

Paul Bloom: *How Children Learn the Meanings of Words*. MIT Press, Cambridge, Mass., 2000. Pp. 300 + xii. \$39.95 (cloth).

Reviewed by:

Bart Geurts, University of Nijmegen & Humboldt University, Berlin

The title of this book is slightly misleading: "How Children Learn the Meanings of Nominal Expressions Denoting Middle-Sized Observables" would have been more accurate. But it would have been less catchy, I suppose, and it wouldn't have been quite correct, either, since Bloom does not confine his discussion to nominals, although that is where the main emphasis lies.

Bloom's theoretical stance may be characterized as eclectic, as long as this is taken in an entirely positive sense. If his essay has a central message, it is that there is no "module" for acquiring words. Bloom's view is that lexical learning involves several aspects of cognition, none of which is custom-built for this purpose, ranging from the ability to understand other people's doings in intentional terms, on the one hand, to a proclivity for seeing the world in terms of objects and events, on the other.

One of the main prerequisites for lexical learning, according to Bloom, is what has come to be known as a "theory of mind". It is a familiar observation that adults view each other as "intentional systems", to use Dennett's (1987) term, that is to say as rational beings who plan their actions so as to achieve certain goals. We normally adopt this intentional stance when we want to explain or predict each other's behaviour, and it is commonly assumed that this holds especially for linguistic behaviour. One wouldn't perhaps expect the intentional stance to be involved in such a lowly task as learning words, but Bloom maintains that it is, and he has some telling experimental results to back up his position. For example, in an experiment by Baldwin (1993), babies were given an object to play with while the experimenter examined the contents of a bucket in front of him and labeled it with a new word, such as "It's a modi." Interestingly, subsequent testing revealed that 18-month-olds did not link this word to the object they were currently focused on, but instead followed the experimenter's gaze so as to determine the intended referent. Such results not only are an embarrassment to naive associationist theories of word learning, as Bloom points out, but they also suggest that already at a very tender age children are sensitive to other people's intentions.

The little language learner's social cognition is employed in other ways, as well, for example in the acquisition of personal pronouns. In particular, indexicals like "I" and "you" are problematic because the child is always addressed with the latter and never with the former; so how does it figure out that "I" refers to the speaker and "you" to the hearer? Following Oshima-Takane (1999), Bloom proposes that children learn the meanings of personal pronouns by attending to other people's conversations, and observing how referential terms alternate as speakers take turns. An account along these lines is supported by the fact that autistic children, whose social cognition tends to be less developed, often have problems with personal pronouns. This may seem like an obvious idea, but as Bloom notes it is in fact "a radical proposal, as it flies in the face of the assumption that, at least for children in Western societies, word meanings are learned from child-directed speech." (p. 125) Furthermore, if this is how pronouns are learned, it confirms Bloom's general point that children's learning strategies are varied and, in many respects, quite sophisticated.

Although Bloom stresses the relevance of the theory of mind, he also makes it clear that it is not the only factor in word learning. Another factor of equal importance is the child's predisposition to parse the world into discrete objects and events. The force of this predisposition was demonstrated by an experiment in which children were shown two red apples and three yellow bananas, and asked to count the different colours or kinds of fruit. Preschoolers, who are focused on objects, tended to answer "five" (Shipley and Shepperson 1990). Other experiments suggest that even babies are aware that unobservable properties of an object may be more important than its superficial characteristics (another blow for naive associationism), and Bloom argues that this "essentialism", as he calls it, holds not only for natural-kind categories but for artifacts, too.

In general, Bloom tends to play down the relevance of syntactic clues to the learning of words. His position is that syntax is only one source of information, whose relative importance varies from case to case. Some words may be learned almost entirely without syntactic support, whereas others are difficult to learn in the absence of syntactic information. The former class contains concrete content words ("horse", "red", "eat"); the latter, abstract words and numerals, for example.

Bloom devotes an entire chapter to number words, arguing that in this particular case syntactic information is needed for a child to grasp the notion of number term, and that, furthermore, the counting system provided by the language (if any: some languages don't support counting) is essential to the child's understanding of numbers. This account raises the spectre of a Whorfian stance on the relationship between language and thought, but Bloom argues at some length that, on the whole, language is not indispensable even for "structured and abstract thought" (p. 259)

One of the achievements of Bloom's book is that it conveys a very strong impression of how difficult a task word learning really is, and how much it takes to grasp even the sense of a simple content word. But although I fully agree with Bloom's assessment of the intricacy of lexical learning, I sometimes had the feeling that he might be overrating the cognitive skills of infants. A case in point is his discussion of lexical contrast. In view of the fact that there are very few lexical synonyms, it is a good learning heuristic to assume that new words will refer to concepts that are not already named. Various experimental findings suggest that children use a rather strong version of this heuristic. For example, if a preschooler is shown a banana and a whisk, and then asked to pick out the "fendle", he is more likely to choose the whisk. Moreover, children often find it difficult to learn superordinate terms, or to accept that two people may bear the same name.

How can such facts be accounted for? One explanation would be to assume that children apply a heuristic that works well enough most of the time, but needs some fine-tuning for dealing with special cases, such as superordinate terms and non-unique names. And although in general I am wary of nativist explanations, I don't think it would be far-fetched to claim that such a default rule might be innate, in some sense or other. Bloom favours a different explanation, however, in which the theory of mind plays a central role:

A child might reason as follows (implicitly, of course):

1. I know that a banana is called "banana".
2. If the speaker meant to refer to the banana, she would have asked me to show her the banana.
3. But she didn't; she used a strange word, "fendle".
4. So she must intend to refer to something other than the banana.
5. A plausible candidate is the whisk.
6. "Fendle" must refer to the whisk. (p. 68)

It is one thing to claim that children exploit clues about other people's intentions. It is quite another thing to maintain that even before they reach their second birthday, infants routinely employ the neo-Gricean reasoning exhibited in this passage (if only implicitly). I find this hard to accept, though not because I doubt that small children can adopt the intentional stance. It is just that this train of thought is so complex and hinges on a counterfactual premise, to boot. Furthermore, other data discussed by Bloom suggest that small children have a rather insecure grasp of intentional concepts, as witnessed by the fact that they find it difficult to attribute false beliefs to others, which makes it even more doubtful that they are capable of reasoning in terms of counterfactual intentions.

Adopting the intentional stance is a quite sophisticated thing to do, but even sophisticated things can be done in quite unsophisticated ways. One can adopt the intentional stance and use information about other people's beliefs and desires *without* any deep understanding of what it means to believe or want something. It is possible that young children have a bag of tricks for exploiting intentional information, but that their understanding of intentionality takes years to mature, and I think it is rather likely that this is how intentional reasoning develops. (This is why I prefer to avoid the term "theory of mind" and have used Dennett's terminology instead.)

In the opening pages of his essay on Tolstoy, Isaiah Berlin (1954) draws a contrast between the intellectual styles of "foxes" and "hedgehogs". Hedgehogs are people "who relate everything to a single central vision", whereas foxes are "those who pursue many ends, often unrelated and even contradictory, connected, if at all, only in some de facto way". Famous hedgehogs, according to Berlin, are Plato, Pascal, Hegel, Dostoevsky, and Nietzsche; whereas Aristotle, Goethe, and Joyce are foxes. In the concluding chapter of his book, Bloom extends the dichotomy to psychological processes: "Hedgehog processes are well captured by algorithms and involve a relatively small set of capacities; fox processes are harder to make explicit and involve a relatively large and diverse set of capacities. [...] Looking at the extremes, a reflex is very hedgehog; making up a joke is exceedingly fox." (p. 263) It will be clear from the foregoing discussion that, in his views on lexical learning, Bloom sides with the foxes: learning words crucially involves pooling information from disparate sources in ways that vary from one word to the next. Furthermore, although children are often quick at grasping the meaning of a word, it sometimes takes them months to learn what a word means, as in the case of the number words. Therefore, to the extent that lexical learning may be seen as a psychological process at all, it is more like inventing a joke.

"How Children Learn the Meanings of Words" is a book that I am sure will be valued not only by researchers in the area of language acquisition, but by non-experts, as well. Drawing upon an impressive stock of data and arguing in an eloquent and admirably transparent way, Bloom makes it abundantly clear that lexical learning is not just an interesting topic in its own right, but also a fruitful way of approaching central topics in cognitive science.

As usual, the publisher has invited renowned experts to comment upon the book, and their praise is lavish, as one may expect: "It's a great read. Anybody concerned with language, cognition, or development will find much of interest here." (Susan Carey) "The story [Bloom] tells is clear, engaging, and well-documented, with a pleasant absence of contention and polemic." (Eve V. Clark) "This is a tremendously important book." (Susan A. Gelman) It seldom happens that I am tempted to agree with such accolades, but this is one of those rare occasions.

#### References

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About the reviewer: Bart Geurts has worked on various topics in semantics and pragmatics, including presupposition, quantification, and negation. He published a book

on presupposition and anaphora in 1999. For further information, see  
<http://www.phil.kun.nl/tfl/bart>.