Color constancy

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A kind of example sometimes raised as a problem for intentionalism, which is related in a way to the sorts of cases of spectrum shifts and spectrum inversion that we have discussed, is the example of color constancy. It is difficult to give an uncontroversial description of the phenomenon, but the following is a start: cases of color constancy are cases in which an object either seems to have uniform color despite, in some sense, its parts looking phenomenally different (example: an object which is lit differently in different parts) or cases in which an object seems to have uniform color over time despite, in some sense, its phenomenal color changing over time.

Experiments which test for color constancy: differences in matches performed when subjects are asked to match sample which 'look the same' versus ones which 'look like they were cut from the same piece of paper.'

Color constancy is not the only 'perceptual constancy' phenomenon – there is also (at least) shape and size constancy, and location constancy.

Everyone agrees that in these cases there is some sort of constant representation (plausibly, of color) and some sort of variation in phenomenal character. The question is then whether the intentionalist can find some change in content to correspond to this variation.

1 Holistic vs. atomistic intentionalisms

This issue – like other issues involving color contrast and color adaptation – is related to the distinction between holistic and atomistic intentionalist theses. (This is related to what Thompson (2006) calls holistic vs. localist views of phenomenal content.) The question is whether the supervenience relation is just between, say, the content and phenomenology of a 'whole' visual experience at a time, or also between the phenomenal character corresponding to some aspect of the visual field and what is thereby represented.

The problem of color constancy is harder if we adopt the stronger, atomist thesis, since it is plausible that the color of a tomato at midday and at dusk can 'look different but be represented as the same' only in virtue of differences in the representation of other qualities in the scene.

Thompson (2006) argues that any intentionalist who is motivated by transparency intuitions must endorse the atomist thesis. Is this right?

2 Representation of illumination

An obvious possibility is to say that we perceptually represent not only the color of an object, but also the degree to which it is illuminated. (See Hilbert (2005) for a development of this idea.) This fits nicely with a reductive physicalist view of color if, as some computational theories of vision say, vision works by first forming an estimate of the illumination of a scene, and then uses that estimate to derive an estimate of the SSR of the relevant surface.

Cohen (2008) argues against this view that if we are presented with a pair of the relevant sort, subjects can make the pair indiscriminable by changing the hue and saturation of one member of the pair. But if a representational difference can be offset by changing color, then the representational difference must have been a difference in the representation of color, and it must be wrong to say that color constancy is sameness of color representation.

A proponent of the 'illumination' strategy must then say that changes in color can be counterbalanced by changes in illumination, so that there can be a pair of experiences which are alike in color phenomenology but (by the lights of the response under consideration) differ with respect to which color properties are represented (if they also differ in illumination). In effect, the view would then be that what we call 'color phenomenology' is to be explained in terms of the joint representation of color and illumination, but not singly in terms of either. (Cohen (2008), 66-8 seems to argue against this view, but it is not obvious to me what the argument is.)

3 Representation of counterfactual differences

A quite different account of color constancy, which is also consistent with representationalism, is a relativist view of the sort defended by Cohen (2008). On this view, the changes in phenomenal character exhibited by a pair of experiences of the relevant sort will be changes in the representation of color (this is a natural view for a relativist to take, but it is open to defenders of other views too).

The 'constancy' part comes from the representation of the counterfactual properties of surfaces. On this view, we represent objects not only as having certain colors, but also as such that they would look the same were they placed under identical illumination conditions.

How plausible is it that visual experiences represent counterfactual properties of this sort? Is it less plausible that goldfish and little kids do so? Does this view make modal epistemology as unproblematic (or problematic) as perceptual epistemology?

4 Difference in Fregean sense

A quite different way of finding the relevant representational difference is by allowing that the pair of experiences represent the same property, but say that a pair of experiences can represent just the same objects and properties, but differ in content. To make this move is to endorse a Fregean theory of the contents of perceptual experience; we'll be turning to views of this sort presently.

References

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