

Access to Another Mind: Naturalistic Theories Require Naturalistic Data

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ABSTRACT: If there is to be a natural theory of consciousness that would satisfy both philosophers and scientists, it must be based on naturalistic data and minimal clutter accumulated from semantic arguments. Carruthers offers a 'natural' theory of consciousness that is rather myopic. To explore the evolutionary basis of consciousness, a natural theory should include comparative psychological and neurological data that encompass nonlinguistic measures. Such an approach could provide a clearer picture of the adaptive function, mechanisms, and origins of consciousness.

1. Introduction

Carruthers (1998) provides those of us who are not trained philosophers with a useful road map to basic distinctions and current directions in thinking about consciousness in the philosophical tradition. We are disappointed, however, that the evaluation of the various views is based on anecdotes, personal introspection, and semantic arguments rather than a careful evaluation of empirical evidence that would provide guidance for

future work. Anecdotes and semantic arguments may have their place in evaluating empirical claims, but without naturalistic data from which to work there is little to theorize about. Carruthers lets us know up front his bias in favor of dispositional theories. The agenda from our perspective should also be highlighted: Only through evolutionarily-informed natural science will we crack the nuts of consciousness in a truly useful manner (Burghardt, 1994, 1997). Rather than argue over the specific philosophical details of Carruthers' theory, we aim to point out how naturalistic theories ought to be based on naturalistic data and that alternative methods for studying phenomenological consciousness ought to be developed, and tried, before any definitive claims to human-nonhuman differences are made.

Although the experienced worlds of nonhumans have been studied rather extensively for quite some time, the presence (or absence) of the kind of consciousness (phenomenal) considered by Carruthers is by no means simple to verify, especially among nonhuman organisms. We are struck by the lack of consensus on what consciousness even means for human beings after all these years. The contents of a recent edited volume on human consciousness purporting to be scientific (Cohen & Schooler, 1997) also suggests that not much real conceptual or empirical progress has been made since the 19th century (Malone & Armento, in press). A similar historical *deja vu* is seen by comparing 19th century writers on animal minds with more recent authors (Burghardt, 1985; Griffin, 1998).

Unlike some recent commentators, such as Rakover (1990), who hold that consciousness and mind are forever outside the explanatory realm of natural science, Carruthers agrees that naturalistic explanations of consciousness and experience are both possible and needed. However, the cognitive and introspective distinctions informing what Carruthers considers naturalistic are most usefully viewed as various aspects of the nature of private experience that will need to be dealt with by natural science based research. The collection and analysis of empirical data will determine the eventual disposition of the theories discussed. The role of philosophy of mind in shaping scientific investigation is a most valuable and critical one that has enriched how many students of nonhuman animal behavior approach their subject matter (Mitchell, Thompson, & Miles, 1997; Allen & Bekoff, 1997). This orienting role is not regarded as sufficient, however, as Carruthers asserts that human consciousness is the only game in town, and philosophical reflection the only workable strategy. This is explicitly counter to the interdisciplinary approach we advocate (Burghardt, 1985). It is also uncritically anthropomorphic to view other species modes of experience *only* through a human lens (Griffin, 1998).

2. Are all People Conscious in the Same Way?

Carruthers seems to operate under the assumption that all normal human beings possess phenomenal consciousness. That is, phenomenal consciousness can be found in any normally functioning human, be they philosopher, scientist, layman, or hunter-gatherer. While it would be somewhat surprising if phenomenal consciousness were not a human

universal, evidence for cross-cultural variability of various cognitive processes, such as theory of mind (see Lillard, 1998), suggests that caution should be exercised in such philosophical theorizing. Aside from translation errors, there should be little problem in verifying the presence, or absence, of phenomenal consciousness (or a level yet to be discovered) among humans of any culture.

Phenomenological inquiries typically rely on verbal reports and questionnaires (see Pekala, 1991), and this requires skills that nonhuman organisms simply do not possess. Thus nonhuman organisms present a special problem that is not exclusive to issues of consciousness. If language (verbal behavior) is essential to reporting consciousness, this does not mean that nonhuman organisms do not meet some of the criteria. Also, as Schooler and Fiore (1997) point out, preverbal children and other animals may lack the words and self-reflective capacities needed for reporting conscious states, but this alone "need not rule out the possibility that they experience subjective awareness so long as we recognize that the ability to report awareness is merely a measure and not the construct itself" (p. 249-250).

Aside from those who deny the existence of consciousness by fiat, few would quibble over whether an awake cat possesses some level of awareness. To know what it is like to experience the world of another animal is a much different matter, as is verifying whether it possesses phenomenal consciousness. To gather insight into the phenomenally conscious experiences of nonhumans (assuming they have them), certain perceptual and/or technological abilities are needed. Non-linguistic, behavioral indices that scientists can measure may be currently lacking, but much promise lies in comparative studies of brain imaging and other methods for measuring ongoing brain activity during emotional and other events. As Romanes (1883) pointed out, we are always limited to inferences in appreciating the experiences of another organism, other human beings included. Whatever meta-psychologies nonhumans may possess, we may never fully understand them as they lack the ability to speak (or gesture) in the terms we would require to gain such an understanding, but the situation with understanding human consciousness is comparable. Why should words be considered accurate indicators? Did Freud never exist? Do people never lie? How do we both catch and cure self-deceptions, illusions, and delusions. There are huge literatures on these topics. Perhaps for purposes of typological analysis it is justified to treat people as accurate assessors of their own and others' various conscious experiences, but this simplifying move should be explicitly acknowledged.

Carruthers takes the position that nonhumans and young children lack phenomenally conscious awareness, although the ability invariably emerges among normal adult humans. In other words, Carruthers' phenomenal consciousness is a capacity exclusive to humans, with no rudiment to be found among even closely related species. Carruthers only cites a single reference (Povinelli, 1996) that is germane to animal consciousness. Given this, we assume that previous work on animal cognition and private experience is deemed irrelevant to the topic. Some cognitive abilities taken as evidence for consciousness have been discovered in nonhuman organisms; for example, self-awareness (Parker, Mitchell, & Boccia, 1994), intentional communication (Allen & Bekoff, 1997), and theory of mind (Premack & Woodruff, 1978), but these are not

discussed by Carruthers. Apparently, even among people, evidence is limited to shared verbal reports.

A scientific study of consciousness should certainly entail some degree of description, prediction, and control. Presumably, one could predict a phenomenological experience from a sensory event. But predicting the experience and describing its attributes and then reflecting on or describing the experience of experiencing something are two different matters. The latter seems to be a first-person approach that may have no better future than did Tichnerian introspective psychology. Many cognitive ethologists and comparative psychologists are more interested in the phylogenetic distribution and adaptive functions of consciousness (see Allen & Bekoff, 1997; Griffin, 1984, 1992), rather than in directly attempting to understand the nature of conscious experiences in nonhumans. Regardless of the approach taken, incorporating private experience into the study of animal behavior appears necessary (Burghardt, 1997; Griffin, 1998). We may one day know much more about what it is like to be a bat, even though our own perceptual limitations will inevitably contaminate such knowledge. It seems unlikely that we will ever know what it is like for a bat to experience being a bat, or whether a bat reflects on its own experiences of batness. We doubt, however, that such questions are the most important ones to deal with for even our own species. We may be better off studying the concomitants of various behavioral abilities, rather than consciousness in the abstract.

3. Some Empirical Measures of Conscious Awareness

Even if Carruthers' position on phenomenal consciousness as uniquely human is accepted, his discussion is too superficial. For example, Carruthers states, "There is intense debate about whether even chimpanzees have a conception of perceptual states as such (see, e.g., Povinelli, 1996); in which case it seems very unlikely that any non-apes will have one." Any conclusions that we draw from Povinelli (1996) must be treated as tentative. The relevant finding cited here refers to the handful of chimpanzees tested in Povinelli and Eddy (1996) that failed to spontaneously show comprehension of visual states. Actually, the chimpanzees in this study showed some evidence for understanding that "seeing is knowing" after many trials. It does not follow from this that comprehension of visual states in animals that acquire the ability with discrimination training, rather than spontaneously, is qualitatively different from human comprehension. The rearing and experimental conditions experienced by the chimpanzees have not been replicated for children in the same manner, and cross-fostered apes have not been tested on the same tasks. Also, cognitive abilities in chimpanzees are often developmentally delayed in comparison to human children. Regardless, the conceptual leap that Carruthers takes from inferring phenomenally conscious experience from comprehension of perceptual states needs further elaboration. How is a failure to recognize that "seeing is knowing" evidence for the absence of phenomenal consciousness? In Carruthers' article, this is all in the context of whether animals might reflect on what it is like to perceive red or green surfaces. Carruthers deems it unlikely that animals reflect on their own perceptual states based on the results reported in Povinelli (1996). The relationship

between comprehending the visual states of others, and reflecting on the experience of seeing green, red, or anything else, seems quite dubious. Even if chimpanzees truly do not comprehend the mental significance of visual perception, they may still reflect on what it is like to experience surfaces of different colors. Comprehension of eye gaze does not seem to be a satisfactory dependent measure with which to evaluate whether chimpanzees, or any other species, have phenomenally conscious experiences.

Comprehension of what perceptual states do is germane to studies of consciousness, but whether this comprehension is a necessary condition for phenomenal consciousness remains to be seen. But how many people (and how often) perform these abilities, that is, reflect on the big picture of their life experiences? Why did Socrates even have to teach that "the unexamined life is not worth living" if it is such a common human attribute? Why is reflecting on what you have done or experienced not just another advanced, adaptive skill, like reading, that gives people an added level of discrimination?

The topic of "theory of mind" in nonhuman primates is currently undergoing a lively debate (see Heyes, 1998). The diverse viewpoints espoused by commentators of Heyes' paper reveal the extent to which primatologists could refine their measures of theory of mind. Until further testing is done on primate theory of mind, assertions that nonhumans do not possess phenomenal consciousness are idly speculative. Carruthers' position that a theory of mind is necessary for reflecting on the thoughts, beliefs, experiences, and intentions of others is tenable. However, no argument was given for why the ability to recognize these folk psychological processes in others preceded the ability to "turn that capacity upon oneself." It seems that an equally plausible case could be made for the reverse being true. After all, one could hardly understand the beliefs of others without personal experience with having beliefs.

4. "Flexibility and Improvement": Vague Notions of the Adaptiveness of Consciousness

Ethologists, cognitive and otherwise, regard functional explanations of behavioral and thought processes as integral to most any inquiry. Those who study the natural workings of living organisms almost inevitably question what function or set of functions a given behavior, structure, brain region, or thought process serves, as well the implications this has for Darwinian fitness. So what good is phenomenal consciousness? Carruthers' position that "consciousness breeds cognitive flexibility and improvement" is actually quite similar to that of Donald Griffin (1992). Indeed, knowledge of what is going on around you and within you is of great use. Classical and operant learning also provide "flexibility and improvement". The notions that consciousness (or learning) breed flexibility are post hoc explanations for their adaptive functions. While this is not necessarily anathema to evolutionary inquiry, testing whether this is truly the case would be far more informative than speculation. Also, to assert that flexibility and improvement

are functions of consciousness seems much too general, especially for such a complex trait.

5. All Road-Maps do not take You to the Same Destination: The Path not Taken

Cognitive ethologists certainly have demonstrated continuity of human and nonhuman mental abilities, but it would in fact be quite non-Darwinian to assert that no discontinuities exist. Carruthers may be correct that not a single nonhuman organism or young child possesses phenomenal consciousness, but this may be merely a quantitative threshold phenomenon. Furthermore, there are certainly qualitative differences among and within species (Griffin, 1998), especially perhaps within our own. Effort should be put into designing experiments that could reveal satisfactory evidence for such differences (with, of course, nonlinguistic measures). Visual perception, while a valuable dependent measure in many ways, should be carefully employed as a means for examining the knowledge states of any organism. Three year-old humans engaged in the "false-belief task" regularly look in directions that indicate comprehension of others' knowledge states, but their verbal reports suggest otherwise (Perner, 1991). It will surely take considerable scientific effort and ingenuity to discount Carruthers' purported discontinuity. Hopefully, Carruthers can offer insight into how this might be done. However, in his target article, Carruthers refers the reader to three chapters of his *Language, Thought, and Consciousness* book (Carruthers, 1996). The basic thrust of this volume is that no significant thought pattern can exist independently of language. According to this view, thoughts are not possible without a language that mediates and guides them. Since phenomenally conscious experiences are essentially defined as thought-laden, it may make a reader familiar with Carruthers' position wonder if there was even a need to mention nonhumans in the target article at all.

Carruthers' goals seem limited to a descriptive account of what phenomenal consciousness is for humans above age three, which supposedly "explains" it. From an ethological standpoint (Tinbergen, 1963), we think that a much more integrative approach is needed, in which greater emphasis is placed on what the animal experiences and how and where this happens, and on understanding the phyletic and ontogenetic origins of such experiences using the growing knowledge and methods of neuroscience and behavioral analysis. Carruthers early on dismisses any discussion or use of neurological data to gain insight into the experiences of other organisms. This seems extremely shortsighted and reflects a narrowness that we think will not, and certainly has not, worked. Surely Carruthers holds that writing his ideas in his paper involved a brain and body, without which thoughts would not exist. Why then, can he write a paper ignoring the role of the brain in helping to understand how he himself is thinking and reflecting and whatever else is being monitored? Carruthers is certainly not alone in this approach, but then the "herd instinct" is not confined to animals. To use a (documented) anecdote, we need to be more like the young of the greylag goose, who, when separated

from their home pond by a fence, quickly learn to fly over it. In contrast, less flexible, domesticated geese persist in pushing against the fence toward the enticing, yet out of reach, goal for days (Heinroth, 1911/1985). Perhaps philosophers do not really want to learn anything from animals, especially if they already believe that nonhuman animals are but unreflecting brutes, and thus not an adequate mirror for our preening efforts. Alas, Descartes lives on.

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