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Rethinking Synesthesia

Michael Sollberger

University of Lausanne, Department of Philosophy
CH-1015 Lausanne, Switzerland
michael.sollberger.2@unil.ch

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Abstract

Synesthetes are people who report having perceptual experiences that are very unusual, such as “seeing” sounds as colors or “smelling” colors as odors. It is commonly assumed these days that such synesthetic experiences must be instances of misperceptions. Against this widespread assumption, I will highlight that there is reason to think that at least some synesthetic experiences can be viewed as truly veridical perceptions, and not as illusions or hallucinations. On this view, which I will back up by conceptual arguments and empirical data, synesthesia does sometimes enable the individual to truly pick up on worldly features. In failing to take this possibility on board, the participants in this debate have thus unduly restricted the scope of dialectical options. Finally, the reassessment of synesthetic experiences that I defend in this paper will turn out to have important ramifications not just for synesthesia research, but also for perception theories more generally.

Keywords: Synesthesia; Hallucination; Veridical Perception

1. Introduction

A common assumption about synesthetic experiences is that such experiences cannot be truly veridical perceptions. Fish (2010, pp. 132-134), for instance, emphasizes that each adequate theory of perception must be able to accommodate synesthetic experiences of color within its theory of hallucination. In the same vein, Gray (2001, p. 79) argues that such experiences are non-veridical because synesthetes may experience a word to be colored when it is not, and Lycan (2006) contends that synesthetic experiences should be treated like cases of hallucinatory after-images. But is it really that obvious or self-evident that synesthetic experiences must be deceptive? Are we committed to the view that synesthesia always gives rise to a special kind of illusion or hallucination?

Against this widespread assumption, I am going to show that the epistemic issue at stake is not as straightforward as it currently seems to most participants in the debate. I will stress

that there is reason to think that at least some synesthetic experiences can be truly veridical in character. By claiming that things may sometimes really be as they appear to the synesthete in synesthetic experiences, I will therefore find myself arguing against the purportedly obvious. The main idea I seek to defend and flesh out is that some synesthetic experiences can be viewed as a normal variant of human perception; they are “abnormal” only insofar as they are statistically rare. That is, at least with regard to a certain sub-group of synesthetic experiences, this paper aims to show that there is room for thinking differently, i.e., more liberally, about synesthesia.

2. Some propaedeutic remarks about synesthesia

To begin with, here is a sketchy definition of synesthesia: synesthesia is a perceptual phenomenon where “stimulation of one sensory modality automatically triggers a perception in a second modality, in the absence of any direct stimulation to this second modality” (Baron-Cohen & Harrison, 1997, p. 3).¹ In synesthesia, some sensory properties are reliably and systematically elicited in response to certain stimuli that are not elicited in “normal” subjects, such that synesthetes seem to be able to “hear” colors as sounds, to “taste” shapes as flavors, to “smell” sounds as odors, and so on. Any pairing of the senses seems possible, although experiencing colors in response to words, letters, and numbers appears to be the most common combination (Simner et al., 2006).

Following the terminology of Grossenbacher & Lovelace (2001), we will use the terms “inducer” to refer to the stimulus that triggers the synesthesia and “concurrent” to refer to the synesthetically induced sensory attributes. To give a concrete example, consider the synesthete MW: in addition to gustatory and olfactory properties (the inducers), MW perceives tactile properties of weight, shape, texture, and temperature (the concurrents) whenever he tastes or smells food. In MW, these sensory dimensions of touch experiences are systematically related to flavors and odors. For instance, he synesthetically perceives the taste of spearmint also as a “cool, glass column,” and the taste of lemon is like “a pointed shape, pressed into my hands. It’s like laying my hands on a bed of nails” (Cytowic, 2002, p. 1).

For purposes of illustration, I will, in the following, mostly refer to MW’s synesthesia. In particular, the claim will be that MW’s synesthetic tactile experiences can be thought of as veridical perceptions and not, as it is typically assumed, as hallucinations. That is to say, when MW has a synesthetic experience as of a pointed taste, it may be that he is really

¹ Although rough-and-ready, this definition is sufficient for now. See Macpherson (2007) for a more precise and complex definition of synesthesia.

tactually feeling the taste and its pointed shape. On this view, whether MW takes in the taste and smell of food by way of gustatory/olfactory properties or by way of tactile properties does not matter for the perceptions' epistemic property of being veridical. Before setting out the argument in detail, however, a few further preliminary remarks about taxonomy and explanation in synesthesia research are in order.²

It is important to note that nowadays all researchers in the field agree that not all subjects diagnosed with synesthesia are alike (Ward & Mattingley, 2006). Synesthesia is a tremendously *heterogeneous* phenomenon. To provide the reader with a taste of the heterogeneity at play, here is a sample of classifications that have been set up in order to distinguish between apparently different forms of synesthesia: strong vs. weak synesthesia (Martino & Marks, 2001), higher vs. lower synesthetes (Ramachandran & Hubbard, 2001), projectors vs. associators in grapheme-color synesthesia (Dixon, Smilek, & Merikle, 2004), and cognitive synesthesia vs. synesthesia proper (Day, 2005). These categories are neither exhaustive nor exclusive nor absolute. There is overlap among the categories and varying degrees within them, as well as lots of borderline cases. Moreover, in addition to being wildly heterogeneous, synesthetic experiences are also highly *idiosyncratic*. That is to say, although recent work suggests that there are trends in inducer-concurrent pairings (Simner et al., 2005), no two people's set of synesthetic experiences seem to be *exactly* the same (Day, 2005, p. 13). There is no doubt that new labels will emerge for synesthesia in the future, more closely related to new neurophysiological, genetic, biochemical, and psychological evidence. The different forms of synesthesia just sketched are just an early step into the direction of having more fine-grained groupings of experiential features and associated behavior in synesthesia.

For now, let's stress the following point: the striking heterogeneity in synesthesia makes it probable that we are not actually picking out a *unique* kind of mental state. Rather, the state-of-play is that we are wrongly subsuming several type-distinct experiences under the inchoate and coarse-grained heading of synesthesia. This lack of homogeneity fosters the idea that different instances of synesthetic experiences call for different kinds of explanations. The

² Two caveats: First, the talk of veridical perception and veridicality as used in this paper is meant to be totally noncommittal and nonspecific as to the underlying nature of perceptual experiences. It is just a way of expressing the intuitive idea that *things really are as they appear* to the perceiver. This idea of matching in itself should not be taken to presuppose a particular view about the nature of veridical perception and veridicality. And second, in agreement with Batty (2010), Chalmers (2006), and Lycan (1996, pp. 144-149), I will assume in this paper that gustatory and olfactory experiences are assessable for veridicality. Admittedly, this assumption is not without difficulties. For the sake of argument, I will disregard this controversy and side with those who argue that such experiences are about the world.

idea is simple: different types of synesthesia have different natures, and different natures require different types of explanations. This means that there is every reason to think that various instances of synesthetic experiences must be given *different* types of explanations. Someone who seeks to provide a unified explanation for all types of synesthesia simply ignores these individual differences in synesthetes (Dixon & Smilek, 2005). If we do not want research on synesthesia to be characterized by erroneous conclusions, we must therefore be wary of not lumping all synesthetic experiences together.

These remarks are propaedeutic to what I will say about synesthesia below. The reason is this: the following thoughts concern a certain form of synesthesia that is not shared by all synesthetes. More specifically, it draws on a sub-group of synesthetes who meet the following two conditions:

- α) They literally attribute the sensory properties of the synesthetic experiences to the *distal* stimulus itself
- β) They do not take their synesthetic experiences to be *nonveridical*, e.g., illusory or hallucinatory

This means that the following question not only makes sense, but is most often answered in the affirmative by such synesthetes:

For any synesthetically evoked sensory property F that the distal physical object x appears to have, does x really have F?

It is essential to the very idea of veridical perception that the synesthetic experience is in the business of presenting the perceiver with worldly objects and their properties. Unless synesthetic experiences at least seem to the synesthete to be about environmental features, the question whether they truly latch on to the world cannot arise in the first place. Otherwise, the sensory properties featuring in synesthetic experiences would be, as it were, mere splotches in our perceptual consciousness. If we are to construe synesthetic experiences as veridical perceptions, it is thus a prerequisite that such experiences seem to present the synesthete with a subject-matter. By limiting ourselves to the sub-group of synesthetes defined by α) and β), we therefore make sure that synesthetic experiences satisfy this precondition of veridical perceptions.

The following reports, which Richard Cytowic has collected, among many others, are indicative of such experiences:

I remember most accurately scents. We were preparing to move into the house I grew up in. I remember at age 2 my father was on a ladder painting the left side of the wall. *The paint smelled blue*, although he was painting it white. I remember to this day thinking why the paint was white, when it smelled blue. (2002, p. 13; my emphasis)

A person who sings with little phrasing or variation in volume has a straight line voice. A baritone has a round shape that I feel. *This is so obvious, it's all very logical. I thought everyone felt this way*. When people tell me they don't, it's as if they were saying they don't know how to walk or run or breathe. (2002, p. 28; my emphasis)

The shapes are not distinct from hearing them – they are part of what hearing *is*. The vibraphone, the musical instrument, makes a round shape. Each is like a little gold ball falling. That's what the sound *is*; it couldn't possibly be anything else. (2002, p. 69; emphasis in the original)

Taken at *face value*, such reports exemplify the sort of synesthesia defined above in conditions α) and β). Henceforth, I will exclusively refer to such cases when talking about synesthesia. With these provisos in place, let's now look at the specific argument.

3. Supporting reasons for the veridicality of synesthesia

Basically, there are at least three reasons one can appeal to in order to suggest that synesthetic experiences can (but not must) be couched in terms of veridical perception. The first one goes like this: It is often true that synesthesia *enhances* several cognitive and perceptual capacities in its bearer. The additional synesthetic sense can enhance the abilities of reading, writing and spelling, and it can also expand the memory faculties (Cytowic, 2002, p. 29). That it can further enrich the synesthete's perceptual skills becomes especially apparent when one focuses, not on single items, but on the perception of patterns. Telling examples for such pattern-perception, where synesthetes perform much better than non-synesthetes thanks to their synesthetic colors, are perceptual grouping, segregation, and pop-out tasks in grapheme-color synesthesia (Ramachandran & Hubbard, 2001). These tasks demonstrate that the synesthetic colors enable the synesthete to visually pick out more quickly a defined target item than non-synesthetes.

Further, it is important to note that recent findings support the idea that enhanced perceptual processing is a *core property* of synesthesia (Banissy, Walsh, & Ward, 2009). Visual synesthetes demonstrate enhanced visual processing, i.e., they have a hyper-sensitive perceptual system, and tactile synesthetes have been shown to manifest enhanced tactile

sensitivity relative to non-synesthetes. These data demonstrate that the presence of synesthesia is linked with enhanced sensory discrimination, which occurs in each affected sensory modality.

Furthermore, recent work has strongly suggested that synesthesia is an inherited condition. The beneficial trait can thus be carried over from parents to offspring (Harrison & Baron-Cohen, 1997).

Given this enhancement of perceptual and cognitive capacities, it seems out of the question to view synesthetes as suffering from a kind of perceptual disorder or dysfunction. After all, we expect perceptual or mental disorders to incapacitate, disable, impair, or gum up their bearers (Graham, 2010). But synesthesia is not like that. It has nothing to do with perceptual or cognitive incapacity, disability, or impairment. Perceptual and cognitive function is not negatively affected by synesthesia (Gray, 2001, p. 73).³ In sum, the fact that synesthesia is not a disabling or dysfunctional biological trait, but a condition that can indeed benefit the possessor's cognition and perception, opens up space for considering synesthetic experiences as potentially veridical perceptions.

The second reason is this: There are the *subjective reports* of synesthetes. Synesthetes are firmly convinced that what they synesthetically perceive is real and 'valid', and not hallucinatory or illusory. Neither the phenomenology nor the content of these synesthetic experiences indicates to the subject that something weird or outlandish is occurring. It seems there is nothing special about synesthetic experiences themselves that would prompt synesthetes to treat them differently from non-synesthetic perceptual experiences. Notice in addition that synesthetes have been extensively studied in empirical research in recent years. These results indicate that there is so far no scientific reason to doubt their reports (Ramachandran & Hubbard, 2001). Therefore, once we take such personal reports at *face value*, we have a further reason to be reluctant to treat synesthetic experiences as misperceptions.

Finally, the third reason runs as follows: It is instructive to approach synesthesia in terms of *evolution* and *natural selection*. From a purely evolutionary perspective, the goal of perception is to maximize fitness, i.e., to raise more offspring. Perception must be viewed as a niche- and problem-specific cognitive function whose purpose is to enhance fitness (Hoffman, 2009). Pertinently, the perceiver is able to survive and reproduce only if she can successfully interact with the world. And successful interaction is possible only if she can adequately

³ Notice that the present idea is different from the question whether synesthesia constitutes a breakdown in modularity or an extra cognitive module, which is Gray's (2001) main target.

discriminate between objects and properties. For example, based on perceptual information, the perceiver can see, reach, grasp, and finally eat, say, a red apple in front of her. This discriminatory behavior is an instance of successful interaction with the world, based on which the perceiver is, in the long run, able to survive and reproduce. This is one very important functional role carried out by perceptual states: they enable the perceiver to successfully interact with her environment.

Note that carrying out this functional role is a *constitutive* property of veridical perception: when we qualify perceptual experiences as veridical, one thing we thereby mean is that such experiences must enable their bearer, at least dispositionally, to successfully interact with the world. It makes no sense to attribute systematic error to observers whose perceptual experiences stand in regular interactions with worldly objects, and whose discriminatory behavior is reasonably well tailored to those worldly objects (Burge, 1986). Perceptual states which fail to systematically perform this functional role are best viewed as either illusions or hallucinations.

It is crucial to point out that some synesthetes can, to a certain extent, perform the same discriminatory tasks as non-synesthetes, based on their synesthetic concurrents. Consider synesthete MW. As a matter of fact, MW not only likes cooking, he is also a very good cook. But the way he cooks is quite intriguing, for he prepares food according to the shape of the food and not its flavor. By trial and error, he administers different seasoning in order to change the shape of, say, the chicken, making it rounder, sharpening corners in order to apply more heft to the vertical component, or adding some points to the overall shape (Cytowic, 2002, p. 86). This “cooking-according-to-shapes” is impressive, for it highlights that MW’s tactile concurrents allow him to execute the same activities non-synesthetes realize with the help of olfactory and gustatory properties. The synesthetic concurrents guide MW in taking the same actions with regard to food as “normal” perceivers take on account of the gustatory and olfactory properties of their experiences. Hence, with regard to the coarse-grained behavioral context of cooking, synesthete MW and any other non-synesthete can be *functionally* equivalent.⁴

Indeed, this example shows that MW displays a discriminatory behavior vis-à-vis food that is an instance of successful interaction with the world. As such, it effectively contributes

⁴It is not compulsory to couch this point in terms of *inter-subjective* functional equivalence between synesthetes and non-synesthetes. The same point can also be made with regard to *intra-subjective* functional equivalence: MW could have relied on his “normal” taste and smell experiences instead of his synaesthetic tactile experience. I chose the first one because of its vividness.

to MW's survival and reproduction and can thus satisfy the goal of perception, namely, to maximize fitness.⁵ Like non-synesthetic perceptual experiences, synesthetic experiences enable the subject to successfully cope with the physical world and *eo ipso* fulfill the functional role constitutive of veridical perception. Therefore, there is no reason why one could not treat synesthesia as a genuinely fitness-enhancing perceptual activity. From the functional vantage point of evolution and natural selection, MW's synesthesia is on a par with non-synesthetic experiences in the long run. And given that we unhesitatingly treat most everyday non-synesthetic experiences as veridical, it follows that the evolutionary perspective provides reasons for treating MW's synesthetic experiences as veridical perceptions as well.

Notice that the first and the third reason reinforce each other. This is so because a perceptual trait can, theoretically, be a) both dysfunctional and evolutionary advantageous or b) properly functional and nonetheless be evolutionary detrimental. By emphasizing that synesthesia, *qua* perceptual ability, ought neither to be regarded as dysfunctional nor as fitness-lowering, the first and third reasons canvassed above make clear that neither a) nor b) is likely to apply to synesthesia. In this sense, they supplement each other and thereby strengthen the idea that synesthesia can truly pick up on worldly objects and their properties.

It is clear that the foregoing reasons do not *entail*, neither individually nor collectively, that synesthetic experiences must be understood in terms of veridical perception. Consider reason one. One may argue that many mystical experiences are cognitively beneficial without being veridical (Proudfoot, 1986). And the same may be true for synesthetic experiences as well. Against reason two, one can stress that a perceiver might not always be able, from the first-person point of view, to discriminate a hallucination from a corresponding veridical perception. This means that even if synesthetes are sometimes firmly convinced that their synesthetic experiences are truly picking up on some worldly features, there is no guarantee that they are not undergoing a hallucinatory perceptual experience.⁶ And as a counterexample to reason three it can be maintained that experiences of color are illusory, but also think that they are fitness-enhancing (Maund, 2006a). The above reasons are thus not sufficient for the veridicality claim.

⁵ Strictly speaking, the argument would only have to show that synesthesia does not *lower* fitness, and that it does not interfere with reproduction and survival. This is obviously a weaker claim than that made in the argument.

⁶ Though this is not a claim that we can usefully engage with here, note that disjunctivists à la Fish (2008) and Martin (2006) stress that subjective indiscriminability of veridical perceptions and hallucinations is not even sufficient for the hallucinations being genuinely perceptual.

But note that they were not meant to deliver such a strong conclusion. Their real purpose is more modest; namely, that the three reasons, taken together, provide *cumulative* justification for regarding MW's synesthetic experiences as *potentially* veridical perceptions. In other words, given that synesthetic experiences can be i) perceptually and cognitively beneficial, ii) subjectively like non-synesthetic experiences, and iii) fitness-enhancing, the door is at least open to regard them as veridical perceptions. In particular, point iii) underscores that one has strong reasons to regarding them as veridical if one ties, as we did, the experience's epistemic property of being a veridical perception to largely functional and evolutionary considerations about the senses.

So far, so good. I take it, however, that most readers will not yet be moved by the reasons stated and keep insisting that synesthetic experiences are better viewed as instances of a special kind of hallucinations, special inasmuch as the hallucinatory concurrents are triggered by another, "normal" sensory experience. Fair enough. I concur that more must be said in order to undergird the challenging proposal that some synesthetic experiences can be treated as veridical perceptions. The burden of proof lies on the side of those who recommend reassessing synesthesia in a more permissive vein. This is what we will do now by discussing several objections that may be leveled against the idea of veridicality in synesthesia.

4. Considering objections

Let's go straight into the objections. Here is a first worry:

The reports of synesthetes you cite to back up conditions α) and β) should not be taken at *face value*. This is not tantamount to refusing to take synesthetes *seriously*, in the sense of suggesting that they are being dishonest or that it does not seem to them that the synesthetic concurrents are "bound" in some way to the distal object x itself. Consider the following report written by Sean Day: "To me, the taste of beef is dark blue. The smell of almonds is pale orange. And when tenor saxophones play the music looks like a floating, suspended coiling snake-ball of lit-up purple of neon tubes" (Day, 2005: 11). But then, one page later, he says: "The taste of espresso coffee *can make me see* a pool of dark green, oily fluid about four feet away" (emphasis mine). That is, the taste of espresso does not actually appear as being green, but as causing him to have a hallucination as of green. This means that the concurrents are appearing as being *causally bound* to x and not as being sensory properties of x , and this is how we should generally interpret such reports. Your argument is therefore undermined right from the start, since your conditions α) and β) define a class of synesthetic experiences that is empty.

Reply: Let's distinguish between the following options:

- A) Strong actual reading: the synesthetic concurrents appear to the synesthete as properties of the distal object *x*
- B) Strong possible reading: it is possible that the synesthetic concurrents appear to the synesthete as properties of *x*
- C) Weak actual reading: the synesthetic concurrents appear to the synesthete as being bound in some way to *x*

Why should we rule out cases of A) and allow only for C)? The answer might be that we cannot make sense of A) cases. That is, a skeptic might be tempted to rule out such cases *a priori* because she thinks that this kind of cross-modal property-attribution is inconceivable and hence impossible. Cases of B) must *eo ipso* also be rejected by such a skeptic.

What is odd about such a dismissive view about what is experientially possible is that it is far too narrow-minded. Indeed, it rests upon a kind of experiential chauvinism. Why should cases of A) not be possible? The reports cited provide at least good *prima facie* evidence that such synesthetic experiences really occur. The situation of non-synesthetes vis-à-vis such A) experiences might be comparable to that of a blind person trying to understand an explanation of what it is like to perceive colors. The chromesthete MM, for instance, reports that "I have trouble putting into words some of the things I experience. It is like explaining RED to a blind person or Middle C to a deaf person" (Cytowic, 2002: 19). What is meant here, of course, is that a blind person has no idea of the what-it-is-likeness of visual experiences. Likewise, non-synesthetes may fail to know what it is like to synesthetically perceive the world according to A). Nonetheless, this no more implies that A) experiences are impossible than the case of the blind person implies that visual experiences are impossible. The skeptic's modal intuitions about property-attributions in perceptual experiences are unduly restrictive. The onus of proof is therefore clearly on the skeptic's side.

For the purpose of the present objection, however, suppose that one might come up with an argument that demonstrates cases of A) to be false for *a posteriori* reasons. If so, A) would be rebutted but B) might still be upheld. The above considerations would then only show that if such synesthetic experiences were to occur, they could count as veridical perceptions. This is still an interesting result in its own right, in the sense of imposing a modal constraint on any theory of veridical perception.

Still, a nagging concern remains:

Fine. But you further say that synesthetes are convinced that their experiences are real and "valid." Really? Does Sean Day really think that the taste of beef is dark blue, that the smell

of almonds is pale orange, and that there is a pool of dark green liquid in front of him when he drinks coffee?

Reply: We refrain from claiming that i) all synesthetes take their experiences to be veridical and ii) that we should treat most synesthetic experiences as veridical. As already canvassed, synesthesia is a strikingly heterogeneous phenomenon. For instance, grapheme-color synesthetes sometimes perceive numbers and letters as having gender and personality. The number '2' might be perceived as a shy, wimpy boy, and '9' might be a vain, elitist girl (Day, 2005). We surely do not want to press the claim that such experiences are ever to be treated as veridical, for it seems to be a category mistake to attribute specific gender and personality to numbers and letters. Nonetheless, the fact that synesthetic experiences form an extremely heterogeneous class should make one wary of treating them all on a par. The current taxonomy used by researchers is extremely coarse-grained, so that synesthesia cannot be treated as a category that carves the world at its joints. In brief, synesthesia fails to refer to a distinguished or genuine type of mental condition.

Based on these assumptions, one is entitled to attribute distinct *epistemic* properties to different forms of synesthetic experiences. This point applies with equal force to both the intra-subjective and the inter-subjective level. As for the present case, this means that even if the conceptual or cognitive component of the grapheme-color synesthesia might be best explained as involving a kind of error, this should not entice one into reasoning that the sensory component of some synesthetic experiences must be nonveridical as well; the sensory component can be veridical none the less.

Furthermore, there are various contingent socio-cultural aspects that deter synesthetes from describing or thinking of their experiences as veridical, such as social disbelief, pressure, and outright scorn. Faced with such social hostility and skepticism, some synesthetes adopt a two-world conception, distinguishing between the objective-intersubjective world and their personal, purely subjective one. Others, however, resist revising their beliefs about the veridicality of their own synesthetic experiences and remain convinced that synesthesia enables them to truly access more worldly things than non-synesthetes (Day, 2005). This shows that there is nothing in the phenomenology and content of some synesthetic experiences *per se* that would hinder their possessors from trusting them and taking them at face value. This is all the preceding argument requires.⁷

⁷ This line of thought assumes that the content of the perceptual experience is independent of the content of judgment/belief. I take this assumption to be safe. See Crane (2001, pp. 143-144) for more on the difference between perception and judgment/belief.

Another doubt may go like this:

Your argument hinges on the assumption that synesthetic experiences are *perceptual*. For many years, however, it has been suggested that synesthesia is not a genuinely perceptual condition, but due to fancy imagination, to overactive associations, or to an exaggerated sense of metaphor. And more recently, it has been noted that some grapheme-color synesthetes see the numeral ‘5’, printed in black ink, both as black and red.⁸ This can be taken to raise doubts as to whether the synesthetic reddish experience can be perceptual, because non-synesthetes do not usually represent different colors to be at the same place at the same time (Macpherson, 2007). So, it is far from clear whether synesthetic experiences are genuinely perceptual after all.

Reply: The preceding discussion about heterogeneity and variegated individual differences in synesthesia shows that the question “Are synesthetic experiences perceptual?” is really ill-posed. Heterogeneity prompts the conclusion that not all synesthetic experiences can be measured by the same yardstick. Therefore, even if one is buying into the suggestion that some of them may stem from an overactive sense of association, imagination, or metaphor – such as, say, perceiving the number ‘2’ as a shy, wimpy boy – it is in no way ruled out that MW’s synesthetic experiences, or the sub-group of synesthetic experiences defined by conditions α) and β) above, are genuinely perceptual experiences.

It is worthwhile noting that there is now ample empirical evidence for the claim that synesthetic experiences are fully perceptual. To name but a few: It has been demonstrated that grapheme-color synesthetes can perceptually group graphemes according to their synesthetic colors (Hubbard & Ramachandran, 2005). Blake et al. (2005) showed that achromatic graphemes can lead to colored afterimages known as the McCullough effect. Smilek et al. (2001) demonstrated that synesthetic colors could influence the facility with which targets could be detected in visual search. These and other psychophysical, cognitive, neuroimaging, and behavioral findings strongly suggest that such grapheme-color synesthetes do visually perceive, and not only associate, the colors when they see numbers and letters.

For these reasons, one is not entitled to deny that grapheme-color synesthetes, who see the numeral ‘5’ both as black and red, have genuinely *perceptual* experiences. This attitude would again be a case of experiential chauvinism, since the foregoing shows that there is no reason why non-synesthetes should be in a better epistemic position than synesthetes for

⁸ This should not be conflated with the “alien color effect” (ACE) that has been described by Gray et al. (2006), where some synaesthetes experience the word ‘blue’ as red, i.e., where there is a mismatch between the synesthetic color of color names and the meaning of the word.

adjudicating what can qualify as perceptual and what cannot. Finally, this means that one can justifiably assume that the kind of synesthetic experiences we are focusing on are genuinely perceptual.

A further objection may be formulated thus:

Given that synesthetic experiences are reliably triggered by “normal” perceptual experiences, one may conceive of them as some sort of free-riders that ride piggy-pack on their triggering experiences. If this is granted, their free-rider status gives rise to two difficulties. First, they may function like parasites insofar as their phenomenology counterfeits or mimics the presentational nature of genuine perceptual experiences. On this view, it seems better to think of synesthesia as a non-representational sensory state that is more akin to purely sensational states, such as pains, moods and emotions. The second difficulty is this: if they are free-riders, synesthetic experiences may be regarded as bare back-ups that supplement the non-synesthetic sense. If so, then they are unlikely to confer new powers or skills on their bearer. This, however, makes it difficult to see how synesthesia could be evolutionary advantageous after all.

Reply: Concerning the first difficulty raised by the objection, it is true that our approach to synesthesia takes for granted that synesthetic experiences refer to some transcendent subject-matter beyond themselves, just like genuine perceptual states. But notice that this assumption is supported by appropriate empirical evidence. It has been argued that all neonates are synesthetic and that most of them lose their synesthesia by six months of age (Maurer, 1993, and Maurer & Mondloch, 2005). In addition to the hypothesis of neonatal synesthesia, it has been confirmed in nearly every single study of synesthesia that it arises regularly during childhood (Marks, 1997). This fits very neatly with the reports of synesthetic adults as well where most of them report having had such experiences as far back in childhood as they can remember. Against this background, the above objection becomes unmotivated since, if all neonates are synesthetic, it would be *ad hoc* to claim that there must be a difference in kind between synesthetic and non-synesthetic experiences. Rather, perceiving the world synesthetically constitutes our original perceptual condition and the majority of adults simply seem to grow out of it.

Note as well that there is no warranted basis for conjecturing that synesthetic experiences undergo an ontological change during ontogenetic development from being a properly representational mental kind to becoming a purely sensational mental kind. In sum, there is no motivated reason, then, not to treat synesthetic experiences in adults as being about or of the empirical world.

To meet the second difficulty advanced by the objection, one can simply counter that synesthetic experiences do actually endow the individuals with new powers and extra skills. We have already seen above that synesthesia comes along with increased performances in pattern-perception, and also that it can boost the cognitive skills of reading, writing, spelling, and memory. To view synesthetic experiences as sheer back ups or supplements for non-synesthetic experiences proves therefore untenable.

To be sure, the relationship between synesthetic and non-synesthetic experiences is not well understood to date, and one had better abstain from taking a particular stand on the matter until more research has been done. But even if now is not the place to explore this question further, the moral of the foregoing is quite clear: the suggestion that synesthesia is nothing but a parasitic free-rider whose sole function is to back up “normal” experiences is a non-starter and must be discarded at the outset.

Here is a further concern:

Maybe representational, but not veridical. Synesthesia may be akin to some mental disorders inasmuch as there can be a secondary gain and compensation despite these experiences being hallucinatory. Roberts (1991), for instance, has shown that systematized hallucinations can be adaptive in the context of psychotic illness, and one may think about synesthesia along similar lines. Imagine the following scenario: whenever the subject smells the odor of some highly noxious substance, she enjoys in addition to her veridical olfactory experience a visual hallucination as of a pink expanse covering the left side of her visual field. She is aware of this link and accordingly reacts by avoiding toxic matter. This hallucinatory experience is therefore reliable, systematic, and adaptively useful for the subject, since it warns her about the dangerous substance in her vicinity. Thus put, we have here a case of a perceptual experience that enhances the perceiver’s fitness which is, nevertheless, hallucinatory. Likewise, synesthetic experiences might be best understood as reliable, systematized, and useful hallucinations.

Reply: This challenge correctly shows that reliability, systematicity and usefulness are not *sufficient* for veridical perception. However, a key issue is being glossed over in the setting-up of this objection, namely, *how* the content of the perceptual experience itself enables the perceiver to engage with the world. Admittedly, the subject can learn that whenever she smells the odor of some poisonous substance, she is subject to a hallucination as of a pink expanse in her visual field. The subject can further learn to appropriately avoid the noxious stuff. This is akin to the Müller-Lyer illusion where one might learn, after several experiential encounters with the diagram, not to take the two parallel lines to be equal in length and

thereby adjust one's perception-based actions with regard to them. In such cases, the misleading phenomenology is cognitively reworked with the effect that one's overt behavior shows no sign of misperception. Yet, this instance of successful behavior is not based on the *perceptual* content alone, but is the result of further corrective cognition and reasoning on the perceiver's part. For if the subject was to take her perceptual content at face value and act in accordance to it, it would lead to a *failure of action*.⁹ This means that the experience's perceptual content fails to appropriately fill in the functional role constitutive of veridical perception – i.e., it fails to ensure successful interaction with the world.

Notice, however, that synesthetic experiences are not like this. By filling in the correct functional role, their perceptual content *per se* enables the synesthete to successfully interact with the world. No further corrective intervention, cognitive or otherwise, is needed in order to provide guidance to the synesthete in taking successful action with regard to worldly objects. MW's successful engagement with his environment is directly guided by the content of his tactile concurrents. In conclusion, the above objection can be defused because the perceptual content of synesthetic experiences itself is reliable, systematic, useful, and not misleading (insofar as it does not result in a failure of action).

A last doubt might be pressed against the veridicality view as follows:

Let's come back to the grapheme-color synesthetes referred to above. Well, if the numeral '5' can look both black and red to them at the same time, then we get a straightforward contradiction, since objects cannot be both black and red. At least one experience must be misleading, and it is sensible to regard the synesthetic one as the culprit. Synesthetic experiences are therefore not veridical perceptions.

Reply: At least at first sight, this objection might seem to have teeth. However, as we like to say, one man's *modus ponens* is another man's *modus tollens*. We can just as well conclude that objects can instantiate a range of distinct determinate colors simultaneously. For someone who believes that some synesthetic experiences are veridical perceptions, this conclusion is, indeed, not only reasonable but also the one it is most natural to draw. After all, she will insist that we ought to take the fact that objects can look both black and red to synesthetes to mean precisely that we really need a theory of perceptual experiences according to which experiential states like these can qualify as veridical. Obviously, one way to satisfy this demand is by asserting that worldly objects can possess distinct determinate color properties at the same time and at the same place.

⁹ See Anderson & Rosenberg (2008, p. 78) for a definition of what it means for an action to fail in its intent.

Accepting that synesthetic experiences can be veridical will, of course, have important ramifications for what a metaphysical theory of color properties can look like. For instance, it seems to be immediately ruled out that colors could be construed as intrinsic, categorical properties of physical objects. Instead, it marries up more easily with a form of psychological-dispositionalism about color, according to which *x*'s property of having a certain color, such as red, is analyzed in terms of dispositions and powers (Maund, 2006b). Briefly and roughly, a dispositionalist about color can hold that for *x* to be called 'red' is for *x* to have the power or disposition to appear red to perceivers of the appropriate kind, or, alternatively, she might conceive of *x*'s being red as *x*'s having a feature by virtue of which *x* appears red. In this way, grapheme-color synesthesia can be veridical because there is nothing incoherent in the idea that an object can have the disposition to appear black and the disposition to appear red to the synesthete simultaneously. Tension dissipated.

Moreover, dispositionalists can insist that perceiving distal objects as colored does not involve a kind of massive error or systemic illusion, for the dispositional properties can be grounded in the categorical bases of the objects themselves (Levine, 2003). One can thus hold on to the idea that color perception is sometimes a veridical affair. So, this means that with respect to the veridicality constraint brought into sharp relief by the foregoing objection, a dispositionalist conception of color properties fits the bill perfectly fine.¹⁰

Finally, it is further worth mentioning that the objection currently under examination does not exclusively target synesthetic experiences. The same kind of objection can also be formulated against cases of "shifted qualia". In the case of shifted qualia, the problem becomes pressing since science has shown that inter-gender as well as intra-gender cases of shifted qualia are the rule and not the exception (Hardin, 2008). Unless one is willing to make the seemingly *ad hoc* move of epistemically privileging one group of perfectly legitimate "normal" perceivers to the disadvantage of another group of perfectly legitimate "normal" perceivers, one has to tell a story about how such experiences can be all on an equal epistemic footing.¹¹ Of course, this sameness of epistemic standing still leaves open whether all these

¹⁰ The same idea is also suggested by Wager (1999) who argues that the most plausible (representationalist) account for synaesthetic experiences would be a dispositionalist account of colors, i.e., to conceive of phenomenal properties as secondary properties. Note, however, that the dispositionalist view is not the only game in town. I argue in Sollberger (2009) that a structuralist account of representation is equally well suited to accommodate synesthetic experiences as veridical perceptions. Space precludes a more detailed treatment of these matters.

¹¹ Tye (2006) makes this move in order to save color-realism. According to him, some perceivers get the surface colors of physical objects right whereas others don't, but there is no way for us to know whether we

perceptual experiences count as veridical perceptions or misperceptions. What makes it a desideratum to treat such perceptions as veridical and not as illusory is the fact that the perceivers and their experiences are perfectly “normal” from a behavioral, functional, and biological point of view. Notice, therefore, that the foregoing objection frames a worry that is not essentially tied to synesthetic experiences, but poses a general problem every theory of perception has to respond to.

5. Conclusion

On the picture I have sketched, there is reason to think that some synesthetic experiences can be viewed as veridical perceptions. If all of this is right, then we ought to reassess the widespread assumption that all synesthetic experiences must be deceptive. In failing to recognize this possibility, the participants in this debate have so far unduly restricted the scope of dialectical options. The view expressed in this paper has therefore important ramifications not just for synesthesia research, but also for perception theories more generally, since it imposes a constraint on the account one can provide of the type of mental state that the subject is in when she veridically perceives worldly objects and their properties.

In the light of this plea for thinking differently, i.e., more permissively, about synesthesia, a question that one might naturally ask at this point is this: In virtue of what feature can both “normal” and synesthetic experiences be veridical perceptions? How are perceptual experiences geared to the world such that it is possible, as in MW’s case, to veridically perceive the lemon’s taste as sour and also as a pointed shape? Outlining the dispositionalist account of colors was a first, admittedly rough-and-ready, step towards taking up this tricky question. Much more needs to be said, of course. But exactly how such an account of veridical perception is to be framed must be the topic of another paper.¹²

belong to the epistemically privileged class of perceivers, or whether all of our color experiences are illusory. Hardin (2008) highlights the drawbacks and flaws of this strategy.

¹² Parts of this paper were presented at Dublin, Neuchâtel, Évora, Geneva, Budapest, Glasgow, London, Canberra, Fribourg, and Lausanne. Many thanks to the audiences on these occasions. For criticism and helpful discussion along the way, I am grateful to Dave Chalmers, Tim Crane, Michael Esfeld, Richard Gray, Barry Maund, Louise Richardson, and Gianfranco Soldati. The work on this paper has been supported by the Swiss National Science Foundation (SNSF), grant nr. 100011-117611.

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