Colours, colour relationalism and the deliverances of introspection

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I frame no hypotheses; for whatever is not deduced from the phenomena is to be called an hypothesis; and hypotheses, whether metaphysical or physical, whether of occult qualities or mechanical, have no place in experimental philosophy.

Sir Isaac Newton
Letter to Robert Hooke
5 February 1675/1676

1. Colour relationalism

Let colour relationalism be that form of colour realism according to which colours are constituted (partly) in terms of relations to subjects (possibly inter alia). Colour relationalism can be usefully contrasted with non-relationalist views according to which colours are, say, non-relational physical properties of objects (Byrne and Hilbert 2003; Tye 2000).

One (historically important) way to bring out the conflict between these two sorts of views is to ask whether, in cases where subjects appear to disagree in the colours they ascribe to a common object, it must be the case that at most one of the ascriptions can be veridical. For example, suppose that you look at a ripe tomato, that it appears to be red and that you report as much when asked; and now suppose that an alien being, with very different perceptual apparatus, views the same ripe tomato, but that it appears to her to be green, and that she reports as much when asked. Would one of the two reports of the ripe tomato’s colour have to be mistaken, or is it possible that both of them could be correct?

Anti-relationalist views about colour predict that, in such cases of perceptual variation with respect to colour, just as in the case where you and I disagree in (say) the shape we ascribe to an object, at most one report

This formulation of the position says nothing about just which sort of relation to subjects is colour-constitutive, and thereby makes room for a wide range of different forms of the view. Perhaps the most famous form of colour relationalism is the traditional dispositional view that colours are identical to objects’ dispositions to produce characteristic mental states in (normal) perceivers in (normal) circumstances. Many find this view in Locke, Descartes and other great moderns; more recent dispositionalists include McGinn (1983) and Johnston (1992). See Cohen 2004, 2009 for a fuller formulation of colour relationalism, discussion of its relationships to other views, and defense of the position.
can be correct in what it says about the object’s colour. In contrast, relationalist views predict that, at least in many cases, the (apparently) disagreeing ascribers can both be correct. The relationalist holds that, just as one joke can be funny to you but not to me, and just as one individual can be a sister to you but not to me, so, too, a given stimulus can be red to you but not to me. Precisely because they disagree in their treatments of these cases, instances of perceptual variation have been at the centre of disputes between relationalists and non-relationalists for a long time.

2. The introspective rejoinder

Whatever one’s ultimate verdict, it seems to us that colour relationalism (at least in some of its forms) is an interesting proposal that merits serious consideration by those seeking a realist colour ontology.

In contrast, many have urged that colour relationalism should be rejected out of hand because it is unacceptably revisionist of what we naively know to be true about colours on phenomenal grounds. The thought here is that the view does so much violence to pre-theoretical, phenomenally informed, intuitions about the nature of colours that it amounts to a change in subject matter. To proponents of this thought, it is just obvious to anyone with ordinary colour phenomenology and minimal reflective ratiocination that colours are properties that (perhaps unlike funny or sister) are not constituted in terms of a relation to subjects. And if the relationalist metaphysics of colour conflicts with widely introspectively available data about the nature of colours, we have no choice but to reject the offending theory. Because it rests on some variety of phenomenal introspection, we’ll call this line of anti-relationalist criticism the introspective rejoinder.

Many philosophers have been especially confident in pressing versions of the introspective rejoinder against colour relationalism. Here are some particularly clear (and otherwise representative) instances:

... consider further the phenomenology of these [colour] qualities, that is, their characteristics as revealed, or apparently revealed, to observation. In the first place, as we have already noted, they appear to be intrinsic, that is, non-relational, properties of the physical things, surfaces, etc. to which they are attributed. (Armstrong 1987: 36–37)

If colours looked like dispositions, then they would seem to come on when illuminated, just as a lamp comes on when its switch is flipped. Turning on the light would seem, simultaneously, like turning on the

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2 We do not mean to suggest that the thought we are about to describe is the only source of resistance to colour relationalism.
colours... But colours do not look like that; or not, at least, to us. (Boghossian and Velleman 1989: 86)

But surely [relationalism] misrepresents the phenomenology of colour perception: when we see an object as red we see it as having a simple, monadic, local property of the object’s surface. The colour is perceived as intrinsic to the object, in much the way that shape and size are perceived as intrinsic. No relation to perceivers enters into how the colour appears; the colour is perceived as wholly on the object, not as somehow straddling the gap between it and the perceiver. Being seen as red is not like being seen as larger than or to the left of. The ‘colour envelope’ that delimits an object stops at the object’s spatial boundaries. So if colour were inherently relational, ... then perception of colour would misrepresent its structure – we would be under the illusion that a relational property is non-relational. Contraposing, given that perception is generally veridical as to colour, colours are not relational... (McGinn 1996: 541–42)

Still, it may be insisted, the relational view of colour (or at least some colors, e.g. the achromatic ones) surely goes against ordinary color experience. When, for example, a rubber ball looks blue to me, I experience blueness all over the facing surface of the ball. Each perceptible part of the ball looks blue to me. And none of these parts, in looking blue, look to me to have a relational property. On the contrary, it may be said, I experience blueness as intrinsic to the surface, just as I experience the shape of the surface as intrinsic to it. This simple fact is one that relational approaches to colour cannot accommodate without supposing that a universal illusion is involved in normal experiences of color – that colours are really relational properties even though we experience them as non-relational. (Tye 2000: 152–53).


It will be important to say something about the structure of the objection we are now considering. As we read the quoted passages and other instances of the introspective rejoinder in the literature, it is an objection that consists of two distinct stages. In the first stage, the objector carries out some sort of phenomenal (or perhaps phenomenal-cum-cognitive) introspection of her colour experience. In the second stage, the objector goes on to make a judgement about the nature of colour on the basis of the data obtained at the first stage. Namely, she makes a judgement to the effect that colours are not, pace colour relationalism, constituted in terms of relations to subjects (in the way that, plausibly, funny, sister, sweet or delicious are constituted in terms of
relations to subjects), but instead are constituted independently of their relations to subjects (in the way that, plausibly, *square* or *one metre long* are constituted independently of their relations to subjects).

The force and frequency with which it has been pressed suggests strongly that many philosophers with otherwise quite different theoretical commitments take the introspective rejoinder to be a convincing argument against colour relationalism. We want to argue, on straightforward empirical grounds, that this assessment is unwarranted.

3. Introspection revisited

Presumably, the sort of phenomenal introspection and subsequent judgement that comprise the introspective rejoinder are available to normal adult human beings, and not just professional philosophers. If so, then normal adult human beings should be able to consider matters, arrive at the anti-relationalist judgements expressed in the quoted passages above, and consequently should be committed to rejecting the relationalist-friendly both-right answer to cases of representational variation involving colour. As it turns out, however, that’s not what happens.

3.1. Methods

We presented 31 participants (7 males) with a counterbalanced series of cases of representational variation involving shape properties (*rectangular* and *round*), colour properties (*red* and *green*) and gustatory (*sweet*, *bitter* and *sour*) properties, as well as cases of representational variation involving the application/non-application of the property *delicious*. Our participants were drawn from an undergraduate introductory logic course at the University of California, San Diego. In these cases of representational variation with two variants, we asked these participants to choose which, if either, variant is veridical at the expense of the other, or else to say that neither variant is veridical at the expense of the other. In each case, the variation was between one human being and a non-human alien visiting earth. To prevent participants from treating the cases as resulting from specifically linguistic differences between the subjects, we provided the following background description to the participants:

Andrew, Abigail, Alexa, and Amos are all aliens from different planets. They learn English by reading books, and attain native fluency. Their use of English words is no more different from yours than that of other native speakers of English is from yours. But these aliens have different perceptual systems from ours. Consequently, when the aliens visit Earth on a spaceship and talk with their friend Harry the human, they
sometimes disagree about whether a given English word applies to something. Your job is to help us settle these disputes.

After this background information, participants received the particular scenarios for the properties of interest. For example, here is one of our scenarios involving colour properties:

Andrew the alien and Harry the human view a ripe tomato in good light, at a distance of 1 metre. Harry says that the ripe tomato is red, while Andrew says that the very same ripe tomato is not red (in fact, he says it is green). Which of the following do you think best characterizes their views? (Check one and give a brief justification for your answer.)

(1) The tomato is red, so Harry is right and Andrew is wrong.
(2) The tomato is not red, so Andrew is right and Harry is wrong.
(3) There is no fact of the matter about unqualified claims like ‘the tomato is red’. Different people have different visual experiences when they look at the same object, and it is not absolutely true or false that the tomato is red.

And here is another scenario involving shape properties:

Abigail the alien and Harry the human view an ordinary compact disc under good light, at a distance of 1 metre. Harry says that the CD is round, while Abigail says that the very same CD is not round (in fact, she says it is triangular). Which of the following do you think best characterizes their views? (Check one and give a brief justification for your answer.)

(1) The CD is round, so Harry is right and Abigail is wrong.
(2) The CD is not round, so Abigail is right and Harry is wrong.
(3) There is no fact of the matter about unqualified claims like ‘the CD is round’. Different people have different visual experiences when they look at the same object, and it is not absolutely true or false that the CD is round.

Each case stipulated that there was representational variation between the human being and the alien, and also provided the participant with the property ascriptions made by both the human being and the alien (in the colour case above, Harry ascribed *red*, while Andrew ascribed *green*; in the shape case above, Harry ascribed *round*, while Abigail ascribed *triangular*). We provided enough description of the conditions in which the ascriptions were made to prevent explanation of the representational difference merely in terms of obviously degraded observation conditions. In each case, the object to which the human and aliens ascribed properties was a familiar object whose stereotypical shape, colour, etc. should have been known to the participant. In each case, Harry the human was said to have ascribed just
this stereotypical shape, colour, etc., while the alien was said to have rejected
the human’s ascription in favour of a distinct determinate property of the
same determinable.3

3.2. Predictions
Recall that the introspective rejoinder to colour relationalism claims that the
normal phenomenal introspective capacities available to ordinary adults sup-
ports the judgement that colours are non-relational. If that is so, and assum-
ing the participants in our population enjoyed those normal introspective
capacities (and don’t take themselves to be suffering from any kind of cog-
nitive/perceptual illusion that would make the output of their normal intro-
spective capacities unreliable), then these participants should favour either
answer (1) or (2). On the other hand, if the normal introspective capacities
used by ordinary adults allow that colours might be constituted in terms
of a relation to a subject, we would expect these participants to favour answer
(3).4

Similar predictions apply to non-colour domains. That is, to the extent that
introspection reveals the non-relationality of a property \( p \), we should expect
participants to prefer answers (1) or (2) to cases of representational variation
involving \( p \); and to the extent that introspection allows for the relationality of
\( p \), we should expect participants to favour answer (3) to cases of representa-
tional variation involving \( p \).5

3.3. Results
Looking at mean responses, the participants preferred the relationalist
answer (3) 30.9% of the time in cases involving shape, 47% of the time in
cases involving colour, 72.5% of the time in cases involving gustatory prop-
ties (sweet and bitter) and 98.5% of the time in cases involving disagree-
ment about delicious (Figure 1).

3 There is, of course, interpersonal variation in the objects to which ‘delicious’ is ascribed by
normal adult human beings. For scenarios involving delicious, we chose foods that are
widely regarded as delicious – chocolate chip cookies and fresh apple pie. However, to
control for the fact that some participants might disagree, we added control questions
asking, ‘Do you think chocolate chip cookies are delicious?’ and ‘Do you think fresh apple
pie is delicious?’ We excluded the few participants who did not give affirmative answers to
these questions.

4 It is perhaps worth mentioning here that people are not insensitive to or completely
confused by relationalism. As we’ll see below, people tend to reject relationalism about
shape properties, and people clearly embrace relationalism about the property delicious
(see also Nichols and Folds-Bennett 2003).

5 On the generalization of this criterion to other domains, see also Sarkissian et al. (forth-
coming), who find that subjects are willing to accept both of apparently conflicting ascrip-
tions of moral properties (but not for apparently conflicting descriptive properties), and
conclude on this basis that introspection does not rule out relational accounts of moral
properties.
Using sign tests we found that participants were more likely to give anti-relationalist answers for colour properties than for taste properties \((p < 0.05)\); they were also more likely to give anti-relationalist answers for colour properties than for delicious \((p < 0.001)\). However, participants were less likely to give anti-relationalist responses for colour properties as compared with shape properties \((p < 0.01)\).

Another way to look at the data is to compare across domains the numbers of consistent anti-relationalists – those who give consistently anti-relationalist answers to both cases presented within a domain. For the domain of shape there were 20 (out of 31) consistent anti-relationalists; for the domain of colour there were 11 consistent anti-relationalists; for taste there were seven consistent anti-relationalists; and for delicious there were zero consistent anti-relationalists. Using a McNemar test, we find that participants are more likely to be consistent anti-relationalists about shape than colour \((p < 0.01)\), more likely to be consistent anti-relationalists about colour than about delicious \((p < 0.01)\), but participants are not more likely to be consistent anti-relationalists about colour than about taste \((p = 0.344, \text{NS})\). (These results are summarized in Figure 2.)

4. Discussion

It appears, then, that philosophers’ phenomenally grounded introspective judgements about colour – judgements that, we have seen, lead many of them to reject colour relationalism – are at odds with the judgements of a large percentage of the normal adult population.

Now, since (on the understanding of the introspective rejoinder we urged above) the judgements at issue occur at the second stage of a process that begins with phenomenal introspection, it is possible to take the finding that
these judgements clash with those made by many normal adult subjects in either of two ways. On the one hand, it could be that the underlying colour phenomenology of those who offer the introspective rejoinder is different from the colour phenomenology of a large percentage of the normal adult population. That is, this option would account for the observed variance in derived judgements in terms of a difference in the phenomenal/introspective data causally upstream of those judgements. On the other hand, it could be that the philosophers we’ve quoted enjoy relevantly representative colour phenomenology, but that the philosophers somehow end up forming anti-relationalist judgements on the basis of that phenomenology, while a large percentage of normal adult subjects do not. Or, in other words, this second option would account for the observed variance in derived judgements in terms of a difference in judgement formation rather than a difference in the phenomenological/introspective source of those judgements.

Needless to say, we would love to be able to choose between these two alternative ways of taking our results. Unfortunately, teasing them apart would require more subtle experimental measures than we know how to formulate. Nonetheless, we believe that our results challenge the introspective rejoinder no matter which of the alternative understandings is correct.

To see why, first suppose the first alternative is correct – that the difference in judgement is the result of a difference in colour phenomenology. In this case, then before we regard the introspective rejoinder as a serious threat to colour relationalism, we need a reason for thinking that the colour phenomenology enjoyed by philosophers and one subset of the normal adult population is more reliable about the nature of colours than the (we are currently supposing) relevantly different colour phenomenology undergone by a different subset of the general population. (Moreover, and obviously, given that the reliability of phenomenology is exactly what is in question, it won’t
suffice as a reason simply to appeal to one’s phenomenal/introspective judg-
ments.) Suffice to say that we do not see that any such reason has been given.

On the other hand, suppose that the second alternative is correct – that
philosophers’ phenomenally informed judgements about whether colours are
relational diverge from those of a large percentage of the normal adult pop-
ulation even though the colour phenomenology enjoyed by all of the subjects
(philosophers and non-philosophers) is relevantly similar. In this case, before
we regard the introspective rejoinder as a serious threat to colour relation-
alism, we need a reason for thinking that the judgements formed by philos-
ophers and one subset of the normal adult population are more reliable than
the corresponding judgements formed by another large subset of
non-philosophers. It is, we think, possible to imagine an argument for this
conclusion – e.g. perhaps someone might want to argue that the judgements
of non-philosophers are a mess, and that those of philosophers are more
reliable because their training makes the relevant metaphysical alternatives
more salient for them (or whatever). 6 Again, the crucial point is that an
argument of this sort is needed before the introspective rejoinder can be
counted as damaging to colour relationalism. (And again, what won’t suffice
is merely to appeal to the phenomenology, since – on the current supposition
– the phenomenology is shared by those who do and those who don’t judge
on the strength of that phenomenology that colours could not be relational.)
Alas, we don’t see that the needed argument has ever been offered in presen-
tations of the introspective rejoinder.

5. Conclusion

Our results seem to indicate that the introspective capacities available to our
participants, at least, do not clearly reveal colour properties to be
non-relational in the way and to the extent that they reveal shape properties
(canonical non-relational properties) to be non-relational. On the other hand,
neither do our data suggest that participants have introspective access to the
relationality of colour properties that would make them judge these prop-
erties to be relational as they do with delicious. Rather, the picture that emerges
is that, for our participants, colours are somewhere in the middle – less often
treated as relational than delicious and sweet, but more often treated as
relational than square.

So where does this leave us? It leaves us with the conclusion that the
introspective capacities available to normal adults do not, by themselves,
supply authoritative and unambiguous data about whether colours

6 In fact, we doubt this specific line of explanation is viable. Recall that, as remarked in note
4 above, ordinary adults appear to be quite competent in considering and choosing among
the relationalist and non-relationalist alternatives in a wide range of cases. Why suppose
they take their eyes off the ball just in cases where colour is involved?
are relational. If that is right, then it would seem to follow that no one should rely on such introspective capacities, by themselves, either to argue that colours are relational or that they are not relational.

Of course, that does not mean that the appeal to introspection is completely useless in arguing about the relationality or non-relationality of colour. But it puts a burden on those who rely on such appeals to introspection either to show why their introspective capacities are more reliable than those of our (otherwise apparently representative) participants, or to show how introspection can be combined with other resources in ways that yield more conclusive results.7

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7 This article is entirely collaborative; authors are listed in alphabetical order. Thanks to Rick Grush for allowing us to use his students as participants, to the students for putting up with this and to Paul Pistone for administering the questionnaire. Thanks also to Jonathan Weinberg and Christian Wüthrich for comments. Finally, we thank Joshua Knobe for encouraging us to complete this project, and for extremely useful discussion.
The debasing demon
JONATHAN SCHAFFER

So let her go; God sent her to debase me,
And aggravate my folly, who committed
To such a viper his most sacred trust
Of secrecy, my safety, and my life.
(Milton, Samson Agonistes)

What knowledge is imperilled by sceptical doubt? That is, what range of beliefs may be called into doubt by sceptical nightmares like the Cartesian demon hypothesis? It is generally thought that demons have limited powers, perhaps only threatening a posteriori knowledge of the external world, but at any rate not threatening principles like the cogito. I will argue that there is a demon – the debasing demon – with unlimited powers, which threatens universal doubt. Rather than deceiving us with falsities, the debasing demon would allow us true beliefs, but only as guesses.

I will draw three lessons from the debasing demon. The first lesson is that all knowledge is imperilled by sceptical doubt, even knowledge of the cogito. This clarifies the range of scepticism. The second and related lesson is that anti-sceptical strategies relying on a residue of knowledge immune from doubt cannot succeed. The debasing demon leaves no residuum. The third lesson is that deception and debasement do not exhaust the forms of sceptical doubt. In that sense, there are more demons in epistemic hell than are dreamt of in epistemology.