

## **Synesthesia as a Challenge for Representationalism**

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### **Abstract**

Synesthesia is a condition in which features that ordinarily are processed by distinct perceptual or cognitive streams are bound together in a single stream, yielding an aberrant perceptual, image-like or thought-like experience. One of the most common forms of synesthesia is grapheme-color synesthesia. It is divided into two distinct forms: Projector synesthesia, which tends to be perception-like, and associator synesthesia, which tends to be more like imagery or thought. There has been an ongoing debate in philosophy about whether synesthesia can provide any insight into the philosophical question of the nature of perception. I argue here that at least some forms of projector synesthesia provide a challenge for reductive representationalism, the view that the phenomenal properties of perceptual experience is exhausted by an externalist, representational content. I conclude by arguing that a rejection of representationalism does not saddle us with a peculiar qualia view.

*Keywords:* grapheme-color synesthesia, perception, representationalism, projector synesthesia, qualia freak

### **1. Introduction**

Synesthesia is a condition in which features that ordinarily are processed by distinct perceptual or cognitive streams are bound together in a single stream, yielding an aberrant perceptual, image-like or thought-like experience (Baron-Cohen et al., 1987; Cytowic, 1989; Rich and Mattingley, 2002; Sagiv and Ward, 2006). For example, synesthetes may experience musical notes as colored, numbers as having personalities (e.g., being kind or angry) or the months of the year as having a spatial geometry.

One of the most common forms of color synesthesia is grapheme-to-color synesthesia, in which numbers or letters are seen as colored. But lots of other forms of color synesthesia have been identified, including week-to-color, sound-to-color, taste-to-color, fear-to-color and pain-to-color synesthesia. One of the earliest reported cases of pain-to-color synesthesia occurs in a 1913 article in the *Journal of Abnormal Psychology*, where neurologist Isador Coriat described a case of an intelligent forty-year-old woman suffering from anxiety, sleepwalking and headaches. As far back as she could remember she'd see different colors when she felt pain. For her, pain produced clear, distinct colors, and a certain 'kind of pain' consistently produced a particular color. 'Each type of pain produced its individual and invariable color, for instance:

Hollow pain, blue color; sore pain, red color; deep headache, vivid scarlet; superficial headache, white color; shooting neuralgic pain, white color'. The woman saw colors as masses with no recognizable shape, except when pain 'involved a jagged, longitudinal or round area, the color stimulated by this particular type of pain had a corresponding geometrical figure'.

The focus of this chapter will be the more common form, viz. grapheme-to-color synesthesia. The specific question I will be concerned with here is what research on synesthesia can teach us about perception, if anything. This is a question frequently posed in the philosophical and scientific literature devoted to this intriguing phenomenon (see e.g. Ramachandran & Hubbard, 2001a, 2001b; Rosenberg, 2004; Macpherson, 2007; Brogaard, et al. 2014). The scientific aspect of that question has a fairly simple answer. To the extent that some forms of synesthesia are kinds of perception, a complete mechanistic account of perception will need to include an account of synesthesia.

The philosophical question is harder to address. The philosophical question concerns the *nature* of perception, and subsumes sub-questions of the following kind: Is perception a relation to external objects? Is it a representational state? Are its phenomenal properties—its qualitative feel—exhausted by objects and properties that it represents?

It is the philosophical question I shall be concerned with here. I will argue on the basis of empirical data (i) that some forms of synesthesia are perceptual states, and (ii) that (reductive) representationalism, the view that the phenomenology of perceptual experience is exhausted by the properties and objects it represents (Dretske, 1995; Tye, 1995; Lycan, 1996), is indefensible with respect to those states. So, representationalism as a general account of perception is unsustainable.

I conclude by arguing that this result does not lead to what some philosophers have derogatorily called the 'qualia freak view', the implausible view that there are 'freaky' qualia—private, ineffable, intrinsic and directly apprehensible features of experience, properties that cannot be reliably investigated philosophically or scientifically from a third-person point of view (Dennett, 1988; Tye, 2008; Mandik & Weisberg, 2008; Piccinini, 2009).

## **2. Synesthesia as a Perceptual State**

Synesthesia is divided into three distinct classes: developmental, acquired and drug-induced. Developmental synesthesia, the main form, has an early onset in life and a genetic basis (Baron-Cohen, et al. 1996). It further manifests three characteristic features: (i) the connection between the stimulus that triggers the experience (also known as 'the inducer') and the synesthetic feature triggered (also known as 'the concurrent') is automatic, or involuntary, (ii) particular inducers are associated with highly specific concurrents, and (iii) the synesthetic connections are consistent over time (Grossenbacher & Lovelace, 2001).

Though the developmental form of the condition is the best documented type, there are also reports of acquired and drug-induced forms (Ro et al., 2007, Afra et al., 2009; Sinke et al., 2012; Brogaard, et al. 2013). Synesthetic connections in these cases are also automatic but may be less specific and consistent than in the developmental cases (Brogaard, 2013a).

An intriguing question that has been of some interest to philosophers and scientists is that of whether synesthesia is a kind of perceptual experience. There is no simple answer to this

question, because synesthesia is an umbrella term covering a wide range of related conditions. Many variants of synesthesia induce or are triggered by higher-order cognitive constructs, such as concepts or internal words (Simner, 2012), making them more akin to thought than perceptual experience. Synesthesia may also be phenomenologically more akin to visual imagery than perceptual experience (Dixon et al., 2004; Brogaard, et al. 2013). When the concurrent is thought-like or like imagery the condition is commonly called ‘associator synesthesia’.

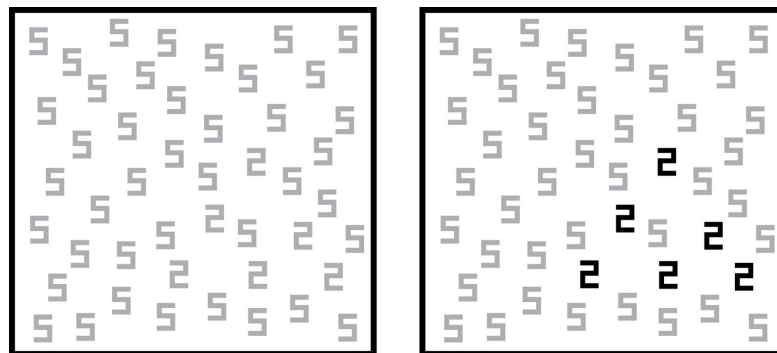
Synesthetes who associate concurrents with their inducers imagistically or semantically describe seeing or feeling synesthetic concurrents within their “mind’s eye,” or they report simply “knowing” that inducers are strongly connected to or associated with their concurrents (Dixon et al., 2004). For example, grapheme-color synesthetes might view a black letter ‘A’ yet describe it as having the quality of the color red, even though they do not actually have the perceptual experience of seeing a red ‘A’. Association between an inducer and its concurrent is analogous to the connection between smell and memory in non-synesthetic perceptual experience. In neurotypical individuals, a smell may elicit vivid visual imagery that is associated with that smell in memory. For example, the smell of a particular perfume may trigger a particular memory of a former friend who wore that perfume. One crucial difference between synesthesia and neurotypical memory association is that associations formed in synesthetes are idiosyncratic and *apparently* random (Baron-Cohen et al., 1993). A synesthete typically has no explanation of why a concurrent becomes associated with a particular inducer.

The best candidate among the developmental types of the condition to be a kind of perceptual experience is not associator synesthesia but projector synesthesia, in which the concurrent is seen as located outside the skull (Ramachandran & Hubbard, 2001a, 2001b). This form of synesthesia seems to be phenomenally akin to drug-induced synesthesia. The latter condition is reported as having a distinctly perceptual phenomenology (Sinke et al., 2012, Brogaard, 2013) and one proposed model for drug-induced auditory-to-visual synesthesia suggests that the condition is the result of processing of random input from the thalamus in the visual cortex and subsequent binding in the auditory cortex (Brogaard, 2013).

One data point indicating that projector grapheme-to-color is perceptual in nature is that synesthetes are susceptible to the Stroop effect. A Stroop effect is a type of reaction time interference in certain perceptual tasks (Stroop, 1935). The most common Stroop task demonstrates that it takes significantly longer for neurotypical individuals to name the color in which a color word is printed if the color referred to by the word is incongruent with the printed color (MacLeod, 1991). Likewise, it takes significantly longer for projectors and some associators to name the printed color of a grapheme if the synesthetic color induced by the grapheme is incongruent with the printed color (Wollen and Ruggiero, 1983; Mills et al., 1999; O’dgaard et al., 1999; Mattingley et al., 2001, 2006).

A second set of data suggesting that projector synesthesia is perceptual is that the strength of the synesthetic experience varies with the contrast of the printed grapheme (Hubbard et al. 2006). Hubbard, et al (2006) asked their subject JC to rate the strength of his synesthetic experiences when reading letters of different contrasts on three different occasions. JC’s ratings consistently declined monotonically with contrast. This suggests that the synesthetic experience is processed at contrast-dependent stages of visual processing.

A third data point pointing to projector synesthesia as a form of perceptual experience comes from visual search paradigms. Ramachandran and Hubbard (2001) investigated this question on the role of selective attention in grapheme-color synesthesia. They conducted a visual search task that presented two synesthetes and neurotypical controls with an array of synesthetic color-inducing graphemes. Within each array, target graphemes were arranged so that they could be grouped together into simple shapes (see **Fig. 1**). Participants were presented with each array for a duration of one second, and then asked to name the correct shape from a group of four alternatives. Their findings showed that although synesthetes are not remarkably better than neurotypical controls at naming the target shapes hidden amongst distractors, they do appear to have an advantage evidenced by higher accuracy or quicker reaction times (Ramachandran and Hubbard, 2001). The synesthetes' outperformance of the controls was taken to be due to a pop-out effect that pre-attentively directed the synesthetes in locating the grouped target graphemes more efficiently than controls. Based upon this observed pop-out effect it has been argued that synesthesia is a early visual phenomenon that is induced prior to selective attention (Ramachandran and Hubbard, 2001, 2003a; Hubbard et al., 2005; Rich and Karstoft, in press).



**Figure 1** When normal subjects are presented with the figure on the left, it takes them several seconds to identify the hidden shape. Some grapheme-color synesthetes purportedly can quickly recognize the triangular shape because they experience the 2s and the 5s as having different colors.

Ramachandran and Hubbard's early findings have been subject to a fierce debate about the role attention plays in synesthesia (see Brogaard, et al. 2014 for a summary), but it is nonetheless a fact that projectors commonly experience pop-outs that is similar to the pop-out of differently colored numbers (**right image in figure 1**), thus making the condition similar in this respect to ordinary color vision.

A fourth data point suggesting that projector grapheme-to-color synesthesia is a form of perception comes from brain imaging. Whereas associator synesthetes needn't show any increased activity in visual brain regions in response to an inducer (Brogaard, et al. 2013), projectors show increased activity in the brain's color regions in the visual cortex when they are looking at graphemes (Simner, 2012). More recent imaging studies show that the aberrant binding of graphemes and color occurs via direct connectivity between the adjacent form and color regions in areas overlapping the visual cortex and the temporal lobe (Rouw and Scholte,

2007; Jancke et al., 2009; Hanggi et al., 2011; see also Zamm et al., 2013). These data strongly indicate that at least some forms of projector synesthesia are kinds of low-level perception.

Research on the phenomenology of grapheme-color synesthesia further suggests that projector synesthesia has a perceptual phenomenology rather than the phenomenology of imagery or thought. In the first round of a study that is still in progress we first administered the Synesthesia Battery to ten volunteers, who reported being projector synesthetes. The Synesthesia Battery is made up of two sections: a color-choosing task and a color recall task. In the first task, the subject is presented with a grapheme for which she must choose a specific hue, brightness and saturation from a color palette representing over 17.6 million distinct choices. After the subject repeats the exercise three times for each grapheme (108 trials; graphemes A-Z and 0-9), a computer then calculates the geometric distance among the subject's answers in red, green and blue (RGB) color space. If the range of chosen RGB values for a grapheme is falls above the normalized threshold, the subject is scored as a synesthete for that grapheme. In the second task, the subject is presented with randomly ordered graphemes printed in the specific colors the subject chose. The subject must then quickly determine whether the grapheme has the color in question. Self-reported synesthetes tend to have no trouble answering correctly 90 percent of the time, and thus a score in excess of 90 percent further validates the score achieved in the prior color choosing task. After confirming that the ten participants scored as synesthetes, we then tested for projector synesthesia using contrast variation and visual search. Three of the ten subjects appeared to be projector synesthetes, according to these strict criteria. We then distributed a questionnaire to these three subjects about the phenomenology of their experiences, containing various options to read through and understand:

Do you:

1. See the color of the grapheme on the grapheme and experience the synesthetic color in the mind's eye/as being inside your head.
2. When you are exposed to these graphemes, which are printed in a color other than black, does that change the shade of your synesthetic colors?
3. When you are exposed to these graphemes, which are printed in a color other than black, does that change the shade of color the graphemes are printed in?
4. See the color of the grapheme on the grapheme and experience the concurrent color on the page around the grapheme.
5. See the synesthetic color on the grapheme and experience the actual color of the grapheme on the page around the grapheme.
6. See the color of the grapheme on the grapheme and experience the concurrent color as a see-through layer or volume in front of the grapheme
7. If you answered 'yes' to (3), does the synesthetic color alter the experienced color of the grapheme in the way that one might expect a real layer or volume to do? (For example, if the grapheme was white then one would expect a red layer or volume in front of it to cause the grapheme to be experienced as pinkish.)
8. See the synesthetic color obscuring the color of the grapheme.

9. See the grapheme to have two colors all over at the same time - an experience that does not occur in normal vision.
10. See a color that is a blend of two colors - a blend of the color of the grapheme and the concurrent color, in the way that orange is a binary color and seen as a mixture of red and yellow. The blend may or may not be uniform or may be, say, more red at some parts and more yellow at others.
11. None of the above. Rather, here is how I see the synesthetic color and the grapheme (describe):
12. Additional question: Do you see the synesthetic color that is projected out into the world as moving with your eyes when you move your eyes?

This and other similar studies we have conducted indicate that there is a variety of different ways in which projector synesthesia can be manifested (Brogaard, In Press; Brogaard, et al. 2014). Several projectors we have studied report that they experience the color of the grapheme on the grapheme and the concurrent color as a see-through layer or volume in front of the grapheme. The concurrent color may slightly alter the experienced color of the grapheme without affecting the subject's knowledge of the grapheme's true color. Moreover, when research participants shift overt attention by moving their eyes while keeping covert attention to the grapheme, the concurrent color remains in the same location as the grapheme until it is out of sight (e.g., our synesthete M). Other projectors see the concurrent as a blob projected out about a foot or two in front of their eyes that is akin to the after-images that might float in front of your eyes following exposure to bright light. This transparent blob is typically reported as moving with the eyes the way that an after-image moves with your eyes when you shift your gaze (e.g., our synesthete B). The projection in this case does not seem locationally tied to the grapheme. Let's call these two main types of projectors "projectors\*."

There are many other ways of experiencing projector synesthesia. For some synesthetes the color of the concurrent is obscuring the color of the grapheme (e.g. synesthete C, reported by Smilek et al., 2001). We have yet to come across any projector synesthetes who claim to experience graphemes as instantiating both the color of the grapheme and the concurrent color in the same way. Some projectors, however, insist that they see the concurrent color as instantiated by the number or letter, despite it hovering over the grapheme. The majority of participants, however, report that it doesn't seem as if the concurrent is literally instantiated by the grapheme the way that the grapheme color is.

### **3. Synesthesia and Representationalism**

One of the reasons that philosophers have been interested in synesthesia is that it may present a counterexample to a popular view about perceptual experience, known as 'representationalism' (see e.g., Chalmers, 2004). Representationalism is the view that the phenomenal character of experience is exhausted by its representational content; for a perceptual experience to have a phenomenal character just is for it to have a representational content. On this view, the phenomenal character supervenes on, or flows from, the representational content. So, it is not possible for two experiences that have the same

representational properties to vary in their phenomenal properties.

Many reigning forms of representationalism are externalist and teleofunctional, so, for instance, they hold that a visual experience's phenomenal character/representational content just is some environmentally instantiated, extracranial property reliably tracked by brain state tokenings. This is the kind of representationalism I am interested in here. On this view, the representational content of perceptual experience is wide, rather than narrow. It can be understood as a set of mind-independent physical objects and their perceptible property instances, or perhaps just as a set of the perceptible property instances. This version of representationalism is also known as 'direct', 'reductive' or 'externalist' (Dretske, 1995; Tye, 1995; Lycan, 1996, 2001). Because the content of perception may contain external objects, some representationalists may prefer to treat hallucinations (in which there is no relevant external object) as a different kind of mental state, distinct from perception. However, like naïve realists, direct representationalists ordinarily think that their theory should be able to account for illusory experiences, viz. experiences in which an external object is presented as having a property it does not have (Brewer, 2011).

As has been pointed out on many occasions in the past, synesthesia seems to present a counterexample to direct representationalism (see e.g. Wager 1999, 2001; Rosenberg, 2004). Consider grapheme-color synesthesia as an example. Although inducer-concurrent pairings are not completely random, there is nonetheless still a considerable degree of idiosyncrasy in terms of which concurrents are triggered by which inducers. So, two synesthetes who both perceive the number 3 printed in black may have synesthetic experiences with different phenomenal properties. The grapheme may trigger the concurrent blue in John but green in Mary. John and Mary nonetheless have experiences that represent the very same properties, viz. the grapheme 3 printed in black. As representationalism does not allow for two experiences with the same representational content but different phenomenal properties, grapheme-color synesthesia presents a counterexample to this position. Or so the argument goes.

However, the argument, as it stands, is weak. As Torin Alter (2006) has argued, there are several ways that the representationalist might bypass this simple argument. Since some synesthetes report seeing the inducer as instantiating the concurrent, their perceptual experience might indeed represent the inducer as instantiating the concurrent property. Of course, the inducer doesn't actually have the property in question, but if the experience represents it as having the property, then the case does not present a challenge for representationalism.

A further problem with the previous synesthesia-based argument against representationalism is that it rests on untested philosophical intuitions about synesthesia rather than empirical data. A different argument based on actual empirical data is thus called for.

There is indeed a quite simple argument in support of the view that the phenomenology of certain forms of projector synesthesia cannot be fully understood in terms of the experience's representational content. I will first introduce a characteristic of representation that rests on the notion of perceptual seemings. The characteristic makes use of the idea that a property  $F$  when instantiated by an external object  $o$  can non-deviantly cause a perceptual appearance as of  $o$  being  $F$  (see Chalmers, 2004). Now, consider the following conditional:

*Representation:*

If *E* consciously and visually represents *o* as *F*, then visually attending to *o* regularly and non-deviantly causes a visual appearance of *o* being *F*.

*Representation* is not incontestable. Many defenders of naive realism and other relational views of perception would reject it, because they deny that perception is representational (see e.g. Brewer, 2011). However, representationalists normally explicitly accept it (see e.g., Byrne 2001; Thau, 2002; Siegel, 2009).

But *Representation* entails that the experiences of projectors\* involve a property that is not represented as being instantiated by objects. Consider subject M, a projector\* who has an visual experience as of a terracotta brownish-orange volume in front of the grapheme R printed in black. It never visually appears to her that the grapheme *is* terracotta brownish-orange. It follows from *Representation* that there is no property *F* instantiated by the grapheme that regularly and non-deviantly causes her concurrent experience. So, subject M's visual experience does not represent the grapheme as instantiating terracotta brownish-orange. But the phenomenal (projected) terracotta brownish-orange is nonetheless part of the phenomenology of her experience. It is part of what it is like for her to visually perceive the grapheme R printed in black. So the phenomenology of projector\* synesthesia is not exhausted by its (wide) representational content. The same goes for subject B, a projector who has a visual experience as of a bitter lime greenish-yellow when she visually perceives the grapheme 2 printed in black. For B, unlike for M, the color is projected out about 20 cm in front of her eyes and moves with her eyes. It never visually seems to B that the grapheme *instantiates* a bitter-lime greenish-yellow. By *Representation* it follows that there is no property *F* instantiated by the grapheme that regularly and non-deviantly causes her concurrent experience. So, subject B's visual experience does not represent the grapheme as instantiating bitter-lime greenish-yellow. But this presents a counterexample to direct representationalism, which holds that the phenomenology of visual perception is exhausted by its (wide) representational content. So, if taken to be a general account of perception, direct representationalism is false.

It may be argued that the representationalist can account for these kinds of cases. The relevant content of M's experience, they might say, is *there is a terracotta orange-brownish volume floating above the grapheme R*. Likewise, the relevant content of B's experience is *there is a bitter-lime greenish-yellowish volume floating some distance above the grapheme 2*.

The problem with this response is that it is not clear that these 'contents' can serve as proper representational contents of the experiences. A minimal constraint on representational content is that it has truth-conditions. It can be true as well as false. Consider an illusory experience of a white table illuminated by red light. The representational content of this experience is *the table is red*. Although the content is false, there are normal conditions in which it is true. For example, the content would be true, were you to paint the table. By contrast, there are no normal conditions in which someone has an experience with the content *there is a terracotta orange-brownish volume floating above the grapheme R* and where this content is true. Likewise, there are no normal conditions in which someone has an experience with the content *there is a bitter-lime greenish-yellowish volume floating some distance above the grapheme 2* and where this content is true. Granted, some terracotta orange-brownish or



bitter-line greenish-yellowish smoke might happen to float above a grapheme R or a grapheme 2, but an experience of this type of phenomenon would not have the same content as the synesthetic experience for the simple reason that it does not have the same phenomenology as the synesthetic experience. For the representationalist, the contents of experiences match their phenomenology exactly.

These contents, in fact, are more akin to the 'contents' that a naive realist could assign to experiences without losing face. For example, a naive realist could take a veridical experience of a ripe tomato to have the content *S is perceptually related to a ripe tomato*. As naive realism is ordinarily cashed out, a subject cannot have an experience with this 'content' without it being true. Susanna Siegel (2010) calls contents of this kind 'weak contents'. What a representationalist needs to distinguish her position from other forms of direct realism is what Siegel calls 'strong contents'. Strong contents are experiential contents that can be true or false depending on circumstances.

Here is another problem with the response: It would render some synesthetic experiences illusions of a very unusual kind. (Non-veridical) illusions are normally thought of as experiences in which a property that is not instantiated by the object is presented as *instantiated by* the object. This is not the case here. The property is not presented as instantiated by the object. Allowing that this type of experience can count as an illusion would have the consequence that many standard hallucinations are in fact illusions. For example, a visual hallucination of a brown recluse spider can be taken to have the content *there is a brown volume hovering above the floor*. That, too, then would be an illusion and not a hallucination. Likewise, a standard auditory hallucination as an internal sound as being external could be taken to have the content such as *there is a sound coming from the wall*. So, that, too, would be an illusion.

Alternatively, the representationalist could say that when synesthetic experience cannot correctly be characterized as misattributing the concurrent feature to the inducer, the concurrent should be seen as a hallucination (Macpherson, 2007). If the experiences associated with concurrents are hallucinations, then synesthesia presents no more of a problem for direct representationalism than hallucinations do, which means that they may not represent a problem at all.

However, this sort of reply raises multiple problems. The most important problem in this context is that representationalism cannot treat hallucinations as a form of visual experience (see e.g. Tye, In Press). Reductionist representationalists who think that experience is object-dependent cannot do this, as experiences with gappy contents can have the same phenomenology as experiences with a non-gappy content. Denying that experience is object-dependent, however, doesn't do away with the potential problems hallucinations present for representationalism. Lycan (see e.g. his 2008) has suggested that representationalists could treat hallucinations as cases in which a property is predicated of an intentional object (Lycan, 2008). The problem is that once you introduce intentional objects that are not physical objects, it is not clear that the view is a form of reductive representationalism. There is the possibility of introducing brain states as the bearers of intentional properties. But this does not seem to help us reduce qualia to something in the external world. So, this is not a form of reductive representationalism. Nor is it a form of wide representationalism, as qualia would supervene on

the 'contents of the subject's head' (Putnam, 1975).

Lastly, the representationalist might deny that synesthetic experiences of the relevant kind are perceptual experiences. However, as mentioned above, the most current scientific evidence suggests that projector synesthesia is kind of perceptual experience. So, the representationalist cannot simply dismiss projector synesthesia on the grounds that it's not a kind of perceptual experience.

#### **4. Qualia Fest?**

When Fred Dretske (1995), Michael Tye (1995), William Lycan (1996) and others first defended direct representationalism, it seemed like a major breakthrough in philosophy. What had previously seemed quite mysterious—viz, the qualia or phenomenal properties of perception—turned out not to be enigmatic after all. Phenomenal properties, it was thought, could be given a naturalistically respectable explanation in terms of a wide representational content of perception. As the representational content was an amalgamation of property instances of external objects and perhaps also external objects, it appeared that the enigma of the nature of phenomenal properties had been reduced to the simple task of providing an account of external objects and their perceptible property instances. To be sure, no one of a sound mind wanted to insist that representationalism could also solve the problem of what a perceptual state is at the neurological level. But that was not its aim. That, it was thought, was a job for the scientists. Representationalism, however, was believed to solve the philosophical problem of the nature of phenomenal properties. It is in all likelihood this alleged virtue of representationalism that has triggered the massive debate about representationalism over the last two decades.

Once we deny representationalism as a general account of perception, it seems that we are back to where we started. It seems that we are left with qualia—private, ineffable, intrinsic and directly apprehensible features of experience.<sup>1</sup> This very fact has led some thinkers to refer to opponents of reductive representationalism as 'qualia freaks' (e.g., Tye, 2008; see also Jackson, 1982, who applies the expression to himself). However, I think this attitude rests on a misunderstanding. Although representationalism may seem like a philosophical breeze, there is a serious philosophical problem that representationalism does not solve, viz. the problem of explaining how a representational content, a set or mereological sum of external objects and their perceptible property instances (or perhaps just the the property instances), comes to represent anything in the first place. How does a set of external entities come to have intentional properties? This is a problem that goes back at least to Frege and the early Russell. It is also sometimes known as the 'problem of intentionality' (or misleadingly, the 'problem of the unity of the proposition').

Recently a number of philosophers of language have argued that the problem cannot be

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<sup>1</sup> Of course, many philosophers don't take the term 'qualia' to imply this list of properties, but use it a bit more liberally, such that direct representationalists are explaining qualia rather than denying qualia. But others think that if we deny that qualia can be explained in terms of represented properties of represented objects, we are stuck with this characterization of qualia (for discussion, see Lycan, 2008; see also Jackson, 19882).

cracked if we keep treating propositions (or contents) as the entities that do the representational work (Soames, 2013; Brogaard, 2013b). Although we still need to figure out what '(conscious) representation' means, a first step in the right direction is to grant that intentionality is first and foremost a property of cognitive states. What is called a 'proposition' (or a 'content') is best understood as a kind of generalization based on token cognitive states. We can take propositions to be types of cognitive acts, e.g., a kind of predication, involved in perceptual states, belief states, agreements, etc. Propositions thus have representational properties only in a derivative sense. They themselves are generalizations based on token cognitive states. It's the token cognitive states that are the primary bearers of intentional properties.

Once these observations are granted, it becomes clear that representationalism has made no real progress in terms of explaining away phenomenal properties. It claims that the phenomenal character of experience can be reduced to the experience's wide representational content. But representational content and its intentional properties are themselves derived from the states that bear the phenomenal properties. So, those who think they can explain away the phenomenal character of experience in terms of a wide representational content very quickly get stuck in a vicious explanatory circle.

One of the two most important questions that defenders of a representational view of perception need to answer is that of what "(conscious) representation" means. (The other is a problem they share with everyone else, viz. that of providing a naturalistically respectable account of the relation between experience and the brain.) They have not yet offered a satisfactory answer to that question. It is widely agreed that representation, in a meager and uninteresting sense, can be understood in terms of causal covariation. A thermometer represents temperature insofar as the height of the mercury causally co-varies with the outside temperature but causal covariation is insufficient as an account of the type of representation involved in perceptual experience (Shea, 2013). If the scent of a particular perfume systematically leads to a memory retrieval of a face, then the odors in the perfume and the visual image causally covary but the visual image does not represent the perfume in any interesting sense.

The upshot is that representationalism has made no real progress in terms of figuring out what phenomenal properties and their bearers are. So, it shouldn't be too upsetting if it turns out that the position is indefensible as a general account of perception. Of course, once we reject representationalism, we are left with the question of the nature of the "irreducible" phenomenal properties experienced by synesthetes. It seems clear to me that "irreducible" phenomenal properties are kinds of perceptual appearances (or seemings) but kinds that do not represent a property as instantiated by an external object. This is not to say that these "irreducible" phenomenal properties do not represent at all. They do indeed represent properties. For example, when subject B experiences a bitter-lemon greenish-yellowish blob in front of her eyes when she looks at the grapheme 2 printed in black, the experience represents, among other things, the property bitter-lemon greenish-yellowish, but it does not represent the property bitter-lemon greenish-yellowish *as instantiated by the grapheme*. It represents a property tied to the experience--bitter-lemon greenish-yellowish--not a property in the external environment. So, the synesthetic experience does not represent in a way that is of any use for the reductive representationalist. It is important to emphasize, however, that "irreducible" phenomenal

properties are no more private, ineffable, intrinsic and directly apprehensible features of experience than reducible phenomenal properties. So, there is no qualia fest to attend. It got canceled because the publicity team was wrong to think that such a party would organize itself simply by rejecting a prominent philosophical position.<sup>2</sup>

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