



Concepts – not just yardsticks, but also heuristics: rebutting Hacker and Bennett

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ABSTRACT

In their response to our article (Keestra and Cowley, 2009), Hacker and Bennett charge us with failing to understand the project of their book *Philosophical Foundations of Neuroscience* (PFN; Bennett and Hacker, 2003) and do this by discussing foundationalism, linguistic conservatism and the passivity of perception. In this rebuttal we explore disagreements that explain the alleged errors. First, we reiterate our substantial disagreement with Bennett and Hacker (B&H) regarding their assumption that, even regarding much debated concepts like ‘consciousness’, we can assume conceptual consensus within a community of competent speakers. Instead, we emphasize variability and divergence between individuals and groups in such contexts. Second, we plead for modesty in conceptual analysis, including the use of conceptual ambiguities as heuristics for the investigation of explanatory mechanisms. Third, we elucidate our proposal by discussing the interdependence of perception and action, which in some cases appear to be problematic for PFN. Fourth, we discuss why our view of conceptual innovation is different from B&H’s, as we plead for linking explanatory ingredients with conceptual analysis. We end by repeating our particular agreement with their mereological principle, even though we present different reasons: psychological concepts should not be applied to mere components or operations of explanatory mechanisms, for which another vocabulary should be developed.

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1. Introduction

Prisms (mentioned in the title of Hacker and Bennett, 2011) are useful instruments that help scientists to manipulate light, for instance via refraction, such that it allows observation of light’s previously hidden and sometimes surprising properties. Although opinions may differ, we don’t regard this manipulation as a distortion. On our view, concepts fulfill an analogous function in philosophy and science. However, unlike prisms, concepts can also be applied to conceptual analysis itself and thus to clarify its – sometimes hidden-properties. In that case, the outcomes are more likely to cause disagreement than with the use of glass prisms.

In linking neuroscience with conceptual analysis, our article ‘Foundationalism and neuroscience’ (Keestra and Cowley, 2009) examined what empirical findings about the brain mean for psychological concepts and vice versa. Writing for linguists and others interested in cognitive neuroscience, we stressed that the systems which underlie perception, language and action feature complex interdependencies. In examining conceptual implications, we contrasted our view with that of Bennett and Hacker’s (2003) *Philosophical Foundations of Neuroscience* (PFN). Specifically, we denied that neuroscience is to be measured by the yardstick originating in analytical philosophy’s attempt to deliver the “[c]onceptual truths [that]

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delineate the logical space within which facts are located” (Bennett and Hacker, 2007, p. 129). Such a view overlooks the point that, since conceptual analysis is often incapable of completely disambiguating or clarifying the relevant concepts, scientists and lay-persons alike are bound to draw on explanatory criteria. Accordingly, we find fault with PFN and object that B&H remain largely silent about methods and findings that, in our view, challenge their position.¹ In replying to our arguments, Hacker and Bennett (this volume) suggest that we failed to understand what they had written.

We regard this colourful rhetoric as showing substantial differences. The most important may be that while B&H take for granted that we converge on knowing how to use the words for psychological concepts, we doubt that, to the extent to which this exists, it always depends on rule-governed use. We are sceptical that the meanings of concepts “are given by what are accepted as correct explanations of meaning by the community of speakers” (Bennett and Hacker, 2003, p. 382) that is to say “competent speakers, using words correctly” (Bennett and Hacker, 2003, p. 400, italics added). In our view, where psychological concepts follow such usage, they are less likely to follow strict logical limits than to feature the variability and ambiguity of prototypes.² In contrast, in their reply to our paper (Hacker and Bennett (H&B), 2011) liken the definition of psychological concepts to using a nominal definition of *vixen* as a female fox. In a psychological example, H&B invoke “the word ‘conscious’ and its cognates” (Hacker and Bennett, 2011, p. 460). Rejecting our scepticism, they take issue with our claim that they *posit* this view. Rather, they say that “We took it for granted that we all know how to use the word ‘conscious; and its cognates – for that is all that is necessary for the clarification of the concept of consciousness” (Hacker and Bennett, 2011, p. 460, italics in original). Given their faith that this is known to competent speakers, they fail to understand either our scepticism or our challenge. Since we do not think that conceptual analysis alone can provide foundations for neuroscience, we contrast this with our ‘coherentist’ view. Accordingly, we stress the value of conceptual analysis in making informative use of empirical work. Defending this in relation to examples, we turned to the cases of ‘blind-sight’ and ‘distraction-from-pain’ used in PFN. In developing our argument, we return to these cases below. In our view, the fact that we can discuss such concepts supports neuroscientist Changeux and hermeneutic philosopher Ricoeur’s view that *semantic tolerance* can supplement semantic *critique* (Changeux and Ricoeur, 2000). Conversely, we deem B&H’s method of limited value for empirical investigation because it is rule-bound. We are unimpressed by a work that, in a colourful expression, amounts to constraining “draughts players by pointing out that there is no checkmate in draughts” (Hacker and Bennett, 2011, p. 461) for, in our view, the analogy does not apply to neuroscience.

There are big contrasts between neuroscience, neuroscientific writings and games like draughts. In investigating how people draw on brains, neuroscience is developing both methods and also new applications of established concepts. In spite of PFN’s limited attention to certain findings and methods, our examples of concepts such as *blind-sight* and *perception* show that they are already used flexibly within and between individuals and populations. Conceptual analysis can not only critique explanatory work but also buttress and refine findings. Using mechanistic explanations (as discussed below), we trace conceptual divergences to variability of psychological functions that are constituted as they draw on overlapping and interfering neural networks. In so doing, we reiterate our agreement with B&H’s view of mereological reasoning, i.e. with their critique of describing parts of a system (or brain) as carrying out the functions of a whole person. In giving reasons for this, however, we argue that concepts can also serve as heuristics.

1.1. Yardsticks and heuristics: an overview

Seen as yardsticks, concepts serve in taking the measure of various claims. On our coherentist view, this is entirely compatible with *also* using them as heuristics that serve to refine thinking. Especially in cognitive neuroscience, both psychological functions and their concepts display historical and cultural variability (Henrich et al., 2010; Lloyd, 2007).³ Before pursuing this argument, we respond to key points in H&B’s critique. First, we return to Aristotle’s work on foundational concepts to suggest that neuroscience is the kind of field that can alter conceptual resources. Progress can arise from, not dismissing, but considering the conceptual entanglements and anomalies that are symptomatic of variability and divergences in psychological concepts. Far from being entirely reliant on nominal definitions, these must be seen as having some continuity with their explanatory counterparts.

Having reiterated contrasts between our view of concepts and that proposed in PFN, we turn to the interdependency of action and perception. Beginning with H&B’s response to our reflections on their view of *perception*, we stress that interdependency affects the explanatory definitions of both everyday life and science. Applying this approach to PFN’s discussion of *blind-sight*, we compare such phenomena with ordinary cases. This reopens our charge that, given B&H’s view of semantic

¹ We noted that PFN leaves aside discussion of methods such as neuroimaging and lesion studies and remarked that, for B&H, “alongside logical analysis, these are ‘minor issues’ (Keestra and Cowley, 2009, p. 535). Having objected to what they term our *sneer-quotes*, they pose a rhetorical question (cited in 2.0 below) to imply that such topics have little to do with investigations of psychological concepts used by cognitive neuroscientists. Challenging this view, we argue that neuroscientific results *can* help to disambiguate conceptual unclaritys.

² Research shows that neither human nor animal category learning can be explained exclusively by rule formation. Humans and animals learn categories by using rules and by forming prototypes (Ashby and Eil, 2001). Obviously, categories or concepts based upon a prototype allow for more flexibility in acquisition and use than do those that are dependent upon a particular rule.

³ Research challenges the presence of conceptual consensus or consensus about behavioural criteria in the application of psychological concepts. This holds, naturally enough, for transcultural differences in not only psychological and psychiatric concepts but also their behavioural expression (Chaturvedi and Bhugra, 2007). Recent debate emphasizes intercultural variability in describing the processes and functions that link perception, motivation and cognition to behavior (Arnett, 2008; Henrich, et al., 2010). It would be equally mistaken to conclude that, within a group, there is prevailing consensus. We therefore seek coherence between sources of insights in order to limit the impact of its absence.

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