perceiver-independent, intrinsic, qualitative feature of physical surfaces (i.e. it is not a dispositional property either to affect light or to appear to observers).

If we do reconstruct the scientific position in the way I have suggested, that still leaves us with the traditional problem – of finding a place for colours in the scientific account of nature. The answer to that, it seems to me, is that Descartes and Locke are substantially correct.

There are two kinds of ways in which colour terms can be used, or understood. The primary application of colour terms is to physical bodies, to bodies in

objective space, where the colour concept is a concept of an intrinsic, sensuous, qualitative feature of those bodies. Sentences such as 'bananas are yellow', and 'that dress is claret-red' can be understood in different ways. In the ordinary understanding of 'yellow', such sentences are false (i.e. understood literally, the sentences are false). However, there is another way of understanding the sentences – as elliptical for 'bananas have the power to appear yellow, in appropriate circumstances', 'that dress has the power to appear claret-red, in normal circumstances'. These sentences should be understood as operating according to a principle of metonymy, as presupposing the ordinary concept of colour, of yellow, or of claret-red. Accordingly, the sentence 'bananas are yellow', understood in the literal way, is false, while understood in the metonymic way, is true.

We can, if we like, say that there are two senses of colour terms, two colour concepts, the secondary quality sense/concept, and the primary quality sense/concept, provided that we acknowledge the priority of the primary quality sense. Physical bodies do not have colours in the primary sense, but they do have colours in the secondary quality sense, for there really are important dispositional properties, for objects really do have powers to appear in the ways distinctive of the various colours. Having said that, I want to make it clear that the position that I have just outlined is compatible with either taking the dispositions to appear to be relative to conditions and perceivers, or to be privileged, i.e. to be those dispositions that are picked out by specification of normal conditions and perceivers. (Though I favour the former.)

I claim we can characterise the way yellow things appear, i.e. the way something is represented as yellow. It turns out, however, that no physical bodies have such properties, i.e. they do not have the yellowness they are typically presented as having. The fact that there are no actual instances of such properties, however, does not mean that that particular concept of yellow should be eradicated or rejected or modified, though it might be supplemented. It still serves important purposes for it is still the case that lots of things are represented as having that property.

The fact that things are represented in this way is significant for a number of reasons. One is that it is central to the social purposes of colours, the purposes embedded in the social/conceptual practices pertaining to colours. The second reason is that if in the way perception works, physical things are represented in that way, then we had better have an account of such representations, of the way things appear, if we are to have an adequate account of perception.

There is a third reason. The fact that there is a certain way coloured things are represented as being allows us to exploit the principle of metonymy that Boyle explicitly refers to, and Locke and Descartes imply. Physical bodies can be said to be yellow in the sense that they have the power to cause perceptual states that represent them as yellow. They are not yellow in the literal sense, but there is a

metonymic sense in which they are yellow, and that is important to know about. There is a distinctive way that bananas and lemons look, and that is different from that which is characteristic of tomatoes and cherries, and it is important to know of each.

The principle of metonymy, moreover, can be extended – at least in principle. If we can identify in different types of objects, say physical surfaces, certain types of light modifying features, say reflectances, that have a distinctive causal role in the way coloured things appear, then there is reason for calling them 'yellow' in a metonymic sense. I say that this might be done, because there might be large practical difficulties that prevent it being done, or which make it not a very useful thing to do. I take it that, in this way, we can give expression to the ideas separately stated by Hurvich, McAdam and Nassau (see Introduction), that the term 'colour' is used to identify different properties, e.g. pigments, properties of light and sensations, except that I think that things are more complicated than they suggest, and I offer a different account of 'different senses' of the term 'colour'.

There is a disanalogy in the application of the principle of metonymy between the case of colour and the case of the cafe, which makes its application to colours far more significant, and far more useful. The usefulness of the principle in the case of colours can be explained by thinking of a hypothetical extension of the cafe case. It might turn out, for example that the cafe chef was mixing ingredients into the food in such a way that in ham sandwiches, there was something that made people lustful, in eggs something that made them clumsy, and in cheese something that made them irascible. In such a case, the situation would be more analogous to the colour case. In the case of colours, there is something in the various objects which causes the different kinds of appearances, and that makes it important to identify the various objects by reference to the colour terms, even though the use is metonymic.

4. Phenomenological and phenomenal qualities

The principle of metonymy can be further extended to apply to phenomenal qualities, qualities intrinsic to our experiences of colour. The colours that our perceptual experiences represent objects as having, are of a type that I call 'phenomenological qualities', using the term in contrast to 'phenomenal qualities'. Phenomenological qualities are qualities that objects appear to have. If they are qualities, they are qualities of objects in a three-dimensional objective space, and in time. They are not presented as qualities of experiences. When I perceive my lemon tree in the garden, I perceive the tree to contain yellow lemons against a green background. The experience represents the lemons as being yellow, i.e. as having a quality, which is a phenomenological quality. Phenomenal qualities are qualities inherent in, and intrinsic to, experience. This is a matter of stipulation.

They are qualia, in full-bodied, full-blooded, Australian Shiraz, variety. Paradigm examples of phenomenal qualities are found in feelings of pain and pleasure – the stabbing painful quality, the dull, throbbing painful quality, etc.

Though a phenomenal quality is a quality inherent in one's experience, it may be part of the phenomenological quality. The phenomenal quality is presented in experience but it is not experienced as a phenomenal quality. It is construed as an objective quality of a physical body in objective space. It is taken to be instantiated in a body in that space. (In David Hume's terms, one conflates the phenomenal quality with an objective quality.) It is tempting to say that the phenomenal quality is projected onto the physical object; Tempting but misleading. If the quality is projected, it is projected into *the content* of the experience, the representational content. We have a ready example, of this sort of situation. When we experience pains, we experience them in our bodies: the dull, throbbing pain behind the eyes, the sharp pain in the tooth, the ache in the left knee. The head, the tooth, the knee, are all represented as having a certain quality, i.e. they have a phenomenological quality. Which quality is it? The head behind the eye is represented as having a dull throbbing pain in it, the tooth as having the sharp, painful quality, etc.

When I feel pain in my knee, then I experience my knee as having pain in it. I experience the pain in my knee, just as surely as I experience pressure in my knee, caused by the table against which the knee rests. If the table has a nail protruding then I feel the pain in my knee just as I feel the pressure there. My feeling pain in the knee is an experience with a certain representational content. The pain is part of the content. The only proper account of this content, it seems to me, is that there is a certain phenomenal quality, the feeling of pain, which is part of the representational content.

It is helpful in this context to refer to Nelson Goodman's example of representation by exemplification.[11] A painter may represent the red colour of a brick house, and the yellow colour of the road, by exemplifying the red and the yellow, respectively, in the picture he is painting. Likewise two actors may represent two characters in a play as kissing, by actually kissing each other. They could of course simulate the kiss, but actors usually don't. The characters are represented as kissing by exemplification. Likewise a film could portray John Malkovich looking surprised by John Malkovich's being surprised.

Experiences of colour, I submit, work in a similar way to experiences of pain. When I experience a lemon as yellow, I experience it as being the phenomenological colour. This quality is illusory. The lemon does not have it. However, there is a phenomenal quality, characteristic to the yellow phenomenological quality: call it yellow*. Appeal to this phenomenal quality forms part of the explanation why the phenomenological quality is the way that it is. In these cases there are

[11] Goodman 1976, 52–67; Goodman and Elgin 1988, 19–23.

representations but although we can make a distinction, conceptually, between the vehicle and the content of representation, it is the case, nevertheless, that the vehicle has certain qualities that form part of the content. (For further discussion, see Maund 2003.)[12]

I agree with Michael Tye and Tim Crane that phenomenological qualities are qualities objects are represented as having.[13] In the case of colour, they are sensuous, intrinsic, objective, qualitative, manifest features. They are objective properties, properties of objects in objective space and time. Phenomenal qualities are qualities intrinsic to the experience – they are full-blooded, full-bodied qualia. Qualia, in my view, are not ineffable, qualities about which we cannot be mistaken. Qualia are not the properties thought to be automatically identified by the use of the phrase 'what it is like', applied to our perceptual experiences. They are phenomenal items used to explain why our experiences have the phenomenological character that they do.

This distinction between the phenomenological and phenomenal qualities allows us to see a way forward. We can modify the principle of metonymy as proposed by Boyle, which is implicit in the scientific tradition. Taking the phenomenological concept as the primary one, we can identify both a phenomenal quality, say yellow* which corresponds to the phenomenological colour yellow, and a property of physical bodies, a secondary quality, call it 'yellow$_{sq}$'. Both senses of 'yellow', yellow* and yellow$_{sq}$ can be understood as following the principle of metonymy.

I should explain how my account differs from that of Michael Tye, even though, in important respects they are the same. Tye acknowledges that perceptual experiences have phenomenal character, but argues that this character is explained in terms of the representational content of the experience, and not in terms of intrinsic properties of the experiences. My claim is that he is assuming a false dichotomy, namely: that features of the experience are either:

- features intrinsic to the experience
- features intrinsic to the content of the experience

but not both. I claim that there are some features that are both.

(Note: in using the expression 'intrinsic to the experience' I mean to cover both aspects of the experiencing, and features of phenomenal items, if any, that are given in experience. There is a philosophical dispute about whether perceptual experiences should be given an act-object analysis or an adverbial analysis. I am deliberately trying to bypass this issue. I should add that in my view, which I have defended, this dispute is an empty one, with little metaphysical significance.)

[12] Maund 2003, Ch. 9.
[13] Tye 2000, Ch. 3, esp. 45–48 ; Crane 2001, 137–144.

Part II

1. Introduction

In the first part of my paper, I set out a thesis that I wish to defend *The Illusory Theory of Colours*, or *The Virtual Properties Theory of Colour*. In that part, I was attempting to spell out what the thesis is. In this part, I shall briefly provide some arguments for it. The thesis that I wish to defend, it is important to note, is a version of Anti-Realism. The point of insisting on this is that there are two parts to the thesis: a negative part, and a positive part.

Negative Part:

(i) Physical bodies do not have colours, colours as ordinarily understood;
(ii) Sentences about colours, literally understood, are false.

Positive Part:

(i) We should retain the ordinary concept of colour
(ii) We should treat the sentences, literally understood, 'as if they are true'.

It is important to remember that the thesis has both the positive and the negative parts. This is what makes it a version of anti-realism. It also means that arguing for it will require a neat balancing act: there is a tension between the two parts. Nevertheless, the balancing act can be carried off: it is simply an implication of any anti-realist thesis that there is this sort of difficulty. I am arguing for three things:

(1) that there is what we might call 'an ordinary understanding of colour', an ordinary concept(s) of colour: a 'folk concept(s) of colour';
(2) that there are no colours, so understood;
(3) that the ordinary concept of colour has an important role to play.

2. Challenges to the argument

The thesis that I wish to defend, it is important to stress, has two parts: the first is that the scientific tradition is right in holding that physical bodies do not have colours, as normally and ordinarily conceived, although generally thinkers in this tradition have been mistaken, or sometimes confused, in their understanding of what the normal conception is. The second part to the thesis is that the ordinary concept should be retained. This second part is an expression of an anti-realist position, that sentences involving colour terms may be understood literally, but treated 'as if they are true'.

The argument that nature does not contain colours, as ordinarily and naturally conceived, depends on our getting clear about what the ordinary conception is. Once we are clear about that, I argue, the conclusion follows that there are no

instances in the world of such colours – or at least, there is no good reason to think that there are. One way to challenge this argument is to reject the formulation of the ordinary conception. A realist or objectivist about colours might hold, for example, that the way the ordinary concept of colour functions, it specifies colours as those objective properties in the world that have a certain causal role, e.g. that appear in characteristic ways. Putting it another way, the way our names for colour operate is by identifying or picking out certain properties, e.g. those that occupy a certain causal role in the perceptual identification of colours.

That is one way to challenge the account offered by the scientific tradition. There is, however, a different sort of challenge. It is to reject the emphasis that I have placed on establishing what the natural or ordinary concept of colour, some would call it 'the folk concept' of colour, is. There are two very different ways in which this rejection might go. One way, e.g. as proposed by Jonathan Westphal, is to say that the task of saying what the nature of colour is, what colours are essentially, is a very different task from giving an account of what the concept of colour is. The latter task involves conceptual analysis, but the former requires empirical investigation. I shall argue that this sort of response does not work. First, it involves a false dichotomy. Second, it fails to acknowledge the central importance of the ordinary conception of colour.

The second way of rejecting the argument for the 'virtual colour' thesis is to admit that the ordinary conception of colour is such that it has no actual instantiations, but all the same, it does not follow that there are no colours. Mark Johnston, for example, claims that the traditional concept of colour is a 'cluster concept', incorporating a wide range of different components.[14] If it should turn out that not all of these components are instantiated together, it need not matter. Providing enough of the components are found, or enough of the right ones, we can and should maintain that there really are colours.

For the most part, I am in agreement with Johnston. It seems to me that he is agreeing with my position, which is: there are no colours as traditionally conceived, but there is reason to say that there are colours if we revise the concepts. And I agree that this makes sense roughly because first there is a set of purposes for having the traditional concept, and which is such that there are no properties which ground these purposes, and second, some of the purposes can be served if we revise the concept by construing colours as dispositional properties. However, I go beyond Johnston in the following crucial respect. He overlooks the possibility that we should revise the traditional concept by introducing not just one new concept, but two (at least). My argument is that some of the old purposes can be served by one concept, and other purposes by the other. (It was this point that formed the basis of an early paper of mine 'Colour: a Case for Conceptual

[14] Johnston 1992/1997, 137–39.

Fission'.) Indeed some purposes can be served by a concept for which there are no actualisations. For some purposes, it is enough for it to be true that 'it is as if the concept is exemplified'.

We have a ready-made example that illustrates the point. Take the concepts of mass in Newtonian Mechanics and Relativistic Mechanics. In Newtonian mechanics, we had a concept of mass, whereas in Relativistic Mechanics, we have two concepts of mass. The right thing to say about this situation is that the world does not contain mass as the Newtonians conceived it: there are no instances of Newtonian mass. The world does contain mass however, two kinds of mass, rest mass and relativistic mass. The situation is similar to that of colour. There are no colours as traditionally conceived. There may be colours, as differently conceived, but they are different kinds of colour. Also just as with Newtonian mass, we retain the concept, even though there are no Newtonian masses, since for many purposes the world is 'just as if there are such masses', so with colours: the world is as if there are colours, traditionally conceived.

This last step is vital. Although the traditional concept is not actualised, there is point in retaining it, just as there is point in retaining the concepts *satanic, angelic*, even if one does not believe in Satan and angels (and likewise with concepts of *witch* and *star*). The point is that the colour concept, in the traditional sense, still serves a purpose, even if not actualised. Very roughly, it is because the concept serves a valuable purpose, in characterising the way things look, that it is important. It is significant to say that something looks yellow, in the traditional sense, even if nothing is yellow, in that sense.

A third way of challenging the argument that I am presenting would seem to be that offered in a recent article in *Behavioral and Brain Sciences*, by Alex Byrne and David Hilbert.[15] These authors in defending a realist view of colour according to which colours are reflectances of a certain type, state that while the problem of colour realism concerns various salient properties that objects visually appear to have, 'it does not concern, at least in the first instance, colour language or colour concepts. The issue is not how to define the words "red", "yellow", and so on. Neither is it about the nature of the concept "RED" '. They go on to say that the problem of colour realism is primarily a problem in 'the theory of perception, not a problem in the theory of thought or language'. But here they are operating with a false dichotomy. What they overlook is that the problem is about both perception and thought, i.e. about perception, and more specifically that perception which operates, at least in part, through concepts. This point is valid even for animals, which do not have linguistically expressed concepts. Such animals can be thought of as having 'practical concepts' or 'working concepts'. (See Campbell 1994; Maund 2003, ch. 2) There is a more specific point to make about the special case

[15] Byrne and Hilbert 2003.

of colour. Byrne and Hilbert say that the problem of colour realism concerns various salient properties that objects visually appear to have'. But those properties are the ones that our ordinary understanding of colour, our folk concept, addresses. Our ordinary understanding of colour targets those properties: (see the next section.)

3. Perceptual saliency and the folk concept of colour

I have stressed the need to clarify the ordinary, pre-reflective understanding of colour – to specify what has been referred to as the 'folk concept' of colour, I think with affection, by Frank Jackson and David Lewis, for example. This conflicts with the view of Byrne and Hilbert who claim that colour realism is an issue related to colour perception, and that is quite separate from the issue of how colour terms operate, and of how colour concepts are to be specified. I disagree, but even if Byrne and Hilbert were right in their positive claim, this would mean that there were two problems of colour realism. For I cannot see how we can have an adequate theory of colour that did not address the question of what the ordinary conception of colour is, and whether there are instantiations of the concept. (There may of course be other interesting issues.) But in any case, it seems to me that Byrne and Hilbert are not right, for the two issues are intimately related.

This point can be illustrated by reference to the point introduced at the beginning of this paper. I raised the question then of whether the wide range of theories about colour were competing, or whether they were in some sense, complementary. For the different positions to be rival theories of colour they need to be talking about a common subject matter. We need, that is, to identify the colours, the things we are talking about, prior to employing the various philosophical theories on offer, and prior to assessing them.

There is no doubt that colours are properties that have a conspicuous perceptual saliency; that they are, as Byrne and Hilbert state, 'salient properties that objects visually appear to have', but to say this is not enough to specify what colours are. There is a simple and obvious answer to the question of identifying the properties of colour. It is an answer that acknowledges that, for a start, colours are properties for which (a) there are competent colour-perceivers who perceptually identify and recognize, objects as having colours; (b) there is a flourishing colour vocabulary, e.g. colour names; (c) there are properties for which there are obvious paradigms: tomatoes are red, skies (in Perth) are blue, lemons (ripe) are yellow, grass is green, and so on.

This answer recognises that there is a vigorous set of conceptual practices concerning colour concepts. These practices include the use of colour names but they involve far more. (That is to say, the term 'conceptual practices', embraces

a wide range of practices, linguistic and non-linguistic, that cover a wider range than the having of thoughts and the talking about colour.) For one thing, they involve the exercise of a range of capacities, e.g. to make certain colour matches: to identify and recognise, by looking, the colour of objects. For another thing, they include the capacities to use colours for a variety of purposes, social and personal. One important role colours play is in 'practical epistemology', i.e. as signs for the identification and re-identification of physical objects. In this capacity, they serve not only as natural signs, but as social, conventional signs, e.g. as badges, uniforms, for ceremony etc. But there is an even more significant role for colours. In addition, they may also be said to have a 'life of their own'. That is, they are used in social life to amuse, to entertain, to delight, to shock, to impress, to astound, to warn, to attract, to be enjoyed, and so on, in contexts having to do with pageantry, ceremonial, courtship, painting, lighting, plays, clothing, dining, drinking, and so on. In the visual arts, in paints, in design, in lighting, in fashion, in industry, as well as a whole range of other practices, colour is important.

The existence of these colour conceptual practices is significant, for a number of reasons. One is that they allow us to identify a subject matter for theories of colour (to be theories about). Secondly, close analysis of these practices allows us to identify a range of colour-principles that colours, at least on the face of it, obey. These principles are embedded either explicitly or implicitly, in the practices. Their significance is that they provide certain constraints upon any adequate theory of colour. To say this is not to say that the principles are unassailable or irrevocable. It is to say, rather, that the principles need to be addressed by any adequate theory of colour. One way they might be addressed is to argue that they merely appear to be true, and to explain why they appear so. Another way is to show that the principles lend themselves to an interpretation that differs from the orthodox one, and can be defended.

One highly significant fact that is revealed by the study of the conceptual practices governing colour, is that the fact that colours are perceptually salient, visually conspicuous, in the way that they are, lies at the heart of these conceptual practices. It is because colours are perceptually salient in the way that they are that they serve the purposes that they do, and the conceptual practices take the form that they do. Accordingly, we do not have to accept the contrast Byrne and Hilbert make between giving an account of the colour perception and given an account of concepts of colour. Furthermore, having the wealth of relevant conceptual practices in mind, it is possible to recognise that, in talking of the perceptual saliency of colours, we are recognising a set of perceptual facts about colours: that we can identify a range of paradigms; that there are competent colour-perceivers who perceptually identify and recognise objects as having colours, and who can make colour-matches; that colours are properties that play a causal role

in the perceptual identification and recognition of colours, and in the identification of paradigms of colour; that there is a distinctive and characteristic way that, for each colour, things that have the colour, *look*. This last point is particularly important: there is an important property that many objects share: of looking yellow, of looking pink, of looking blue, and so on.

The perceptual saliency of colours allows us to identify further general principles concerning colour. One of the most striking things about colours is that they can be taken collectively so as to form a structured array of properties, with a characteristic structure. Colours as a group can be placed in systematically ordered arrays, which can be captured in psychological colour spaces, constructed according to one or other of the various colour systems, as in the Swedish Natural Colour System, the Munsell Colour System. These spaces are based upon matching (and other perceptual) judgements of colour perceivers: X matches Y; X is closer to Z than to R; X contrasts more with A than with Z; In contrast to X, R is between A and Z. On the basis of such judgements colours can be placed in a colour space. The dimensions of the colour spaces will vary not only according to the system, but according to whether we are considering surface colours, volume colours, aperture colours, etc.; but in each case, colours collectively obey certain structural principles.

There is an additional aspect to colours, i.e. to the sorts of properties identified in the ways outlined above, which is grounded in their perceptual saliency. Colours are properties that we, as competent colour perceivers, are trained to identify, recognise and teach others. Having such capacities, it is possible to describe the colours that we are competent in identifying, as properties which have a certain general character: they are properties presented in perception as objective, intrinsic, qualitative, sensuous features of bodies in physical space. The features are intrinsic, not relational and in particular, not perceiver-dependent. They are objective, in the sense of being intrinsic features of physical objects. They are sensuous, qualitative features, whose nature is manifest.

The properties so far identified, are general ones, which hold either of colours generally, or of colours taken as group. It is possible, however, to identify more specific principles. First, there is a range of principles concerning the way coloured objects appear and the circumstances under which the way they appear change, e.g. related to the effect of the surround of the object seen, changes in illumination, and the (limited) phenomena of colour-constancy. Second, there is a body of putative causal colour truths:

- lemons (bananas, wheat, . . .) turn from green to yellow as they ripen,
- insects with red stripes tend to be venomous,
- red sky at night, shepherds' delight; red sky at morning, sailors' warning;
- acids turn blue litmus paper red.

Summarising, we can classify the various principles pertaining to colour as follows:

1. Colours are *Perceptually Salient*:
   (a) there are distinctive sets of paradigms for colours;
   (b) colours are perceptually identified and recognised by competent colour perceivers;
   (c) colours have a distinctive characteristic way they appear;
   (d) colours have a causal role, vis-à-vis the perception and identification of specific objects as red, yellow, blue, and so on; and with their use as paradigm examples in teaching colour language;
2. *Structural Principles*: colours can be arranged systematically in ordered arrays. That is, a set of internal relationships hold between the range of colours.
3. *Phenomenological Principles:* Colours, as presented in perception, are intrinsic (i.e. non-relational), features of objects, feature which have a certain character. They are (a) intrinsic, i.e., non-relational; (b) objective perceiver-independent; (c) sensuous, (d) qualitative and; (e) their nature is manifest.
4. *Social/Epistemological Role*: One of the central roles colours play is that of serving as a sign, either as a natural sign, for the presence of objects or for properties of objects, such as spatio-location, danger, invitation, and so on; or as a conventional sign, in a social context.
5. *Specific Causal Principles*:
   (a) there is a range of principles concerning the way coloured objects appear and the circumstances under which the way they appear change, e.g. related to the effect of the surround of the object seen, changes in illumination, and the (limited) phenomena of colour-constancy.
   (b) there is, however, a body of putative causal colour truths covering colours of objects, e.g. ripening lemons turn from green to yellow; white houses are cooler than black ones.

4. The argument that there are no colours traditionally conceived

Colours, on the face of it, are properties that satisfy this range of principles. Colours, as they are ordinarily conceptualised (colours as specified by the 'folk concept' of colour), are properties of this kind. I say, 'on the face of it', that colours satisfy this range of principles. The problem is, however, that once we try to take into account the results of the scientific analysis of colour, it seems that there are no properties that fulfil the requirements. In particular, there are no

properties that both play the right causal role, in the perception of colour, and which satisfy the structural principles (nor that have the right sensuous, qualitative character).

There are, that is to say, no colours that are intrinsic, non-relational, perceiver-independent properties and which satisfy the requirements of any three-dimensional colour solid. None that is, that allow us to make sense of the way in which we perceive and identify and recognise colours. In particular, the colours, which the surfaces of physical objects *look to have*, collectively form a group with the 3 + 1 structure, based on the 4 unique colours and the black/white pair. There are objective, intrinsic properties, which play a causal role in the experience of such colours, but they do not satisfy the structural relationships. We may be able to hold on to the objective characterisation of colour if we give up this last requirement, e.g. if we say that it is one thing for objects to be red, and another for them to look red, and that it is the way they appear that satisfy the requirement, and not the colours themselves, but that is to give up the ordinary characterisation of colour. It is to say that there are colours but not as we had originally conceived them. That can be done, but we must recognise the price. We have agreed that there are no colours as ordinarily conceived. In the second place, even if we accept that, there will still be a need for the original concept of colour, or something like it, for we shall still need to characterise the way coloured things look, i.e. in terms of something's looking red, looking yellow, and so on. Not only that, but there is a crucial need for the folk concept of colour, for the way things appear is crucial to the role that colours play in our social lives, i.e., to the role that makes colours so important to us.

Alternatively, we might weaken the notion of 'causal role' so that, for example, colours can play a causal role without being the productive cases of perception. An example borrowed from Fodor, in another context, is this: tall parents cause, by and large, the birth of tall offspring, even though it is not the tallness per se that causes the offspring to be tall, but some genetic feature that is the basis for the tallness. Likewise, it might be true that red things cause the perception of them as red, even if it some feature of each such thing, which is the causal basis for the redness, that does the causing.

A plausible way for how colours might serve such a causal role can be found if colours were construed as dispositional properties, pure or mixed. Mixed disposition: for X to be yellow, is to have some feature by virtue of having which, X causes the perceiver to see it as yellow (under the right sort of conditions). But to accept that account of colours would be to reject a crucial part of the Phenomenological aspect to colours, according to which colours are intrinsic, objective properties of objects.

On the face of it, it seems hard to see how colours, construed as intrinsic, objective, qualitative, manifest properties can play the right causal role. That they

can play such a role seems to be the view of John Campbell, who defends what he calls the Simple View of Colours.[16] But I find it hard to see how this can be. There is an important difference between the tall parent case and the colours case. Tallness is a property that, let us say, has in people a specific causal basis. It is however, not only a property distinct from the causal basis, but one whose instances can be known to obtain quite independently from being the effect of the causal basis. It can be perceived, for example, and it can be measured. In the case of colour, on the other hand, things are different. The only way we know about the colour is by it being perceived. This raises the question of how we know that the object, in addition to having the causal basis, has the colour as well. We might put the problem this way. Suppose that the simple, qualitative, manifest property is supervenient on say spectral reflectance. Suppose that overnight things changed: the simple feature that was previously there, slipped away. How would we know?

Conclusion

Given that with our ordinary understanding of colour, the folk concept of colours, we seem to be committed to an inconsistent set of principles, how should we proceed? My proposal is that we should adopt an anti-realist practice. We should treat sentences ostensibly about coloured physical bodies, 'as if they are true', or at least, certain central statements. For many purposes that is appropriate. The point is that the colour concept, in the traditional sense, still serves a purpose, even if not actualised. Very roughly, it is because the concept serves a valuable purpose, in characterising the way things look, that it is important. It is significant to say that something looks yellow, in the traditional sense, even if nothing is ever yellow, in that sense.

This proposal does not mean that we should stop inquiring into the causes of why we perceive colours the way that we do. Nor does it stop us from introducing new concepts pertaining to colour, e.g. dispositional properties, and possibly 'objectivist' concepts, that function in the metonymic way outlined in the first part of this paper. What makes the anti-realist position attractive is that it combines the point that there are no colours, traditionally conceived, while acknowledging that there is reason to retain the traditional concept. The reason is that the standard conceptual practices operate because central to them is the way that colours appear. For all practical purposes, it is not necessary that objects have colours: it is sufficient if 'it is as if they have them'.

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[16] Campbell 1993/1997, 177–78.

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