

Subjectivism, Physicalism, or None of the Above?: Comments on Ross’s “The Location Problem for Color Subjectivism”*

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In “The Location Problem for Color Subjectivism,” Peter Ross argues against what he calls *subjectivism* — the view that “colors are not describable in physical terms, ... [but are] mental processes or events of visual states” (2),¹ and in favor of *physicalism* — a view according to which colors are “physical properties of physical objects, such as reflectance properties” (10). He rejects an argument that has been offered in support of subjectivism, and argues that, since no form of subjectivism is able to account for our perception of color, we are better off adopting physicalism.

In these comments, I won’t remark on the details of the interesting (and, to my mind, largely persuasive) arguments that Ross marshals against subjectivism, but instead will focus on the argument in favor of subjectivism that he considers and rejects (henceforth, the subjectivist’s argument). I want to agree with half of what Ross says about the subjectivist’s argument. Specifically, I’ll agree with him that subjectivism is unpalatable, and I’ll join him in finding fault with the subjectivist’s argument (§1). However, I want to claim that Ross’s way out of that argument carries equally unacceptable costs (§2), and that there are more attractive ways of avoiding color subjectivism than those he considers (§3).

1 Color Subjectivism and Color Physicalism

1.1 The Subjectivist’s Argument

The subjectivist’s argument that Ross attacks is this (4):

- (1a) Our ordinary color categories in no way correspond with, and are not explained by, *physical* categories.

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¹I’ll follow Ross’s terminology here, but it’s worth noting that this usage of ‘subjectivism’ is at odds with another use of that term in the literature. On this alternative usage (which occurs in [McGinn, 1983], [Jackson and Pargetter, 1987], [Stroud, 2000], and elsewhere), an account of color is subjectivist if it construes colors as constituted in terms that advert to perceiving subjects, whether or not it takes colors to apply to extra-mental entities. I’ll discuss some of the views that count as subjectivist in this sense (but not in Ross’s sense) in §3.

- (1b) Our ordinary color categories do correspond with, and are explained by, certain *neural processes* of the human visual system.
- (2) Colors are identified with a range of properties which correspond with and explain our ordinary color categories.
- (3) Thus, colors cannot be identified with physical properties of physical objects, but rather are identified with neural processes of the human visual system.

I think Ross is right that many have been convinced to accept subjectivism (at least partly) on the grounds of the subjectivist's argument, and therefore that it deserves closer scrutiny.² Before I come to my critical comments about the argument, I wish to make a few clarifications.³

First, notice that the contrast on which the argument plays is not best understood as distinguishing between the physical and the neural *per se*: although it is unclear just what 'physical' comes to, I think few would take neural entities, properties, events, or facts to be non-physical. Second, the distinction between the "categories" (/properties) cited in (1a) and the "processes" cited in (1b) isn't doing any important work either: I take it that processes can be described in terms of sequences of property instantiations, so the mixed metaphysical idioms are intertranslatable.⁴

What, then, is the contrast that (1a) and (1b) attempt to show up, and on which the subjectivist's argument turns? (1a) and (1b) mark a distinction between the properties of extramental objects classified together in the terms made available by a physical taxonomy, on the one hand, and the properties of mental/neural entities that fall together in the terms made available by a neural taxonomy, on the other.⁵ What (1a) says is that an ordinary color category such as *red* does not "correspond with" any category that appears in

²For example, some version of this argument seems to motivate the positions of [Hardin, 1988] and [Maund, 1995].

³I don't mean to suggest that Ross is unaware of the points I make here, nor that he would disagree with them. They are intended only as clarifications.

⁴Finally, we might worry that, in the context of a metaphysical debate about what should be *identified with* the colors, the stress placed on *explanation* in (1a) and (1b) seems an oddly epistemic-sounding constraint. After all, we might object, categories don't explain themselves; but, if so, then we might wonder why it is relevant to the putative identification between color categories and physical categories, for example, whether the one is explained by the other.

I believe the answer is that, when Ross talks about explaining one category by another, he means that we are to explain why the members of the first have the features they do in terms of the features of members of the second category. For example, on this usage, we explain the category *water* by the categories given to us in molecular chemistry when we explain why water is liquid at room temperature in terms of the behavior of hydrogen and oxygen atoms at room temperature. I take it that an explanatory constraint of this sort on theoretical identity claims is *prima facie* warranted (see §2.2).

⁵For present purposes, I'm taking it that a neural taxonomy is a taxonomy of currently recognized properties of neurons and entities comprised from them (such a taxonomy might include *firing*, *firing at base rate*, *thalamus*, and so on), and that a physical taxonomy is a taxonomy of properties recognized by some physical science (such a taxonomy might include *mass*, *spin*, *charge*, *force*, and so on). It follows that a neural taxonomy is a physical taxonomy, but not vice versa. I have no illusions about the adequacy of these characterizations.

the usual taxonomies of the (extramental) physical.⁶ Or to put the point in other words, color categories cross-classify with physical categories: an ordinary color category like *red* is multiply realized by a number of configurations that are disaggregated by the taxonomy of physical science, and configurations that are aggregated together by the taxonomy of physical science can be members of distinct ordinary color categories. In addition, ordinary color categories are not “explained by” the categories of physical science. On the other hand, what (1b) says is that the ordinary color category *red* is correlated with and explained by certain neural properties: there is a systematic correlation between instances of *red* (in the presence of functioning visual systems) and instances of certain neural properties, and it is possible to explain the features of color categories (for example, their qualitative similarity relations to other color categories) in terms of these neural properties.

Surely, given premise (1a), we are justified in concluding that ordinary color categories cannot be identified with extra-mental properties that are unified in terms of the taxonomy of physical science; for (even putting the business about explanation aside), if ordinary color categories cross-classify with such properties, then they aren’t even coextensive with such properties, and therefore cannot be identical with them.⁷ If we accept this conclusion, and if we accept that our ordinary color categories *do* correspond with and *are* explained by mental/neural properties (as per (1b)), should we then accept the further conclusion that our ordinary color categories are mental/neural (as per (3))?

Certainly not on these grounds. After all, what has been said so far (*viz.*, (1a) and (1b)) leaves it open that there may be categories other than those considered (*viz.*, categories other than those taken from the taxonomy of physical science and the taxonomy of neural processes) that correspond with and explain each ordinary color category. And, as I shall maintain in §3, this possibility is actual: there are alternative construals of our ordinary color categories that are more attractive than both of the options considered so far. The subjectivist’s argument, then, trades on a false dichotomy, and consequently is invalid.

However, even if the subjectivist’s argument fails, its conclusion, (3) (which I take to be the heart of subjectivism), might still be true. Is it?

On balance, and even if subjectivists manage to surmount Ross’s arguments that the view cannot provide a tenable account of perception, I believe that the extreme discrepancies between subjectivism and our ordinary beliefs about color should predispose us to reject that view. Subjectivism has it that we are wrong to think that ripe lemons are yellow, ripe raspberries red, and so on: according to subjectivism, these objects are colorless, and mental/neural

⁶Henceforth, for simplicity and for the sake of adhering to Ross’s usage, I’ll use ‘physical’ as an abbreviation for ‘(extramental) physical’, and I’ll contrast the physical against the mental/neural without any qualification.

⁷In accepting (1a), I am, of course, agreeing with Ross. This premise is, however, controversial; a number of authors (e.g., [Hilbert, 1987], [Byrne and Hilbert, 1997a]) have argued that some properties unified in terms of the taxonomy of physical science do correspond with and explain ordinary color categories, contra (1a). Although I cannot discuss this matter here in the detail it deserves, I believe there are a number of difficulties with such proposals, and therefore I shall continue to agree with Ross in accepting (1a) for present purposes.

entities are the (only) true bearers of color. Moreover, insofar as our perceptual experiences represent extra-mental objects as being colored, subjectivism has it that our experience is guilty of a systematic and widespread error.⁸ While it could be that our beliefs and experiences involving color are radically erroneous in this way, general canons of rational conservatism suggest that we should prefer an account that preserves the veridicality of at least some of these beliefs and experiences if one is available. Consequently, I think we should regard subjectivism as, at best, a position of last resort.

1.2 Ross's Physicalism

If subjectivism is a position of last resort, then we would be wise to seek avenues of response to the subjectivist's argument other than that of accepting its conclusion. I have suggested that, since there are alternative understandings of color categories not addressed by the subjectivist's argument, we should respond to that argument by declaring it invalid. Ross proposes a different response to the argument: he recommends denying premise (2), and uses this denial to motivate his own physicalist view.

Recall that (2) says this:

- (2) Colors are identified with a range of properties which correspond with and explain our ordinary color categories.

In denying (2), Ross erects a distinction between colors, on the one hand, and our ordinary color categories, on the other. This distinction is vital to his rejection of subjectivism: for no matter how intimate the relation between mental/neural properties and ordinary color categories, and no matter how distant the relation between physical properties and ordinary color categories, denying (2) allows Ross to persist in identifying the colors with physical rather than mental/neural properties.

But if colors are distinct from "ordinary color categories," how are we to understand the latter?⁹ I believe that Ross takes ordinary color categories to be the groupings of colors made by ordinary subjects, and for many of which English has (as do many other natural languages)¹⁰ lexicalized color names; thus, *red*, *green*, (and perhaps more specific things like *vermilion*) are ordinary color categories, while *red-or-green*, and *orange-or-blue* are not. If I understand him, then, an ordinary color category such as *red* is a super-ordinate grouping that subsumes a number of (physically) distinct physical properties that are, according to him, the "colors themselves" (10). Thus, while Ross admits that ordinary color categories are intimately related to neural properties (by the relations of correspondence and explanation discussed above), and that they

⁸This counterintuitive position is defended in ([Boghossian and Velleman, 1989], 94–101).

⁹Despite Ross's patiently explaining his understanding of this notion to me a number of times, I'm still unsure that I have understood him correctly. If not, I apologize in advance.

¹⁰As [Berlin and Kay, 1969] pointed out, there is a surprising degree of cross-linguistic agreement here; see the papers in [Hardin and Maffi, 1997] for more recent discussions.

are only distantly related to physical properties, his denial of (2) allows him to insist that colors themselves may nonetheless be physical properties.

2 Troubles With Physicalism

Ross's physicalism, then, distinguishes between colors and ordinary color categories, holds that colors are physical properties, and maintains that *red* is an ordinary color category. I want to argue, in this section, that this view has undesirable consequences. To do this, I want to construct a dilemma around the following question: are *red* and the other ordinary color categories also colors? I'll suggest that the physicalist has difficulties no matter how she answers this question, and therefore that we should not accept color physicalism.

2.1 If Red Is Not a Color

First, suppose that the physicalist claims that *red* is not a color.¹¹

In this case, I think, the insistence that colors are physical properties is irrelevant to the initial question about the nature of color. Of course, Ross is welcome to pursue the inquiry as he sees fit (although a terminology on which *red* is not a color seems to me more than a little revisionary). However, it seems reasonable to insist, an adequate philosophical theory of color should be a proposal about the nature of *red*, *blue*, and *green* — that these are the properties whose nature a theory of color should elucidate (whether or not they are called colors). After all, the question with which we began the inquiry was not “what are the physical properties inhering in surfaces?”; it was “what are *red*, *blue*, and *green*?”. But if these properties are only ordinary color categories, and not colors, then Ross's view is a physicalism about something other than the properties a theory of color should address. It is a physicalist answer to a question we did not ask.

Here's a (farical) analogy. Suppose you ask me for an account of free will, and I answer that an act is free if and only if it is a torus-shaped bread product that tastes great with cream cheese and lox. You will, reasonably, insist that I have given an account of bagels, rather than of free will. Suppose further that I persist, claiming that, even though my analysis doesn't capture the *ordinary* category of free acts, it gives us the nature of free acts themselves. You would be justified, in this case, in objecting that my proposal both fails to explain that for which explanation was sought, and that it explains something that holds no philosophical (as opposed to gastronomic) interest to someone not already in the sway of the view.

Similarly, if physicalism says that colors are physical but that *red* is not a color, physicalism has both failed to explain that for which explanation was

¹¹In what follows I'll limit my discussion to *red* (leaving out other ordinary color categories) for ease of expression. But since the problems I'll discuss could be raised for any ordinary color category, what I really mean to ask is whether there's *any* ordinary color category that is not a color. Thus, for example, a view on which *red* is a color but *green* is not would be vulnerable to the objection I am about to make.

sought, and explains something that holds no philosophical interest to someone not already in the sway of the view. If physicalism says that *red* is not a color, then the view has not answered our question about the nature of colors — it has changed the subject.

Perhaps Ross would insist at this point that sometimes, in the normal course of inquiry, we are justified in changing the subject and then introducing new ways of understanding old terms. For example, chemical theory once explained combustion in terms of *phlogiston*, and then later, as a result of genuine intellectual advances, found ways to explain combustion without countenancing *phlogiston* in its ontology. Had we objected, when the change occurred, that the subject had been changed or that the new science was no longer speaking to the real nature of combustion, we would have been out of line. Why, Ross might ask, is a similar reconfiguration of the terms of discussion not permitted in a discussion of color ontology?

The answer to this question is that there is an important disanalogy between the cases. *Phlogiston* is a theoretical posit that, it turns out, explanation of the target phenomenon (combustion) can do without, and it is good scientific practice to eliminate theoretical posits no longer justified by explanatory needs. In contrast, *red* is not a theoretical posit that can be dispensed with if it is not required to explain the target phenomenon; *red* is a paradigm instance of the target phenomenon itself. A proper analogy to claiming that *red* is not a color is not the case where we banish *phlogiston* from the explanation of combustion, but one in which we decide that our theory of combustion is no longer responsible for explaining why stuff burns. Had the course of intellectual history run this way, we would not have been out of line in objecting that the transition effected a change in subject. Similarly, then, we should object to the change of subject following upon the claim that *red* is not a color.

For this reason, I think we must hold that *red* is a color (and that the other ordinary color categories are as well).

2.2 If Red Is a Color

Suppose, then, that the physicalist accepts that *red* is a color, as well as an ordinary color category.

This answer, too, is problematic for the physicalist. For, given Ross's commitments to (1a) and (1b), identifying colors and ordinary color categories would commit him to the following:

- (1a') Colors in no way correspond with, and are not explained by, *physical* categories.
- (1b') Colors do correspond with, and are explained by, certain *neural processes* of the human visual system.

But if accepting that *red* is a color leads the physicalist to endorse (1a') and (1b'), then we are, after all this, in danger of giving up physicalism in favor of

subjectivism. For (3) seems to follow from (1a'), (1b') and (2'):¹²

- (2') Colors are to be identified with a range of properties that correspond with and explain colors.
- (3) Thus, colors cannot be identified with physical properties of physical objects, but rather are identified with neural processes of the human visual system.

Here's where we are. We've seen that Ross attempts to evade the subjectivist conclusion (3) by denying premise (2). This raised the question whether physicalism takes the ordinary color categories to be colors. I argued that a negative answer to this question amounts to changing the subject, and therefore that, if he wants physicalism to address the nature of color, Ross needs to say that ordinary color categories are indeed colors. But, as we've seen, accepting this claim, together with (2'), leads to a physicalism that, like subjectivism, understands colors as mental/neural rather than physical.¹³ Therefore, if he wishes to maintain physicalism as a distinct alternative to subjectivism, it would seem that the physicalist must deny (2').

However, (2') seems extremely plausible, so its denial seems correspondingly implausible. On the intended interpretation, (2') enjoins us to identify *red* only with a property that is coextensive with *red* and whose features can be used to explain the features of *red*. The first of these constraints is plainly undeniable: perhaps coextension is not sufficient for property identity (although on some views it is), but it is surely necessary. The second constraint is admittedly less platitudinous, but it, too, seems a reasonable minimal condition on reductive property analyses such as the accounts of color presently under consideration.¹⁴ At the very least, this second constraint is respected by all uncontroversial examples of reductive property identification (these would include at least all of the usual philosophical suspects: that of *water* with H_2O , that of *temperature* with *mean molecular kinetic energy*), and therefore we would be unwise to dispense with it in the present case without a compelling independent motivation — i.e., a motivation other than the desire to preserve physicalism in the face of (1a') and (1b') — the likes of which we do not have (and the likes of which Ross makes no attempt to provide).¹⁵ Therefore, the denial of (2') seems not to be a viable option.

¹²But see below, where I point out that the inference from (1a'), (1b') and (2') to (3) is invalid. I'm taking it that the response that accuses the present argument of invalidity is not in play for Ross (or physicalism), however, since he passes over that response in treating the original subjectivist's argument, and since the response will work in both cases if it will work in either. For this reason, I'll delay discussion of it until §3.

¹³Indeed, it is probably inappropriate to think of the resulting position as a form of physicalism at all if, as Ross tells us, physicalism just is the view that colors are "physical properties of physical objects" (10).

¹⁴See [Levine, 1984] for more explicit defense of this constraint (although the discussion there is aimed principally at proposed analyses of consciousness).

¹⁵That said, the fortunes of the second constraint (2') imposes can be ignored in the current setting. For, even if Ross could convince us to give up the second constraint, the first constraint is (I claim) non-negotiable in any case, and (1a') says that a putative identification of colors and physical properties would violate *both* of these constraints (while (1b') says that a

By my lights, the situation for physicalism is getting a bit dire. If the physicalist says that *red* is not a color, she has failed to provide a theory of the nature of color. If she says that *red* is a color, then accepting (2') leads to subjectivism, while rejecting (2') leads to absurdity. What's a physicalist to do?

3 None of the Above

What indeed. For the reasons indicated in §2, I don't think the way of avoiding color subjectivism that Ross offers is all that attractive. Does this mean that we are stuck with subjectivism?

As I've already indicated, I think we are not stuck with subjectivism, because the argument in favor of that view that we have been considering is invalid. In fact, (3) does not follow from (1a), (1b), and (2), nor does it follow from (1a'), (1b') and (2'). These inferences are invalid — they fail to preclude views about color that preserve all of (1a), (1b), (1a'), (1b'), (2), and (2'), but that make (3) come out false.

The views I have in mind include *dispositionalism* — the view that colors are dispositions to produce certain kinds of experiences in perceivers,¹⁶ and the closely related view, which I shall call *functionalism*, according to which colors are not the dispositions to produce color experiences, but the (numerically distinct) properties that dispose their bearers to look colored — the properties in virtue of which things have their dispositions to produce certain kinds of experiences in perceivers.¹⁷

The reason dispositionalism and functionalism deserve our attention in the present setting is not that they belong in every philosophical discussion of color. They do not. It is, rather, that these views give us just what we've been looking for: they provide ways to avoid the subjectivist conclusion (3) without incurring the costs I've argued (§2) are attendant on Ross's physicalist alternative.

Dispositionalism and functionalism are accounts on which colors are properties of extra-mental entities (coffee cups, tables, chairs) that are constituted in terms of their effects on mental entities (viz., the sensations or visual experiences that result in certain minds). Significantly, they do not make colors mind-dependent in the sense that there would be no colors if there were no minds: a thing may have its disposition to look red (and the property that confers this disposition on it) even if, because there are no perceivers, it does not manifest its disposition (viz., by looking red).

putative identification of colors and mental/neural properties satisfies both of them). Hence, the physicalist's identification of colors with physical properties would be jeopardized even if only the first constraint were in force.

¹⁶ Versions of dispositionalism have been defended by many, including Locke, Galileo, and Descartes; more recent dispositionalists include [McGinn, 1983], [Peacocke, 1984], [Wright, 1992], and [Johnston, 1992]. Indeed, I think it is fair to say that dispositionalism is the received philosophical view about the nature of color. Ross mentions dispositionalism in footnote 1, but sets it aside without much discussion.

¹⁷ Versions of functionalism are defended in such works as [Jackson and Pargetter, 1987], [Jackson, 1996], [Jackson, 1998], [McLaughlin, 2001], [Cohen, 2000b], and [Cohen, 2000a].

Obviously, there is much more to be said about these views that I'll have to omit here for reasons of space.¹⁸ However, I want to argue here that these views preserve (1a), (1b), and (2) (and (1a'), (1b'), and (2')), but not (3), and that, consequently, they defuse the threat of color subjectivism.

Dispositionalism and functionalism preserve (1a) and (1b) because they take a color like *red* to be the property that it is in virtue of the functional relations between its bearers and perceiving subjects: *red* is the disposition to look red (according to dispositionalism) or the property that disposes its bearers to look red (according to functionalism). Importantly, these functional relations can be implemented by any number of distinct physical mechanisms (or even non-physical mechanisms, if there are any). By way of analogy, it is plausible that the property *being a can-opener* should be analyzed in terms of a certain functional relationship that holds between its bearers and cans (viz., that the former open the latter), even though that relationship can be implemented by any number of distinct physical mechanisms (or even non-physical mechanisms, if there are any). Thus, if *being a can-opener* does not correspond with and is not explained in terms of the particular physical categories that happen to realize the functional relation in terms of which that property is characterized, this is no objection to our functional analysis of the property. Similarly, if *red* does not correspond with and is not explained in terms of the particular physical categories that happen to realize the functional relations in terms of which that color is characterized, this is no objection to a dispositionalist or functionalist analysis of *red*. This shows why dispositionalism and functionalism are compatible with (1a).

On the other hand, dispositionalism and functionalism characterize *red* partly in terms of the sort of visual experiences produced in perceiving subjects. And, whatever the nature of visual experience amounts to, it is surely uncontroversial (even for dualists) that visual experiences are correlated with neural states. Consequently, dispositionalists and functionalists will agree that *red* corresponds with and is explained in terms of neural properties — namely, the neural properties whose instantiations are correlated with the relevant visual experiences. Thus, these views vindicate (1b).

Dispositionalism and functionalism also sustain the requirements on property identification mandated by (2). Moreover, since these views have it that ordinary color categories such as *red*, *blue*, and *green* are also colors, they preserve the truth of (2') and (given that (1a) and (1b) are in place) that of (1a') and (1b'). In contrast, dispositionalism and functionalism insist that (3) is false, because they hold that colors are properties of extra-mental objects in the world.

As noted, these views maintain that colors are constituted in terms of relations to neural properties. But this does not require that colors are themselves neural any more than the claim that *being a daughter* is constituted in terms of a relation to a parent requires that all daughters are parents. Viewed in this light, it appears that the subjectivist's argument fails for an extremely simple reason: it never considers the possibility that colors are correlated with and

¹⁸See the sources cited in notes 16 and 17 for discussion of these matters.

explained in terms of neural properties not because colors are neural properties, but because they are constituted in terms of relations to neural properties.

Dispositionalism and functionalism, then, allow us to accept the premises of the subjectivist's argument without giving in to its subjectivist conclusion, and thereby provide just the sort of theoretical alternative to subjectivism that we have been seeking. Moreover, since these views take *red*, *green*, and the other ordinary color categories as archetypical examples of colors, these views avoid the untoward consequences of physicalism discussed in §2. In addition, unlike physicalism, dispositionalism and functionalism can tell a principled story about why various (physically distinct) physical configurations are classified together under a single ordinary color category: dispositionalism and functionalism individuate colors in terms of their functional relations, so two distinct physical configurations will be classified as instances of one color just in case both of those configurations fill the functional role in terms of which that color is constituted. Finally, despite being at odds with Ross's physicalist view about color, dispositionalism and functionalism make no commitment about whether colors are physical or not, and therefore are compatible with the sort of (widely-espoused) ontological physicalism that denies the existence of non-physical entities, facts, or properties; therefore, if one is sympathetic to this brand of ontological physicalism, one need not reject dispositionalism or functionalism (nor, despite the similarity in nomenclature, need the ontological physicalist accept Ross's color physicalism).

All this suggests to me that, if we are in the market for an alternative to color subjectivism, we should give serious consideration to dispositionalist and functionalist accounts.

4 Conclusion

Like Ross, I think the prospects for color subjectivism are rather dim. For one thing, I am sympathetic to Ross's arguments that no version of the view can provide a theory of perception. Even more importantly, to my mind, color subjectivism makes our beliefs about and experiences of color systematically erroneous, and therefore requires a large-scale revision of our ordinary understanding of color. And while such large-scale revision could conceivably become warranted, it will remain unwarranted so long as there are less revisionary alternatives in the running.

Ross and I agree that there are such alternatives (and therefore agree in resisting subjectivism), but we disagree about which alternative is best. I've argued (§2) that Ross's preferred alternative, color physicalism, is beset with problems of its own: either it fails to offer an account of color worthy of the name, or else, given Ross's other commitments and seemingly undeniable constraints on property identification, it collapses onto a form of subjectivism (and so is not an alternative to subjectivism after all). Luckily, I've suggested (§3), there are other non-subjectivist accounts of color that avoid these drawbacks and are otherwise reasonably plausible, such as dispositionalism and functionalism. For

these reasons, if we are offered a choice between subjectivism and physicalism, I submit that we should opt for none of the above.¹⁹

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