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ABSTRACT. We argue that analytic functionalism provides the best account of the folk psychological theory of mind, and that people ordinarily define mental states relative to the causal roles these states occupy in relation to environmental impingements, external behaviors, and other mental states. We review several key studies on mental state ascription to diverse types of entities such as robots, cyborgs, corporations, and God, and explain how this evidence supports a functional account. We also respond to two challenges to this view based on the embodiment hypothesis, or the claim that physical realizers matter over and above functional role, and qualia. In both cases we conclude that research to date best supports a functional account of ordinary mental state concepts.

See someone crying and you are likely to suppose she is sad. Hear laughter and you will infer happiness. Witness a bad bicycle accident and you will conclude that the rider is in pain. Attributions of phenomenally conscious states are a pervasive aspect of human life. But what features of organisms and their environments lead us to attribute these kinds of states and experiences?

According to the view we will defend, people ordinarily ascribe mental states according to the functions they judge those states to play within a cognitive system. In short, we argue that *analytic functionalism* provides the best account of ordinary mental state concepts.

In the first section of this paper, we present analytic functionalism. In the second section, we discuss the behavioral evidence we have collected in favor of the claim that it offers the best account of the folk psychological theory of mind. Though we believe analytic functionalism offers the best account of ordinary attributions of mental states quite generally, prominent challenges to functionalism have focused on phenomenal states as the type of mental states least likely to conform to a functionalist account. So the focus of our paper is to show how ordinary phenomenal state attributions conform to analytic functionalism. In [section 3](#), we discuss a major opponent of our view, the embodiment hypothesis, which claims that certain *physical realizers* like biological bodies are crucial cues for the attribution of phenomenally conscious states. In [section 4](#) we discuss another challenge for our view, which suggests that people typically conceive of phenomenal states not merely functionally, but also in terms of intrinsic *qualitative feels*, or qualia. In both sections we conclude that the research on mental state attribution to date supports our thesis that analytic functionalism offers the best overall account of ordinary mental state concepts. We conclude in [section 5](#) by reflecting on our theory, and how this discussion might inform research in the metaphysics of mind.

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I. ANALYTIC FUNCTIONALISM'S ANALYSIS OF FOLK PSYCHOLOGY

According to functionalism, a belief, intention, emotion, pain, or any other mental state is a mental state because it has a certain function or plays a certain role within a cognitive system. Functionalism theories typically define mental states in terms of the relations they bear to sensory impingements upon the body, other mental states, and behavioral outputs.¹ In this paper, we will offer a partial defense of this view; specifically, that mental states are the effects of external stimuli and other mental states and, together with other mental states, the causes of behavioral responses and other mental states.

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A variety of functionalist views have been pursued in the philosophy of mind. Some of these views have been defended on the basis of reasons that have nothing to do with ordinary mental state assessment. According to psychofunctionalism, for example (as discussed by Block and Fodor 1972), the identity conditions for mental states are “imposed by reference to the psychological (and perhaps neurological) laws which subsume those states and in no other way” (98). On the other hand, *analytic functionalism* (as discussed by Lewis 1966, 1972, and Armstrong 1968, 1981) contends that the identity conditions for mental states are imposed by our intuitive folk psychological theory. Thus, a primary goal of analytic functionalism is to give an account of what we mean when we talk about various mental states. Analytic functionalists, such as David Lewis (1972), argue that identity conditions will subsequently fall out of such an account. On this view, a particular mental state, such as pain, is to be identified with whatever particular plays the causal role

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specified by our ordinary pain concept within a cognitive system.² Focusing on this latter kind of functionalism, our goal in this paper is to argue that the causal account offered by analytic functionalists accurately captures the folk psychological theory of mind.

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Traditionally, analytic functionalists have argued for this view on *a priori* grounds. Lewis (1966), for example, defends the analytic functionalist account of mental state terms on the grounds that it captures the ‘component of analytic necessity’ in behaviorist statements connecting mental states with stimuli and responses, while simultaneously avoiding the notorious difficulties of behaviorism (21). Alternatively, David Armstrong (1981) contends that analytic functionalism provides an analysis of mental state concepts that allows for the likely hypothesis that “mental states are physical states of the brain” (81).³ Furthermore,⁴ because we conceptualize mental states relationally under this view, Armstrong argues that analytic functionalism can also explain both the apparent intentionality and the seemingly elusive intrinsic natures of different types of mental states.

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While evidence in favor of analytic functionalism can be acquired via *a priori* reflection, another way to proceed is by means of experimental investigation. As Lewis (1972) himself noted, the hypothesis “can be tested, in principle, in whatever way any hypothesis about the conventional meaning of our words can be tested” (92). Since analytic functionalism is at heart a semantic theory about the meaning of mental state concepts, we can investigate the theory by

systematically investigating how people deploy these concepts in mental state assessments. This is the kind of evidence we will offer in favor of analytic functionalism. We present systematically acquired evidence of ordinary mental state attribution patterns to defend the empirical premise of analytic functionalism concerning folk psychological theory.

While we believe that the full pattern of evidence favors analytic functionalism's account of ordinary mental state concepts, some have argued that the view's key commitment about folk psychology is false. And just like the arguments that can be given in favor of analytic functionalism, challenges to this view have also come from both *a priori* reflection and empirical research. Objections to functionalism that are *a priori* in nature are exemplified by thought-experiments such as Block's (1978) Chinese Nation example and Searle's (1980) Chinese Room example. Whether these intuition-pumps achieve their desired end has been a topic of immense discussion in the philosophy of mind. We will not discuss the arguments for or against these positions here.⁴ Instead, our focus in this paper is to respond to the empirical case against analytic functionalism.

Those who argue on the basis of empirical evidence that mental states are not ordinarily identified with functional roles have suggested that analytic functionalism overlooks a crucial aspect of the folk psychological theory of mindedness (see Knobe 2008). A number of researchers allege that considerations about the physical makeup of entities are crucial to ordinary

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attributions of phenomenal consciousness. According to this view—which we will call the *embodiment hypothesis*—folk ascriptions of certain mental states to others rely on the physical realizers of those states. Defenders of the embodiment hypothesis typically hold that while information about behavior and other functional cues may be sufficient for ordinary attributions of intentional states, only entities with the right kind of unified biological body are typically judged to have phenomenally conscious experiential states.⁵

Of course, analytic functionalists do not think that considerations about physical bodies are completely irrelevant to ordinary mental state ascriptions. If analytic functionalism is correct, then what it means to occupy any mental state is to occupy a state that bears the appropriate causal relations to stimuli, behavior, and other mental states. This entails that having a particular mental state depends upon having the right functional capacities. So if having specific functional capacities is thought to depend upon having specific physical sense organs, then whether one is thought to occupy the mental state with which those functional capacities are associated will depend upon having the appropriate physical sense organs. For example, if being visually stimulated was thought to require having eyes, and being visually stimulated was judged a necessary condition of having visual experiences, then whether one was thought capable of having visual experiences would depend upon whether one was thought to have eyes. As this example shows, an analytic functionalist may maintain that physical realizers matter to phenomenal state attribution in an

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attenuated sense, in just those situations in which possessing the specific functional capacities is thought to depend upon having a specific physical apparatus. Thus, according to analytic functionalism, physical apparatus can constitute important cues or preconditions for the causal roles that are definitive of various mental states. However, this stands in stark contrast to the embodiment hypothesis. According to the latter view, physical realizers matter *over and above* the functional relations they make possible. This distinction, between the way physical realizers matter to the two theories, is crucial to what follows (we will revisit it in [section 3](#)).

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There is a growing body of experimental research examining how people ascribe mental states to other entities. In the remainder of the paper, we argue that analytic functionalism provides the best explanation of these data to date.

We will do so by instituting two strategies. We will begin in [section 2](#) by presenting some of the studies that we have conducted, and explain how they support the analytic functionalist view over the embodiment hypothesis and other historically prominent accounts of folk psychological terms. We then go on in [section 3](#) and [section 4](#) to survey the results other researchers have collected, and show how analytic functionalism can account for them.

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II. THE EMPIRICAL CASE FOR ANALYTIC FUNCTIONALISM

According to analytic functionalism, the function or role a certain mental state plays or appears to play within a cognitive system is at the heart of the way we define mental states. But if true, this claim entails certain empirical commitments about the way people tend to distinguish between and ascribe mental states to other entities. If analytic functionalism is correct, then people identify occupying mental states with bearing relationships to inputs, outputs, and other mental states. And if that is correct, then the judgments people make about inputs, outputs, and other mental states will presumably constitute key cues for mental state ascription. So, for instance, when people decide whether or not an entity has a certain belief or feels pain, analytic functionalism suggests that a cluster of factors typically associated with functionalism—such as sensory stimuli, extant mental states, and behavioral outputs—play important roles in people’s willingness to ascribe those states. This suggests a method for investigating whether ordinary people conceive of mental states in terms of the causal relations they bear to stimuli, behavior, and other mental states. We can look to see whether entities are ascribed intentional and phenomenal states when they are described as having the right functional capacities.

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It is important for us to note that in undertaking such a project we are not interested in just any mental state ascriptions. Although we assume that people possess a tacit folk psychological theory, we do not believe that they are always *competent* in its application. Actual attributions are likely influenced by

numerous factors that are irrelevant to a folk psychological theory of mind. Furthermore, although there may be domain specific, informationally encapsulated, and obligatory modular systems for “perceiving” the mental states of others, we are interested in people’s *rational* attributions of mental states to others. For present purposes, rational attributions are those made on the basis of a tacit theory of other minds.⁶ Of course, determining for any one study whether particular judgments are the competent and literal deliverances of folk psychological theory is obviously a difficult matter, and one that we are not likely to fully resolve.⁷ Nonetheless we wish to flag that our case in favor of analytic functionalism’s account of ordinary mental state concepts rests on the claim that the judgments we will consult are rational judgments of the relevant sort.

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In a recent paper, Buckwalter and Phelan (2012) investigated whether a simple robot, which lacks typical sense organs and a brain, is nonetheless thought capable of occupying a range of experiential states when described in a way that suggests it could be subject to appropriate external stimuli and could exhibit appropriate behavioral responses. In one study, for example, Buckwalter and Phelan described a relatively simple robot that was created either to “clean biomedical waste” or to “make fruit smoothies.” On the assumption that the scientists who designed the entity to clean up biomedical waste built it in such a way that it could sense waste and respond in appropriate ways to clean it up, we would expect this robot to be capable of occupying a state that bears the

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appropriate causal relations to waste stimuli and waste-responsive behavior. If these causal relations are thought to be what having sensory experiences related to waste consists in (as analytic functionalism claims), then we should also find that ordinary people attribute waste-related experiences to the robot.

Indeed, this is what Buckwalter [and](#) Phelan found. Participants were significantly more likely to attribute the experience of smelling vomit to a robot designed to clean up biomedical waste than to a robot designed to make fruit smoothies, despite the fact that the two simple robots were exactly similar in all other respects:

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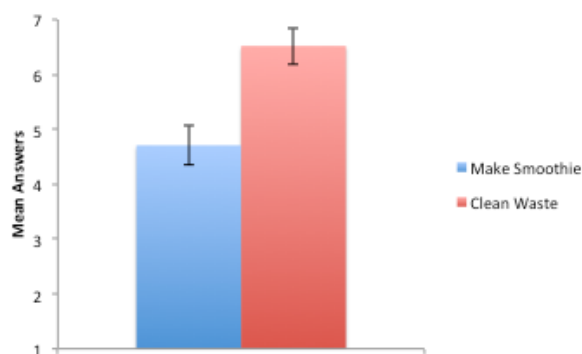


Figure 1. From Buckwalter [and](#) Phelan (2012), mean responses for smell attributions of vomit to a simple robot by functional considerations.

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These results also generalized for other sensory experiences (like smelling bananas) and for experiential emotional states (like feeling guilt). Indeed, a subsequent study found that a robot described as being “designed to be a friend to the elderly by interpreting and responding to their emotional needs” was significantly more likely to be thought of as feeling guilty when it broke an elderly woman’s antique music box than was a robot described as having been “designed to be a tool for the elderly by lifting and moving heavy objects around their houses.” These data suggest that relatively minor changes in experimental stimuli regarding functional roles can dramatically influence mental state ascription to those entities.

Perhaps an even more striking example of the effect of functional considerations on mental state attribution in [nonbiological](#) entities is provided by Buckwalter [and](#) Phelan (forthcoming). In this series of studies, Buckwalter [and](#) Phelan investigated people’s intuitions about the mental states of disembodied souls. In one study, participants were presented with a basic story about Bob and [Melissa](#) getting a divorce after fifteen years of marriage. Soon thereafter, Bob comes to learn that Melissa has begun a new romantic relationship. Bob wants to expose this relationship to Henry, Bob and Melissa’s son. For one group of participants, it is made clear that Bob’s motivation in exposing the relationship was a desire to “cause Henry to hate his mom” for starting the new relationship. Conversely, the other half of participants saw the

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exact same story, but this time where Bob's goal was a desire to "make Henry incredibly happy" that his mom was starting the new relationship.

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In both cases, the story continues, Bob drives over to Melissa's house. He plans on placing some evidence of Melissa's new relationship in Henry's tree house, where he expects Henry to find it. On the drive over, however, Bob is involved in a car accident and dies. Nonetheless, his disembodied spirit succeeds in transporting the evidence to the tree house. In both conditions, participants were very likely to conclude that when Bob, as a disembodied soul, placed the pictures in the tree house, he *believed* Henry would find them there. However, what they thought Bob *experienced* at that moment changed radically

depending on his motivation. On the one hand, when he was motivated by a desire to make Henry hate his mom, participants thought Bob significantly more likely to be experiencing anger when he placed the pictures in the tree house than to be experiencing happiness. On the other hand, when he was motivated by a desire to make Henry happy, participants concluded that Bob felt happy rather than angry when he placed the pictures in the tree house.

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Interestingly, this result was not affected by whether or not Bob was a disembodied soul or a regular person. For another set of conditions, in which Bob was not killed in the automobile accident but remained a flesh-and-bone human being, the results for function were nearly indistinguishable from those in which he was the disembodied soul. In fact, attributions of phenomenal states trended (though not significantly) higher. These results can be seen in the

figure below (where dark and shaded bars represent whether or not Bob was embodied, and color represents functional relation):

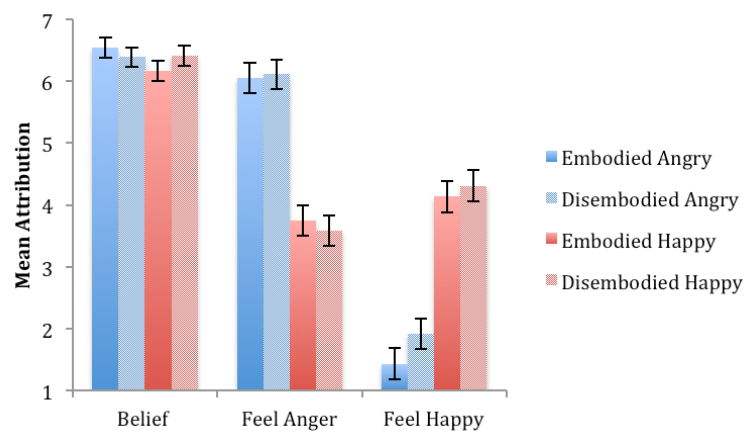


Figure 2. From Buckwalter [and](#) Phelan (forthcoming), mean agreement with mental state attribution of belief, anger, and happiness in disembodied soul experiment.

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This study constitutes further evidence for the analytic functionalist hypothesis. First consider the way people evaluated Bob's intentional states. Across all four conditions (whether Bob was a human or [a](#) ghost, or whether he was motivated to incite anger or happiness in his son), people are equally likely to strongly ascribe belief to Bob. These ascriptions are predicted by analytic functionalism because in each case, this belief stands in the same causal

relationship to Bob's behavior (it helps explain why he places the evidence in the tree house as the best way to achieve his goal). Now consider how participants evaluated Bob's phenomenal or experiential states. Participants were much more likely to agree that Bob felt angry (and at the same level of agreement as the belief ratings) when that state stood in the right causal relation to his behavior and other mental states. And we see the opposite pattern of agreement with attributions of happiness. Thus, both intentional and phenomenal state attributions in this study seem to conform to the predictions of analytic functionalism. Furthermore, this same basic pattern is replicated across several other studies in this paper, including several in which the disembodied entity was an eternally disembodied spirit.

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These studies do not conclusively demonstrate that people identify mental states with states that bear the appropriate causal relations. Instead, they constitute evidence in an argument to the best explanation in favor of analytic functionalism. For example, it seems that analytic functionalism's account of the commonsense conception of mental states accords better with evidence to date than do prominent historical accounts of the commonsense conception of mental states. The results of Buckwalter [and](#) Phelan (forthcoming) favor analytic functionalism's account over analytic behaviorism's account of the commonsense conception of mental states, since what seems to explain the difference between whether Bob was thought to be happy or angry is a mental state (the desire to make his son happy or hateful regarding his mother) and

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not merely sensory impingements and behavioral dispositions. The results of

Buckwalter [and](#) Phelan (2012) favor analytic functionalism over a dualistic

conception that claims commonsense requires an immaterial mind for

mentation, since, presumably, a simple robot is thought to lack a soul, but is

nonetheless attributed mental states. So, at the very least, these findings

suggest that analytic functionalism provides a better account of the

commonsense conception of mental states than do behaviorism or dualism.

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These findings suggest that analytic functionalism provides a better

explanation of the pattern of ordinary mental state attributions than does the

embodiment view, since in each study a [nonbiologically](#) embodied organism was

attributed phenomenal mental states based upon the satisfaction of certain

functional descriptions. However, evidence has also been offered elsewhere in

favor of the embodiment view and against analytic functionalism. So although

analytic functionalism is better at explaining some range of experimental results,

it could still be that the embodiment view constitutes the best explanation of

the total pattern of mental state attributions. We now evaluate other evidence

that might be interpreted to support the embodiment hypothesis.

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III. THE EMBODIMENT HYPOTHESIS

The embodiment hypothesis claims that a major factor that cues phenomenal

state attribution is whether or not an entity has a certain kind of unified

biological body (Knobe 2008; Knobe and Prinz 2008). One of the main ways researchers have tested this hypothesis is by studying how people attribute mental states to different sorts of entities that either do or do not have biological bodies. What these studies suggest is that people are reluctant to ascribe experiential states to a series of entities—ranging from cyborgs, corporations, and God—that are biologically disembodied. And this has been interpreted as evidence that embodiment is an important dimension of mental state attribution.

Previously we introduced two studies that suggest participants are sensitive to functional considerations, but not sensitive to considerations of embodiment. We take these studies to provide strong evidence against the embodiment view. In what follows we contend that the most important results taken to support the embodiment hypothesis might, in fact, also be explicable in terms of the analytic functionalist hypothesis. We suggest that the experimental materials previous researchers have used to detect the influence that bodies have on the ascription of experiential states also inadvertently manipulated crucial information relating to the inputs, outputs, and other mental states with which a functionalist would suppose the relevant experiential states are identified. If we are correct, these results do not show that biological embodiment explains ordinary phenomenal state attribution over and above the causal factors isolated by analytic functionalists.

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3.1. MECHANICAL ENTITIES

Like humans, mechanical entities such as robots, cyborgs, or computer programs can be very complicated systems that display very complex patterns of behavior. However, since they lack biological bodies, these entities serve as excellent candidates to test the embodiment hypothesis. If people are willing to ascribe experiential states to a human being with a body composed of flesh and blood, but are unwilling to ascribe the same states to an equally complex robot composed of nuts and bolts, then this seems to be good evidence that it was something specific about the biological body that was cuing experiential state attribution.

This kind of result is perhaps best displayed in the work of Bryce Huebner on commonsense concepts of phenomenal consciousness (2010). To probe people's intuitions about attributing intentional and experiential states, Huebner conducted experiments that introduced participants to an entity named David. In half of the vignettes participants read, David was either a human with a human brain or a robot with a robot brain:

... David looks like a [*human and he has a normal human brain/ robot. Instead of a human brain he is controlled by a CPU modeled on a human brain with microchips that behave exactly like neurons*]. He behaves in every respect like a person on all psychological tests.

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The other half of participants received vignettes in which David was a cyborg, or a mix of human and robot. In these conditions, David was a human with a robot brain, or a robot with a human brain:

... David looks like a [*human/robot*]. However, he has taken part in an experiment over the past year in which his [*brain/CPU*] has been replaced, [*neuron for neuron, with microchips that behave exactly like neurons/microchip for microchip, with neurons*]. He now has a [*CPU instead of a brain/normal human brain*]. He has continued to behave in every respect like a person on all psychological tests throughout this change.

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Lastly, participants in all conditions above were asked to rate their level of agreement with the following statements regarding David's mental states. In one experiment, the sentences involved belief and pain ascription:

He believes that $2 + 2 = 4$.
He feels pain if he is injured or damaged in some way.

In another experiment using the exact same stories about David, Huebner collected agreement with ascriptions of belief and felt happiness:

He believes that triangles have three sides.
He feels happy when he gets what he wants.

Responses were collected on the same five-item scale anchored with positive and negative agreement terms designed to measure people's willingness to attribute these intentional and experiential states to David.

What Huebner found is that no matter how David was constructed in each of the various stories, participants in both experiments strongly agreed that

David had the belief that $2 + 2 = 4$, and that triangles have three sides. But Huebner found that there were large differences in whether or not people thought that David could feel happiness or pain based on his physical composition. Participants were much more likely to agree with these sentences and ascribe experiential states only when David was a normal human being than when David was described as any other entity. Huebner's results for pain are shown in Figure 3:

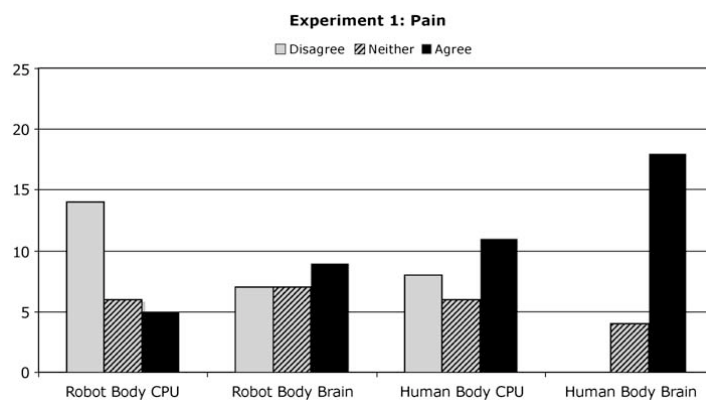


Figure 3. Number of participants who disagreed (gave a score of 1–2), agreed (gave a score of 4–5), or were ambivalent (score of 3) for pain attribution in Huebner's first experiment (from Huebner 2010).

These results have been taken by some to support the embodiment hypothesis (Knobe et al. 2012). After all, people were most likely to ascribe

happiness or anger to David when David had a normal human biological body, including a brain.⁹ However, the embodiment hypothesis, like our analytic functionalist view, rests on an argument to the best explanation. So are these results also consistent with analytic functionalism? Huebner contends that they are not, writing that:

Commonsense ascriptions of happiness and pain introduce complications for anyone who defends the intuitive plausibility of functionalism. While behavioral and functional considerations may be enough to warrant the ascription of belief ... some entities also tend to be seen as possessing capacities for subjective experience that are not captured by the behavioral and functional properties of an entity. (144)

Huebner thinks that these results reveal that subjective experiences “are not captured by the behavioral and functional properties of an entity.”¹⁰ But is that really what these results reveal?

Though some did ascribe both pain and happiness to David when he wasn’t fully human, for ease of explanation let us suppose for a moment that no one attributed either pain or happiness to David in any condition other than that in which he had a normal human body and brain. This result would count against the functionalist view only on the further assumption that participants regard David as functionally equivalent to a cognitive system capable of experiencing pain and happiness. But can we assume that participants in Huebner’s studies conceive of David in this way across all the changes he undergoes? Consider,¹¹ for example, what this amounts to for the attribution of felt pain experiences. The assumption would be that participants think of David, after his brain has been

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replaced by a CPU, as capable of being subject to sensory impingements, performing behaviors, and occupying other mental states that, according to analytic functionalism, define what it is to be in pain. So the question of whether Huebner's results count against analytic functionalism actually comes down to the question of whether participants see David as capable of all these things before and after his bodily change from human to machine.

Let us focus on the question of whether or not participants see David as capable of occupying all the relevant mental states after the change. Analytic functionalism holds that participants ascribe pain to normal David (with a human body and a human brain) because the participants think he is capable of occupying those mental states in relation to which pain is defined. But should we conclude that Huebner's experimental participants think of David *after* his brain has been replaced by a CPU as also capable of occupying those mental states human David is capable of occupying, in relation to which pain is defined? Clearly, Huebner means for his experimental participants to think of David with the CPU in that way. To this end he includes in his description of him the following prompt:

He has continued to behave in every respect like a person on all psychological tests throughout this change.

But a person who goes through a brain transplant goes through a lot! Ordinary participants may be strongly disposed to infer that just going through this process could change a person's mental repertoire in crucial ways—not because

the material out of which the brain is constructed changes, but just because the process is a radical one, likely to affect important psychological changes. It is not clear that telling participants David continues to perform in every respect like a person on all psychological tests blocks this inference. After all, ordinary participants are unlikely to have a conception of the specific mental states one must be capable of occupying in order to perform like an ordinary person on psychological tests.

Indeed, there is some reason to suppose that the stipulation that David continues to behave like a person on all psychological tests does not cause participants to make the crucial assumption that the various physical instantiations of David are capable of occupying those mental states in relation to which pain is defined. Recall that many participants conclude that cyborg David is not capable of feeling happiness or pain. Thus, the stipulation that David continues to behave like a human on all psychological tests must not cause these participants to standardize mental state attribution across different instantiations of David or else these participants are epiphenomenalists about feelings of happiness and pain. While it may be that people really do think pain and happiness are causally impotent, this is a very contentious position that requires substantial defense. In the absence of such defense, it is as plausible to suppose that the stipulation fails to standardize attributions of happiness and pain feelings, and, in that case, it cannot be presumed to standardize attributions of other states, either.¹⁰

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Bringing all of this together, we think that Huebner's results constitute evidence in favor of the embodiment thesis and against analytic functionalism only if we suppose that variant assessments of David's capacity to occupy experiential states are due to a change in the realizers and not in the relations. Yet this supposition is unwarranted because the experimental materials do not ensure that the relations are held fixed across conditions. Many questions loom large. What sorts of sensory stimuli are the robot or cyborg entities subject to in comparison to normal humans? What related mental states will the different entities be presumed to occupy? What sorts of behaviors can the various entities exhibit? If we aren't sure that experimental participants answer these questions in the way the embodiment hypothesis requires, then we do not have a clear [counterexample](#) to analytic functionalism.

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In light of this difficulty in interpreting the bearing of Huebner's findings on the current debate, recall our independent evidence that, when functional relationships *are clarified*, people are happy to ascribe experiential states like smell and felt emotions like guilt to simple robots. In fact, they are willing to make these ascriptions to *very simple* robots. Here is how the entities in Buckwalter [and](#) Phelan 2012a are described in one experimental condition:

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Jimmy is a relatively simple robot built at a small state university. He has a scent detector, video camera for eyes, wheels for moving about, and two grasping arms with touch sensors that he can move objects with.

Despite this description of a simple entity and, importantly, despite having a

nonbiological body, experimental participants strongly ascribe phenomenal states to the robot when the relevant functional relationships are included. This evidence is easily explicable according to functionalism, and in direct conflict with the embodiment view.

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3.2. DISEMBODIED ENTITIES

In the previous section we reviewed research investigating phenomenal state attribution to robots, and suggested that functional relationships are crucial for mental state attribution. But another kind of evidence taken to favor the embodiment view is drawn from studies investigating entities that lack any kind of corporeal body whatsoever. If the embodiment hypothesis is correct, then ordinary people will be unlikely to ascribe phenomenal states to disembodied entities. Alternatively, if the analytic functionalist hypothesis is correct, then whether or not people think that disembodied entities can either believe or feel certain things will depend on further facts about the causal role they take those beliefs or feelings to play relative to environmental impingements, external behaviors, and other mental states. As Fodor (1981) says of a related version of functionalism:

[...] The software description of a Coke machine does not logically require wheels, levers and diodes for its concrete realization. By the same token, the software description of the mind does not logically require

neurons Functionalism allows for the possibility of disembodied Coke machines in exactly the same way and to the same extent that it allows for the possibility of disembodied minds.

One important study involving disembodied entities comes from the work of

Heather Gray, Kurt Gray, and Daniel Wegner (2007). Gray et al. introduced

2,040 participants to thirteen different sorts of “characters” (ranging from babies, to animals and robots, to God) on their ability to have eighteen different kinds of mental capacities (like feeling angry or pain).

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Participants were then presented with random pairings of the characters, and asked for each pair which entity was more capable of occupying one of

eighteen mental states. For example, Gray et al. probed fear by asking, “which character is more capable of feeling afraid or fearful.” And they probed self-control by asking, “which character is more capable of exercising self-restraint

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over desires, emotions, or impulses.” The mean scores that each of the entities

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received for each of the mental state capacities were combined and entered into a factor analysis. The results of this analysis reveal, as Gray et al. argue, two dimensions of mind perception. According to Gray et al., people distinguish “experiential states” (like feeling fear, hunger, pain, or pleasure) from “agentive states” (such as morality, self-control, thought, and planning), and think of some entities as being high in experience, while others are prototypical agents. The figure below shows the scores that each entity received relative to each of these two dimensions:

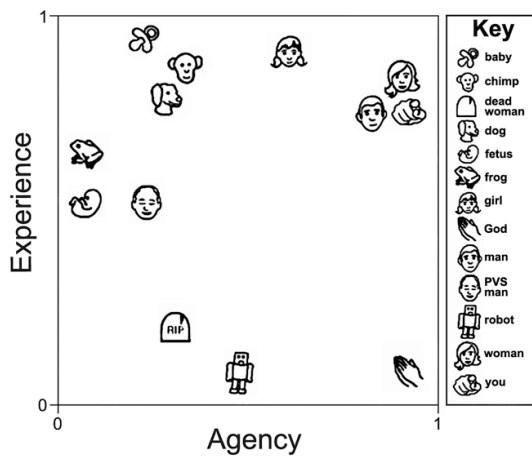


Figure 4. From Gray et al. 2007, showing “Adjusted character factor scores on the dimensions of mind perception. PVS, persistent vegetative state.”

Our focus here is on how people evaluated the capacities of the disembodied entity, God. Gray et al. introduce God as follows:

God. Many people believe that God is the creator of the universe and the ultimate source of knowledge, power, and love. However, please draw upon your own personal beliefs about God.

What Gray et al. found was that people were highly likely to agree that God had the mental capacities indicative of agentic states (such as morality, self-control, thought, and planning) but did not think God could have experiences (like feeling fear, hunger, pain, or pleasure). These results have been attributed to God’s lack of a biological body, and therefore taken to favor the embodiment hypothesis.¹¹

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However, rather than the lack of a physical biological body, people's beliefs about the kinds of inputs and outputs to which God can be subject might simply make it unlikely that the specific states Gray et al. tested for would be attributed to God. For example, it seems quite unnatural to suppose that a powerful deity could be subject to the sensory stimulations (e.g., empty stomach impingements) or exhibit the behaviors (e.g., avoidance behavior) that are typically associated with states such as hunger or fear. Thus, judgments about whether God can occupy these particular states do not constitute strong evidence that disembodied things cannot have experiential states. This is roughly the same point we made about the robot experiments above. In both cases, people's judgments about the entity's functional architecture, and not their beliefs about embodiment, could explain the relevant ascription practices.

Fortunately for the analytic functionalist hypothesis, however, we do have independent evidence that when the appropriate functional relationships *are clarified*, people seem happy to ascribe experiential states like feeling anger or happiness to disembodied entities. Unlike Gray et al.'s experiment, participants in Buckwalter [and](#) Phelan's studies ascribed experiences to a disembodied entity described thusly:

Bob emerges from his dead body as a ghost. He now has no form at all—no head, no legs, no arms. Instead, he is something like an invisible force or a spiritual presence. Though he has no limbs with which to touch physical objects, Bob can make objects move without touching them, by floating them through the air. (Buckwalter and Phelan 2012b)

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As reviewed above, the result was that participants were happy to ascribe experiences to Bob, given certain functional relationships made explicit in the experiment. We take these data to suggest that analytic functionalism is a promising rival explanatory hypothesis to the claim that having some sort of biological body is a necessary condition of experience.¹²

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3.3. GROUP ENTITIES

Yet another kind of evidence cited in favor of the embodiment hypothesis involves group state ascriptions. Consider the headlines, “Apple thinks its smartphone patents are worth more than Microsoft’s,” or “Pakistan wants a lasting solution to the Kashmir issue.”¹³ It seems that we readily ascribe intentional mental states to corporate entities and other collectives. But ascriptions of phenomenal states to groups, by comparison, seem much more rare. Indeed, Knobe and Prinz (2006) found a significant difference in Google hits for phrases ascribing intentional states to groups compared with phrases ascribing phenomenal feelings.¹⁴ So casual reflection on the daily news may be thought to support the embodiment hypothesis. Apple and the nation of Pakistan both lack a single biological body. Thus ordinary ascriptions to groups may demonstrate that embodiment provides crucial cues for attributing phenomenal states.

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To find out, Knobe and Prinz (2008) conducted several experiments examining people's mental state assessments of groups. In their studies they presented participants with a number of sentences that ascribed either intentional or phenomenal states to a group entity (Acme Corporation), and then asked people how natural or unnatural those sentences struck them. What Knobe [and](#) Prinz found was that people were very willing to rate sentences like Acme [Corporation](#) "believes that its profit margin will soon increase" or "intends to release a new product this January" as natural sounding. By comparison however, they rated sentences involving phenomenal state ascriptions, like Acme [Corporation](#) "is now experiencing great joy" or "is getting depressed," as extremely unnatural sounding. In fact, they report that "the most acceptable phenomenal state was still deemed less acceptable than the least acceptable non-phenomenal state" (75). Knobe and Prinz take these results as evidence for the embodiment view, concluding that the ratings of naturalness "indicate that people are unwilling to ascribe to group agents states that require phenomenal consciousness" (75).

This conclusion accords nicely with a sizable philosophical literature on collective intentionality. Margaret Gilbert, for instance, [writes](#), "People speak—without any sense of fantasy or metaphor—of the judgments of courts, of the beliefs of unions, families, nations, and so on" (2002, 121). And Austen Clark argues that "beliefs and desires are cited in explanations of corporate behavior with the same degree of success and legitimacy as they are in explanations of

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human behavior” (1994, 410).¹⁵ However, how natural people find such ascriptions counts as good evidence for views about collective intentionality and the embodiment thesis only insofar as one makes an important assumption—the assumption that people are *literalists* about group mental state ascriptions. If ordinary people are literalists about group mental state ascriptions, it means that when people ascribe mental states to groups, they interpret such ascriptions as really attributing mental states to the group over and above individual members. In a recent paper, however, Phelan et al. (2012) argue against literalism, and offer a *distributive* account of group mental state ascriptions.

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At the heart of Phelan et al.’s view is the claim that intentional state ascriptions to groups are unremarkable. Intentional and phenomenal mental states constitute one subset of those states that, according to folk metaphysics, cannot be appropriately attributed to groups over and above the members that constitute them. Just as a group cannot get drunk or be well dressed over and above its members, so a group cannot want or believe over and above its members. Although people do not think a group can have a belief anymore than it can be afraid or get drunk, Phelan et al. point out that does not entail that people will not sometimes utter sentences that seem to attribute such states to groups. Essentially, Phelan et al. claim that such sentences, though inaccurate, are useful in virtue of the fact that they constitute a brief and easily interpretable shorthand for getting at the true, but complicated,

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distributive claims people really want to make, about the people that constitute the relevant group.

One way to test whether or not this distributivist claim is on the right track is to investigate how people paraphrase group mental state ascriptions compared with other, nonmental state ascriptions to groups. In one such study, Phelan et al. divided sixty participants at Yale University between three conditions. Each condition included four test sentences (i.e., group ascriptions) and four other filler sentences. These conditions and one example sentence from each are found below:

Nonmental. After Boeing lost the Army contract, Boeing needed to lay off workers.

Intentional. After Boeing lost the Army contract, Boeing expected to have to lay off workers.

Phenomenal. After Boeing lost the Army contract, Boeing felt anxious about having to lay off workers.

For each sentence, participants were asked to replace the second, underlined instance of the group name with either the pronoun “it” or the pronoun “they.”

The basic idea being that if people ascribe states to entities over and above individual members, they will choose the former paraphrase. However, if the distributive theory is correct, then they will be more likely to paraphrase the group name with the latter option.

For each participant a “distributivist score” was calculated by awarding 1 point each time the participant selected “they” to replace the underlined name

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in one of the test sentences, and 0 points each time the participant selected

“it.” Given that each participant rated four test sentences, the highest distributivist score one could get was “4.” the lowest was “0.” The results confirmed the prediction, that participants would be more inclined to use the “it” pronoun in the condition attributing nonmental states than in either mental state condition:

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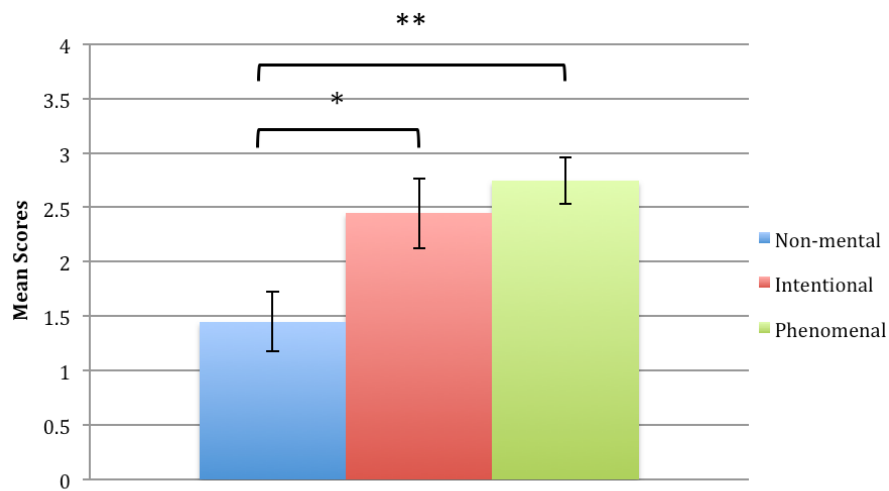


Figure 5. From Phelan et al. (2012). Mean paraphrase scores in distributive

experiment. [\[AU: What are the sterisks for, footnotes to the figure?\]](#)

Phelan et al. found significant differences between nonmental state

ascriptions on the one hand, and each type of mental state ascription sentences on the other. However, there was no significant difference in responses to

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intentional and phenomenal mental state ascriptions. These results suggest that people are inclined to understand ascriptions of all mental states to groups in a distributive fashion, contra literalism.

On Phelan et al.'s (2012) view, when a state is not appropriately attributed to a group, verbal ascriptions are understood distributively—or in terms of attributions of states to group members qua members of the relevant group. In effect, such ascriptions are understood as attributions to those who make up the group in their *role as members* of the group. So when people ascribe states to groups, the theory claims that this is just a kind of convenient kind of verbal shorthand that, though inaccurate, is useful because it is relatively brief. What then explains the purported acceptability of group intentional state talk? To see this, first recognize what makes us think it is appropriate to ascribe a state to a person as the occupant of any role whatsoever. Suppose John is both a husband and the mayor. It no doubt strikes us as more appropriate to say, “As a husband, John loves his wife,” than to say, “As a mayor, John loves his wife.” But of course, John actually occupies the state of loving his wife whether or not we are thinking of him as a husband. Such asymmetries in perceived appropriateness seem to reveal little more than our presuppositions about what states are saliently associated with a given role.

According to Phelan et al., there is nothing special when it comes to occupying the role of a group member. Thus, verbal ascriptions of mental states to a group—which are understood as attributions of states to the members that

constitute the group (under the role of group member)—will be deemed appropriate insofar as the relevant state is saliently associated with the role of being a member of the relevant group. For example, the belief that profit margins will increase is more saliently associated with the role of being an Acme Corp employee than is the experience of feeling excruciating pain. Thus, it strikes us as more appropriate to say, “Acme Corp believes profit margins will increase,” than to say, “Acme Corp is experiencing excruciating pain,” as Knobe and Prinz (2008) find. Along these lines, Phelan et al. maintain that the purported asymmetry in favor of group intentionality state talk is due to nothing more than a selective consideration of cases.¹⁶

To support their claim that appropriateness ratings for group state ascriptions are actually explained in terms of salient associations with group member roles, Phelan et al. devised another study. Participants in this study read stories ascribing three kinds of states (intentional, phenomenal, and nonmental states) to the members that make up different groups. In some conditions, participants read stories for which the ascribed states were ones that would be saliently associated with occupying the role of a member of the relevant group. Others read stories for which the states were not saliently associated with the relevant group member roles. After reading each story, participants were asked to assess the appropriateness of a sentence ascribing the relevant state to the group. So, for example, participants in one *saliently associated* condition read the following story:

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The American Red Cross is a volunteer-led, humanitarian organization that provides emergency assistance. On August 28th of this year, members of the Red Cross learned that a powerful hurricane had devastated portions of the east coast of the United States.

And assessed the following ascription in terms of appropriateness:

The American Red Cross came to believe that a hurricane had hit the east coast.

Participants in a *not saliently associated* condition, on the other hand, read the following story:

Microsoft is a public multinational corporation that develops and manufactures a wide range of computer products and services. On August 28th of this year, employees of Microsoft learned that a powerful hurricane had devastated portions of the east coast of the United States.

And assessed the following ascription in terms of appropriateness:

Microsoft came to believe that a hurricane had hit the east coast.

Each participant's ratings for the two ascriptions within each condition were then averaged, to generate an overall appropriateness rating. The following results emerged:

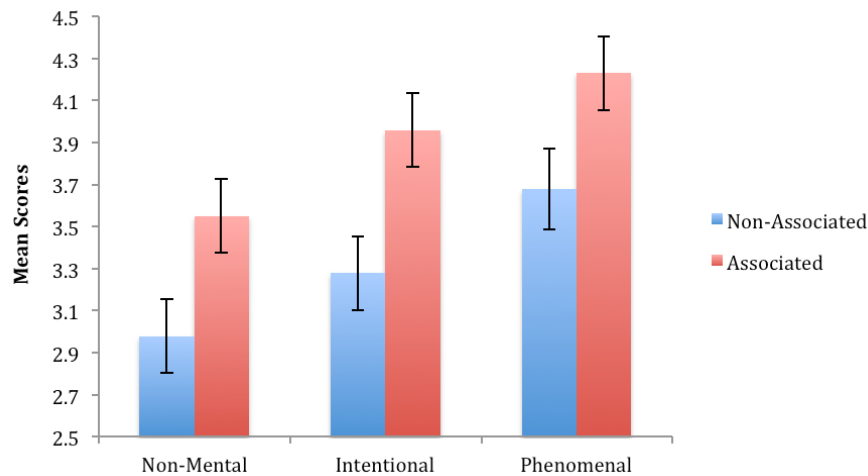


Figure 6. From Phelan et al. forthcoming. Mean appropriate ratings for group member roles study.

____Across all three kinds of inaccurate group state ascriptions, significant differences in appropriateness ratings were found to track salient association of states with group membership roles. This constitutes important evidence in favor of Phelan et al.'s (2012) view that verbal ascriptions of states to a group are understood as attributions of states to the members that constitute the group (under the role of group member) and deemed appropriate insofar as the relevant state is saliently associated with the role of being a member of the relevant group.

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But since these attributions are attributions to group members, or regular human beings, this explanation undercuts the purported evidence in favor of the embodiment hypothesis. Thus, that evidence does not actually support the embodiment hypothesis over analytic functionalism in an argument to the best explanation of how people ordinarily ascribe mental states. But note: Even if the particular, distributivist explanation Phelan et al. support is incorrect and people really do understand group mental state ascriptions as ascriptions of mental states to groups over and above the members that constitute them, the results of this last study still undercut the evidence in favor of the embodiment view. For in this study ascriptions of phenomenal states to groups were deemed more appropriate than either intentional or nonmental states. Thus, the embodiment hypothesis truly seems to garner no support from data concerning group state ascriptions.

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3.4. CONCLUSIONS FOR EMBODIMENT EVIDENCE

Much of the empirical literature on how people make decisions about other minds—and, in particular, empirical research on phenomenal state ascriptions—has been taken to show that physical realizers are crucial. To be sure, we think that the *specific* features of an entity's body may have important influences on our attribution of *specific* phenomenal states to that entity. But we contend that this is because an entity's body can give us important clues about the

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kinds of environmental inputs that are likely to impinge on it and the kinds of behaviors that it is able to exhibit. In this way, analytic functionalism allows that the specific features of an entity's body may have important influences on our attribution of specific mental states to that entity. However, if analytic functionalism is correct, this influence of body is always secondary to the role of functional capacity.¹⁷ If an entity is thought to have the appropriate functional capacities then it will be judged to have the relevant mental states, even if it is known to lack the bodily features with which those capacities are typically associated.

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IV. QUALIA

We turn now to the topic of qualia, the intrinsic qualitative properties of phenomenal experience. As David Chalmers (1995) writes of these intrinsic qualitative properties:

When we see, for example, we experience visual sensations: the felt quality of redness, the experience of dark and light, the quality of depth in a visual field. Other experiences go along with perception in different modalities: the sound of a clarinet, the smell of mothballs. Then there are bodily sensations, from pains to orgasms; mental images that are conjured up internally; the felt quality of emotion, and the experience of a stream of conscious thought. What unites all of these states is that there is something it is like to be in them. (201),

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Certain views about qualia have long informed objections to functionalism in the philosophy of mind. For example, Block (1995) stipulates that the qualitative

aspect of phenomenal consciousness is “distinct from any cognitive, intentional, or functional property” (234). Block (1978) argues against a functionalist reduction of phenomenal consciousness, taking his Chinese nation thought experiment to demonstrate that functional equivalency to a human entity is insufficient for qualia. As we mentioned above, there has been much discussion about these cases, and we will not revisit this here. In writing of qualia, we are interested instead in how people *ordinarily think* of qualitative properties presumed to be essential to experience—the awfulness of pain, the ache of sadness, redness in one’s visual field, and so on.¹⁸ Our goal in this brief section is to sketch the beginnings of a possible empirical account of this on behalf of the functionalist theory we advocate. We will do so by proposing an account of qualia that is both consistent with functionalism, and also consistent with ordinary ascription patterns for prototypical qualitative states.

We think that *strong representationalism* about qualia meets both of these criteria, and may provide a promising basis for understanding the folk psychology of qualia. As Lycan (2006) writes:

Strong representationalism (defended by Dretske, Tye and Lycan) is the view that representation of a certain kind suffices for a quale, where the kind can be specified in functionalist or other familiar materialist terms, without recourse to properties of any ontologically “new” sort.

Strong representationalism goes beyond the weak representationalist view, accepted by almost everyone, that phenomenal states can represent external objects and conditions. But it does not go so far as pure representationalism,

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which claims that representation by itself is sufficient for a quale. According to strong representationalist, there are certain kinds of mental representations that are *sufficient* for qualia (i.e., the class of experiences) and qualia are the representational contents of these representations. We suspect that the representationalist view most likely to underwrite ordinary mental state ascription practice is one that construes representational contents externally. On such a view qualia are identified with things external to the mind, which are represented by experiential states. For example, a pain feeling may be identified with physical damage. A blue after-image may be a visual experience's representation of blue in the external world.¹⁹

Let us illustrate the view in a bit more detail using the concept of pain.

According to analytic functionalism, a physical pain experience is thought to be a pain experience because of the role it occupies relative in part to inputs of bodily damage, outputs of avoidance behavior, and other mental states like sadness or regret. The pain experience is also invariably associated with a characteristically awful feeling. According to analytic-functionalism representationalism such awful feelings are identified with bodily damage. Thus, a pain experience is thought of as an experience *of* pain, where pain is damage to the body of the organism. And analogous claims will be true of other experiential states. For example, a visual experience of a raspberry beret is of a raspberry beret because it has as its represented content a raspberry beret. It is a visual experience in virtue of satisfying a functional description, in part

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because it is caused by an actual external stimuli (a raspberry-colored beret). A hallucination of a raspberry beret is of a raspberry beret because it represents a raspberry beret. Though it has a similar causal description as the visual experience, it is a hallucination because it is *not* caused by an external stimuli.

Such a view identifies (physical) pain with physical damage. Such a view, then, maintains that pain is a property of objects external to the mind—namely, bodies. If pains are properties of bodies, they can go unnoticed (or unexperienced) as can other properties of our bodies. Pains can be shared according to this view, insofar as a body part can be shared. We can represent things external to our minds to be some way that they are not—thus, representationalism advocates an appearance-reality distinction when it comes to pain. Our suggestion that folk psychology embraces representationalism entails that ordinary people think of pain and other qualia as exhibiting all of these features. And in fact, as Justin Sytsma discusses in his contribution to this issue, these predictions actually conform with emerging evidence about the way in which ordinary people think of pain and other qualia. Sytsma (2010) reports that experimental participants think of pains as qualities of objects outside of the brain that are mind-independent, and also, that it is possible to have unfelt or shared pains. Sytsma (this issue) also cites independent evidence by Reuter (2011) that “ordinary pain talk corresponds with an appearance-reality distinction.” These findings suggest that people may be intuitive

representationalists after all, which offers hope of an analytic functionalist

response to arguments from qualia.²⁰

In this section we have suggested that qualia attribution may constitute an important, though perhaps often unnoticed, component of experience attribution. If so, we think the representational view is a promising view of the folk psychological concept of qualia, and hope to pursue a fuller treatment of this account in future work.²¹

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V. CONCLUSIONS

We began with the assertion that analytic functionalism is the best account of ordinary mental state concepts. Surveying the latest research in mental state attribution, we have argued that there is a strong case to be made that people ordinarily define mental states relative to the causal roles those states occupy in relation to environmental impingements, external behaviors, and other mental states. In support of this claim, we presented our own evidence that functionalist considerations seem to matter over and above physical realizers and biological embodiment. We revisited several key studies on mental state ascriptions to diverse types of entities, such as robots and cyborgs, as well as disembodied entities like corporations or God, and explained how the bulk of that evidence can be accounted for by the analytic functionalist account. We also discussed the topic of qualia, which has historically been used to challenge

functionalism in the philosophy of mind. Recent research into phenomenal state attribution seems to suggest that the folk may be representationalists about qualia—a view entirely consistent with a functionalist view of folk psychology. In light of these considerations, we conclude that analytic functionalism offers the best unified account of ordinary mental state concepts.

To be clear, we do not claim to have decisively demonstrated that functional considerations are the only thing that cue mental state ascriptions. Instead, our goal was to point out that analytic functionalism provides the best explanation of extant data on mental state ascription. Additionally, in proposing how the functionalist folk psychological theory we have endorsed explains various results from mental state attribution studies, we also hope to have provided an illustration of how new empirical designs can reveal a factor previously uncontrolled for in the experimental literature on mind perception.

In closing, we think that further investigation into this question also has the potential to shed new light on more traditional thought experiments in the philosophy of mind. For as we have seen, very subtle changes to perceived functional relationships can result in quite different mental state ascriptions. And typical thought experiments in the philosophy of mind focus on mental state ascriptions to entities just like those described above. Thus it could be that revisiting armchair philosophical intuitions while also paying close attention to the causal roles that states occupy relative to an entity's cognitive system

could hasten the triumphant return of analytic functionalism to the forefront of metaphysical theories of the mind.

ACKNOWLEDGMENTS

The authors are grateful to Richard Brown, Bryce Huebner, Joshua Knobe, Hagop Sarkissian, Justin Sytsma, and John Turri for helpful comments on earlier versions of this paper.

NOTES

1. Teleofunctionalists such as Sober (1985) define mental states relative to the functional roles they were selected to occupy, though no longer necessarily do occupy.
2. We set aside the type/token and role/realizer issues that have featured prominently in discussions of functionalisms relation to identity theory.
3. This suggests a strong affinity between analytic functionalism and reductive materialism.
4. However, we tend to agree with Dennett about these cases, when he writes, “both thought experiments rely on the same misdirection of imagination” (1991, 435). They derive their power from nonchalantly inviting us to believe that a nation or a man in a room with a code book could really instantiate something like a human mind without having us think too deeply about what this would really entail.
5. Note that our view is that functional considerations are essential for mental state ascription generally, whereas the embodiment hypothesis holds that body salience is crucial for phenomenal state attribution specifically. The latter theory also assumes that people distinguish between the two kinds of mental states, an assumption that has been questioned elsewhere (Arico 2010, Sytsma and Machery 2009, 2010).
6. See Fodor (1983) for the *locus classicus* of the rational/central vs. modular systems distinction that we are invoking.
7. Though see Phelan et al. (forthcoming) for an argument that data from important group state attribution studies is nonliteral in the relevant sense.
8. Materials for Huebner’s studies are available at <http://www.wjh.harvard.edu/~huebner/robosupp.pdf>.
9. For his part, Huebner does not take these data to support embodiment. Instead he writes, “I hypothesize that the ambivalence about cyborg pain may be driven by a corresponding ambivalence about the possibility of affective sensations in cyborgs” (141) and that, “these data further suggest that the commonsense understanding of the mind is non-committal for many of the most philosophically interesting cases of mental state ascription” (143).

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10. Under this explanation it is unsurprising that we do not see a similar effect for basic beliefs, such as “ $2 + 2 = 4$,” since such beliefs are presumably judged to be essential for these organisms navigating the world at any level. However we would predict a similar effect for other sorts of beliefs, such as whether David the cyborg believes that “brevity is the soul of wit,” for instance.
11. Assuming, with the embodiment theorist, that participants’ personal beliefs hold that God is disembodied.
12. For more on the mechanisms underlying attributions to these types of entities, and for arguments of how such mechanisms might be evolutionarily derived, see Bering (2006). See also Buckwalter and Phelan (forthcoming) for a discussion of some of Bering’s important work on this topic.
13. *Business Insider*, August 11, 2012: <http://www.businessinsider.com/apple-patent-price-to-samsung-2012-8>. *The Times of India*, September 30, 2012: http://articles.timesofindia.indiatimes.com/2012-09-30/pakistan/34177143_1_kashmir-dispute-asif-ali-zardari-kashmir-issue.
14. However, Arico (forthcoming) reports identical asymmetries for Google hits ascribing intentional and phenomenal ascriptions to individuals and for intentional and phenomenal language *in general*, suggesting that this tendency is a function of some general phenomenon about the states people find most useful to discuss, and not of their embrace of the embodiment thesis.
15. On the assumption that Dennett’s (1987) intentional strategy supplies sufficient conditions for belief/desire attribution, which he defends.
16. For more on how experimental bias could be influencing the results found by Knobe and Prinz (2008) in favor of embodiment, see Strickland and Suben (2012).
17. Gray, Knobe, Sheskin, Bloom, and Barret (2011) have also shown that attributions of phenomenal states to normal humans are heightened when targets are wearing revealing versus *nonrevealing* clothing. While a full discussion of these results will have to wait for another occasion, we note here that in a follow-up study, Phelan (in prep) found heightened attributions only for attractive (and not for unattractive) models regardless of the presence of revealing clothing. But if this result has something to do with participant arousal rather than beliefs about embodiment, it is unclear whether these attributions bear on our discussion of folk psychological concepts or if they instead reflect a kind of performance error in attribution.
18. We assume that folk psychology admits of qualia. See Sytsma and Machery (2010) for a denial of this claim, and Buckwalter and Phelan (2012) for a response.
19. Note that this does not *require* color realism, only folk psychology’s assumption of color realism.
20. For his part, Sytsma rejects the strong representationalist account in favor of his preferred “naïve view” of experiences presumably because he also rejects the view that ordinary people sort mental states on the basis of subjective experience. We have responded to the later claim elsewhere (Buckwalter and Phelan 2012).
21. One question that deserves more investigation is how folk psychology could have come to include a representationalist concept of qualia. Perhaps representationalism is a true view within the metaphysics of mind and mental representations of certain kinds really are sufficient for qualia. In that case, folk psychological theory may have come to include the concept because it allowed for more representational fidelity. But other accounts of the concept’s etiology are also possible.
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