

# How to study Folk Intuitions about Phenomenal Consciousness<sup>1</sup>

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**Abstract:** The assumption that the concept of phenomenal consciousness is pretheoretical is often found in the philosophical debates on consciousness. Unfortunately, this assumption has not received the kind of empirical attention that it deserves. We suspect that this is in part due to difficulties that arise in attempting to test folk intuitions about consciousness. In this article we elucidate and defend a key methodological principle for this work. We draw this principle out by considering recent experimental work on the topic by Joshua Knobe and Jesse Prinz (2008). We charge that their studies do not establish that the folk have a concept of phenomenal consciousness in part because they compare *group agents* to *individuals*. The problem is that group agents and individuals differ in some significant ways in terms of functional organization and behavior. We propose that future experiments should establish that ordinary people are disposed to ascribe different mental states to entities that are given behaviorally and functionally equivalent descriptions.

## 1. Introduction

Philosophers interested in consciousness often treat the technical concept of phenomenal consciousness as deriving from a pretheoretical conception, what Ned Block (2004, p. 1) has called “the common-sense conception of subjective experience.” Although this assumption has played an important role in shaping the philosophical debates concerning phenomenal consciousness, it has yet to be adequately tested. In this article we argue that to experimentally

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demonstrate that ordinary people (viz., people without training in philosophy or cognitive science, and therefore people who lack the technical vocabulary of “phenomenal consciousness,” “qualia,” and so on) have the concept of phenomenal consciousness, one needs to establish two things: (1) that ordinary people are willing to ascribe mental states that philosophers typically consider to be phenomenally conscious to some agents, but not others; and (2) that these discriminations do not *simply* reflect functional or behavioral differences between the agents.

The reason for the second requirement is that a subject who does not have the concept of phenomenal consciousness might nonetheless treat agents differently (which would establish (1)) on the basis of behavioral or functional cues. Thus, (2) is a methodological requirement. It could, of course, be the case that ordinary people have the concept of phenomenal consciousness and that their application of this concept relies on behavioral or functional cues. The problem, however, is with providing evidence for the first conjunct: To show that subjects have the concept of phenomenal consciousness, we need to show that their willingness to ascribe phenomenally conscious mental states does not merely reflect their recognition of behavioral or functional differences between agents.

We draw out the importance of this principle by considering Joshua Knobe and Jesse Prinz’s pioneering attempt to empirically show that the folk have a concept of phenomenal consciousness (Knobe & Prinz, 2008). We argue that this work is ultimately unconvincing and that this is in large part a result of their violation of the second requirement of the above principle.<sup>2</sup> Knobe and Prinz show that subjects were unwilling to ascribe mental states that philosophers typically consider to be phenomenally conscious to a group agent (Acme Corporation). This is then taken to provide evidence that “ordinary people – people who have never studied philosophy or cognitive science – actually have a concept of phenomenal

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<sup>2</sup> For additional problems, see Arico (2007).

consciousness” (p. 68). The problem is that group agents are significantly different from individuals in terms of their behavior and functional organization. It is thus unclear whether the folk’s reluctance to ascribe phenomenally conscious states to group agents and individuals indicates that the folk have the concept of phenomenal consciousness or, rather, whether it merely reflects their recognition of the functional or behavioral differences between individuals and group agents.

Here is how we will proceed. In section 2, we lay out Knobe and Prinz’s most relevant studies to their conclusion that ordinary people have a concept of phenomenal consciousness (experiments 2 and 4). In section 3, we argue that there are significant functional and behavioral differences between group agents and individuals that introduce a confounding variable into their experiments. We illustrate this by conducting three follow-up studies that highlight the importance of functional and behavioral considerations in how people respond to statements about group agents. We conclude that a different approach is needed to study folk intuitions about phenomenal consciousness. In section 4, we layout our proposal for how this work should be conducted and discuss why it is so important that this work be carried out.

## **2. Knobe and Prinz’s Experiments**

Knobe and Prinz seek to show that people ascribe mental states to group agents, but not those that require phenomenal consciousness. Mental states that philosophers typically consider to require phenomenal consciousness (phenomenal mental states) are only attributed to individuals. They hold that this is because people do not think that group agents are phenomenally conscious and that this reflects that “people’s ascriptions of consciousness are sensitive not only to functional information but also to information about physical constitution” (p. 78).

In their second study, subjects were given a list of ten sentences that ascribe mental states, phenomenal or non-phenomenal, to group agents. They were asked to rate the sentences on a scale from 1 (“sounds weird”) to 7 (“sounds natural”). The average score of the responses is shown opposite the sentences below (Table 1).

Phenomenal		Non-phenomenal	
Acme Corp. is now experiencing great joy.	4.7	Acme Corp. believes that its profit margin will soon increase.	6.6
Acme Corp. is getting depressed.	3.7	Acme Corp. intends to release a new product this January.	6.6
Acme Corp. is feeling excruciating pain.	2.7	Acme Corp. wants to change its corporate image.	6.3
Acme Corp. is experiencing a sudden urge to pursue internet advertising.	2.5	Acme Corp. knows that it can never compete with GenCorp in the pharmaceuticals market.	6.1
Acme Corp. is now vividly imagining a purple square.	2.1	Acme Corp. has just decided to adopt a new marketing plan.	5.2

**Table 1: Mean Answers for the 10 Sentences Ascribing a Mental State to a Group Agent (Adapted from Knobe & Prinz, 2008, p. 75)**

The result was that the phenomenal sentences were rated as significantly more “weird sounding” than the non-phenomenal. Knobe and Prinz conclude that this indicates “that people are unwilling to ascribe to group agents states that require phenomenal consciousness” (p. 75).

Knobe and Prinz propose that a full explanation of such results should have two parts: “First it would provide an account of the way in which people map the actual words in the sentences onto various underlying concepts; then it would provide an account of why people are unwilling to apply these concepts to group agents.” (p. 77). Their fourth study attempts to do this for the examples of “feeling upset” and “feeling regret.” Knobe and Prinz offer two competing explanations for the fact that people are unwilling to apply these phrases to group agents:

(1) “First people map the phrase ‘feeling upset’ onto the concept *upsetness*; then they determine that no group agent can satisfy the criteria associated with the concept of *upsetness*.” (p. 77).

(2) “When people hear the phrase ‘feeling upset’, they recognize that this phrase cannot correctly be applied to an agent unless that agent fulfills both the criteria associated with

the concept *upsetness* and the criteria associated with the concept *phenomenal consciousness*.” (p. 77).

Knobe and Prinz endorse the second explanation: They hypothesize that “people should be perfectly willing to ascribe upsetness to a corporation,” while being unwilling to ascribe feeling upset to it because “they don’t think corporations are capable of genuinely *feeling* anything” (p. 77).

To test this they added the following sentences, divided into a “feeling condition” and a “no-feeling condition,” to those given in study two:

- a. Acme Corp. is feeling upset.
- b. Acme Corp. is upset about the court’s recent ruling.
- c. Acme Corp. is feeling regret.
- d. Acme Corp. regrets its recent decision.

The average responses are given in Table 2.

	Without “feeling”	With “feeling”
Regret	6.1	2.8
Upset	5.3	1.9

**Table 2: Mean Answers in Knobe and Prinz’s Study 4 (Adapted from Knobe & Prinz, 2008, p. 78)**

Knobe and Prinz conclude that “it seems that people are perfectly willing to say that a group agent can be in a state of upsetness or regret. The problem is simply that it cannot *feel* upset or *feel* regret.” (p. 78). That is, they claim that their results show that the concept of phenomenal consciousness is associated with “feeling.”

Taken together, this body of evidence suggests to Knobe and Prinz that the folk have the concept of phenomenal consciousness. People seem to be willing to ascribe certain mental states to group agents, but not others. A plausible explanation of this discrepancy is that it arises from

two facts: (1) people think that one set of ascriptions requires phenomenal consciousness while the other does not; and, (2) because of their physical constitution (*but not* because of their functional properties), people do not think that group agents have phenomenal consciousness.

### **3. Behavioral Differences between Groups and Individuals**

We contend that there is a natural alternative to Knobe and Prinz's explanation of their data:

People were unwilling to ascribe to corporations mental states that are typically associated with functional roles or behaviors that corporations are incapable of. It is possible, for example, that people feel that "Acme Corporation is now experiencing great joy" sounds weird because they do not readily imagine that a corporation, as a conglomeration of other agents, can have a state with the functional role that they associate with joy, including causing the behavioral cues associated with joy. That is, it might be that the sentence sounds weird to them because they feel that the corporation cannot do the things that normally indicate joy—cannot smile, or laugh, or even wag its tail. A similar point can be made for each of Knobe and Prinz's other phenomenal sentences. If this were the right explanation of their data, their studies would provide no evidence that the folk have the concept of phenomenal consciousness; Knobe and Prinz's studies would simply show that subjects recognize the behavioral or functional differences between group agents and individuals, remaining silent on the further question of whether the subjects have the concept of phenomenal consciousness.

#### ***3.1. Study One***

It is plausible that people would be unwilling to ascribe some mental states to corporations because of functional or behavioral considerations. To examine this idea more systematically, we

conducted a study modeled on Knobe and Prinz's experiment 2 (reviewed above), that compared two sets of sentences ascribing behaviors to group agents. These were split between those behaviors that we feel a typical group agent can perform and those that are typically restricted to individuals. We hypothesized that people would find the ascription of individual-appropriate behaviors to groups significantly more weird sounding than the ascription of group-appropriate behaviors.

75 individuals taking classes at the University of Pittsburgh took part in the experiment (mean age: 22; range: 18–40; years; 73% male). Two subjects were excluded from the data set because they were graduate students in philosophy. Subjects were assigned to one of two conditions (the behavioral condition and the psychological condition). In each condition, subjects were presented with a list of 10 sentences counterbalanced for order. The first list (N = 22) included five behavioral predicates referring to actions that we thought only an individual agent could perform and five behavioral predicates referring to actions that we thought a group agent could perform. The second list (N = 51) replicated Knobe and Prinz's experiment 2 (see Table 2).<sup>3</sup> For each list, subjects were given the following instructions: "Do the following sentences sound weird or natural? Please, answer on a 7-point scale, 1 meaning 'clearly weird', 4 meaning 'intermediate', and 7 meaning 'clearly natural', by circling the correct answer."

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<sup>3</sup> The two sentences to be discussed in section 2.3 were added to the 10 psychological sentences in either a "feeling condition" (when the sentences included the expressions "is feeling upset" or "is feeling regret") or a "no-feeling condition" (when the sentences included the expressions "is upset" and "regrets" without "feeling"); this was done to match the procedure used in Knobe and Prinz's fourth study.

<b>Psychological, Phenomenal</b>		<b>Psychological, Non-phenomenal</b>	
Acme Corporation is now experiencing great joy.	2.9 (1.7)	Acme Corporation believes that its profit margin will soon increase.	5.8 (1.2)
Acme Corporation is getting depressed.	1.9 (1.1)	Acme Corporation intends to release a new product this January.	6.5 (0.8)
Acme Corporation is feeling excruciating pain.	1.6 (1.0)	Acme Corporation wants to change its corporate image.	6.1 (1.2)
Acme Corporation is experiencing a sudden urge to pursue internet advertising.	4.0 (1.9)	Acme Corporation knows that it can never compete with GenCorp in the pharmaceuticals market.	5.6 (1.5)
Acme Corporation is now vividly imagining a purple square.	1.6 (1.1)	Acme Corporation has just decided to adopt a new marketing plan.	6.2 (1.1)
<b>Behavioral, Individual</b>		<b>Behavioral, Group</b>	
Acme Corporation was murdered during a mugging attempt yesterday.	1.2 (0.4)	Acme Corporation is suing GenCorp.	6.2 (1.5)
Acme Corporation is eating a burrito with hot sauce.	1.2 (0.5)	Acme Corporation is building a new factory.	6.7 (0.6)
Acme Corporation has insomnia.	2.0 (1.6)	Acme Corporation just hired a new head of marketing.	6.6 (1.3)
Acme Corporation is walking the dog.	1.7 (0.9)	Acme Corporation is funding a research project on solar powered automobiles.	6.2 (1.4)
Acme Corporation is now napping on the sleeper-sofa.	1.6 (0.9)	Acme Corporation has just renovated its corporate headquarters.	6.6 (1.0)

**Table 3: Mean Answers and Standard Deviations (in Parentheses) for the Sentences in the Psychological and in the Behavioral Conditions**

Not too surprisingly, subjects readily distinguished between the two sets of behavioral sentences. The most natural interpretation is that they distinguished between actions that can be readily carried out by corporations (like hiring a new head of marketing) and those that are typically only done by individuals (like eating a burrito). Furthermore, the difference between the behavioral, group-appropriate sentences and the behavioral, group-inappropriate sentences is comparable to the difference between the psychological, non-phenomenal sentences and the psychological, phenomenal sentences.

What this study demonstrates is that the folk do not consider the group agent Acme Corporation to be behaviorally equivalent to individual humans: Subjects were unwilling to ascribe the individual-appropriate behaviors tested to the group agent. Since typical corporations are judged to be unable to perform some behaviors, people might be reluctant to ascribe phenomenal mental states to those agents because they believe that being able to perform some

behaviors that typical corporations are unable to perform is necessary (and maybe sufficient) for having those mental states. In other words, we expect that subjects that do not have the concept of phenomenal consciousness would nonetheless be unwilling to ascribe Knobe and Prinz's phenomenal states to Acme Corporation because those states are associated with individual-appropriate behaviors that Acme simply cannot perform. Thus, because of the confound introduced by the behavioral limitations of typical corporations, Knobe and Prinz's study 2 provides no evidence that ordinary people have the concept of phenomenal consciousness: It shows that people are unwilling to ascribe some states to Acme Corporation, but it does not show that this unwillingness reflects their having the concept of phenomenal consciousness.

### ***3.2. Knobe and Prinz's Defense of their Experimental Design***

Knobe and Prinz briefly acknowledge that to draw the conclusion that ordinary people have the concept of phenomenal consciousness from their comparison of group agents and individuals, they need to assume that people ascribe similar functional roles to corporations and to humans.

We find Knobe and Prinz's succinct defense of this assumption unconvincing.<sup>4</sup>

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<sup>4</sup> It should be noted that Knobe and Prinz's third study, not discussed above, explores what it is about group agents that accounts for people's unwillingness to ascribe phenomenal states to them (we wish to thank an anonymous referee from *Philosophical Psychology* for bringing this to our attention). They present two possibilities, both of which center on *physical constitution*: It might be that "subject's judgments are based on similarity to humans" or that "they are applying a far more specific restriction on constitution (say, a restriction against agents that are composed of other agents)" (2008, 76). To test this they presented subjects with a description of an Enchanted Chair (a chair endowed with a mind by a powerful sorceress and that now thinks, plans, makes requests, and complains when those requests aren't accurately carried out). They then asked, "Can the enchanted chair *feel happy or sad*?" The average response was 5.6 (on a 7-point scale), compared to 1.8 for the same question posed of Acme Corporation. Knobe and Prinz take this to support the second possibility presented above: Since the chair differs significantly from a human being in terms of physical constitution, subjects' judgments do not appear to be based on physical similarity to humans. This does not bear on our claim, however: We have suggested that it might be the functional or behavioral differences between group agents and individuals that explains subjects' unwillingness to ascribe phenomenal states to Acme Corporation; but, the Enchanted Chair is an *individual* with an individual mind and carrying out individual behavioral responses. Given the magical nature of the chair, we expect that most subjects will assume that it is capable of exhibiting the functional and behavioral cues typically associated with happiness and sadness. We do not think that subjects are likely to make the same assumption about Acme Corporation.

Focusing on depression, Knobe and Prinz argue that a corporation *can* instantiate the functional role of depression: “it should be emphasized that a state of a corporation easily *could* have a functional role similar to the one that people ordinarily associate with feeling depressed” (p. 73; italics added). Ignoring vagueness in what similarity amounts to here, there are two main problems with this argument. (1) Possibility is insufficient for Knobe and Prinz’s purposes; what they should show is that people think that Acme Corporation *actually does* instantiate a functional role relevantly similar to the one associated with depression. (2) The functional role associated with depression can be described more or less abstractly. Supposing that a corporation could fulfill an abstract functional role similar to the one associated with depression, it would nonetheless instantiate depression very differently from humans—specifically, the behavioral cues indicating depression would differ significantly. As a result, the corporation would probably *not* fulfill a more concrete functional role associated with depression. It is at best an open question whether people focus on abstract or on concrete functional roles in ascribing mental states. We will discuss each problem in turn.

Knobe and Prinz support the claim that a corporation could instantiate the functional role associated with depression by giving a highly stipulative example:

[S]uppose that Microsoft had a department in charge of monitoring net cash flow. When cash flow becomes too low, it sends out a warning to all other departments of the corporation. Those other departments then stop moving forward on the projects they had previously been pursuing and instead take time to reflect on any mistakes they might have been making in their overall approach. This state, or something very much like it, would show the profile of causes and effects normally associated with feelings of depression. Or, at a very minimum, it would be just as similar in function role to depression as the ‘intentions’ of a corporation are to those of a human individual. (p. 73)

Setting aside the question of whether this description adequately captures the functional role associated with the folk conception of depression, we find that its speculative nature is problematic. We are asked to *suppose* that Microsoft is organized and operates in a rather

specific way. It is, of course, possible that a corporation might be run in the way described; but, it is not clear that this state of affairs is at all likely. More importantly, it is far from clear that the folk are likely to spontaneously imagine that a generic corporation (Acme) actually does have such an organizational structure. If the folk do not think this, then we are left with no reason to suppose that their responses to the sentence “Acme Corporation is getting depressed” do not reflect their finding it odd to attribute to Acme the functional role that they associate with depression. Knobe and Prinz’s argument rests on an untested empirical assumption.

The second and most important problem with Knobe and Prinz’s justification of their methodology is that it is unclear whether the folk tend to conceptualize mental states like depression in terms of an abstract functional role (or something similar to it) that could be instantiated by diverse types of entities or whether they tend to conceptualize it in terms of a more concrete functional role involving various behaviors and bodily changes. There is reason to suspect the latter. For example, there are a host of bodily symptoms that are normally called on in attributions of depression, but which are not readily attributed to a group agent like Microsoft. Here are a few of the symptoms listed on the first Website shown for a Google search on “recognizing depression”:

- \* Insomnia, early-morning awakening, or oversleeping
  - \* Increased appetite with weight gain, or decreased appetite with weight loss
  - \* Thoughts of self-injury, or attempting to injure yourself
  - \* Restlessness, irritability, nervousness
  - \* Persistent physical symptoms that do not respond to treatment, such as headaches...
- ([http://www.healthyplace.com/communities/depression/living/depression\\_signs.asp](http://www.healthyplace.com/communities/depression/living/depression_signs.asp))<sup>5</sup>

Each of these symptoms has a rather clear bodily component that is not captured by the abstract functional role Knobe and Prinz attribute to Microsoft. We suspect that ordinary people will find

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<sup>5</sup> One might wonder why we used the first website shown on a Google search, rather than the DSM to characterize the behavioral manifestations of depression. The reason is that we are interested in how the folk (and not professionals) think about the behavioral manifestations of depression.

it “weird sounding” to say that a corporation has any of these; that “Microsoft has persistent physical symptoms that do not respond to treatment, such as a headache,” for example. In fact, the subjects tested above, gave a mean response of 2.0 for the sentence “Acme Corporation has insomnia” (Table 3). Given that subjects found this physical indicator of depression to sound odd when applied to Acme, it is not surprising that they also found the attribution of depression to the corporation to sound odd (they gave a mean response of 1.9).

### ***3.3. The Construction “Feeling + Psychological Predicate” (Study Two)***

At this point, Knobe and Prinz might concede that comparing people’s ascription of mental states to group agents and to individuals is an inadequate methodology for showing that ordinary people have a concept of phenomenal consciousness, but they might insist that their study 4 answers our concern. Remember that in this study, subjects were asked to evaluate the acceptability of two pairs of sentences ascribing mental states to a group agent (see section 2). In each pair, a mental state predicate (“upset” or “regret”) was preceded by “feeling” in one of the two sentences (the feeling condition), but not in the other (the no-feeling condition). Knobe and Prinz found that subjects were less willing to say that a corporation was “feeling upset” than to say that it was simply “upset.” The same results were found with “feeling regret” and “regret.” Because study 4 compared the ascription of two mental states to a single group agent, subjects’ answers cannot result from the confound we identified earlier (viz. the existence of behavioral differences between group agents and individuals). Since subjects were nonetheless less likely to ascribe a mental state like feeling regret than a mental state like regret to a corporation, study 4 might seem to support two conclusions: (1) In ordinary English, the construction “feeling + psychological predicate” is used to ascribe a mental state that has a specific phenomenal property

in addition to the functional property of the mental state referred to by the term “feeling” precedes; and (2) people are reluctant to ascribe to a group agent a mental state whose phenomenal nature has been highlighted, even though they are willing to ascribe to it a corresponding non-phenomenal mental state. Thus, Knobe and Prinz’s study 4 might seem to indicate that ordinary people have a concept of phenomenal consciousness.

Unfortunately, these results are inconclusive because the sentences tested in the feeling and in the no-feeling conditions did not form a minimal pair: The verbs in the no-feeling condition, but not in the feeling condition, are followed by a prepositional phrase. For instance, Knobe and Prinz compared the sentences “Acme Corp. is feeling upset” and “Acme Corp. is upset *about the court’s recent ruling*” (our emphasis). We hypothesized that this difference might account for their findings.

To test this hypothesis, we moved the prepositional phrase from the no-feeling condition to the feeling condition. In addition to the 10 sentences of the psychological condition of study 1 (see section 3.1), subjects (N = 51) were also presented with either sentences *a* and *c* or with sentences *b* and *d* (see footnote 3).

- a. Acme Corporation is feeling upset about the court’s recent ruling.
- b. Acme Corporation is upset.
- c. Acme Corporation is feeling regret about its recent decision.
- d. Acme Corporation regrets.

Each sentence was followed by a 7-point scale, anchored at 1 with “clearly weird,” at 4 with “intermediate,” and at 7 with “clearly natural.” The average response and the standard deviation are given in table 4.

	Without “feeling”	With “feeling”
<b>Regret</b>	3.2 (1.8)	3.9 (1.6)
<b>Upset</b>	3.0 (1.4)	3.9 (2.0)

**Table 4: Mean Answers and Standard Deviations (in Parentheses) in Study 2**

Strikingly, not only did we fail to replicate Knobe and Prinz’s findings, our results actually reversed theirs. In the regret pair, subjects gave on average a higher answer to the sentence formed with “feeling regret” followed by a prepositional phrase (sentence *c*) than to the sentence with simply “regret” without a prepositional phrase (sentence *d*), although the difference was not significant ( $t(49) = 1.46, p = .15$ ; two-tailed). In the upset pair, subjects gave on average a higher answer to the sentence formed with “feeling upset” with a prepositional phrase (sentence *a*) than to a sentence formed with simply “upset” without a prepositional phrase (sentence *d*) ( $t(49) = 1.93, p = .059$ ; two-tailed). This was marginally significant.

These results support our hypothesis that in Knobe and Prinz’s study 4, subjects’ preference for sentences formed with “feeling upset” and “feeling regret” over, respectively, sentences formed simply with “is upset” and “regret” results from the fact that in the former sentences, but not in the latter sentences, the verb was followed by a prepositional phrase. Thus, it is dubious whether Knobe and Prinz’s study 4 indicates that people treat a compound mental predicate that associates “feeling” and another mental predicate (e.g., “feeling upset”) as referring to a mental state type that has a phenomenal property in addition to the functional role associated with this second mental predicate (e.g., “is upset”).

### ***3.4. Further Study of the Construction “Feeling + Psychological Predicate” (Study Three)***

In spite of the methodological shortcoming of Knobe and Prinz’s study 4, we found their hypothesis about the interpretation of the construction “feeling + psychological predicate” intriguing enough to deserve further study. To examine the role of the term “feeling” in mental state ascriptions, we developed a probe that presents subjects with an extended and explicit functional characterization of depression.

In a speech to investors, a stock broker—John—characterizes *depression* in terms of a decrease in activity in response to a bad situation. The inactivity gives time to reflect on possible mistakes and alter plans accordingly. John notes that Acme Corporation is currently in such a state. Acme has a department in charge of monitoring net cash flow. When cash flow becomes too low, it sends out a warning to all other departments of the corporation. Those other departments then stop moving forward on the projects they had previously been pursuing and instead take time to reflect on any mistakes they might have been making in their overall approach.

Note that in this probe, an abstract functional role characterizes depression. The stock broker refers neither to the typical effects of depression on human behavior nor to its typical physiological expression. We thought that associating depression with an abstract functional role would lead people to find natural the ascription of depression to a group agent.

The two paragraphs of the probe were followed by one of two conclusions (respectively, the no-feeling condition and the feeling condition):

John concludes his speech by noting that one should wait to purchase Acme Corporation stock because “Acme Corporation is depressed.”

Or:

John concludes his speech by noting that one should wait to purchase Acme Corporation stock because “Acme Corporation is feeling depressed.”

These two conclusions form a minimal pair: Neither the predicate “is depressed” nor the predicate “is feeling depressed” is followed by a prepositional phrase. We thus avoid the methodological shortcoming of Knobe and Prinz’s study 4.

We hypothesized that if Knobe and Prinz are right about the semantic interpretation of the construction “feeling + psychological predicate,” people should find the target sentence in the feeling condition weird sounding, while finding the target sentence in the no-feeling condition clearly natural (because of the abstract functional description we provided).

In classroom settings, 48 subjects (mean age: 21; 44% males) were ascribed to the feeling or to the no-feeling condition. They were asked to rank John’s statement on a 7-point scale anchored at 1 with “clearly weird,” at 4 with “intermediate,” and at 7 with “clearly natural.” A t-test failed to yield any significant difference between the two conditions ( $t(46) = -.19; p = .85$ ; two-tailed, see Table 5). Using Buchner and colleagues’ G\*Power software (Buchner, Erdfelder, & Faul, 1997), we calculated the post-hoc power of our test. Assuming a large effect size in the population (Cohen, 1992) and an  $\alpha = .05$ , power was equal to .76, meaning that the probability of rejecting the null hypothesis given a large population effect was superior to .75.<sup>6</sup> Furthermore, subjects’ mean answer in each condition was not significantly different from 4 (no-feeling condition:  $t(24) = .27; p = .79$ ; two-tailed; feeling condition:  $t(22) = .00; p = 1.00$ ; two-tailed).

	<b>Mean Answer (Standard Deviation)</b>
<b>“Acme Corporation is depressed”</b>	4.1 (1.5)
<b>“Acme Corporation is feeling depressed”</b>	4.0 (1.5)

**Table 5: Mean Answers and Standard Deviations in Study 3**

We failed to find any significant difference between subjects’ answer to “Acme Corporation is depressed” and to “Acme Corporation is feeling depressed.” In contrast to Knobe and Prinz’s hypothesis about the interpretation of the construction “feeling + psychological

<sup>6</sup> Our assumption of a large effect size is justified by the fact that having associated an abstract functional role with depression, we primed people to agree with the sentence ascribing depression to the corporation (the no feeling condition). In addition, if Knobe and Prinz were correct, subjects’ mean answer in the feeling condition would be low. Thus, Knobe and Prinz predict a large effect size.

predicate,” ordinary people do not seem to be less likely to agree with a sentence formed with “feeling depressed” than with a sentence formed with “is depressed.” This is a particularly striking finding, since we primed subjects to agree with the latter sentence by providing them with an abstract functional role for depression that a company could fulfill. This further indicates that the folk do not necessarily see the term “feeling” as a phenomenal indicator.

Furthermore, subjects’ mean answer in the no-feeling condition was not significantly different from 4, which indicates that they did not find the sentence “Acme Corporation is depressed” natural. We speculate that this neutral response indicates that the folk do not typically focus on an abstract functional role in thinking about depression. We suspect that the subjects treated the probes as giving a technical redefinition of the term “depression” that did not conform to their ordinary understanding of it; they then showed varying willingness to accept this redefinition. This provides evidence that, as we argued in section 3.2, the folk are unlikely to view a corporation as being functionally and behaviorally equivalent to an individual.

#### **4. The Way Forward**

As we argued above, we find that Knobe and Prinz’s studies do not sufficiently control for functional and behavioral differences between group agents and individuals. The possibility of a behavioral or functional explanation of the differences between how natural mental state attributions to corporations sound to ordinary people severely undermines the conclusion that their answers should be explained in terms of their possessing the concept of phenomenal consciousness.

Nonetheless, Knobe and Prinz raise a very important question. It is often assumed that the concept of phenomenal consciousness is part of folk psychology or of our “folk theory of

consciousness” (Dennett, 2006, p. 26). Phenomenal consciousness is often considered to be pretheoretically obvious and this assumption plays an important role in many central philosophical arguments in philosophy of mind. To give but one of a number of possible examples, the hard problem of consciousness, as expounded by David Chalmers, rests on the assertion that phenomenal consciousness exists, an assertion that is supported by the claim that it “is the most central and manifest aspect of our mental lives” (1997, p. 16). If this is true, then the folk could hardly lack the concept of phenomenal consciousness. If, however, it turns out that the folk do not have the concept, then phenomenal consciousness can hardly be as obvious as Chalmers claims.

Knobe and Prinz’s work is an important first step in testing the widespread claim that the folk have the concept of phenomenal consciousness. Unfortunately, the confound discussed above raises serious doubts about whether their results support the philosophical consensus. Recognizing this methodological shortcoming, we draw a positive moral from their work: To show that the folk have the concept of phenomenal consciousness (if in fact they do), we need to develop pairs of entities that are given behaviorally equivalent descriptions and that are nonetheless differentiated by ordinary people when they ascribe phenomenal mental states to them. To ensure that in each pair the entities are behaviorally equivalent, the simplest solution is to compare different types of *individuals* (rather than individuals and group agents) in situations that elicit comparable behavioral responses. If subjects nonetheless differentiate between such agents in their willingness to ascribe phenomenal mental states to them, then this would be initial evidence that people who are untrained in philosophy have the concept of phenomenal consciousness.

Unfortunately, this is easier said than done. The difficulty is that on the one hand, if the comparison case is too divergent from humans (such as a corporation), then you cannot rule out that the results merely reflect behavioral or functional differences; on the other hand, if the comparison case is too similar to humans (such as the android Data from *Star Trek the Next Generation*), then you are unlikely to see a significant difference in folk attributions. This is the tight-rope that empirical work on the folk conception of subjective experience must walk. We argued above that Knobe and Prinz's studies were too far to one side to be informative. It would be equally problematic to overshoot in the other direction, however. What is needed is a comparison case that falls in the middle. The comparison case should be an individual agent that is capable of carrying out a behavioral task that would be indicative of a phenomenal mental state in humans; at the same time, the agent should be sufficiently different from a human so that *if* the folk do have the concept of phenomenal consciousness, the agent will be unlikely to elicit an attribution of the relevant phenomenal mental state. We propose that a relatively simple, non-humanoid robot is a reasonable comparison case. We are currently working on a study involving probes that place such a robot in a situation in which it performs a task that involves behaving as if it "saw red" or "felt pain." Alternatively, an ordinary human is put in the same situation and his behavior described in identical terms (Sytsma & Machery, ms).

One way to check whether such a robot elicits intuitions of behavioral/functional similarity without phenomenal similarity being carried along in its wake is to test the probes on philosophers. Our reasoning is that if the probes are well constructed, then we would expect philosophers, on average, to say that the human saw red and felt pain while the robot did not. We expected that most philosophers (but certainly not all) would make use of the concept of phenomenal consciousness in responding to the probes. Preliminary results indicate that this is

the case. This gives us confidence that our comparison case is well chosen for testing the folk intuitions. It also gives us a basis for comparison: Rather than focus on the question of whether the folk have a concept of phenomenal consciousness, we target the simpler question of whether the folk have the same intuitions about these mental states that the philosophers have.

While we think that this methodology helps alleviate the problem identified above, we recognize that our alternative to Knobe and Prinz's methodology is potentially open to the same objection we have raised in this article. Even when a simple robot and a human are described as being behaviorally equivalent, people might assume that the latter is able to perform behaviors or to fulfill functional roles that the former is unable to. Thus, a behavioral or functional difference between the two ascribees (the human and the robot) might account for a difference in the ascription of qualitative mental states to them.

We feel that this is a fair response. Rather than dissolve the problem, we more minimally hope that our methodology makes some progress toward avoiding it. The behavioral differences between two ascribees are probably smaller when both are individuals than when one ascribee is an individual and the other one is a group agent. Furthermore, by explicitly describing the behavior of both ascribees in a situation in which a human sees red or feels pain, we hope to constrain any tendency to ascribe different behavioral or functional capacities to the entities described in the probes.

## **5. Conclusion**

Knobe and Prinz raise an important, but challenging question: Do the folk have the concept of phenomenal consciousness? Their work is an admirable and important first step in arriving at an empirically sound answer to that question. Nonetheless, we find that their work is ultimately not

convincing, because of the behavioral and functional differences between group agents and individuals. Whether ordinary people have a concept of phenomenal consciousness and how they think about the mental life of group agents are two fascinating topics, but it is better to study them separately. Otherwise, it will be almost impossible to determine whether when people ascribe phenomenally conscious mental states to one type of entity, but not to another type, they do so because they have a concept of phenomenal consciousness, or because of the functional differences between these two types of entities. Still, Knobe and Prinz's work does draw this central difficulty to light. Seeing this difficulty clearly, we hope to be better able to work around it.

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