Tracking Intentionalism and Optimal Conditions: A Reply to Byrne and Tye

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Like Alex Byrne and Michael Tye, I accept Intentionalism about visual experience. Therefore I agree with them that “qualia ain’t in the head”: roughly, to have a visual experience is to stand in a relation, the “awareness relation” or the “sensory representation relation”, to a cluster of properties outside the head (Pautz 2006, 27). My target in Pautz (2006) was the further claim, defended by Tye (2000), Dretske (2003) and Lycan (2001), that this relation is identical with a “wide physical relation” between people and such properties. I call this “Externalist Intentionalism”. My argument is founded on the claim that all versions deliver the wrong verdict in a case that I describe concerning color vision, the case of Maxwell and Twin Maxwell. They also deliver the wrong verdict in cases I describe concerning pain and taste (Pautz 2005).

Byrne and Tye (2006, sect. 2) object that Tye’s version of Externalist Intentionalism, at least, escapes the argument. Here I will argue that their objection fails to identify a fault with the argument. I begin by stating a “Circularity Constraint”: if a psychosemantics is to reductively explain sensory representation in terms of causal-covariation under optimal conditions, then the relevant notion of ‘optimal conditions’ must be non-representational. Otherwise the account will be circular (see Pautz 2005; Pautz 2006, note 5; Chalmers 2005). Then I describe my case and my argument. I note that the argument depends on the “Symmetry Thesis”: given the basic, non-representational facts of the case, optimal conditions obtain in both Maxwell’s situation and Twin Maxwell’s situation. Then I use the Circularity Constraint to show that Byrne and Tye’s objection fails. Given the Circularity Constraint, to provide a reason to reject this Symmetry Thesis, the Externalist Intentionalist must specify a non-representational fact X in the basic facts of the case and argue ‘X, therefore suboptimal’. This Byrne and Tye have not done. So they have not identified a fault with the argument.

1 Thanks to David Chalmers and Daniel Stoljar. Word count: 2, 457.
1. The Circularity Constraint

Intentionalism holds that the qualitative character of an experience is determined by its intentional content. Tracking Intentionalism supplements Intentionalism with a causal-covariation theory of sensory intentionality. On such theory, a person $P$ sensorily represents a property $F$ iff $P$ is in some state or other that is poised to influence the formation of belief and desires and that is caused by the instantiation of $F$ under optimal conditions. (See Tye 2000. Similar theories are defended by Dretske 1995 and Lycan 2001.)

The Tracking Intentionalist must provide a definition of optimal conditions. The theory aspires to be reductive. It is meant to show how to construct representational facts out of non-representational facts. Therefore optimal conditions cannot be defined as conditions in which our experiences represent things as they are. Otherwise the account will be circular. To avoid circularity, optimal conditions must be defined in non-representational terms. Call this the Circularity Constraint. For instance, in the case of vision, the Tracking Intentionalist might define optimal conditions as conditions in which the various components of the visual system operating in accordance with design and in the sort of environment in which they were designed to operate. I will use the subscript 'I' to mark the fact that 'optimal conditions' must be defined in such non-representational terms. According to Tracking Intentionalism, then, a person $P$ sensorily represents a property $F$ iff $P$ is in a state that is appropriately poised and that is caused by $F$ under optimal conditions.

2. A Clarification

Here now is the counterexample. Maxwell and Twin Maxwell belong to two communities of perceivers that evolved separately. (In Pautz (2006), I say that Maxwell belongs to the actual community and Twin Maxwell belongs to a counterfactual world. But to make it clear that their situations are perfectly symmetrical one might also suppose that they occupy different planets in the same world.) They evolved the same receptor systems. But, because of differences in their evolutionary histories (as it might be, differences in the selection pressures operating on them), the details of the transformation from the cone systems to the so-called opponent channels differ between the two communities. Maxwell and Twin Maxwell view a square with reflectance property $F&H$. The facts of the case are as follows: (i) Owing to their different postreceptoral wiring Maxwell is put into “binary” opponent channel state $P$ involving activity in two chromatic channels, while Twin Maxwell is put into “unitary” opponent channel state $Q$ involving activity in only one channel; (ii) in consequence of these hard-wired differences, their color-related behavioral dispositions differ considerably (they would differ in their performance on the psychophysical tests for color vision); (iii) but, because their receptor
systems are the same, P and Q both track the same reflectance property, F&H;³ (iv) further, since they naturally evolved their different wiring, both their visual systems are working in accordance with design; and (v) their behavior, though different, is equally adaptive and appropriate. We may also assume that neither community speaks English. It should be emphasized that I do not stipulate anything about how Maxwell or Twin Maxwell represent or experience the world. The case is like a case of radical interpretation. Let B be the set of basic non-representational, non-experiential conditions (i) through (v). Diagrammatically, the case is as follows:

![Diagram]

Byrne and Tye’s response contains a misinterpretation of the case. This misinterpretation is relevant to the failure of their response. They claim that I stipulate that Twin Maxwell is subject to significant color illusions but has no abnormalities whatsoever (22). They claim that this situation is not possible. So, they claim that my case is not possible. But I do not stipulate that Twin Maxwell is subject to significant color illusions, or that Maxwell and Twin Maxwell have different color experiences. That would be like “stipulating” that the subject of a Gettier example does not know. That is not how counterexamples work. One describes a case in neutral terms. Then one argues that if theory T is true then these conditions entail p, but that on the contrary the correct verdict is not-p. In the present case, the stipulated conditions are the non-representational, non-experiential conditions (i) through (v). These conditions are evidently composable. So,

³ On Tracking Intentionalism, colors are identical with reflectance properties, and the visual system represents a color (that is, a reflectance property) by tracking it under optimal conditions.
the case is possible. As I put it in the paper, the issue is whether, given the physical facts as I have described them, Maxwell and Twin Maxwell have the same color experiences or different color experiences (Pautz 2006, 12). I argue that Tracking Intentionalism entails that they have the same color experiences, but that the correct verdict is that they have different color experiences.

It will help to put the argument semi-formally. To begin with, let me introduce some terminology. Call the claim that Maxwell and Twin Maxwell have different color experiences of the square Different Experiences; and call the claim that they have the same experience Same Experience. Call the claim that P and Q track F&H under optimal conditions Same Optimal Cause. Call the claim that Maxwell and Twin Maxwell’s color experiences represent the same property Same Content. My argument against Tracking Intentionalism may now be stated. (What follows is a more formal version of an argument in Pautz 2006.)

[1] If Tracking Intentionalism is true, then B \rightarrow Same Optimal Cause. (The arrow means ‘entails’.)
[2] If Tracking Intentionalism is true, then Same Optimal Cause \rightarrow Same Content and hence Same Experience. (Def. of ‘Tracking Intentionalism’)  
[3] If Tracking Intentionalism is true, then B \rightarrow Same Experience. (1, 2)
[4] As against Tracking Intentionalism, B \rightarrow Different Experiences.
[5] Tracking Intentionalism is false. (3, 4)

Let me now justify the steps of the argument. Consider first [1] through [3]. Recall that B does not include any facts described in experiential or representational terms. The facts in B only include the basic, physical facts of the case. (On Physicalism, these are all the facts of the case.) Therefore, they are the only facts that the defender of Tracking Intentionalism can draw upon in order to derive a verdict about the case. Now, even though B includes the fact that Maxwell and Twin Maxwell have different evolutionary histories and differ in their neurobiology and behavior, it also includes the fact that when P and Q are caused by F&H both Maxwell and Twin Maxwell’s visual systems are (iv) operating in accordance with design and (v) result in adaptive and appropriate behavior. In other words, it includes the fact that both P and Q track the same external property, F&H, under optimal conditions. Therefore, even though B includes differences between Maxwell and Twin Maxwell, if Tracking, then B entails Same Content (Maxwell and Twin Maxwell represent the square as having the same property, namely F&H) and hence Same Experience.

Perhaps it will be said that the defender of Tracking Intentionalism may resist this argument. The facts in B include the fact that Maxwell and Twin Maxwell are in different opponent channel states and have different behavioral dispositions, including verbal dispositions. (But we may suppose that neither Maxwell nor Twin Maxwell speaks any
actual language.) As we shall see, this is the basis of my argument for [6]: \textbf{B} entails Different Experiences. Perhaps it will be said that the defender of Tracking Intentionalism may also appeal to these internal and output-side differences between Maxwell and Twin Maxwell to argue that \textbf{B} entails Different Experiences (and Different Contents). But the Tracking Intentionalist is not entitled to appeal to these differences. Given his Tracking Intentionalism, he can only appeal to facts about causation and optimality. But, as we have just seen, even though \textbf{B} includes neural and behavioral differences between Maxwell and Twin Maxwell, it also includes the fact that both \textbf{P} and \textbf{Q} track the same external property, \textbf{F&H}, under optimal conditions. So if Tracking Intentionalism is true, then \textbf{B} entails Same Content and hence Same Experience.

Now consider [4]. As against Tracking Intentionalism, this premise asserts that \textbf{B} entails Different Experiences. I offer two arguments in favor of this premise. First, there is the empirically-based Argument from Neurobiology. Maxwell and Twin Maxwell differ neurally in whatever way is relevant to the unitary-binary distinction. So it is reasonable to suppose that they have different color experiences. In particular, it is plausible that Maxwell has a “binary” color experience, while Twin Maxwell has a “unitary” color experience. Perhaps it will be said that the case is one of alternative neural realization of the same experience. But this is implausible.

The second argument is the Argument from Behavior. Maxwell and Twin Maxwell differ in their color-related behaviors. They sort objects differently. In general, they differ in their performance on the psychophysical tests for color vision. Further, the differences are hard-wired, not the result of learning. Given these behavioral differences, it is reasonable to suppose that Maxwell and Twin Maxwell have different color experiences. As Martin Davies (240) puts it,

\ldots where there is a dislocation between the facts of covariance on the input-side and the facts of behaviour on the output-side, output-side factors should dominate in the ascription of perceptual content.

In other words, when it comes to a competition between action and environment, in the fixation of perceptual content, action wins. To use Colin McGinn’s slogan, “aftermath beats etiology” (1989, p. 66). This principle remains plausible if we replace “perceptual content” with “perceptual experience”. Similarly, Evans (1995) states that the content of an experience is in part determined by an individual’s sensorimotor skills that is, it is determined by the way the experience could be used to guide various kinds of skilled activity.

In short, the case of Maxwell and Twin Maxwell is test case for philosophical theories of experience. Tracking Intentionalism does not pass the test. It entails that the correct

\footnote{Thanks to Fred Dretske for helping me to see that this needs to be emphasized.}
verdict is Same Experience. But the correct verdict in such cases is Different Experiences. This is more plausible than any philosophical theory of experience which entails the contrary verdict. Therefore, Tracking Intentionalism fails.

The same argument may be made with different cases. Yuck and Yum belong to different species. The very same foodstuff is poisonous to Yuck but an important food-source for Yum. In consequence, they so evolved as to respond to the same chemical property of the foodstuff with different across-fiber neural processing and different affective reactions. Yuck withdraws from it violently, while Yum is drawn to it. Tracking Intentionalism delivers the verdict that Yuck and Yum have phenomenally the same taste experience of the foodstuff, because their taste systems track the same chemical (taste) property under optimal conditions. But, given the internal and behavioral differences between them, this verdict is implausible in the extreme. The right verdict is that Yuck’s taste experience has a “bad” phenomenology, while Yum’s taste experience has a “good” phenomenology. Here is a case where we should apply modus tollens, if there ever was one. Again, Tracking Intentionalism fails.

The argument extends to other forms of Externalist Intentionalism, for instance Fred Dretske’s Indicator Intentionalism (Pautz 2006). Such theories deliver the verdict of Same Experiences in cases like Maxwell and Twin Maxwell and Yuck and Yum. But the right verdict is Different Experiences. This is why I think that we Intentionalists must say that “the awareness relation (or the sensory representation relation) is not a wide physical relation.”

3. An Objection and Reply
The argument is valid. The Tracking Intentionalist must reject one of the premises or reject Tracking Intentionalism. Byrne and Tye would reject Premise [1]. It is not the case that, if Tracking Intentionalism is true, \( B \) entails Same Optimal Cause. As mentioned, they mistakenly take it to be a given feature of the case that Maxwell and Twin Maxwell have different color experiences, and that while Maxwell generally gets it right, Twin...
Maxwell is subject to considerable color illusions. In other words, they take it as stipulated that Twin Maxwell and the other members of his community are subject to “normal misperception”, while Maxwell and the other members of his community generally get it right. To be more specific, they hold that Maxwell normally represents the square as having the reflectance property $F\&H$, while Twin Maxwell normally represents it as having some reflectance property $X$ which it does not have. Then they write, “given that there is widespread error, a defender of Tye’s externalist psychosemantics may fairly insist that one component or other of Twin Maxwell’s visual system must be malfunctioning” (22). But then, contrary to [1], it cannot be the case that optimal conditions obtain for in Twin Maxwell’s situation as well as Maxwell’s situation. Therefore, it is not the case that both $P$ and $Q$ are caused by the same property, $F\&H$, under optimal conditions. Hence, it is not the case that, on Tracking Intentionalism, $B$ entails Same Content and Same Experience (Byrne and Tye 2006). In brief, the objection here is “False, therefore suboptimal”.

But this objection is mistaken. To begin with, it relies on the mischaracterization of the case noted in §2. My case is meant to be a test case for philosophical theories of perceptual content and perceptual experience. Therefore, I do not stipulate anything about representation or experience into the case from the beginning. In particular, I do not stipulate that Twin Maxwell is subject to considerable color illusions. Rather, $B$ only includes the non-experiential, non-representational facts (i) through (v). This is quite explicit in the paper (Pautz 2006, 12). To defend the claim that Maxwell generally gets it right Twin Maxwell is generally in error, one must show how it follows from one’s favored theory of sensory representation.

Now that this confusion has been cleared up, it is clear that the Tracking Intentionalist is committed to the claim that both Maxwell and Twin Maxwell get it right. Given the Circularity Constraint, he must define optimal conditions in non-representational terms. Hence he cannot argue “False, therefore suboptimal”. He cannot assert that the representational facts are so-and-so, and then go from the representational facts to the optimality facts. That would violate the Circularity Constraint. Rather, he must go from the non-representational facts of the case to the optimality facts, and then from the optimality facts to the representational facts. So if he wishes to argue that optimal conditions fail to obtain, he must argue “X, therefore suboptimal”, for some non-representational fact X in $B$. But this he cannot do, for the situations of Maxwell and Twin Maxwell are perfectly symmetrical with respect to all of the non-representational facts which might be considered relevant to optimality. As we have seen, the non-representational facts in $B$, together with the non-representational definition of optimality, straightforwardly entail that optimal conditions obtain in Maxwell’s situation and Twin Maxwell’s situations. So [1] is true: if Tracking Intentionalism is true, then $B$ entails Same Optimal Cause. The rest of the argument follows straightforwardly. It follows that, if Tracking Intentionalism is true, then $B$ entails Same Content: that Maxwell and Twin
Maxwell both correctly represent the square as F&H. Since, on Tracking Intentionalism, B entails Same Content, B also entails Same Experience.⁶

But this verdict is mistaken. That the correct verdict in such cases is Different Experiences is more plausible than any philosophical theory of experience which would deliver the contrary verdict. Indeed, even though they disagree with my arguments for the verdict of Different Experiences, Byrne and Tye agree that this is the correct verdict (section 1.1.3). Therefore, the original conclusion stands: Tracking Intentionalism is mistaken. The argument carries over to other forms of Externalist Intentionalism.

5. Is there a Better Psychosemantics for Sensory Representation?

Broadly speaking, we may distinguish between input-based and output-based theories of sensory representation. In Pautz (2006) it was my aim to show that externalist, broadly input-based theories fail in the case of sensory representation (although many of the theories examined there have both input and output elements). Maxwell and Twin Maxwell are alike in input-oriented respects despite differing in neurobiology and behavior. Both are in states that are caused by the same property, namely F&H, under optimal conditions. So, input-based theories deliver the verdict of Same Content in this case. When this is combined with Intentionalism, we get the mistaken verdict of Same Experience. So those of us who accept Intentionalism must reject such approaches. But while Maxwell and Twin Maxwell are alike in input-oriented respects, they differ in output-oriented respects: they are in different neural states that ground different color-related behavioral dispositions. Therefore, even though Maxwell and Twin Maxwell are in states that are optimally caused by the same external property on the input side, it might be thought that a more output-oriented theory will deliver the verdict of Different Contents. When combined with Intentionalism, such a theory would deliver the correct verdict of Different Experiences. But elsewhere (Pautz forthcoming) I argue that narrow, output-oriented reductions of sensory representation fail as well.

⁶ Byrne and Tye say Optimal Cause Intentionalism is “not sufficiently well-developed to allow anything approaching a prediction in cases like Maxwell and Twin Maxwell” (20). This may seem to cast doubt on [1]-[5]. But Optimal Cause Intentionalism is formulated in terms of ‘causation under optimal conditions’. And, in the case of evolved creatures, Tye defines ‘optimal conditions’ in ordinary language: in terms of operating in accordance with design and without interference (Tye 2000, 138). Maxwell and Twin Maxwell situations are described in exactly these terms and in fact both their visual systems are operating in accordance with design and without interference. So it is clear that Optimal Cause Intentionalism does deliver a verdict in this case: namely, Same Optimal Cause and hence Same Content and Same Experience.

It is worth noting that one can described cases similar to the case Maxwell and Twin Maxwell but involving pain and taste. In these cases, the reply ‘False, therefore suboptimal’ would not only not be supported by Optimal Cause Intentionalism (which entails that both subjects get it right). It would require that one of the communities is generally wrong about their pains, or about the taste of things in their community.
Byrne and Tye say that even if I am right “nothing exciting will follow from the failure of existing reductive physicalist accounts of the awareness relation”, adding that “it would be absurd to think that such failures tell us anything other than the lesson that mental representation is a very difficult subject” (19).

I disagree. In the case of many manifest properties, we can come up with more or less plausible reductive theories. By contrast, we cannot even come close to specifying a reductive theory of the sensory representation relation (the sensory awareness relation) that delivers the verdict that Maxwell and Twin Maxwell sensorily represent different colors or color-like properties (Pautz forthcoming). This, I think, is good evidence for a primitivist or “no-theory” theory: the sensory representation relation is not identical with a physical relation definable in input-oriented or output-oriented terms. It is a primitive relation.

Here, then, is what I take to be the correct account of the case of Maxwell and Twin Maxwell. Because of the differences between them, on viewing the square, Maxwell and Twin Maxwell bear the primitive sensory representation relation (“awareness relation”) to different colors or color-like properties. It is a case of supervenience without identity. This does not require Asymmetrical Misrepresentation: that one gets it right and the other wrong. I also accept Primitivism about colors: colors are not reflectance properties, but primitive properties. On Response-Dependent Primitivism the square is both orange and pure red, so that both Maxwell and Twin Maxwell get it right. On Eliminative Primitivism objects do not have primitive colors, so that both get it wrong (Pautz 2006, section 5). I favor Eliminative Primitivism.

In any case, as I have tried to argue here, Byrne and Tye have said nothing to cast doubt on the more modest claim of Pautz (2006) that Optimal Cause Intentionalism and the other versions of Externalist Intentionalism fail because they deliver the wrong verdict of Same Content and hence Same Experience in the case of Maxwell and Twin Maxwell.

References [references in the text are to the online versions]


