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The Truth about "The Truth about True Blue"

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1 Color, Variation, and Tye's "Solutions"

It can happen that a single surface S, viewed in normal conditions, looks pure blue ("true blue") to observer John but looks blue tinged with green to a second observer, Jane, even though both are normal in the sense that they pass the standard psychophysical tests for color vision. Tye (2006a) finds this situation *prima facie* puzzling, and then offers two different "solutions" to the puzzle.[1]

The first is that at least one observer *misrepresents* S's color because, though normal in the sense explained, she is not a Normal color observer: her color detection system is not operating in the current condition in the way that Mother Nature intended it to operate. His second solution involves the idea that Mother Nature designed our color detection systems to be reliable with respect to the detection of coarse-grained colors (e.g., blue, green, yellow, orange), but our capacity to represent the fine-grained colors (e.g., true blue, blue tinged with green) is an undesigned spandrel. On this second solution, it is consistent with the variation between John and Jane that both represent the color of S in a way that complies with Mother Nature's intentions: both represent S as exemplifying the coarse-grained color blue, and since (we may assume) S is in fact blue, both represent it veridically. Of course, they also represent fine-grained colors of S, and, according to Tye, at most one of these representations is veridical (Tye says that only God knows which). But at the level of representation for which Mother Nature designed our color detection systems, both John and Jane (qua Normal observers) are reliable detectors.

*This work is fully collaborative; the authors are listed alphabetically.

[1]Unlike Tye, Byrne and Hilbert (2006) are unbothered by the thought that Normal observers can vary in their representation of the color of objects, and so don't see that there is any puzzle that needs solving. According to them, all that is shown by such variation is that at most one of the Normal observers represents S's color veridically. To the question 'what makes it the case that one such representation is veridical at the expense of the others?', they answer that the competing perceptual variants represent S in different (and incompatible) ways, and that S is at most one of those ways.

This response is fine as far as it goes; unfortunately, that is not very far at all. Byrne and Hilbert have laid out the condition on a representation R of S's color that, if satisfied, would make it the case that R is veridical. Thereby, they have provided terminology that allows us to pose in another form the question they purported to be answering (now the question is: 'what makes it the case that one such representation satisfies the condition laid out by Byrne and Hilbert at the expense of others?'). They have, however, said nothing that could provide an answer to this question.

2 Error, Coarse-Grained Variation and Under-representation

As we have argued, neither of these solutions is tenable (Cohen *et al.*, 2006).

Like Tye (2006a, xx) himself, we think the plurality of observation conditions under which our visual systems evolved makes it implausible that Mother Nature's intentions are sufficiently determinate to preclude blameless variation in Normal observers. Since the first solution turns on assuming the contrary, we (apparently like Tye) find it extremely hard to believe.

The second solution goes wrong because it falsely presupposes that all the problematic variation occurs at the fine-grained level; in our earlier paper we cited Malkoc *et al.* (2005) as giving one dramatic demonstration of rampant blameless variation among normal observers in their representation of blue, green, orange, and the like. If these are coarse-grained colors, then, this result contradicts Tye's claim that Normal observers are all reliable detectors of coarse-grained colors. On the contrary, it seems to follow that at least one Normal observer misrepresents S's color.[2]

Tye (2006b) attempts to salvage his second solution by responding that, while the Malkoc *et al.* (2005) results do reveal diversity in the representation of coarse-grained colors by Normal observers, this diversity can be unproblematically explained without accusing any Normal observer of misrepresentation. Tye considers a case where S looks orange to John and red to Jane. Crucially, he holds that *orange* is a conjunctive property (with conjuncts *redishness* and *yellowishness*).[3] Thus, in looking orange to John, S looks reddish to John and yellowish to John (whereas S only looks reddish to Jane). Supposing that S is in fact orange (viz., reddish and yellowish), it follows that neither John nor Jane *mis*-represents S — only that one of them (Jane) *under*-represents S.[4] In effect, then, Tye's proposal is to accommodate the Malkoc *et al.* (2005) results by re-describing what he would otherwise seem to be forced to call misrepresentation as a form of under-representation.

[2]Byrne and Hilbert (2006) say that "this is not a good objection. Tye's position implies, not that [variation in the representation of coarse-grained colors] is impossible, but that there is some departure from Normality in either Jack, Jill, or the viewing conditions" (xx). Byrne and Hilbert are correct that Tye can save his second solution if he is willing to insist that at least one observer misrepresents the surface by virtue of departing from Normality. But this depends on accepting the first solution, to which the second solution we are now considering was offered as an alternative. As far as we can see, our objection is successful against the second solution when considered on its own (just as we originally claimed).

[3]Tye (2006b, 341) understands the latter properties as colors/hues as well; presumably they are less determinate colors than are *red* and *yellow*.

[4]Lest John congratulate himself for his representational success relative to Jane, the Malkoc *et al.* (2005) results show that there are other cases (indeed, other cases involving the representation of yellow) where a similar treatment would mean saying that the advantage goes to Jane. For example, there may be another surface S' that looks greenish to John but yellowish-greenish to Jane. Extending Tye's treatment to this case would mean that John under-represents S''s yellowishness. It is a main conclusion of Malkoc *et al.* (2005) that the individual differences they studied are not systematic across the range of colors.

3 Under-representation And Reliability

But this treatment of the Malkoc *et al.* (2005) results is inconsistent with Tye's other commitments. For if Jane under-represents S's color by failing to represent the yellowishness that it in fact exemplifies, then Jane is not a reliable detector of that color. Moreover, given Tye's view that *orange* is a conjunctive property with *yellowishness* as a conjunct, Jane's failure to represent S's yellowishness entails that she fails to represent S's orangeness, and is thus not a reliable detector of that color either. If, as Tye seems to accept, *yellowishness* and *orange* are coarse-grained colors, and if (as stipulated) Jane is a Normal observer, Tye is forced to abandon the claim undergirding his second solution — viz., that Normal observers are reliable detectors of the coarse-grained colors.

Moreover, this problem generalizes: since there is variation with respect to the representation of all coarse-grained colors by Normal observers, Tye's treatment entails that Normal observers can fail to detect reliably *any* of the coarse-grained colors.

4 Conclusion

Tye is himself skeptical about his first solution: when variations of color perception occur, it strikes him as unlikely that all but one variant can be seen as falling outside Mother Nature's design specifications, and can thereby be rejected as erroneous. We join him in this skepticism.

But his second solution is no more promising. For this solution depends on finding a level of perceptual representation of the colors with respect to which there is no variation among Normals, and with respect to which Normals are reliable detectors. Tye (2006a) seems to have hoped that the level of blue, red, orange, and purple would satisfy that description. It does not, and describing the variation at that level in terms of representational omission rather than commission does not remedy that defect.

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