



Perceptual awareness or phenomenal consciousness? A dilemma

Christopher F. Masciari¹ · Peter Carruthers¹ 

Received: 12 January 2021 / Accepted: 8 March 2021
© The Author(s), under exclusive licence to Springer Nature B.V. 2021

Abstract

We present Birch and colleagues with a dilemma. On one interpretation, they aim to chart the distribution of a sort of minimal perceptual awareness across the animal kingdom, where that awareness can be fully characterized in third-person psychological terms. On this interpretation, the project is worthy but dull, since it doesn't touch the question that has excited most people: whether other animals are *phenomenally* conscious. On an alternative interpretation, in contrast, they hope to resolve this latter question, arguing that phenomenal consciousness is extremely widespread. But if this is their intention, then their argument begs the question.

Keywords Animals · Awareness · Insects · Perceptual consciousness · Phenomenal consciousness

Introduction

Birch et al. (this volume) argue that just as *unlimited heredity* is what they call a “transition marker” whose presence provides a sufficient condition for *living thing*, so *unlimited associative learning* is a transition marker for the emergence of consciousness in the animal kingdom. In the case of unlimited heredity, it seems that all things that are primitively capable of participating in unlimited chains of inheritance (in a way that isn't parasitic on other things capable of unlimited inheritance – this is to rule out viruses and computer programs) will also possess the set of features that are collectively sufficient for life. These include: boundary maintenance, metabolism, stability, information storage, internal regulation, growth, reproduction, and eventual disintegration.

Birch et al. argue likewise that unlimited associative learning is only possible in connection with creatures that possess the set of properties that are collectively sufficient for consciousness. These are said to include: a global workspace, binding,

✉ Peter Carruthers
pcarruth@umd.edu

¹ University of Maryland, College Park, MD, USA

selective attention, intentionality, integration of information over time, evaluation, agency, and registration of a distinction between self and other. Birch et al. then tentatively suggest that the transition marker will include all vertebrates, at least some mollusks, and insects like bees and fruit flies, meaning that all such creatures are conscious. (The suggestion is tentative because not all of the hallmarks of consciousness have been specifically tested for *together*, establishing their co-presence in all of these creatures.)

In the following comment we pose a dilemma for Birch et al.'s account. We argue that either (i) they are merely providing a transition marker for what one might call "perceptual awareness" or (ii) they are providing a transition marker for *phenomenal* consciousness. If their target is perceptual awareness, then their project is indeed sensible. At least some of what they say suggests that this is their goal. However, even if they are successful in providing such an account, there remains an important distinction between phenomenally-conscious perceptual awareness and non-phenomenal perceptual awareness. (For instance, consider the "blindsighted" person with complete bilateral destruction of primary visual cortex, who can nevertheless navigate across a cluttered room; De Gelder et al. 2008.) And it is this distinction that has been so vexing to philosophers. If Birch et al. are proposing a transition marker for phenomenal consciousness, on the other hand (as they also seem to suggest in certain places), then we argue that they simply beg the question.

Varieties of consciousness

As should by now be familiar, there are multiple distinct concepts that can be expressed using the terms "conscious" and "consciousness" (Block, 1995; Chalmers, 1996; Rosenthal, 2005; Carruthers, 2019). Much of what Birch et al. say about consciousness is ambiguous between some of the candidate meanings. The following discussion is not intended to be exhaustive, but covers the main contenders for how Birch et al. seem to understand their project.

Broadly, by "consciousness" one might mean either *creature* consciousness or *state* consciousness. In the former case, consciousness is attributed to a creature; in the latter, it is predicated of a mental state of a creature. Each of these broad concepts in turn admits of a diversity of possible meanings. Specifically, creature consciousness can be understood in a multitude of ways ranging from mere wakefulness (sometimes called "intransitive creature consciousness"), to being a subject of a conscious state (independent of how state-consciousness is itself defined), to being perceptually aware of the environment or one's own body. The latter is often referred to as "transitive creature consciousness," as when one says that the cat is *conscious of* the mouse emerging from its hole, or is *aware of* the mouse's movements (Rosenthal, 2005).

State consciousness, on the other hand, is a property attributed to a particular mental state, as when one remarks that someone's fear is conscious, or that a blind-sighted person's perception of an obstacle is unconscious. However, state consciousness is likewise diverse. In particular, one might mean that a mental state is *access* conscious (available to inform decision making, reasoning, and verbal report), on

the one hand, or that it is *phenomenally* conscious (possessing first-person-accessible *feel* or *what-it-is-likeness*), on the other (Block, 1995; Chalmers, 1996).

These notions are cross-cutting. An organism might be transitively creature conscious (perceptually aware) while its mental states are either access conscious without being phenomenally conscious, or phenomenally conscious without being access conscious. And an organism might fail to be creature conscious (because asleep), but nevertheless be in an access conscious or phenomenally conscious mental state, because dreaming. The possibility of these cross-cutting distinctions suggests a dilemma. We invite Birch and colleagues to choose between the two horns, discussing the options below.

Horn 1

First, Birch et al. might claim that they are merely providing an account of perceptual awareness; that is, of transitive creature consciousness. This would be consistent with many of the things they say, including their characterization of a conscious creature as one that has “a point of view on the world and on its own body.” This is not a very demanding account, and seems to imply nothing more than some kind of perceptual awareness. Mather (2008) refers to this as “primary consciousness.” Indeed, she, too, argues that this form of consciousness is quite widespread, including both cephalopods and mollusks. The main characteristics of primary consciousness are the possession of a “global workspace,” attention, learning, and a sense of self and self-monitoring, albeit in fairly stripped-down forms. These features overlap substantially with those laid out by Birch et al. as the hallmarks of consciousness.

Inquiring into the distribution of perceptual awareness across the animal kingdom is a worthwhile project, and we accept that the cognitive architecture and set of capacities described by Birch et al. and by Mather (2008) provide a framework for explaining much or all of the behavior of most non-human animals. Notice, however, that the capacities in question can be fully described in third-person psychological terms (attentional selection, content integration, and so on). There is nothing here that mandates or even suggests the presence of the sort of first-person phenomenal properties that are thought to give rise to the “hard” problem of consciousness (Chalmers, 1996). Yet it is *this* problem that has proven to be so difficult to accommodate within contemporary empirical research into the mind. This leads us to the second horn of the dilemma.

Horn 2

Some of what Birch et al. say suggests that they are, indeed, seeking a transition marker for the presence of *phenomenal* consciousness, and not mere perceptual awareness or transitive creature consciousness. They set up their discussion in terms of phenomenal consciousness in their very first paragraph, citing Block (1995) when doing so. And the hallmarks of consciousness laid out in their Table 1 include a set of “phenomenological manifestations.” Thus understood, Birch et al. would be

embarked on the exciting project of charting the distribution of first-personal phenomenal consciousness across the animal kingdom. And their (tentative) conclusion would be that all creatures capable of unlimited associative learning are subjects of phenomenally-conscious mental states, including bees and fruit flies. But if this is what Birch et al. intend, then their argument begs the question at issue.

Their argument to the conclusion that unlimited associative learning is a transition marker for phenomenal consciousness is based on an analogy with the case of life. However, there is an important *disanalogy* between life and phenomenal consciousness, and as a result the two arguments cannot operate in the same manner. In the former case the extension of the category, *living thing*, is largely agreed upon in advance of inquiry, as are the properties that all living things seem to have in common. What the “transition marker” does is identify an additional property (unlimited heredity) whose presence is always accompanied by the standard set of properties that all living things are agreed to possess. The transition marker doesn’t serve to fix or disclose the extension of the set of living things, but rather potentially explains it. In contrast, there is widespread *disagreement* about the extension of the category, *phenomenally conscious*, once we get much beyond the human case. So the use that Birch et al. make of the idea of a transition marker here is quite different. In effect, it amounts to little more than a *stipulation* as to which creatures should count as phenomenally conscious.

Although most theorists can agree on the set of properties that are sufficient for an entity to be alive, it is not true that there is widespread agreement on the set of properties sufficient for phenomenal consciousness. All theorists can accept that the list of properties proposed by Birch et al. *accompanies* phenomenal consciousness in humans (because humans are phenomenally conscious and all humans possess those properties). But there is no agreement that all those properties play any role in the explanation of consciousness. For example, although humans do possess a global workspace, of course (working memory), many deny that entry into that workspace is what constitutes a state as phenomenally conscious (Block, 2007, 2011; Boly et al. 2017; Haun et al. 2017).

Moreover, even if there were agreement on the set of properties sufficient for phenomenal consciousness in the human case, there would be no agreement about how “pared down” each of those properties can become while still being collectively sufficient for first-person phenomenal consciousness (as opposed to some lesser degree of access-consciousness or some limited form of perceptual awareness). Although a global workspace of some kind might be accepted as one of the markers of phenomenal consciousness in humans, for example, there is no agreement about just how “global” it needs to be—there is no agreement on the set of systems that need to be present to consume the contents of the workspace, for instance, nor on how sophisticated they need to be. (Birch et al. deny that these systems need include capacities for planning or for verbal report—which are present in the human case—but they offer no arguments.) And of course there is a broad spectrum of degrees of conceptual sophistication and of capacities for executive control across species.

Likewise, although the minds of many types of creature contain mechanisms for attentional selection and suppression, these capacities in humans include extensive capacities for top-down control of attention, as well as a system for resolving

conflicts between bottom-up and top-down selection processes (Corbetta et al. 2008; Carruthers, 2015). Since humans are the only creatures that we can be certain are capable of phenomenally conscious experience, it begs the question to assume that any form of attentional selection, no matter how simple, is (together with other factors) sufficient for phenomenal consciousness.

In effect, if they follow the second horn of the dilemma, then our criticism of Birch et al. is that they just beg the question of the distribution of phenomenal consciousness across the animal kingdom. They then fail to provide any argument for their conclusion.

References

- Block N (1995) A confusion about the function of consciousness. *Behav Brain Sci* 18:227–247
- Block N (2007) Consciousness, accessibility, and the mesh between psychology and neuroscience. *Behav Brain Sci* 30:481–499
- Block N (2011) Perceptual consciousness overflows cognitive access. *Trends Cognitive Sci* 12:567–575
- Boly M, Massimini M, Tsuchiya N, Postle B, Koch C, Tononi G (2017) Are the neural correlates of consciousness in the front or in the back of the cerebral cortex? Clinical and neuroimaging evidence. *J Neurosci* 37:9603–9613
- Carruthers P (2015) *The Centered Mind*. Oxford University Press, Oxford
- Carruthers P (2019) *Human and Animal Minds: The consciousness questions laid to rest*. Oxford University Press, Oxford
- Chalmers D (1996) *The Conscious Mind*. Oxford University Press, Oxford
- Corbetta M, Patel G, Shulman G (2008) The reorienting system of the human brain: from environment to theory of mind. *Neuron* 58:306–324
- De Gelder B, Tamietto M, van Boxtel G, Goebel R, Sahraie A, van den Stock J, Steinen B, Weiskrantz L, Pegna A (2008) Intact navigation skill after bilateral loss of striate cortex. *Curr Biol*. <https://doi.org/10.1016/j.cub.2008.1011.1002>
- Haun, A., Tononi, G., Koch, C., Tsuchiya, N. (2017). Are we underestimating the richness of conscious experience?, *Neuroscience of Consciousness*, 1: niw023.
- Mather J (2008) Cephalopod consciousness. *Conscious Cogn* 17:37–48
- Rosenthal D (2005) *Consciousness and Mind*. Oxford University Press, Oxford

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.