

BOOK REVIEW

Beyond Concepts: Unicepts, Language, and Natural Information. BY RUTH GARRETT MILLIKAN. (Oxford: OUP, 2017. Pp. viii + 240. Price £25.00.)

In her latest book, Ruth Garrett Millikan articulates a contemporary, naturalist account of the conditions for the possibility of knowledge (with a nod to Kant for the question, but of course her approach is quite different). The book is not organized around a collection of central arguments, but around the exposition of a system—a theory of animal cognition based on the recognition of signs through mechanisms called ‘unitrackers’ and ‘unicepts’, a theory of signs, and a view of kinds that supports these theories. Since it would not be possible to outline Millikan’s system in a satisfying way here, I will try to describe its flavour while highlighting the breadth of topics that Millikan addresses.

Millikan’s discussion is organized around three main sub-questions: What must the world be like in order for knowledge to be possible? What capacities must animals have in order to know about the world? And how is information about the world transmitted, such that animals can interpret it? Millikan addresses the first question in Chapter One, in which she argues that the world is ‘clumpy’ (p. 11). That is, if objects are considered in a many-dimensional space of all possible properties, most objects will be clustered with other objects having the same or similar properties and most regions of the space will be empty since many combinations of properties are unrealized. The clumpy world makes induction possible, and it informs Millikan’s views on kinds and individuals.

In the rest of Part One Millikan addresses her second question, on the capacities that animals must have in order to know about the clumpy world. She suggests that ‘the most fundamental challenge for cognition in higher species is to recognize the same distal things as being the same. . . and to recognize different things as different’ (p. 218), and she develops an account of cognition that addresses this challenge. The main innovation is her account of ‘unitrackers’ and ‘unicepts’. Unitrackers are mechanisms for recognizing that information concerns a specific object (a real kind like ‘dog’, or an individual like ‘Fido’). A unicept is a body of knowledge collected about an object by a unitracker. Unicepts replace concepts in Millikan’s system. Like concepts, each unicept

is about a specific kind or individual (at least when things go well), but unlike concepts they are not shared across knowers. Since bodies of knowledge vary across individuals, and unitrackers vary across individuals (different knowers have different methods for recognizing the same things), unicepts of the same objects do not necessarily share any features except their objects. Millikan's discussion blithely crosses disciplinary boundaries. She addresses philosophical topics such as the sources and consequences of misrepresentation, the explanation of Frege cases, the practical use of the law of non-contradiction in uniceptual hygiene and the shortcomings of the method of cases. She discusses psychological topics such as the contribution of perceptual constancy and object constancy mechanisms to unitracker functioning, the ways of tracking Gibsonian affordances and the role of the psychologist's 'theory of mind' in conversation (short answer: none). And she discusses the relation of her system to her previous work on evolutionary processes, although revisiting teleosemantics is not a central concern of *Beyond Concepts*.

In Part Two of the book Millikan addresses the ways that knowledge is transmitted to and between knowing subjects as 'signs'. Some signs are intentional signs, e.g. linguistic utterances and other conventional representations (Millikan mentions mental representations but offers little speculation about them). There are also informational signs, or 'infosigns', which carry natural information (e.g. a formation of dark clouds is an infosign of rain to come). Millikan contends that intentional signs are a species of infosign, at least in the 'Normal' case where intentional signs are formed in the typical manner and they are not false. Millikan's discussion of signs is in some ways a natural development of her earlier work, but contains many novel and contentious elements. She offers an account of natural information divorced from information theory on which information is an exploitable correlation, and what counts as 'exploitable' depends on the kind of critter under consideration (just as what counts as 'food' depends on the kind of critter under consideration). She offers an account of indexicals and demonstratives on which they are anaphoric, because their referents are also parts of signs. She provides novel accounts of the functions of the definite and indefinite articles. She argues that languages are not grand, Chomskyan systems with a unified structure; rather, languages are confederations of 'constructions' that have highly specific uses, but which exhibit some general patterns ('meta-regularities', p. 175) and elements (e.g. words) that 'roam' between constructions (p. 134). Millikan also discusses the boundary between semantics and pragmatics, and argues against the Gricean view that communication requires the recognition of speaker intentions. And she argues, intriguingly, that, since perception is the 'translation of patterns in the data of sense into cognitive understanding without uniceptual inference' (p. 184), language comprehension is a form of perception. That is, one might hear that it is raining by recognizing the sound or raindrops or by being told that it is raining.

Millikan's discussion overall is deeply informed by the literatures in other disciplines (especially cognitive psychology and linguistics) without being overly fascinated by them. This is both a virtue and a shortcoming. It is a virtue in that Millikan does not get bogged down in the explanation of results or interpretation of experiments. However, readers are left to evaluate for themselves how Millikan's proposals might relate to current thinking in the sciences. For example, whether it is plausible that unitrackers and unicepts are implemented in actual critters, or how Millikan's view relates to ongoing debates about modality-specific vs. amodal formats for knowledge (e.g. Barsalou et al. 2003; McCaffrey 2015).

Beyond Concepts is an impressive work of systematic philosophy. However, the text is rather dense and, I suspect, forbidding to readers who are new to its questions. Given the scope of her project, Millikan adopts an authorial stance that is 'mostly expository, explaining rather than debating' (p. 9), but Millikan's explanations often assume more prior knowledge than most philosophical monographs, and offer little orientation to topics that would be familiar to advanced students of philosophy. Millikan does help the reader with liberal cross-references and a useful glossary, which includes her many theoretical neologisms and some other technical terms. The book is certainly suitable for researchers and graduate students, and is perhaps best appreciated in a context where it can be discussed actively by people with diverse areas of expertise in cognitive science, evolutionary biology and philosophy of language.

REFERENCES

- Barsalou, L. W., Simmons, W. K., Barbey, A. K. and Wilson, C. D. (2003) 'Grounding Conceptual Knowledge in Modality-specific Systems', *Trends in Cognitive Sciences*, 7: 84–91.
 McCaffrey, J. (2015) 'Reconceiving Conceptual Vehicles: Lessons from Semantic Dementia', *Philosophical Psychology*, 28: 337–354.

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