

Dennett's Theory of the Folk Theory of Consciousness¹

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Abstract: It is not uncommon to find assumptions being made about folk psychology in the discussions of phenomenal consciousness in philosophy of mind. In this article I consider one example, focusing on what Dan Dennett says about the “folk theory of consciousness.” I show that he holds that the folk believe that qualities like colors that we are acquainted with in ordinary perception are phenomenal qualities. Nonetheless, the shape of the folk theory is an empirical matter and in the absence of empirical investigation there is ample room for doubt. Fortunately, experimental evidence on the topic is now being produced by experimental philosophers and psychologists. This article contributes to this growing literature, presenting the results of six new studies on the folk view of colors and pains. I argue that the results indicate against Dennett's theory of the folk theory of consciousness.

The existence of phenomenal consciousness is often taken for granted in the philosophical and scientific literature on the topic. Sometimes, this attitude is supported by claims that phenomenal consciousness is in some way evident in our ordinary experience itself.² The prevalence of this attitude can also be seen in the way that some skeptics about phenomenal consciousness discuss the supposed phenomenon. For example, the qualia eliminativist Dan Dennett seems to accept that belief in qualia is part of our “folk theory of consciousness” (2005, 31). In contrast, I have argued that phenomenal consciousness is not evident in ordinary experience alone—that it is not phenomenologically obvious—and that this can be drawn out by

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² For example, Daniel Stoljar (2006, v) takes it to be a fact that phenomenal consciousness is “phenomenologically obvious,” while David Chalmers (1995, 207) writes that it is “the most central and manifest aspect of our mental lives.”

investigating the views of non-philosophers (Sytsma and Machery, forthcoming; Sytsma, forthcoming). Contrary to what we would expect if phenomenal consciousness is truly phenomenologically obvious, the research on non-philosophers indicates that they do not treat ordinary perceptual experiences as being phenomenally conscious. This suggests that insofar as phenomenal consciousness seems to be evident in ordinary experience, its seeming so depends on more than just the perceptual experiences themselves—it depends on how you think about the experiences.

Despite Dennett's acceptance that belief in qualia is part of the folk theory of consciousness, the view I propose actually corresponds fairly closely with what he says at places in *Consciousness Explained*. While he grants that there seem to be qualia, he also suggests that this reflects the popular understanding of what science has shown us about the physical world. Focusing on the colors that we are acquainted with in ordinary visual perception as the prototypical examples of qualia³, Dennett writes that “there seem to be qualia, because it really does seem as if science has shown us that the colors can't be out there, and hence must be in here” (1991, 372). In this passage Dennett follows a standard line in philosophy of mind, treating qualia as distinctive qualities of some of our mental states in virtue of which those mental states are phenomenally conscious. He claims that it seems as if qualities like the colors that we are acquainted with in ordinary perception are qualia because science seems to have shown that these qualities must be mental.

³ Dennett writes that “color has always been the philosophers' favorite example, and I will go along with tradition for the time being” (1991, 371). David Chalmers (1996, 6-7) gives a nice illustration of this tradition: “color sensations stand out as the paradigm examples of conscious experience, due to their pure, seemingly ineffable qualitative nature. Some color experiences can seem particularly striking, and so can be particularly good at focusing our attention on the mystery of consciousness. In my environment now, there is a particularly rich shade of deep purple from a book on my shelf; an almost surreal shade of green in a photograph of ferns on my wall; and a sparkling array of bright red, green, orange, and blue lights on a Christmas tree that I can see through my window.”

Accepting this account, however, how widespread should we expect the belief that colors are qualia to be? Certainly, if it seems to most people that these qualities are qualia, then we should expect most people to believe as much; but, if its seeming this way is dependent on people having a particular view about what science shows us, then we would expect that the belief will only be as widespread as that view. Despite this, there are many indications in Dennett's work that he holds that belief in qualia is quite widespread. I suspect that this reflects his belief that the scientific view at issue has entered the common wisdom, shaping our common-sense judgments about perceptual experience.

Focusing on folk beliefs about ordinary perceptual experience, in this article I argue that Dennett is mistaken about the prevalence of belief in qualia. I do this by presenting evidence from a series of new studies indicating that far from adopting the view of colors described by Dennett, the majority of the folk instead seem to hold a *naïve view* of colors, treating them as mind-independent qualities of the entities perceived. A similar result is also found for another prototypical example of qualia in the philosophical literature, with the majority of the folk holding a naïve view of pains. While these results are specific to the colors and pains that people are acquainted with in ordinary perception, and thus do not rule out the possibility that people treat other qualities as qualia, they are suggestive of that view. As colors and pains are the prototypical examples of qualia in the philosophical literature, these results indicate that the folk theory of consciousness is quite different from the philosophical views that Dennett associates it with.

Here is how I will proceed. In Section 1, I look at Dennett's theory of the folk theory of consciousness, making the case that he holds that it is part of the folk theory that the sensory qualities that we are acquainted with in ordinary perception are mental qualities. I charge that as with folk psychology more generally, understanding the folk theory of consciousness requires

empirical investigation. In Section 2, I briefly review two prominent empirical projects in this area, considering the work of Knobe and Prinz (2008) and Sytsma and Machery (2009, forthcoming); while these projects reach divergent conclusions, I argue that *overall* they provide tentative support for the claim that Dennett is mistaken about the folk theory of consciousness. In Section 3, I then present the results of six new studies that further support this conclusion. I argue that these studies provide evidence that the folk generally hold a naïve view of the colors and pains that they are acquainted with in ordinary circumstances and that this directly contradicts Dennett’s theory of the folk theory of consciousness.

1. Dennett on the Folk Theory of Consciousness

In an oft-quoted passage from *Consciousness Explained*, Dan Dennett relates his understanding of the term “qualia” to the belief that science has banished qualities like colors from the world outside of the perceiver’s skull. On the standard line, qualia are *mental qualities*—are in some way qualities of the perceiver’s mental states—and a range of sensory qualities, such as the colors that we are acquainted with in visual perception, are thought to be qualia. Dennett proceeds to deny that there are any such qualities. He does grant, however, that there *seem to be* qualia, taking this to follow from a common belief about science. Dennett writes (1991, 372):

Philosophers have adopted various names for the things in the beholder (or properties of the beholder) that have been supposed to provide a safe home for the colors and the rest of the properties that have been banished from the “external” world by the triumphs of physics: “raw feels,” “sensa,” “phenomenal qualities,” “intrinsic properties of conscious experiences,” “the qualitative content of mental states,” and, of course, “qualia,” the term I will use.... In the previous chapter I seemed to be denying that there are any such properties, and for once what seems so is so. I am denying that there are any such properties. But... I agree wholeheartedly that there seem to be qualia.

There seem to be qualia, because it really does seem as if science has shown us that the colors can’t be out there, and hence must be in here.

If Dennett is correct in his assessment, then the prevalence of the belief that colors, and other sensory qualities, are qualia should correspond with the prevalence of the belief that science shows us that these qualities are not out there in the world beyond the perceiver's skull.

Accepting Dennett's account, how prevalent should we expect belief in qualia to be? Taking belief in qualia to depend on knowing and accepting the scientific account, there is reason to doubt that it would be especially widespread. To give but one example, consider the work that has been done on the prevalence of extramissionist beliefs about vision (see Cottrell and Winer, 1994; Winer and Cottrell, 1996; Winer et al., 1996). Jane Cottrell and Gerald Winer have found that a majority of children believed that something goes *out of the eyes* as part of vision; more surprisingly, 33% of American college students concurred. Subsequent studies produced evidence that participants found these "extramissions" to play a functional role in vision. These results are fascinating, of course, largely because intromission (the view that vision is mediated by input to the eye, not output from it) is universally accepted in modern science. In other words, intromissionist notions "seem obvious to scholars today, and thus would not seem likely to be misunderstood by either children or adults" (Winer et al., 1996, 94); but they are! Recognizing that modern science unequivocally and directly supports the intromissionist account of vision, this research gives us reason to be cautious in using our understanding of what modern science tells us about a topic to gauge the prevalence of beliefs about the matter in the population more generally.

Nonetheless, there are several indications in Dennett's writings that he takes the claim that there seem to be qualia to apply quite broadly. First, this view is suggested by his discussion of the science at issue. Second, this view makes sense of his repeated claims that his qualia-eliminativism runs counter to common sense. Third, this view fits with his standard defense of his heterophenomenological method. Fourth, and most importantly, this view finds clear

expression in Dennett's (2005) discussion of the folk theory of consciousness. I consider each point in turn below.

1.1 Dennett on the Secondary Quality View

In the lead-up to the passage quoted above, Dennett introduces the scientific view at issue, quoting from an introductory text on the brain (Ornstein and Thompson, 1984, 55): "'Color' as such does not exist in the world; it exists only in the eye and brain of the beholder." Dennett responds that "this is a good stab at expressing the common wisdom, but notice that taken strictly and literally, it cannot be what the authors mean, and it cannot be true" (1991, 370). Specifically, he holds that Ornstein and Thompson go wrong in focusing on the eye and brain, rather than the mind, of the beholder (370):

Modern science—so goes the standard story—has removed the color from the physical world, replacing it with the colorless electromagnetic radiation of various wavelengths, bouncing off surfaces that variably reflect and absorb that radiation. It may look as if the color is *out there*, but it isn't. It's *in here*—in the "eye and brain of the beholder." (If the authors of the passage were not such good materialists, they would probably have said that it was in the *mind* of the observer, saving themselves from the silly reading we just dismissed, but creating even worse problems for themselves.)

Dennett argues that it is the belief that *colors are in the mind* that is part of the *common wisdom*, a phrase that suggests that he holds that this belief is widespread in the general population.

Dennett then proceeds to relate the scientific view at issue to the secondary quality view that came to prominence during the early modern period (1991, 371):

In the seventeenth century, the philosopher John Locke (and before him, the scientist Robert Boyle) called such properties as colors, aromas, tastes, and sounds *secondary qualities*. These were distinguished from the primary qualities: size, shape, motion, number, and solidity. Secondary qualities were not themselves things-in-the-mind but rather the *powers of things* in the world... to produce or provoke certain things in the minds of normal observers.... Locke's way of defining secondary qualities has become part of the standard layperson's interpretation of science, and it has its virtues but it also gives hostages: the things produced in the mind.

On this view, the colors that we are acquainted with in visual perception are thought to be *produced in the mind*; that is, they are thought to be mental or to be qualia in the terminology we are concerned with. In ascribing this view to the “standard layperson,” Dennett therefore reinforces the claim that the belief that sensory qualities like colors are qualia is part of the common wisdom, again suggesting that he sees this belief as being quite widespread.

It is not perfectly clear, however, just how we should understand the phrase “standard layperson.” Thus, in a comment on my presentation for the *Consciousness Online* conference, Richard Brown reasonably suggests that Dennett might mean this phrase not simply to pick out those people who are not members of the relevant profession (scientists or philosophers), but those non-members who nonetheless have some relevant academic training. This reading goes beyond the typical definition of “layperson,” however, and I find it to be an ill fit with the tone of the surrounding passages. Instead, I think we can fruitfully take Dennett’s discussion of secondary qualities to be an example of a point he notes in *The Intentional Stance* (1987, 4): “[Some] deliverances of common sense are just diluted, popularized versions of the science of yesteryear.” As I read it, in the above passages Dennett is saying that the scientific view that motivates belief in qualia derives from the secondary quality view (the science of yesteryear) and that over time this view has entered the public mindset, becoming part of the common wisdom and infiltrating our common sense.

1.2 Dennett on Qualia-eliminativism and Common Sense

A second indication that Dennett holds that belief in qualia is part of our folk psychology is that he repeatedly asserts that his own views, especially his qualia eliminativism, are highly counterintuitive or run counter to common sense (1991, 37; 2005, 128). Thus, in an interview with Susan Blackmore (2005, 84) Dennett states: “Absolutely right! You have to embrace the

counter-intuitiveness of some of these ideas. You can't just trust your common sense." I find that we should take such statements at face value, accepting that Dennett finds his denial of qualia to run counter to what people *commonly* think. Specifically, if he did not think that most people believe that qualities like colors are qualia, then it would be rather unclear why he should treat his qualia eliminativism as running counter to common sense and not just to the views of the philosophers he is taking issue with. Reading his references to common sense in this way is also nicely congruent with Dennett's claims that there *seem* to be qualia. For example, in an earlier passage in *Consciousness Explained*, he puts this in rather unequivocal language. Using the term "phenomenology" for what he is seeking to deny (see discussion on page 45), Dennett writes (366): "*There seems to be phenomenology. That's a fact that the heterophenomenologist enthusiastically concedes. But it does not follow from this undeniable, universally attested fact that there really is phenomenology.*"

1.3 Dennett on Heterophenomenology

A third indication that Dennett takes belief in qualia to be part of the folk theory of consciousness is found in his treatment of the debate concerning heterophenomenology—his resolutely third-person method for cataloguing the phenomena of interest for a science of consciousness. Debate concerning this method has focused on the dividing line between beliefs about qualia and the supposed qualia themselves: Dennett happily interprets folk psychological utterances as expressing beliefs about qualia, but denies that the existence of such beliefs provide a good reason to include the supposed qualia themselves in the catalogue of what needs to be explained. My concern comes prior to the divide between beliefs about qualia and the qualia themselves, however. I am concerned with how readily Dennett interprets folk psychological utterances as expressing beliefs about qualia.

Dennett's willingness to interpret folk psychological utterances as expressing beliefs about qualia can be seen in his standard defense of heterophenomenology (with "conscious experiences themselves" standing in for "qualia," quoting Joseph Levine):

We can see the problem most clearly in terms of a nesting of proximal sources that are presupposed as we work our way up from raw data to heterophenomenological worlds:

- (a) "conscious experiences themselves"
- (b) beliefs about these experiences
- (c) "verbal judgments" expressing those beliefs
- (d) utterances of one sort or another....

For heterophenomenologists, the *primary* data are the utterances, the *raw*, uninterpreted data. But before we get to a theory, we can interpret these data, carrying us via (c) speech acts to (b) beliefs about experiences. These are the primary *interpreted* data, the pretheoretical data. (2003, 3)

I suggest that the claim that theory only enters at the divide between (b) and (a) reflects Dennett's assumptions about how widespread belief in qualia is; specifically, it indicates that he does not expect diversity on this issue such that we would need to worry about settling that question before interpreting a given person's utterances in terms of qualia. In contrast, I hold that (b) is clearly not pretheoretical data, but that moving from (d) to (b) involves assumptions about how best to interpret folk psychological utterances—assumptions that reflect one's theory of the folk theory of consciousness.⁴

1.4 Dennett on the Folk Theory of Consciousness

At points, Dennett discusses his beliefs about the folk theory of consciousness directly. For example, in his (2005) volume he considers what could be observed by Martian scientists coming to Earth. Dennett notes that "among the phenomena that would be readily observable by

⁴ Although Dennett recognizes that theory is involved in interpreting subjects' utterances, he downplays it in this context. He writes (2003, 3fn1): "Doesn't interpretation require theory? Only in the minimal sense of presupposing that the entity interpreted is an intentional system, capable of meaningful communication."

these Martians would be all our *public* representations of consciousness” (26) and these carry him from the popular (such as cartoon “thought balloons”) to the academic. Thus, the Martians would have available to them “the less entertaining representations of consciousness found in all the books by philosophers, psychologists, neuroscientists, phenomenologists, and other sober investigators of the phenomena” (26). The suggestion is that these various public representations concern the same phenomena, although the academic materials explore those phenomena in a different way. Together, these public representations would enable the Martians to come to understand the folk theory of consciousness (26): “From all of this the anthropologists among [the Martians]... would be able to arrive at an elaborate account of that part of the behavior of *H. sapiens*... that concerns the *folk theory of consciousness* as well as our early stabs at a scientific theory of consciousness.”

Dennett then proceeds to note some of the important aspects of the folk theory of consciousness. He writes (2005, 27):

One of the tenets of the folk theory that the Martians would soon discover is that a scientific theory of consciousness is widely held by Earthlings to be impossible. Part of the lore that they would pick up—just as we pick it up, in the course of our enculturation—is that consciousness is utterly private, inaccessible to outsiders, somehow at least partly incommunicable and uninvestigatable by science—that is, by the very methods the Martians are using to explore our planet.

These tenets of the folk theory of consciousness—these supposedly widely held, enculturated beliefs about consciousness—are then related to Thomas Nagel’s “what it is like” (1974) and David Chalmers’s “hard problem of consciousness” (1996). These standard sources with regard to the philosophical discussions of phenomenal consciousness are treated as articulating aspects of the folk theory of consciousness.

What we find is that throughout Dennett’s discussion of the folk theory of consciousness, he treats phenomenal consciousness as a shared social construction, as something that we all

think that we know about. Further, he links this shared understanding of consciousness to many of the problems concerning qualia that can be found in the philosophical literature (2005, 30):

We—nudge, nudge—know about our consciousness because we communicate about it all the time. In our everyday dealings with each other we presuppose a vast sharing of understanding in all our public representations of consciousness, and as we contribute to that common stockpile, our presupposition is apparently vindicated.

The folk theory of human consciousness is a hugely successful mutual enterprise, but it does have its well-known puzzle-points. Can a person born blind share “our” understanding of color? What about a color-blind person? What about “spectrum inversion,” a thought experiment at least three hundred years old? Might it be that what I see as blue you see as yellow, but nevertheless you call that subjective color blue?

I will focus specifically on the problem of spectrum inversion in what follows. The classic expression of the inverted spectrum hypothesis owes to John Locke and relates to the secondary quality view of colors discussed above.⁵ That Dennett finds the possibility of spectrum inversion to be a consequence of our public understanding of consciousness reinforces the claim that he holds that a popularized version of the secondary quality view has infiltrated the public mindset.

Further, it is widely (if not quite universally) agreed amongst philosophers of mind that a commitment to the possibility of a spectrum inversion is tantamount to a commitment to the existence of color qualia.⁶ The idea is that if two people looking at the same “red” object could see two completely different colors (for example, one being acquainted with the color that you call “red,” the other the color that you call “blue”), then the color cannot straightforwardly belong to the object. Borrowing a phrase from Dennett, as these people are acquainted with two

⁵ Locke wrote ([1706] 1964, 215): “Neither would it carry any imputation of *falsehood* to our simple *ideas* if, by the different structure of our organs, it were so ordered that *the same object should produce in several men’s minds different* ideas at the same time: e.g. if the *idea* that a *violet* produced in one man’s mind by his eyes were the same that a *marigold* produced in another man’s, and *vice versa*. For, since this could never be known, because one man’s mind could not pass into another man’s body to perceive what appearances were produced by those organs, neither the *ideas* hereby, nor the names, would be at all confounded, or any *falsehood* be in either.”

⁶ For example, Michael Tye (1994, 160) writes: “On this... issue both advocates and opponents of qualia seem agreed: Grant the Inverted Spectrum Hypothesis and perceptual qualia *must* be admitted. I shall argue that this is a mistake. We need not give up the intuition that inverted spectra are possible in order to ‘quine’ qualia (as Dennett puts it).” Tye’s disagreement on this point, however, is specific to “perceptual qualia” and he uses this phrase to indicate a restricted sense of the term “qualia,” different from the liberal sense being used here. His concern is specifically with denying that the acceptance of the possibility of an inverted spectrum commits you to accepting the existence of qualia defined as non-intentional and non-physical.

completely different colors in looking at the same object, it seems that “the colors can’t be out there, and hence must be in here” (1991, 372).

One caveat is worth pointing out. As noted above, the view that the colors that we are acquainted with in ordinary visual perception are qualia is incompatible with the *naïve view* of colors, under which those colors are taken to be mind-independent qualities of the objects being perceived. Nonetheless, the naïve view is compatible with different people seeing different colors *in a certain sense*. Consider the analogous case of seeing shapes; for example, the letters on an eye chart. One might well hold a naïve view about shapes, holding that the letter shapes are a mind-independent part of the chart, and yet recognize that different people will see these shapes somewhat differently. After all, the whole point of an eye chart is to test differences in visual acuity and different people will be able to identify more or fewer of the letters. That the shapes are held to be a mind-independent part of the chart does not, on the face of it, seem to preclude the belief that there are differences in the quality of people’s eyesight. The same can be claimed for the case of colors: One can hold that colors are mind-independent qualities of worldly objects and also hold that some people are better at discerning colors than others. Certainly some people can distinguish between similar shades when I cannot (just as some people can make out letters on the eye chart that I cannot); but, that they have better eyesight than me in this respect does not compel me to abandon the naïve view of colors. As such, to use belief in the possibility of spectrum inversion as an indication that one has a qualia view of colors, the thought experiment should be given in a way that specifically excludes such differences in visual acuity.⁷

⁷ For example, John Searle (2004, 85) articulates the spectrum inversion thought experiment in this way, writing: “Let us suppose that neither you nor I is color blind. We both make exactly the same color discriminations. If asked to pick out the red pencils from the green pencils, you and I will both pick out the red pencils. When the traffic light changes from red to green, we both go at once. But let us suppose that, in fact, the inner experiences we have are quite different. If I could have the experience you call ‘seeing green,’ I would call it ‘seeing red.’ And similarly, if you could have the experience I call ‘seeing green,’ you would call it ‘seeing red.’ We have, in short, a red-green inversion. This is totally undetectable by any behavioral tests, because the tests identify powers to make

2. Previous Experimental Work on the Folk Theory of Consciousness

We have just seen a variety of textual indications that Dennett holds that it is part of the folk theory of consciousness that the sensory qualities that we are acquainted with in ordinary perception are qualia. Is Dennett's theory of the folk theory of consciousness correct? This is an empirical question requiring empirical investigation to answer. Fortunately, in recent years, a number of researchers have begun to empirically investigate some of the assumptions about the folk that Dennett draws on.

In fact, Joshua Knobe and Jesse Prinz's (2008) pioneering work on the topic of the folk theory of consciousness suggests that the folk employ the concept of phenomenal consciousness. Notably, in their second study Knobe and Prinz asked participants to evaluate how natural it is to ascribe a range of mental states to a group agent (Acme Corporation). They found that the folk were unwilling to ascribe those states that philosophers take to be phenomenally conscious to the corporation, while being disposed to ascribe mental states like beliefs and desires to it. Knobe and Prinz interpret these results as indicating that the folk have the concept of phenomenal consciousness, distinguishing between mental states that are phenomenally conscious and those that are not.

This conclusion has been brought into question, however (Arico, forthcoming; Sytsma and Machery, 2009). In particular, Edouard Machery and I have challenged the conclusion that the folk possess the concept of phenomenal consciousness. We contend that there is a natural alternative to Knobe and Prinz's explanation of their data: Corporations differ in some significant behavioral and functional ways from individuals and it might be that those differences lie behind people's refusal to attribute certain sorts of mental states to Acme Corporation. We

discriminations in the world, and not the power to label inner experiences. The inner experiences might be different, even though the external behavior is exactly the same.”

concluded that Knobe and Prinz's study does not establish that the folk share the concept of phenomenal consciousness.

In fact, in a subsequent article (Sytsma and Machery, forthcoming) we produce evidence that the folk do not classify mental states as philosophers do, showing that they do not treat some paradigmatic examples of phenomenally conscious mental states analogously. We reasoned that if the folk do classify mental states as philosophers do, then the folk should treat paradigmatic examples of phenomenally conscious mental states similarly. Specifically, both the folk and philosophers should deny that an entity that lacks phenomenal consciousness can either see red or feel pain. Our first study tested this by giving philosophers and non-philosophers a description of an agent (either a simple robot or a human) manipulating one of three boxes distinguished by color. Our goal was to describe the robot as being simple enough that if a participant had the concept of phenomenal consciousness, then she would be unlikely to ascribe it to the robot. In half of the scenarios, the manipulation was successful and participants were asked whether the agent "saw red"; in the other half, the agent was electrically shocked and participants were asked whether the agent "felt pain." As expected, philosophers treated feeling pain and seeing red analogously. They were unwilling to ascribe either state to the robot, but were willing to ascribe both to the human. Contrary to the hypothesis that ordinary people and philosophers understand these states in the same way, however, the folk treated them quite differently. Non-philosophers were willing to attribute seeing red to the robot, but were not willing to attribute feeling pain to it. We concluded that this is preliminary evidence that, *pace* Knobe and Prinz, the folk do not share the philosophers' concept of phenomenal consciousness.

2.1 Objections

In our forthcoming article, Machery and I discussed a number of objections that have been raised against the conclusion we draw from our first study.⁸ By far the most frequent objection that we have encountered is that non-philosophers have the concept of phenomenal consciousness, but that they simply do not make use of it in our study. The critic begins by suggesting that what our study instead shows is that non-philosophers distinguish between two senses of the term “seeing”—an *informational* sense that only requires that the agent make the relevant discriminations between perceptual stimuli and a *phenomenal* sense that requires that the agent be in the relevant phenomenally conscious mental state. The critic then argues that participants in our study read the question “Did Jimmy see red?” in the first sense when they affirmed that the robot sees red. This argument was suggested by Bryce Huebner (forthcoming) and forcefully put forward by Eric Schwitzgebel in his commentary on our paper at the 2008 *Society for Philosophy and Psychology* meeting.

We present a number of responses to this objection in the original article, noting that neither the data nor the explanations given by participants support the objection and that the objection does not fit well with our overall body of data (having trouble explaining participants’ responses for subsequent studies concerning olfactory perceptual states). In my (forthcoming) I explored this type of objection further, looking at how people understand states like seeing red. I argued that there is theoretical reason to believe that the folk generally hold a naïve view about colors; starting from this view of color perception, however, the split between an informational reading and a phenomenal reading of “see red” does not get much traction. I showed that the

⁸ Several of these were raised during the discussion of my presentation at the *Consciousness Online* conference. Notably, during his commentary Adam Arico questioned our assumption that the simple robot that we describe is simple enough that if a participant has the concept of phenomenal consciousness, then she will be unlikely to ascribe it to the robot. Unfortunately, there is not space to respond to this objection in detail here (but see Sytsma and Machery, 2009, for a discussion of our choice of agents). At the end of the day, however, Arico raises an empirical objection in need of testing and the two of us are currently conducting a series of studies to do this.

ambiguity found in the phrase “see red” primarily attaches to the term “red” (not “see”) and supposes a distinction between *physical red* (the wavelengths of light that an object reflects, for example) and *qualitative red* (the quality that we are acquainted with in episodes of perceptual experience); but, this distinction is not clearly made on the naïve view of color, which takes qualitative red to be physical red. This response to the informational/phenomenal objection is further supported by the empirical studies reported in the next section.

3. New Experiments on the Folk Theory of Consciousness

In this section I detail a series of six studies that I conducted to begin to test whether the folk generally hold a naïve view for qualities like colors. The results provide preliminary evidence that the folk do in fact hold a naïve view of colors; more surprisingly, they suggest that the majority hold a similar view for pains. These studies indicate that Dennett’s view of the folk theory of consciousness is mistaken.

3.1 Study 1: Questions about Colors

In my first study, participants were given a brief paragraph followed by four questions:

There is an old puzzle that many people are familiar with: “If a tree falls in the woods and no one is there to hear it, does it make a sound?” Philosophers have posed a similar question about vision: “If there was nobody there to see it, would a ripe tomato still be red?” Some philosophers have argued that tomatoes (and other objects) are not really colored, rather the red is produced in your mind when you look at the otherwise uncolored tomato. Other philosophers have disagreed, arguing that the tomato itself is truly red—that the red that we see is the red of the tomato. We are not interested in which of these positions is “correct” (or even if there is a correct answer to these questions). *What we want to know is how you think about colors—we want to know your intuitions about these questions.*

- 1.** Do you think that a ripe tomato would still be red even if there was nobody around to see it?
- 2.** Do you think that the red you see when you look at a ripe tomato is in your mind?

3. Do you think that the red you see when you look at a ripe tomato is in the tomato?

4. Do you think it is possible that somebody else might actually see the color that you call “blue” when they look at an ordinary ripe tomato, despite having normal visual acuity (i.e., without being color-blind)?

Each question was answered on a 7-point scale anchored at 1 with “clearly no,” at 4 with “not sure,” and at 7 with “clearly yes.” The survey was given to 52 undergraduates at the University of Pittsburgh. One participant was removed because she had taken the survey previously; an additional 11 participants were removed because they had more than minimal training in philosophy or psychology.⁹ The remaining 40 participants were 62.5% female, with an average age of 20.4 years, and ranging in age from 18 to 41 years old.

If the folk generally hold a naïve view of colors, then we would expect to see predominantly high answers on Questions 1 and 3, and low answers on Questions 2 and 4. The mean responses for the folk surveyed show the expected pattern (see Figure 1). As predicted, the mean responses for the first and third questions were significantly above the neutral point of 4, while the mean responses for the second and fourth questions were significantly below 4.¹⁰ What we find is that a majority of the folk tested hold that the colors that they are acquainted with in visual perception are qualities of objects outside the skull, that a majority deny that colors are mental or mind-dependent, and that a majority deny that spectrum inversion is possible.

⁹ Participants were counted as having more than minimal training in philosophy or psychology if they indicated that they had completed some graduate work in philosophy or psychology, had completed an undergraduate degree with a major in philosophy or psychology, or were completing an undergraduate degree with a major in philosophy or psychology.

¹⁰ Question 1: $M=6.10$, $SD=1.172$, $t(39)=11.329$, $p<0.001$ (one-tailed); Question 2: $M=3.20$, $SD=1.951$, $t(39)=-2.594$, $p=0.007$ (one-tailed); Question 3: $M=5.05$, $SD=1.568$, $t(39)=4.235$, $p<0.001$ (one-tailed); Question 4: $M=3.33$, $SD=2.235$, $t(39)=-1.910$, $p=0.032$ (one-tailed).

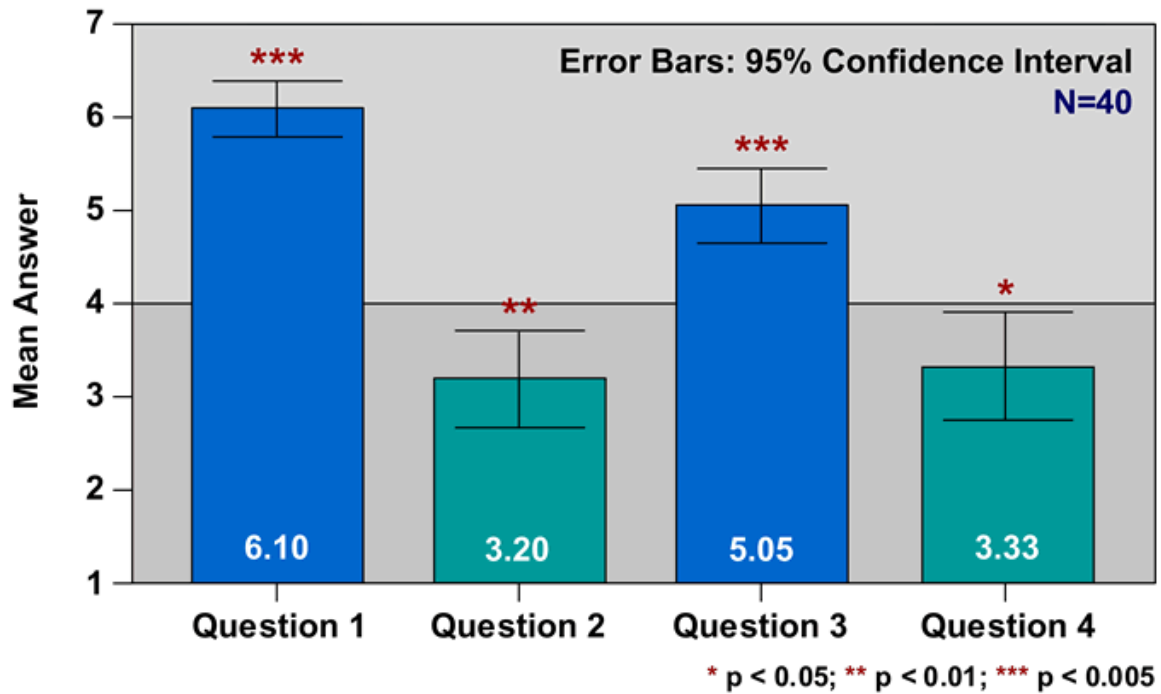


Figure 1: Study 1 results.

The results of this study suggest against Dennett’s theory of the folk theory of consciousness, as detailed in Section 1. Perhaps color is an aberration, however, and the folk theory of consciousness is more in line with Dennett’s theory for other prototypical examples of qualia. An extreme case is pains, where the philosophical consensus strongly rejects the naïve view. In contrast to philosophers, do the folk tend to hold a naïve view of pains?

3.2 Study 2: Questions about Colors and Pains

In my second study I adapted the probe used in Study 1 to the case of pains.¹¹ For comparison, participants were randomly given either the pain probe or a revised version of the color probe:

Color Questions: There is an old puzzle that many people are familiar with: “If a tree falls in the woods but no one is there to hear it, does it make a sound?” Philosophers have posed a similar question about vision: “If there is a ripe tomato on the table but no one is there to see it, is it still red?” Some philosophers have argued that tomatoes,

¹¹ I wish to thank David Chalmers for suggesting this study.

for example, are not really colored; rather, they hold that the red is produced in your mind and is merely caused by the tomato. Other philosophers have disagreed, arguing that the red is really in the tomato and is simply seen by the mind.

1. Which of these two positions do you agree with more?¹²
2. Do you think that there is still red in a ripe tomato even when there is no one there to see it?
3. Do you think that the red you see when you look at a ripe tomato is in your mind?
4. Do you think that the red you see when you look at a ripe tomato is in the tomato?

Pain Questions: There is an old puzzle that many people are familiar with: “If a tree falls in the woods and no one is there to hear it, does it make a sound?” Philosophers have posed a similar question about pain: “If a person has badly injured her leg but isn’t paying attention to it, is there still a pain?” Some philosophers have argued that when you stub your toe, for example, the pain is not really located in the injured toe; rather, they hold that the pain is produced in your mind and is merely caused by the injured toe. Other philosophers have disagreed, arguing that the pain is really in the injured toe and is simply felt by the mind.

1. Which of these two positions do you agree with more?¹³
2. Do you think that there is still pain in a badly injured leg even when the person is not aware of it?
3. Do you think that the pain you feel when you forcefully stub your toe is in your mind?
4. Do you think that the pain you feel when you forcefully stub your toe is in the toe?

340 participants completed the survey online.¹⁴ 42 participants were removed because they had taken the survey previously or because they were under 18 years of age; an additional 59 participants were removed because they had more than minimal training in philosophy or psychology. The remaining 239 participants were 70.3% female, with an average age of 35.6 years, and ranging in age from 18 to 83 years old.

¹² While questions 2, 3, and 4 were answered on the same scale used in Study 1, question 1 was answered on a 7-point scale anchored at 1 with “the red is produced in your mind and is merely caused by the tomato,” at 4 with “not sure,” and at 7 with “the red is really in the tomato and is simply seen by the mind.”

¹³ While questions 2, 3, and 4 were answered on the same scale used in Study 1, question 1 was answered on a 7-point scale anchored at 1 with “the pain is produced in your mind and is merely caused by the injured toe,” at 4 with “not sure,” and at 7 with “the pain is really in the injured toe and is simply felt by the mind.”

¹⁴ The results were collected through the Philosophical Personality website (<http://www.PhilosophicalPersonality.com>).

If the folk generally hold a naïve view of colors and pains, then we would expect to see predominantly low answers to Question 3 on each probe and high answers to the other three questions. The mean responses show the expected pattern for each probe (see Figure 2). As predicted, the mean responses for the first, second, and fourth questions were significantly above the neutral point of 4, while the mean responses for the third question were significantly below 4.¹⁵ What we find is that a majority of the participants tested appear to hold the naïve view for both colors and pains, treating these qualities as qualities of objects outside the skull and denying that they are mental or mind-dependent.

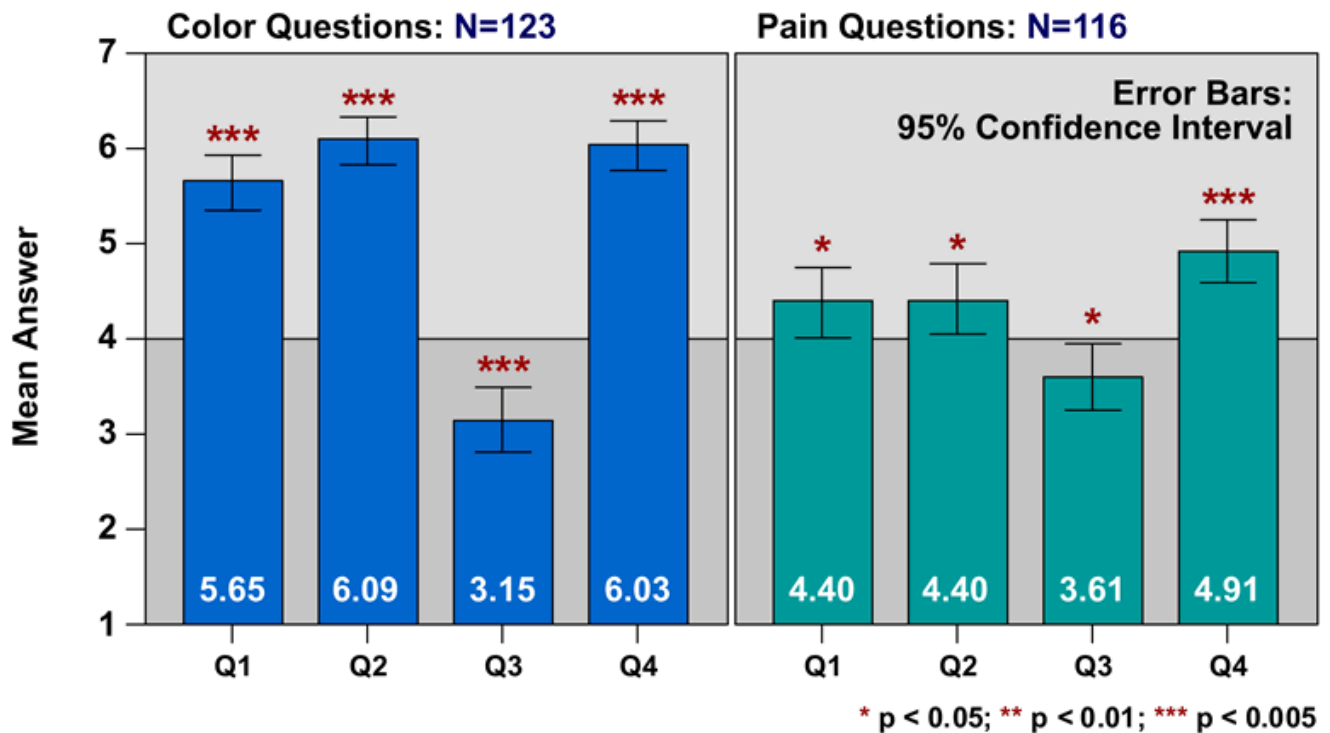


Figure 2: Study 2 results.

¹⁵ Color: Question 1: $M=5.65$, $SD=1.992$, $t(122)=9.190$, $p<0.001$ (one-tailed); Question 2: $M=6.09$, $SD=1.699$, $t(122)=13.642$, $p<0.001$ (one-tailed); Question 3: $M=3.15$, $SD=2.406$, $t(122)=-3.898$, $p<0.001$; Question 4: $M=6.03$, $SD=1.674$, $t(122)=13.466$, $p<0.001$ (one-tailed). Pain: Question 1: $M=4.40$, $SD=2.413$, $t(115)=1.770$, $p=0.040$ (one-tailed); Question 2: $M=4.40$, $SD=2.253$, $t(115)=1.896$, $p=0.031$ (one-tailed); Question 3: $M=3.61$, $SD=2.283$, $t(115)=-1.830$, $p=0.035$ (one-tailed); Question 4: $M=4.91$, $SD=2.092$, $t(115)=4.705$, $p<0.001$ (one-tailed).

3.3 Studies 3 and 4: Unfelt Pains

In my third study participants read a description of a situation in which, if one holds that pains are mind-independent qualities of the afflicted body parts, it would be natural to hold that a pain existed unfelt:

It is common for people who have been badly injured and are in ongoing pain to report being distracted from the pain by an interesting conversation, an intense movie, or a good book. Afterwards, the person will often reflect that for a period of time they hadn't noticed any pain at all! In such a situation, do you think that the injured person still had the pain and was just not feeling it at the moment? Or, that there was no pain during that period?

Participants answered the question on a 7-point scale anchored at 1 with “clearly in pain, but not feeling it,” at 4 with “not sure,” and at 7 with “clearly not in pain.” The survey was given to 55 undergraduates at the University of Pittsburgh. One participant was removed because she had taken the survey previously; an additional five participants were removed because they had more than minimal training in philosophy or psychology. The remaining 49 participants were 61.2% female, with an average age of 19.6 years, and ranging in age from 18 to 43 years old.

The average response was significantly below the neutral point of 4, indicating that contrary to the philosophical consensus, the folk surveyed hold that pains can exist unfelt (see Figure 3).¹⁶ This finding is predicted by the view that the folk, by and large, hold a naïve view of pains, treating them as mind-independent qualities of the afflicted body parts: If the pain is taken to be a mind-independent quality of part of the body, then there is little reason to think that it goes away when it is not being perceived.

It could be argued that the use of the term “distracted” in the probe for Study 3 might have led participants to believe that the pain was ongoing (as you cannot be distracted from

¹⁶ $M=2.57$, $SD=1.671$, $t(48)=-5.985$, $p<0.001$ (one-tailed).

something that is not there).¹⁷ My fourth study controlled for this, updating the text of the probe and removing the offending term:

Doctors have observed that sometimes a patient who has been badly injured will get wrapped up in an interesting conversation, an intense movie, or a good book. Afterwards, the person will often report that during that period of time they hadn't been aware of any pain. In such a situation, do you think that the injured person still had the pain and was just not feeling it during that period? Or, do you think that there was no pain during that period?

Participants answered on the same scale used in Study 3. The survey was given to 50 undergraduates at the University of Pittsburgh. Nine participants were removed because they had more than minimal training in philosophy or psychology. The remaining 41 participants were 56.1% female, with an average age of 21.9 years, and ranging in age from 18 to 55 years old. The mean response was again significantly below the neutral point of 4 (see Figure 3).¹⁸

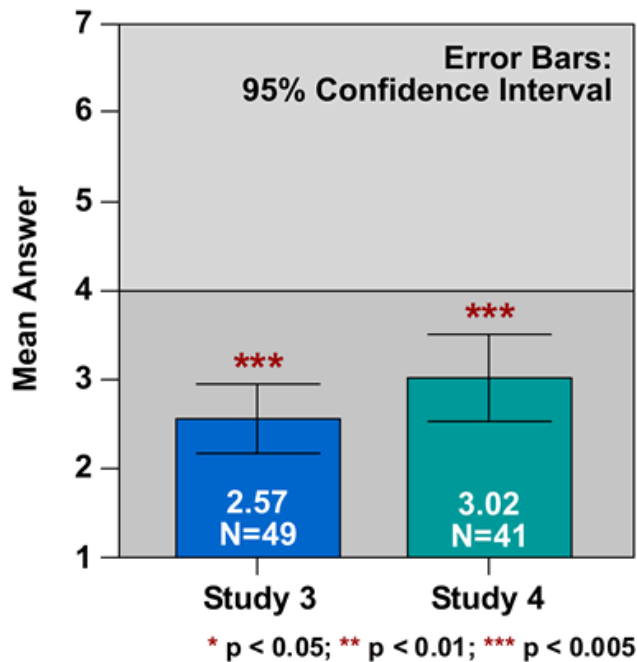


Figure 3: Study 3 and 4 results.

¹⁷ This objection was raised by Byrony Pierce during the discussion period at the *Consciousness Online* conference. Note that the probe used in Study 3 and the pain vignette given in Study 2 differ in their use of the term “distracted”: In Study 2 the person is distracted from her *injured leg*, not specifically the *pain*.

¹⁸ $M=3.02$, $SD=1.877$, $t(40)=-3.328$, $p=0.001$ (one-tailed).

3.4 Studies Five and Six: Shared Pains

If the folk locate pains in the afflicted body parts, then we would expect them to hold that pains can be shared, at least in those atypical cases in which the afflicted body part is shared. My fifth and sixth studies presented participants with descriptions of two such cases and asked them whether the numerically identical pain was felt by two different people. In Study 5, I gave participants each of the following two scenarios, counterbalanced for order:

Henry and Johnny are normal undergraduates at a state university. They are distinct people with their own beliefs and desires. One day they were participating in a three-legged race in a park with Henry's right leg tied to Johnny's left leg. While running toward the finish line their "third-leg" forcefully kicked a large rock that, unbeknownst to them, was hidden in the grass. Henry and Johnny both grimaced and shouted out "Ouch!"

Bobby and Robby are conjoined twins that are joined at the torso. While they are distinct people, each with their own beliefs and desires, they share the lower half of their body. One day while running through a park they forcefully kicked a large rock that, unbeknownst to them, was hidden in the grass. Bobby and Robby both grimaced and shouted out "Ouch!"

After each vignette, participants were asked whether the runners "felt one and the same pain" or "two different pains." They answered on a 7-point scale anchored at 1 with "clearly same pain," at 4 with "not sure," and at 7 with "clearly different pains." The survey was given to 41 undergraduates at the University of Pittsburgh. Six participants were removed because they had more than minimal training in philosophy or psychology. The remaining 35 participants were 51.4% female, with an average age of 20.9 years, and ranging in age from 18 to 35 years old.

The mean responses for the two scenarios were significantly different, with the mean for the three-legged race scenario significantly above the neutral response of 4 and the mean for the conjoined twins scenario significantly below 4 (see Figure 4).¹⁹ The results are shown graphically in Figure 4. Again, this finding is in keeping with the hypothesis that the folk by and

¹⁹ Comparison: $t(34)=5.703, p<0.001$ (two-tailed); Three-legged Race: $M=5.40, SD=1.355, t(34)=6.114, p<0.001$ (one-tailed); Conjoined Twins: $M=3.29, SD=2.122, t(34)=-1.991, p=0.028$ (one-tailed).

large locate the pains they are acquainted with in the afflicted body parts: In these scenarios, it is the number of afflicted appendages, not the number of perceiving brains, that best corresponds with the number of pains reported.

In Study 6, I found a similar result for a somewhat more fanciful scenario. Participants were given the following vignette:

As part of an experiment, a mad scientist attached two men who had lost their arms to the same donor hand! To do this, the scientist carefully connected each of the patients' nerve fibers to the new appendage. The two of them now share the one hand. After the operation, the doctor tested their ability to use the new hand. He found that while the two patients have some difficulty picking things up with the shared hand, they show normal pain responses. In particular, when the doctor cut the palm of the shared hand, both patients grimaced and shouted out "Ouch!" Upon questioning, they told the doctor that it had hurt when he cut them.

Participants were then asked whether the patients felt one and the same pain or two different pains and answered on the same scale used in Study 5. The survey was given to 61 undergraduates at the University of Pittsburgh. Two participants were removed because they were under 18 or had taken the survey previously; two additional participants were removed because they had more than minimal training in philosophy or psychology. The remaining 57 participants were 56.1% female, with an average age of 21.8 years, and ranging in age from 18 to 54 years old.

The mean response was significantly below the neutral point of 4, with the majority of the participants indicating that the two patients felt the same pain.²⁰ Once again, it is the number of afflicted appendages, not the number of perceiving brains, that best corresponds with the number of pains reported. The results for Studies 5 and 6 are shown in Figure 4.

²⁰ $M=3.42$, $SD=1.861$, $t(56)=-2.349$, $p=0.011$ (one-tailed).

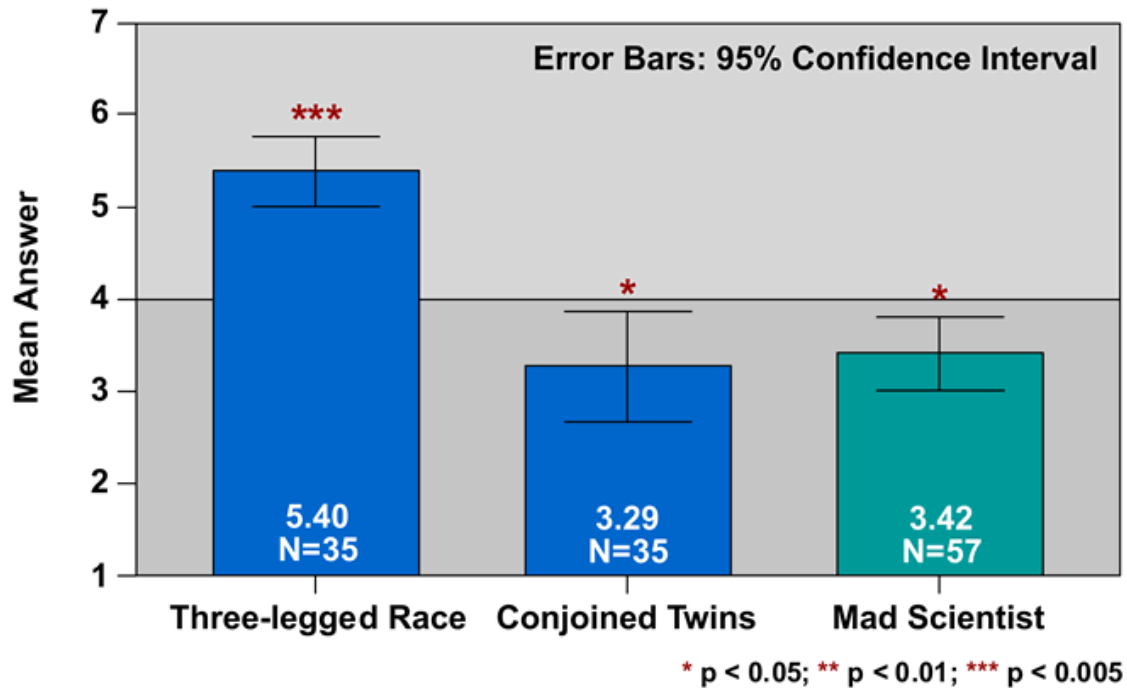


Figure 4: Study 5 and 6 results.

3.5 Discussion

The results of these six studies suggest that the naïve view is quite prevalent amongst adult Americans today. In fact, the naïve view appears to be the majority view despite the fact that it is a minority view in philosophy. This provides strong evidence against Dennett’s theory of the folk theory of consciousness, as articulated in Section 2: In slogan form, the folk do not treat the red as being in the head and they do not treat the pain as being in the brain. Furthermore, these studies provide additional evidence against claims that phenomenal consciousness is phenomenologically obvious or evident in ordinary perceptual experience. That so many people hold the naïve view, even though they presumably have normal perceptual phenomenology, suggests against these claims: Most of the people surveyed did not treat colors and pains as

qualia, a fact that is rather difficult to explain on the view that it is manifest in perceptual experience that these qualities are mental qualities.

It is worth explicitly noting that the claim that the folk hold a naïve view of colors and pains is specific to the qualities that we are acquainted with in *ordinary perceptual experience*. Thus, it remains possible that the folk hold that other qualities are qualia: It might be that the folk generally take themselves to be acquainted with colors in unordinary cases, such as during dreams or hallucinations, and that they treat these qualities as being mental.²¹ It might then be argued that the folk view of colors is inconsistent (treating some but not all colors as qualia); or, more charitably, it might be that the folk view is best described as a type of disjunctivism. Further empirical work is needed to determine how the folk tend to think about cases like dreams. Regardless of how this work turns out, however, the studies discussed in this section present clear evidence against the claim that the folk treat the colors that they are acquainted with in ordinary perception as qualia.

4. Conclusion

One sometimes finds assumptions about folk psychology being made in the discussions of phenomenal consciousness in philosophy of mind. As an example, I have considered what Dan Dennett says about the folk theory of consciousness, arguing that he holds that the folk theory includes the belief that the sensory qualities that we are acquainted with in ordinary perception are qualia. What the tenets of the folk theory of consciousness are is an empirical question, however, and in the absence of empirical investigation there is ample room for doubt concerning Dennett's claims. Fortunately, experimental evidence on the topic is beginning to be produced

²¹ I want to thank Josh Weisberg for raising this point in the discussion of this article at the *Consciousness Online* conference.

and this article is a contribution to that growing literature. Specifically, in this article I presented the results of six new studies investigating whether the folk tend to hold a naïve view of colors and pains. The results indicated that they do, but such a view runs counter to the qualia view that Dennett associates with the folk theory of consciousness.

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