

Do the benefits of naïve realism outweigh the costs? Comments on fish, *perception, hallucination and illusion*

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What it is like to have experience can be explained by the elements of the environment with which the subject is acquainted.—Fish (2009).

[Internal neural processes] play a special role in explaining the perception of unique hues.—Brouwer and Heeger (2009).

Fish's book (2009) is inventive, clear and bold. I have learned much from thinking about it.

My plan is as follows. In §1 I will evaluate Fish's arguments for naïve realism about visual phenomenology. In §2 I will identify potential intuitive costs of his theory of hallucination and certain illusions. In §3 I will argue on empirical grounds that the brain plays a more serious role in shaping phenomenal character than is allowed by the naïve realist. I think this may be the strongest argument against naïve realist and disjunctivist views in general. Burge (2005) also has argued that such views are at odds with science, but my argument differs from his.

1 What are the Benefits of Naïve Realism?

Suppose you have a veridical experience of a tomato. Fish's naïve realism takes a strong form. It says having an experience with that visual phenomenal character is *identical with* (sometimes he says "constituted by") being acquainted with the actual concrete state (worldly fact) of something's being red and round, where acquaintance is an "irreducible" mental relation (p. 14, fn. 19).

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Opponents of naïve realism *agree* with the conviction that *in a sense* you are “directly acquainted with” or at least “directly perceive” the specific color and shape of the tomato. The issue is whether this constitutes the phenomenal character of your experience. While naïve realists think it does, opponents think that the phenomenal character of your experience is really constituted by something other than acquaintance with the world. For instance, *intentionalists* hold that it is constituted by *visually representing* the world as containing a red thing of a somewhat bulgy shape—a condition that can be present in hallucinatory cases as well as veridical cases.¹

Fish says that his strong naïve realism about visual phenomenology goes with an error theory of hallucination, according to which in any such hallucinatory case in which you are not acquainted with anything, your perception entirely lacks visual phenomenal character—even if it has a “felt reality” (p. 97). To be convinced of Fish’s radical brand of naïve realism, we would need a strong argument.

Fish first mentions an argument based on the claim that naïve realism is the view of ordinary people (p. 18), but says that he came to reject that argument after talking to ordinary people at the Sydney airport (p. 19, fn. 23). Instead, Fish explicitly says he “endorses” (p. 99, fn. 22) a different argument, which I will call the **expert introspection argument**.

The *first premise* of Fish’s expert introspection argument is a super-strong introspective *infallibility claim*: “a[ny] judgment about experience...based on phenomenological study [by experts, under optimal circumstances] will be [is bound to be] accurate” (p. 20; quoted from Hellie 2007, p. 267).

Fish’s *second premise* is that on the basis of phenomenological study experts (including philosophers C. D. Broad and John Campbell) either directly judge the *property-identities* definitive of naïve realism to be true, or else make judgments that somehow entail or support such property-identities. For instance, on viewing a tomato, the expert might judge that having an experience with that phenomenology *consists in* standing in an irreducible acquaintance relation to a thing’s being red and round. Call these *acquaintance convictions*.

An initial problem with Fish’s argument is that its introspective infallibility premise is false. Think of all the false introspective pronouncements of the highly trained introspectionists of the nineteenth century (Block 2010, fn. 6), and even participants of contemporary psychophysical experiments on ratio scaling, thresholds, phenomenal structure, and so on.

A positive suggestion: since justification doesn’t require infallibility, Fish might rely on the modest claim that introspection, together with a priori reflection, provides *defeasible justification* for the view that phenomenology is constituted by acquaintance with concrete states like *a thing’s being red and round*. Even though I myself reject naïve realism and accept intentionalism, even I agree that such an acquaintance-based theory of visual phenomenology is much more plausible a priori than the bizarre intentionalist view that visual phenomenology is constituted by

¹ While a naïve realist like Fish would reject the strong claim that phenomenal character of your experience of the tomato is constituted by representational content, he could accept the very weak claim that the experience can be *associated with* a representational content (Pautz 2009, p. 13).

standing in an intentional relation to a non-extended abstract object, such as a property-complex or a proposition (Pautz 2007, p. 520 and fn. 12; and Pautz 2010, pp. 291–297).

However, any argument based on our acquaintance convictions faces a more serious problem. On viewing the tomato, no doubt you will be convinced that the character or felt reality of your experience is constituted by your being acquainted with the redness and roundness of something. The trouble is that acquaintance convictions just like this are often deceptive. If experts and normal people have certain vivid hallucinations or illusions, and have only introspection to go on, then they will be equally convinced that the character and felt reality of their experience is constituted by acquaintance with the actual character of certain objects. This is why some expert introspectionists like H. H. Price and C. D. Broad—who not only studied illusions but actually took drugs to induce vivid hallucinations in themselves (Price 1964)—were taken in by the sense datum theory, with sense data going proxy for physical objects. But even Fish agrees that in all hallucinatory and many (but not all) such illusory such cases (distorting lenses, color blindness), the experts' acquaintance convictions are totally false (pp. 165, 174, 181): the character and felt reality of their experience is *not* constituted by their acquaintance with (physical or mental) objects. Further, contrary to Fish (p. 99, fn. 21), in many such deceptive illusory and hallucinatory cases, conditions are optimal for introspecting perception. The individuals are perfectly lucid. And, since they are perfectly able to introspect their thoughts and feelings, it would be strange if conditions were sub-optimal only for introspecting their perceptions.

So the track record of acquaintance convictions is worse than that of our less theoretical introspective judgments (“I’m in severe pain”). On any theory of justification and evidence, this bad track record constitutes an *undercutting defeater*: it lowers the evidential standing of acquaintance convictions based on introspection in general, including your conviction when you look at a tomato that the character and felt reality of your experience is constituted by your being acquainted with the redness and roundness of something (as opposed to say, merely representing the world to be a particular way).

However, Fish does briefly mention a second, intriguing argument for naïve realism. Suppose Mabel looks at a tomato. A light-involving property *L* of the tomato causes a cascade of neural processing. As a result, she is ostensibly presented with the redness of something. Fish claims (p. 78) that naïve realism provides the “most intelligible, transparent account” of how purely “physical/functional” facts necessitate “*the specifics of what it is like to have an experience*” (and not only there being *something* it is like for the subject). In particular, he claims that naïve realism is superior in this regard to the *externalist intentionalism* of Dretske and Tye and others, a major rival of naïve realism (p. 78, fn. 12). Call this the **gap reduction argument**.

The problem is that the naïve realist explanation of how the physical facts determine Mabel’s color experience is no “more intelligible” than externalist intentionalist explanation. To see this, let’s compare.

Contrary to the seventeenth century Galilean picture, externalist intentionalists hold that the sensible qualities (“qualia”), and the explanation for phenomenal

consciousness, are not to be found solely in the mind-brain. On their view, a light-involving property *L* of the tomato constitutes the quality *redness*. And the fact that Mabel is in a state that *typically* causally covaries with the repeatable quality *redness* (constituted by *L*) and that is suitably *poised* to impact her cognitive processing entails that she has a conscious experience “as of” the redness of an object (a state that doesn’t require the presence of a red object).

Fish agrees with externalist intentionalists that the sensible qualities are in the mind-independent world. Like them, he holds that some light-involving property *L* of the tomato constitutes the quality *redness*. But from here his explanation differs from the externalist intentionalist explanation. On Fish’s naïve realist story, facts concerning Mabel’s neural processing and her physical (e.g. causal) relations to particular tomato before her and its color (constituted by light-involving property *L*) entail that she is *acquainted with* the concrete fact of the tomato’s having a specific shade of red. Mabel’s *acquaintance with* the particular redness of the tomato constitutes the specific phenomenal character of her experience.

Is the naïve realist story any more “more intelligible” than the externalist intentionalist story? To begin with, anyone who locates the reddish quality in the external physical world instead of the head must accept a kind of re-located *objective explanatory gap* (Shoemaker 2003), which Fish does not address. Just as we can ask why a particular brain state should constitute a particular color experience or any color experience at all, we can ask why a particular complex light-involving property *L* should constitute the specific quality *redness* rather than the quality *greenness* (objective analogue of spectrum inversion), or indeed any color quality at all (chromatic analogue of Zombie world). Here naïve realism and externalist intentionalism are on a par.

So Fish must locate the superiority of naïve realism over externalist intentionalism elsewhere in their stories of how the physical determines Mabel’s specific color experience. The externalist intentionalist’s explanation includes the following *necessitation claim*: Mabel’s being in a state that bears certain complex, dispositional relations to the world and her cognitive processing entails that she has a conscious experience “as of” a red object. Fish would claim, and I agree, that this is not very intelligible or transparent (Fish 2008, p. 177). There are easily imaginable, coherent cases in which an individual is in the relevant complex, world-involving dispositional state, but in which she is *not presented with* redness. Intuitively, such an individual could have no conscious experience or a conscious experience of another color.

However there is a parallel explanatory gap in Fish’s naïve realist story that he seems to miss. Of course, *once* the physical facts determine the mental fact that Mabel is acquainted with the redness of the tomato, the naïve realist is home free. For there is no gap between the *mental* condition of being directly acquainted with the redness of something and the *mental* condition having a “reddish” experience. (This is related to a point I already made in connection with Fish’s expert introspection argument: there is some defeasible a priori justification for believing that having a certain “reddish” experience, for instance, simply consists in being acquainted with the redness of something.) But Fish’s gap reduction argument says something different: that naïve realism minimizes the standard explanatory gap,

which, as Fish notes, concerns the gap between conditions described in *purely physical-functional terms*, on the one hand, and mental conditions, on the other. And here I disagree. A crucial step in Fish's explanation of how the physical determines Mabel's specific color experience is his initial *acquaintance necessitation claim*: certain purely physical-functional facts about Mabel and her relation to the tomato entail that Mabel stands in the *acquaintance relation* to the redness of the tomato. My point is simply that this is *no more "intelligible" or "transparent"* to us than the externalist intentionalist's necessitation claim. My proof is that counterexamples to Fish's acquaintance necessitation claim are just as easy to imagine, and just as coherent, as counterexamples to the externalist intentionalist's necessitation claim. For instance, I can easily imagine a physical duplicate of Mabel, Twin Mabel, who has exactly the same neural states as Mabel as she views the tomato, and bears exactly the same purely physical (e.g. causal) relations to the tomato and its redness (constituted by light-involving property *L*), but who does not bear the *acquaintance relation* to (is not "presented with") the redness of the tomato (maybe instead she is a Zombie, or has an illusory perception of the color *green*).

Even if Fish thinks the Twin Mabel case is not metaphysically possible, doesn't he think it is just as imaginable and coherent as parallel counterexamples to the externalist intentionalist's necessitation claim? If so, then in what sense is his acquaintance necessitation claim (and his naïve realist explanation of how the physical determines the phenomenal) any "*more transparent*" than the externalist intentionalist's necessitation claim?

2 Fish's Theory of Hallucination (and Certain Illusions) and Its Costs

Fish provides different theories of veridical and hallucinatory perception. As already mentioned, because of his strong naïve realism, Fish thinks hallucinations entirely lack visual phenomenal character (p. 93). He offers a belief-based, error theory of hallucination. He also appeals to behavior. When you hallucinate a tomato, for example, all that is going on in your head is that you are acquiring a number of mostly false beliefs, for instance, the false introspective belief that you are having an experience with a certain phenomenal character or the false external-world belief that a red, round thing is before you. Such false beliefs account for the sense of "felt reality". As Fish notes, he is applying ideas of Rosenthal's "higher-order thought theory" of consciousness to hallucination. The theories face similar arguments.

Fish holds that hallucinations in fact lack visual phenomenal character. Many have criticized this. Others have raised counterexamples to Fish's analysis of a hallucination of an *F* as (roughly) a state with the same cognitive effects of a veridical experience of an *F* in a rational subject with the same "doxastic background" (p. 94). The counterexamples are cases in which a hallucination is not accompanied by any cognitive or behavioral effects at all (e.g. in an unsophisticated animal), or only accompanied by meager behavioral effects that can't even come close to pinning down the character of the hallucination. I would press other

counterexamples.² But, while I agree with these arguments, I would like to add a couple of other arguments to the view that all hallucination is nothing but the acquisition of higher-order and first-order thoughts.

My first argument I'll call it the **explanatory argument** (adapted from Pautz 2007, pp. 525–526; 2010, pp. 277–279). Suppose Mabel has not seen or imagined round things and lacks the capacity to have beliefs about round things. One day she has a vivid *hallucination* of a red, round tomato. Intuitively, she now has the new capacity to believe a round thing is present (by way of forming the *demonstrative* belief that something is *that way*), precisely because she has a *perception of a round thing*, a sort of perception she never had before. Likewise, if Mabel has only seen *black and white* things, the hallucinatory perception gives her the new capacity to have a belief that a *red* thing is present (something is *that way*). (For *actual* cases of illusory perception of novel colors, see Mancuso et al. 2009; Billock and Tsou 2010). Call this the *explanatory intuition about Mabel*.

Fish's theory violates the explanatory intuition about Mabel. On Fish's theory of hallucination, by contrast to rival theories (e.g. intentionalism), Mabel's having the hallucinatory perception of the red, round thing in this case simply *consisted in her* acquiring certain beliefs, including the belief that a red, round thing is there. Now, as Fish correctly notes (p. 114), just as being a bachelor implies being a man, so on his view having the hallucinatory perception implies having the beliefs or other cognitive effects. Nevertheless, Fish's view violates the present *explanatory* intuition. On Fish's view, since the hallucinatory episode simply *consists in* the acquisition of the beliefs, it cannot *explain* the actual acquisition of those beliefs nor the more basic *capacity* to have those beliefs, anymore than someone's being bachelor can *explain* his being a man.

My point is not that Fish cannot give *any* explanation of Mabel's new cognitive capacities (e.g. a sub-personal neural explanation). My point is that he cannot accommodate the intuitively correct explanation: they are explained by Mabel's novel (person-level) *hallucinatory perception*, as opposed to mere subpersonal neural processes or Mabel's limited diet of previous veridical experiences (as Fish suggests at p. 110).

Next, the **justification argument**. While having her vivid tomato hallucination Mabel has a strong *prima facie* propositional justification to believe that a round object is there, even if that belief is false. Call this the *justification intuition*.

Most theories accommodate this. Indeed, even radical externalists about evidence like Williamson (2000, pp. 198–199) who equate evidence with knowledge agree that Mabel has *some* justification for believing that a round thing is present, since

² Suppose Vanessa (a rational agent) has a brief veridical experience *V* of an *oval* thing; but suppose that, because the experience is brief and because her “doxastic background” happens to include overwhelming inductive evidence that all things in the environment are round, she *rationally* forms the (mistaken) belief that a thing before her is *round*. Given this, if a moment later she or someone else with the same doxastic background unwittingly has a *hallucinatory* experience *H* of a round thing and so believes a round thing is present, then Fish's account will misclassify it as a hallucination of an *oval* thing, because *H* has exactly the same cognitive effect as Vanessa's veridical experience *V* of an oval thing (namely, the single belief that a round thing is present).

she knows she's having a round-presenting phenomenal experience (a state distinct from her belief), which evidentially supports that belief.

But a simple argument suggests that Fish's theory has the consequence that Mabel has *no* justification. The first premise is that on Fish's theory all that is going on in the case is that Mabel is forming certain beliefs, including the belief that a round thing is present. The second premise is that if that is all that is going on, there is nothing present in the case that could confer justification on those beliefs.³

Indeed, since on Fish's view Mabel is *not* having an experience with phenomenal character (she is just acquiring some mostly false beliefs), her *second-order* belief that she is *having an experience with phenomenal character* is not only false, it is not even justified.

The problems here are not just consequences of Fish's unique model of *hallucination*. On Fish's view, if Mabel looks at a single black, round thing through a perfectly clear (and unnoticed) distorting glass, and so has an *illusory* perception of it as elliptical, then she is of course not acquainted with the fact that the thing is elliptical (it isn't). On Fish's view, Mabel is only acquainted with the fact that the thing is black, the fact that it is a bounded figure, the fact that it is at viewer-relative location *l* (p. 164). Thanks to aberrant processing, she just forms the false belief that such an elliptical thing is present, and the false belief that she sees an elliptical thing (p. 165). On Fish's view, that is all that is going on when she has her illusory perception as of an elliptical thing. So, unlike rival views, Fish's view violates the intuition that Mabel's illusory perception *explains* her having the false belief that an elliptical thing is present, and also violates the intuition that this belief is *justified*.

Would Fish reject the explanatory intuition and the justification intuition even in such illusory cases as well as in hallucinatory cases? This would be a cost. These intuitions are justified by introspection and reflection on actual cases prior to considering Fish's theory, so they can be used in a non-question begging argument against that theory.⁴

3 Fish on the Role of the Brain: A Problem for Naïve Realism

Fish defends what he calls *selectionism* (p. 137). The idea is that the external world is rich with states (that is, facts). The brain determines phenomenal character in a very limited way: only to the extent that it selects what objective external states we get to be acquainted with. The brain plays an enabling role.

³ Fish might reply that Mabel's belief that a round thing is present is justified by virtue of her having the inclination to have that very belief: a kind of doxastic seeming. Against this, if all the "seeming" amounts to is an inclination to have the belief, then it cannot justify the belief. A mere inclination to believe that *p* cannot evidentially justify believing that *p*.

⁴ I would add a problem with Fish's view that hallucinations lack phenomenal character that goes beyond the usual "incredulous stare". Since Fish thinks that individuals' introspective beliefs about the presence of visual phenomenal character are often totally mistaken even in apparently paradigm cases, he must *in general* decrease his credence in *all* such introspective beliefs about the presence of visual phenomenal character, even in veridical cases. Even if he thinks that in veridical cases these beliefs can constitute *knowledge* (because knowledge does not require certainty), my point is that he must say that they do not have the extremely high degree of *justification* we take them to have.

To illustrate, suppose Mabel and a pigeon with different color vision view a tomato. The selectionist can go in for *color pluralism*: in addition to the objective color red, the tomato has an objective alien color, constituted by ultraviolet light. While Mabel is acquainted with the redness, the pigeon is acquainted with the alien color, because it has receptors that enable it to *detect* the ultraviolet light.

Likewise, suppose a color chip looks unique or pure blue to Mabel and greenish-blue to Mary, because of slight neural differences between them, where Mabel and Mary are normal humans. Hawthorne and Kovakovich (2006, p. 180) suggest this is a problem for naïve realism. One response Fish considers is that in such a case the color chip objectively actually has *both* fine-grained colors (or “color-looks”), constituted by different “light ratios” involving the chip. This may be strange but it is not contradictory.⁵ But why is Mabel acquainted with the one while Mary is acquainted with the other (Johnston’s (MS) “selection problem”)? Fish speculates that the “color signal ratio each [subject] picks up on [detects] is, due to physical differences between the two subjects, slightly different” (p. 154 fn. 3). Fish suggests (p. 75) that the pluralist-selectionist gambit might also enable the naïve realist to explain attentional differences (*contra* e.g. Block 2010).

At this point, opponents of naïve realism might rely on the intuitive conceivability of spectrum inversion among individuals who normally detect *exactly the same* objective chromatic states (for this argument against naïve realism see Chalmers 2010, p. 400, fn. 7; and Block 2010, p. 55). But Fish could simply reply that conceivability does not entail possibility.

In my view, the real problem with the naïve realists’ radically externalist, “selectionist” picture is (roughly) that science shows that postreceptoral processing can make a contribution to phenomenal character *above and beyond* determining what objective states the visual system detects (Pautz 2011; also Logue forthcoming).

For instance, there is a mismatch between the similarity relations among our color experiences of objects and the similarity relations among the light-involving properties of those objects detected by the visual system (Thompson 1995). The resemblance-order emerges in the brain. Brouwer and Heeger (2009) report that distributed neural representations in human V4 “revealed a progression through perceptual color space, with perceptually similar colors evoking the most similar [distributed neural patterns]”. Intermediate neural states, in neural similarity space, predicted intermediate color experiences.

Likewise, there is no explanation for why we experience some objects as having a unique or pure color in terms of the light-reflecting properties of the objects that our visual system detects, considered independently of their responses in the cone receptors and further downstream. (By “unique colors”, I mean the four colors red, green, yellow and blue, which appear perceptually pure, unlike for instance orange, which appears reddish and yellowish.) So the explanation must be in the brain. This has long been a mystery in neuroscience but new research is beginning to provide the explanation in terms of special cortical processes (see Conway and Stoughton

⁵ It is not contradictory to hold that the chip instantiates one color that is pure blue and so *not at all greenish*, and a *distinct* color that is somewhat greenish. .

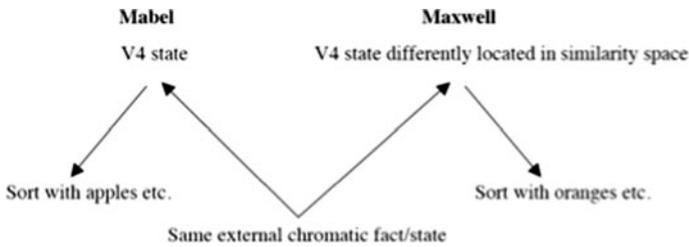


Fig. 1 The case of Mabel and Maxwell

2008 and especially Horwitz and Hass 2012). In addition Danilova and Mollon (2012, p. 163) have found new psychophysical evidence for a distinctive neural basis for the perception of unique hues.

To turn these results into an argument against selectionism, we need to consider a hypothetical case in which two individuals detect the *same* objective chromatic properties (unlike in the Mabel-pigeon and Mabel-Mary cases considered above) but their neural color processing is nevertheless quite different. Such a case is represented in Fig. 1.

To elaborate: suppose Mabel is a human and Maxwell is a human-like creature belonging to a different species. They are looking at the same object. Let's stipulate that they happen to be alike at the receptor-level *and* that their cortical neural representations of the object detect the same light involving property *L* of the object in the biologically normal way, where Fish would claim that *L* constitutes a certain fine-grained color.

But, suppose that, because of naturally evolved postreceptoral differences, these downstream *cortical* neural states are quite different. In particular, Mabel's V4 distributed color representation of the object resembles her color representation of apples more than her color representation of oranges (as measured by the technique employed by Brouwer and Heeger 2009). By contrast, Maxwell's color representation of the object resembles his color representation of *oranges* more than his color representation of apples. As a result, while Mabel is innately disposed to sort the object with apples rather than oranges, Maxwell is innately disposed to sort the object with oranges rather than apples.

Given the stipulated physical facts, we can ask: would Mabel and Maxwell have different color experiences of the object?

Mabel and Maxwell's V4 neural color representations occupy different positions in neural similarity space, and that (rather than anything in the objective world) has been found to be best predictor of apparent color similarity. Their sorting behavior also differs. Given the physical facts, the only reasonable verdict is that they have different color experiences of the object, even though their cortical neural states detect the *same* objective chromatic state of the object involving *L*. In particular, Mabel's color experience of the object resembles her experience of apples more than her experience of oranges, while Maxwell's color experience of the object resembles his experience of oranges more than his color experience of oranges. We can bolster the verdict if we suppose that their cortical neural processes differ in

whatever way is relevant to the experience of unique hues (see Conway and Stoughton 2008; Horwitz and Hass 2012).

But, given the stipulated physical facts, Fish's selectionism delivers the mistaken verdict that they have exactly the same color experience. In actual cases like those considered above (Mabel-pigeon and Mabel-Mary), Fish speculates that the "color signal ratio each picks up on [detects] is, due to physical differences between the two subjects, slightly different" (p. 154 fn. 3). In my hypothetical across-species Mabel-Maxwell case, I have simply stipulated that this is not the case, so that Fish cannot use the same pluralist-selectionist response here. True, the distal object they view causes different proximate effects in Mabel and Maxwell (e.g. different postreceptoral cortical states). But that does not mean that distinct features of the object cause those distinct effects (*contra* Kalderon 2011, p. 256). On the contrary, in this case, I have simply stipulated that the same objective chromatic state—the instantiation of the same light-involving property *L*—causes those distinct visual-cortical effects in the normal way. (Compare: the very same objective temperature can cause different proximate effects in a mercury thermometer and in a thermoelectric thermometer.) In general, whatever causal-physical relations to the world Fish thinks determine what external states an individual is acquainted with (at pp. 135-7 he speaks of "causal detection"), I stipulate they bear those relations to the very same chromatic state of the object. So, even if the object has multiple chromatic states (color pluralism), the stipulated physical facts of the case mean that Fish is committed to saying that their cortical neural processes, although different, enable them to be *acquainted with the same very same chromatic state involving L*. (Given that I stipulated that there is *symmetry* between Mabel and Maxwell concerning their normal causal and other naturalistic relations to that same objective chromatic state, it would be implausible to instead maintain that one—say Maxwell—is acquainted with the state while Mabel is not. What could be the naturalistic explanation?) In general, given the physical facts, Fish's view entails that they bear his irreducible acquaintance relation to all the same objective states. Since Fish also accepts the naïve realist claim that being acquainted with the same states entails having phenomenally identical experiences, he is also committed to the mistaken verdict that Mabel and Maxwell have *exactly the same color experience* of the object, despite the radical color-related neural and behavioral divergences between them.

Call this the **internal-dependence argument against naïve realism**. It doesn't require that the brain alone, even in the absence of connections to the world, is sufficient for experience. I agree with Fish (p. 137) that the simple empirical fact that experiences have neural correlates shows no such thing. Rather, it only requires that Mabel and Maxwell would have different color experiences, and this is supported by the more nuanced empirical research cited above.

Does Fish think naïve realism extends beyond the single case of vision? If so, then the problem ramifies.

For example, chemical similarity in the objective external world does not predict similarity in taste or smell. Only neural similarity does. Thus Howard and coworkers (2009) found that "distributed ensemble activity in human posterior piriform cortex (PPC) coincides with perceptual ratings [by human subjects] of odor quality, such that

odorants with more (or less) similar fMRI patterns were perceived as more (or less) alike”. So if some berries are often harmful to one creature (call him “Yuck”) but an important foodsource to another creature (“Yum”), and if their neural representations of the berries in their taste and smell systems occupy different positions in neural similarity space, so that they are innately disposed to react differently to the berries, then it is reasonable to suppose that they have different taste and smell experiences of the berries. But, if their cortical neural processes, although different, detect the same complex objective chemical states in the berries, then Fish must claim that they are acquainted with the same objective taste and smell states. So he is stuck with the mistaken verdict that they have the same taste and smell experiences, despite the radical neural and behavioral divergences between them

Now a comment of Fish’s (p. 154, fn.3), and also helpful personal discussion with him of such cases (*circa* 2006), suggest the *cognitive-conative response*. The idea is that Yuck and Yum indeed have taste and smell experiences of the berries that are identical in sensory character (e.g. bitter-putrid), as Fish’s naïve realism implies. It’s just that Yum desires to eat them while Yuck desires not to eat them, which explains the behavioral differences. Likewise Maxwell and Mabel have exactly *identical color experiences* of the viewed objects and other objects (apples and oranges), but nevertheless strangely have radically different color-resemblance *beliefs*.

Aside from being bizarre, this response is empirically implausible. Howard and coworkers (2009) found that *qualitative similarity* among smells, as reported by human subjects, correlated with neural similarity at a certain processing stage, rather than with objective chemical similarity. It would be absurd not to take those reports at face value. So the relevant level of processing codes for quality, not just desirability. (Further proof for this is that qualitatively different smells and tastes that we regard as hedonically equivalent have different neural representations at the relevant processing stage.) Likewise for the color vision studies cited above: they found that phenomenal similarity corresponds to neural similarity in V4. Since the individuals (Mabel-Maxwell and Yuck-Yum) in my cases differ in their neural processing at the relevant levels of sensory processing, and since their innate, fine-grained behaviors differ, the only plausible verdict that that they have different *sensory experiences* (not merely different desires or different perceptual beliefs), even though their sensory systems are “picking up on” (and on Fish’s view acquainting them with) the same objective states in the world.

4 Conclusion

Fish’s book is mainly devoted to defending naïve realism from objections, but, given its radical character, it is fair to ask whether the benefits outweigh the costs. I think they do not, but Fish’s fine book has helped me see just how far the naïve realist program can be taken.

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