



## Does Synesthesia Undermine Representationalism?

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**COMMENTARY ON:** Gregg Rosenberg (2004) *A Place for Consciousness: Probing the Deep Structure of the Natural World*. New York: Oxford University Press. xiii + 325pp. ISBN: 0-19-516814-3.

**ABSTRACT:** On Gregg Rosenberg's (2004) view, synesthesia illustrates how phenomenal properties can vary independently of representational properties. I explain how the representationalist can answer his arguments. The belief that synesthesia poses a serious problem for representationalism derives, I argue, from misconceptions about representationalism. Rosenberg's discussion of synesthesia and representationalism forms part of his defense of panexperientialism. His concern is that on panexperientialism there might be "protoconscious" experiences that don't represent anything because they aren't associated with cognitive systems. However, I argue, it is unclear that, given panexperientialism, association with a cognitive system is required for representation.

### 1. Introduction

Does synesthesia undermine representationalism? Gregg Rosenberg (2004) argues that it does. On his view, synesthesia illustrates how phenomenal properties can vary independently of representational properties. So, for example, he argues that sound/color synesthetic experiences show that visual experiences do not always represent spatial properties. I will argue that the representationalist can answer Rosenberg's objections. On reflection, synesthesia poses no serious threat to representationalism.

Rosenberg's argument from synesthesia resembles anti-representationalist arguments advanced by Ned Block (1995, 1996), Christopher Peacocke (1983) and others (e.g., Boghossian and Velleman 1989). Like Rosenberg, these philosophers argue that representationalism delivers

implausible analyses of certain sorts of (actual) experiences. Michael Tye (2000) provides plausible representationalist replies to those objections. In particular, Tye shows how the objections often depend on oversimplified characterizations of the relevant representational properties. Some of my arguments will involve applying Tye's reasoning to Rosenberg's argument.<sup>1</sup>

Rosenberg's discussion of synesthesia and representationalism forms part of his defense of panexperientialism, "the view that experience exists throughout nature and that mentality (i.e., a thing requiring cognition, functionally construed) is not essential to it" (p. 91).<sup>2</sup> His concern is that on panexperientialism there might be "protoconscious" experiences that do not represent anything because they are not associated with a cognitive system. However, I will argue, it is not so clear that, given panexperientialism, association with a cognitive system is required for representation: the panexperientialist has no compelling reason to resist representationalism.

## **2. Representationalism and synesthesia**

### **2.1. Representationalism**

Representationalism concerns the relationship between phenomenal and representational properties. Phenomenal properties are, roughly, properties that constitute what it's like to have an experience, such as seeing red or feeling pain.<sup>3</sup> Representational properties are properties that represent things as being a certain way. For example, such a property might represent that there is a red object in the vicinity. Representational properties can be more or less accurate depending on the extent to which the world is as represented. In John Searle's (1983) terminology, they have, or are, conditions of satisfaction.

Representationalism is the view that phenomenal properties are representational properties. On this view, for every phenomenal property P in a given class of phenomenal properties, there is some representational property R such that necessarily an experience has P if and only if it has R (Chalmers 2004, section 3). Many find representationalism intuitive, especially when applied to the phenomenal properties associated with perceptual experiences. But Rosenberg argues that the theory loses its appeal when we consider synesthesia.

### **2.2. Synesthesia**

Synesthesia is often described as a condition in which stimulation of one sensory modality automatically triggers an experience in a second modality (Baron-Cohen and Harrison 1997; Rosenberg 2004: p. 99). In the most prevalent type of synesthesia, looking at numerals or hearing tones evokes colors (Ramachandran and Hubbard 2003).<sup>4</sup> Consider two cases Rosenberg discusses. One is the case of Carol, a synesthete who "experience[s] pain as orange" (p. 100): when Carol experiences pain, she sees orange. Her dentist was unsure whether one of her teeth required a tooth canal. She told him, "This tooth is orange; please do it." Further investigation by her dentist confirmed that she was right: the tooth needed a tooth canal.<sup>5</sup> The other is the case of MM, a sound/color synesthete. MM reports, "the image intensity is directly proportional to the sound level. People laugh when I say, 'turn that down, I can't see where I'm driving'" (Cytowic 1989: p. 51; quoted by Rosenberg: p. 100).

### 3. Challenges to representationalism

#### 3.1. Objection from the Carol and MM cases

Rosenberg claims that such cases indicate that phenomenal properties fail to supervene on representational properties, i.e., that mental states can differ phenomenally without differing representationally. He writes,

Stories like Carol's visit to the dentist or MM's trouble seeing through a loud noise are very strong indicators that a given representational content ("damage here" or "audio intensity high") can yield different phenomenal contents (no color content in a "normal" but color content in Carol and MM). If true, the evidence falsifies the supervenience thesis. (p. 101)

Although Rosenberg cautiously includes "If true" in the final sentence of the foregoing passage, he correctly emphasizes that there is ample empirical evidence for the reality of synesthetic experiences such as Carol's and MM's (Ramachandran and Hubbard 2003).

#### 3.2. Reply

On reflection, the problem such cases pose for representationalism is surmountable. To see why, consider how representationalists such as Tye respond to a more familiar alleged counterexample to the supervenience of the phenomenal on the representational: Peacocke's (1983) case of seeing two trees at different distances. Although the tree images take up different portions of one's visual field, one might represent the trees as being the same height. This seems at first to threaten supervenience: the two images are phenomenally distinct, even though they represent the trees as being the same height.

The natural representationalist response is to identify differences in the representational properties of the two images. Thus Tye writes,

the experience represents the nearer tree as having a facing surface that differs in its viewpoint-relative size from the facing surface of the further tree, even though it also represents the two trees as having the same viewpoint-independent size. The nearer tree (or its facing surface) is represented as being *larger from here*, while also being represented as being the same objective size as the further tree. (Tye 2000: p. 78)

Tye's analysis of another mundane example is also instructive: the case of seeing a round object and feeling it by running one's fingers over it. Both experiences represent the roundness of the object. Yet the experiences differ phenomenally: one is visual and one is haptic. Does this show that the phenomenal fails to supervene on the representational? No. Tye again identifies representational differences between the two experiences. For example, he notes, color is represented in the visual experience but not in the haptic one, whereas temperature is represented in the haptic experience but not in the visual one.

Tye's responses seem adequate to defend representationalism from the objections based on the examples involving seeing two-trees and feeling/seeing a sphere. These cases appear to threaten supervenience only because the representational properties of the relevant experiences are under-described. Closer inspection reveals representational differences between the relevant experiences: differences that correspond to the phenomenal differences.

Representationalists can respond similarly to Rosenberg's argument. He implies that the description "damage here" captures the representational content of Carol's experience and that this content exhausts her experience's representational character. He implies that the description "audio intensity high" does the same for MM's experience. And he correctly observes that such contents are compatible with different phenomenal contents: "no color content in a 'normal' but color content in Carol and MM" (p. 101). But this does not show that the supervenience thesis fails. All that follows is that Rosenberg's descriptions of the representational features of Carol's and MM's experiences are too coarse-grained. Insofar as Carol's visual experience represents the presence of damage in the vicinity of her tooth, her experience represents this information visually, in a specific phenomenal manner. The same is true of MM: insofar as MM's experience represents the content expressed by "audio intensity high," his experience does so in a specific phenomenal manner.

Here I appeal to a distinction between representational content and the manner in which that content is represented. Rosenberg may protest that not all representationalists draw a manner/content distinction. But some do (e.g., Jackson 2006, Crane 2003, Chalmers 2004) and virtually all appeal to something that plays a similar role (Chalmers 2004). Moreover, my point can be made without appealing to phenomenal manners. Tye analyzes the haptic/visual case in terms of content instead of manner. For example, he notes that, in contrast to the content of the visual experience, "color isn't represented in the content of the haptic experience" (Tye 2000: p. 95). Similarly, instead of referring to manners of representation, representationalists could say that Rosenberg's descriptions of the relevant representational contents fail to capture various details, such as the fact that the content of Carol's visual representation includes a color component; "damage here" misses that. However the point is put, the problem with Rosenberg's argument should be clear: his argument is parallel to, and not much more convincing than, the argument, "Supervenience fails because the haptic and visual experiences of a round object both represent the object as round."

### 3.3. Objection from the DS case

In addition to the cases of Carol and MM, Rosenberg discusses the case of DS, a sound/vision synesthete. When DS is stimulated by sounds, he has visual experiences of shapes. Further, he regards these visual experiences as part of what hearing is for him. Rosenberg draws four anti-representationalist (or purportedly anti-representationalist) morals from this and related cases:

- R1. Representationalism fails for visual experience, even though one of the strongest arguments for representationalism depends on considerations about visual experience.
- R2. Some conscious experiences lack representational content.
- R3. Visual experience is not diaphanous (i.e., not transparent).
- R4. There is no basis for privileging the experiences of typical, non-synesthetic humans over those of synesthetes: the veridicality conditions for the synesthete's experiences are not fixed by what a given type of experience normally represents.

Let us consider R1-R4 in turn.

### 3.4. Reply

### 3.4.1. Do DS's visual experiences represent shapes?

Rosenberg thinks that DS's visual shape experiences do not represent external shapes. Why? He suggests that DS's visual experiences may represent sounds. Suppose they do. Even so, why couldn't DS's experiences also represent shapes? I see no basis for inferring from (a) DS's visual experiences represent sounds to (b) these experiences do not represent shapes. Further, it seems intuitively plausible that DS's visual experiences represent shapes. Suppose he has (what he or we would describe as) a visual experience as of a triangle, but there is no triangular shaped object in his visual field. If the lack of triangular-shaped objects in his visual field makes his experience non-veridical, then his experience represents the presence of such a shape. And plausibly, his experience is non-veridical. At least, this claim is no less plausible than the claim that a non-synesthete's hallucination of a triangle is non-veridical.

Rosenberg writes,

DS's testimony is in direct contradiction to one of the representationalists' most compelling examples: the supposed inconceivability of divorcing the phenomenal experience of shape from its representation of spatial properties. DS claims that he not only conceives this disassociation but also experiences it. To him it seems impossible that certain [phenomenal] shape properties do not form part of the representation of *sound*. (p. 99)

But DS's testimony does not appear to conflict with the claim that it is inconceivable that there be visual experiences that fail to represent spatial properties. Here is what DS says: "The shapes are not distinct from hearing—they are part of what hearing is... That's what the sound is; it couldn't possibly be anything else" (DS, quoted on p. 99; from Wager 1999; and originally in Cytowic 1989: p. 65). DS says only that he regards visual experiences as part of what hearing is (for him). He neither states nor implies that his experiences do not represent spatial properties.

### 3.4.2. Do synesthetic experiences lack representational content?

Let us turn to the second moral Rosenberg draws from the DS case: that conscious experience may lack representational content. Although he suggests that DS's synesthetic experiences may represent sounds, he also suggests that these experiences may lack representational content altogether. However, as we have seen, the intuitive grounds for attributing representational properties to non-synesthetic visual experiences apply equally to DS's visual experiences. Rosenberg remarks parenthetically that if DS's visual experience "turns out to represent some aural properties, there are other synesthete examples that could be substituted" (p.101). But he provides no reason to think other examples would be more convincing than the case of DS.

### 3.4.3. Are synesthetic experiences diaphanous?

Regarding diaphanousness, Rosenberg remarks, "The phenomenal quality is not *diaphanous*. That is, the synesthete does not 'see through it' to the property of an object but can focus on the quality itself" (p. 101). But Rosenberg does not defend this claim. Further, to advocate diaphanousness is not to deny that one can focus on phenomenal qualities, but rather to claim that one does this by focusing on qualities of perceived objects.

It is perhaps worth mentioning that the relationship between representationalism and the doctrine that experience is diaphanous is not as clear as Rosenberg appears to assume. Some philosophers appeal to the diaphanousness thesis in arguing for representationalism (Harman 1990, Tye 2000,

Jackson 2003, 2006). But it is debatable whether representationalists must accept the diaphanousness thesis. William Lycan (2004) defends representationalism but rejects the diaphanousness thesis. There is no apparent inconsistency in this position.<sup>6</sup>

#### 3.4.4. Is representationalism biased?

Let us now consider R4: Rosenberg's view that what an experience typically represents does not determine the veridicality conditions of synesthetic experiences. We have discussed this view in connection to the DS case. But he provides more details in discussing letter/color synesthetes who always see the letter *d* as green. The existence of such experiences has been demonstrated in experiments, where synesthetes identify occurrences of the letter *d* from within a block of letters printed in black ink far more rapidly than non-synesthetes do. Rosenberg writes,

In these types of experiments, the association of color with letter is clearly occurring prior to conscious recognition of the letter type but after preconscious object recognition in perceptual processing. It is occurring...at a middle level of processing where perceptual systems are binding qualities to objects once those objects are distinguished by other preconscious systems. This suggests that the processes binding the color to the letter are responding *specifically* to the results of the processing stream in charge of object categorization of the letter and *not at all* to the results of the processing streams responsible for categorizing surface reflectance. (p. 102)

He concludes that,

the association of the color with the letter is not a misrepresentation of the surface reflectance but an accurate response (for the synesthete's perceptual system) to the categorization of the object as the letter *d*. This is a stumbling block for representationalism, as its strongest response to the synesthete cases is to hold that preconscious perception in these cases is misrepresenting surface reflectances. (p. 102)

Here Rosenberg seems to reason that because the synesthete's experience accurately categorizes the perceived letter as a *d*, it does not inaccurately represent the perceived letter as being green. But shouldn't we instead conclude that the synesthete's experience does both—that it accurately categorizes the perceived letter as a *d* and that it inaccurately represents the letter as being green? The synesthete may know full well that the letter is not printed in green ink. Even so, her visual experience may misrepresent the color of the letter; the synesthete need not take her experiences at face value.<sup>7</sup>

Compare after-images. I may know that my experience is an after-image: that there is not really a yellow spot on the white wall. My belief is true, but my experience is non-veridical (Tye 2000, pp. 84-86). I see no reason why the synesthete's experiences should not be similarly understood. Rosenberg attributes the view that synesthetic experiences such as seeing the letter *d* as green are non-veridical to an unjustified bias in favor of what typical, non-synesthetic experiences represent. But the representationalist has a plausible response to the charge of bias: the considerations that motivate the view that after-images (and hallucinations) misrepresent apply equally well to the synesthetic experience of seeing a *d* printed in black as green.

The point is not that the representational character of non-synesthetic experiences determines that of synesthetic experiences. Representationalists can and should deny that claim. The point is rather that, just as it is intuitively plausible to say that my after-image misrepresents the existence

of a patch of yellow on the wall, it is intuitively plausible to say that the synesthete's experience misrepresents the color of the letter she perceives.<sup>8</sup>

### 3.5. Phosphenes

Thus, Rosenberg fails to show that synesthesia undermines representationalism. He does not rest his case against representationalism entirely on evidence from synesthesia. He also mentions phosphenes. He writes,

When we close our eyes and place our hands over our eyelids, many of us will experience diffuse and jumpy patches of diluted color appearing, disappearing, and floating in the darkness. These patches of color are not attached to the surfaces of any perceived objects, do not provide a guide to behavior for the representation consumer, and are not taken as representing any properties by the representation consumer. They can actually be experienced consciously as *not* representing anything, as “pure experiencing” by someone inclined to take them that way. (p. 98)

Unlike the argument from synesthesia, the preceding argument is not original with Rosenberg. Block (1996) also claims that phosphene experiences are non-representational, and Peacocke (1993) gives a similar argument based on experiences produced by closing one's eyes and looking towards the sun. Tye provides a natural representationalist reply to this line of argument. Phosphene experiences are representationally impoverished as compared to ordinary visual experiences; in particular, he suggests that they represent only in two dimensions. But arguably they represent nonetheless:

Bounded spatial regions are delineated; certain local features are specified—for example, color. Thereby certain irregular, viewpoint-dependent, shape features are represented. But the representation goes no further; it makes no further comment.

Of course, on this account, the experience of swirling shapes is inaccurate or illusory. ...No items are present with the relevant viewer-relative shapes. But this is surely no problem. Given the abnormality of the sensory situation, error is to be expected. (Tye 2000: p. 87)

Rosenberg does not consider this natural representationalist reply. It seems reasonable to me.

## 4. Experience and representation

I mention Rosenberg's discussion of phosphenes partly because it illustrates how he conceives of mental representation. Consider first his remark that phosphene experiences “do not provide a guide to behavior” (p. 98). This fits well with his preferred theory of representation, which he mentions in passing: “the view of representation I favor is an action-oriented view...in which the representational content of a mental entity is determined by the way it provides guidance to action” (p. 101). Given that he favors this theory, it is not surprising that he finds representationalism unintuitive. Why must each experience guide action at all, let alone in a specific way?

Consider also Rosenberg's references to “the representation consumer” and his remarks about what and whether the subject *takes* her experiences to represent (see the quote above from page 98). These references and remarks may reflect a certain assumption about the nature of representation: the assumption that the representational properties of mental phenomena are

determined by interpretation (Siewert 1998). Consider lexical representation. Why does a word represent (or refer to or express) what it does? Presumably because of what we take the word to stand for, i.e., because of how we interpret it. For example, ‘books’ refers to books because we take it to do so—because of how we use it. In this case, Rosenberg’s phrase ‘representation consumer’ seems apt. As an English speaker, I am not solely responsible for the reference of ‘books’ in my own mouth. As David Kaplan (1989: p. 602) writes, “Words come to us prepackaged with a semantic value,” in something like the way the ten-dollar bill in my wallet comes pre-package with economic value; hence Kaplan’s phrase ‘consumerist semantics’. Arguably, the same goes for certain mental items, such as the concept I associate with the word ‘books’.

However, it does not follow that interpretation is *always* needed to turn an item into a representation or to determine what that item represents. For example, well-known teleological accounts of mental representation (e.g., Millikan 1989) do not fit the interpretation model. Neither does the idea that some mental phenomena may have intrinsic representational features. Charles Siewert (1998) argues that visual experience is intrinsically representational. Suppose it looks to me as if there is an X-shaped object in front of me. On his view, my experience has accuracy conditions that are determined by its phenomenal character. Terry Horgan and John Tienson (2002) go further, arguing that, “There is a kind of intentionality, pervasive in human mental life, that is constitutively determined by phenomenology alone” (p. 520).

The notions of teleology and intrinsic mental representation do not play a significant role in Rosenberg’s discussion. He may be assuming that all representation requires interpretation. That would partly explain why he finds representationalism so implausible. On the assumption that all representation requires interpretation, representationalism would be about as ill-conceived as what Hilary Putnam (1981) derides as a Magical Theory of Reference—the view that there is something built into, say, a series of marks that endows it with reference. Without that assumption, however, representationalism is more plausible.

## 5. Can panexperientialists be representationalists?

Rosenberg’s motivation for rejecting representationalism is the assumption that it threatens the panexperientialist component of his account of consciousness and its place in nature. How serious is that threat?

On Rosenberg’s panexperientialism, there are events of what he calls *protoconsciousness*. He distinguishes the properties of protoconsciousness from what Chalmers (1996) calls *protophenomenal properties*. Chalmers’ protophenomenal properties may combine so as to produce conscious experience, but they may also be instantiated in systems that lack consciousness. By contrast, “the properties of protoconsciousness are experiential properties properly considered phenomenal...” (p. 97).

Rosenberg writes,

Because properties of protoconsciousness can be experienced by entities without cognitive engines, it is natural to suppose that they might not have certain features, most especially representational features, that people sometimes argue are essential to phenomenal properties. (p. 97)



But the supposition Rosenberg mentions may seem natural to him because he assumes that protoconscious representation would have to conform to the interpretation model. Otherwise, why think having representational states requires having a cognitive engine? Perhaps being a representation consumer requires having a cognitive system; membership in a linguistic community may require the ability to use symbols deferentially, and arguably having this ability requires having a cognitive engine. But such considerations do not undermine the idea that protoconscious experiences represent in ways that are not determined by interpretation. In particular, protoconscious experiences may represent intrinsically.

Rosenberg emphasizes that, on panexperientialism, we have no reason to regard familiar, human experience as typical of the range of experience. Therefore, insofar as representationalism is grounded in generalizations from familiar human experiences, the panexperientialist should be especially skeptical of this theory. Indeed, panexperientialism would provide reason to be skeptical about virtually any generalization about the properties of conscious experience. However, beyond this general word of caution, he offers no positive reasons to suspect that protoconsciousness is not essentially representational. In lieu of such positive reasons, panexperientialists should be open to the possibility that representationalism is true.

## 6. Conclusion

Synesthesia does not undermine representationalism, and Rosenberg is wrong to suggest otherwise. But this is not bad news for his overall project in his fascinating book. Despite what he implies, it is far from clear that panexperientialists must reject representationalism.<sup>9</sup>

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## Notes

1. Tye combines representationalism with physicalism. But these views are independent (Chalmers 2004, Alter 2006).
2. Unless otherwise specified, all page references are to Rosenberg 2004.

3. Phenomenal properties may also constitute what it's like to be a conscious subject—a kind of subject, such as a human or a bat, or a particular subject at a particular time, such as me right now. Also, mental states other than experiences, such as thoughts, might have phenomenal properties. But I will concentrate on the phenomenal properties of experiences, since these are most relevant to Rosenberg's discussion.

4. Note that the first of those two, numeral/color synesthesia, is intra-modal. Intra-modal synesthesia is not captured by standard characterizations of synesthesia such as the one given by Harrison and Baron-Cohen. According to Vilayanur Ramachandran and Edward Hubbard (2003: p. 58), "Science counts about 50" different types of synesthesia. Fiona McPherson (forthcoming) gives a more comprehensive characterization.

5. I take Carol's testimony from Rosenberg (p. 100). He cites <http://web.mit.edu/synesthesia/www/carol.html>, but I have been unable to connect to this site.

6. But see Kind (forthcoming).

7. Experimenters could presumably create circumstances in which she was fooled into thinking that the letter is not printed in green ink whereas it really is. Compare Tye 2000, p. 82. Tye mentions a related experiment by Perky (1910): "In the experiment, subjects in a room with normal lighting were asked to face a screen and to imagine a banana on it. Unknown to the subjects, a projector was set up behind the screen containing a slide of a banana. Once the subjects reported that they had formed their images, the illumination on the projector was slowly increased so that it eventually cast a picture of a banana on a screen that was clearly visible to any newcomer entering the room. However, none of the subjects ever realized that they were looking at a real picture. Instead, they noticed merely that their "images" changed in certain ways—for example, orientation—as time passed" (Tye 2000: pp. 96-97, fn. 16).

8. Rosenberg's charge is reminiscent of an argument given by Block (1999). How people distinguish colors (on standard matching tests) varies with sex, race, and age. Block suggests that representationalism implausibly implies that there is a privileged class of normal perceivers—that, for example, because women see a difference in two shades that men identify, women's experiences are inaccurate. For an argument that representationalism does not have that consequence, see Tye 2000, pp. 89-95.

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