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### What Does It Mean to Learn the Meaning of Words?

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## What Does It Mean to Learn the Meaning of Words?

Paul Bloom. *How Children Learn the Meanings of Words*, Cambridge, MA: MIT Press, 2000, 312 pp., ISBN No. 0–262–02469–1 (hardcover).

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The scientific study of how children learn language has boomed since the 1960s, in large part due to the “cognitive revolution” and the challenge posed by the apparently unlearnable complexity in language. Children’s mastery of a language in the first few years of their lives is one of the most remarkable things humans can do. Among their impressive achievements is word learning: children learn tens of thousands of words by age 8 or so (according to one study of English learners), averaging 10 or more per day for many years. Researchers puzzle over how children achieve this miracle, given the notorious difficulties, which include at least the following:

- Words label concepts; children either have to map sounds to concepts they already have or they have to create concepts on the basis of their experience with words.
- Words refer, but children have to infer from how they are used in contexts what they refer to. Since many different aspects of the situation could be being referred to when a particular word is used, children have to be attuned to the speaker’s communicative intention in the context, to figure out what aspect is the intended referent.
- The evidence children have for what words mean is indirect: no one explicitly teaches children the meanings of most words.

- People don't always use the same word to label "the same" situation; children have to learn to take a perspective on a scene and to understand the perspective others are taking.
- They have to extend the meanings of words on the basis of their experience of how they are used in contexts; they have to create categories of many different kinds and levels of abstraction (e.g., "dog", "Michael", "brother", "run", "nap", "love", and eventually, "debate", "algorithm"). Many grammatical terms have abstract, subtle and elusive meanings that even adults often cannot articulate.

In the developmental psychological literature, controversies rage about how to account for children's ability to learn the words and grammatical rules of a language. Major issues have to do with what is innate, what has to be learned, how is it learned, how much is domain-general (due to general cognitive capacities) versus domain-specific (specialized capacities for language), and what is the role of social interaction. What we know about how children learn the meanings of words is based on three main types of data: (a) infant studies of children in their first year: including their developing sensitivity to the sounds of their languages, their conceptual knowledge and development, their language comprehension; (b) word-learning experiments with children from their second year (especially novel, made-up words); and (c) observation of natural interaction between children and caregivers (diary studies by parents; videotaped samples of interaction collected longitudinally over time in a child's home).

Candidate solutions proposed for how children learn word meanings, given the complexity of the task, include:

- Innate capacities or biases: children are endowed with specific expectations about language which shape the inferences they make about what words mean (e.g., the "shape bias"—children extend the meanings of labels for concrete objects on the basis of an innate understanding that their shape is a defining feature).
- Associative learning: children learn an association between a word and a context and collate statistical information about word-context pairings over time.
- Environmental richness: adults structure interaction with children in ways that promote word learning (naming games, pointing out referents and labeling them for the child, defining terms, repeating and rephrasing utterances).

All three of these may well play a role in at least how some words are learned by some children, but there is no agreement in the literature as to their relative importance and sufficiency.

To this debate Bloom's book *How children learn the meanings of words* brings a refreshing balance, summarizing much of the literature and arguing for his own account. Bloom attributes children's word learning to three crucial social, cognitive and linguistic abilities: the ability to acquire concepts, the appreciation of syn-

tactic cues to meaning, and the ability to understand others' mental states (especially their communicative intentions)—they have a “theory of mind.” In his view, these, along with general learning and memory abilities, are sufficient and necessary to understand word learning. He argues persuasively that there are no abilities special to word learning, contrary to what many developmental psychologists have believed; rather, given these general capacities, children are little “rationalists” actively working out the meanings of words by mapping sounds to concepts on the basis of their understanding of how they are used in communicative contexts. Although Bloom's account is not “cognitivist” in imagining special cognitive “modules” for word learning, in other respects Bloom's position is entirely consistent with the Zeitgeist of cognitivism that dominates the field—his explanation for how children learn the meanings of words is to be found entirely in what goes on in the child's mind as she listens to the “input” around her, assesses what other people are intending to communicate with their speech, and collates links between words uttered in contexts to form a word-concept mapping that Bloom takes to be the “meaning” of the word.

It is hard to disagree with this common-sense approach, debunking many received truths (e.g., word-specific cognitive constraints) and backed up with many experiments testing children's ability to learn new (invented) words in controlled conditions. It is an excellent and readable survey of *part* of what is involved in child word learning. But in my view, despite the hubris of his title, Bloom fails to provide an adequate account of how children learn the meanings of words. This is for two reasons: (a) his view of the nature of the learning task (a matter of mapping sounds onto concepts [“meanings”]) and (b) his neglect of the ways and degree to which languages actually differ both in structure and in meanings. I will address these in turn.

1. *Bloom has an impoverished theory of learning.* In his view, knowing the meaning of a word is a matter of having a certain mental representation or “concept” that is associated with a certain linguistic form. This underplays the essential ingredient in the process emphasized by social interactionist theories: word learning is a 3-point connection, not a 2-point one. “What we have here are not two things—a word and an object—being associated or mapped, but one person using a symbol (signifier) to indicate for another person some entity, situation, or activity (signified).” (Tomasello, 2001, p. 1120). Words are symbols, cultural conventions, learned through a social process of interaction. The child has to learn what the community accepts as appropriate usage; what is conventional, what is creative, what are the boundaries to the category to which a word applies. The initial mapping at least is not from sounds to concepts but from sounds to *contexts*; these contexts include speaker's intentions, previous utterances, and the activity language is embedded in. The word-concept mapping metaphor undersells the degree to which children at first use words creatively with unconventional meanings; they will con-

tinue to use words creatively throughout their lives, extending the conventional uses of words to new contexts.

There is much more to meaning than a mapping from sounds to concepts—the process involves cultural learning (how does this word invoke cultural understandings, how does it relate to other words with other cultural components?). And if Bloom replies, well I'm just interested in explaining the mapping-between-sound-and-concept part of the package, I have to object that Bloom's theory is not adequate for understanding—from a child's point of view—how children learn words. Although he accepts the necessity for the child to have a theory of others' minds to crack the meaning problem, he stops with the prerequisites for this learning task and has nothing to say about the process. His "little scientist" child uses others' intentions as a way of disambiguating which aspect of the context is being referred to, but ignores the crucial role that interlocutors have in actively co-constructing meanings collaboratively with the child.

The mapping metaphor Bloom relies on is based on one standard linguistic theory—the representational theory of meaning. But other theories are more appropriate to the task of how children learn language: Wittgensteinian usage theories of meaning (e.g., Duranti, 1997, Hanks, 1996), pragmatic theories (e.g. Bates, 1976; Bloom, 1993; Budwig, 1995; Clark, 1993, 2002), and theories of child learning through social interaction (Bruner, 1990; Ochs & Schieffelin, 1990; Rogoff, 1990; Vygotsky, 1988; Wootten, 1997; etc.). The child uses words for particular purposes and many meanings are not "conceptual" but about usage (e.g., greetings, kin terms); indeed it is not clear that the meanings of many functional (grammatical) terms are mapped to "concepts"—as opposed to practices—at all.

A socially construed theory of meaning forces us to ask: could it be that, for most words, children don't actually learn the meanings in Bloom's sense, at first—rather, they learn social conventions that connect utterances with contexts in relation to understood intentions of speakers? After much exposure ("input") they learn to isolate individual words from the stream of an utterance and they gradually learn to what range of contexts and intentions an individual word is applicable; after more experience with interactional speech they learn to extend a word to new contexts (they categorize types of contexts as "the same" for the purposes of labeling with the given word). Only after many months of interaction over words do they make the mental step of mapping a word to a concept in the way Bloom envisages. True, children *can* do "fast mapping" of sound to meaning—in an experimental context they learn to map a novel sound onto a novel meaning after only one or two exposures. But this is not how most words are learned. Rather, they are learned by participation in culturally rich activities and they require culturally rich understandings before it can be said that their meanings have been learned.

Embedding the learning task in cultural activities and understandings leads us to the second shortcoming in Bloom's account:

2. *Cross-linguistic and cross-cultural differences are underplayed.* One important difference is in the cultural context of learning. We now have a number of detailed empirical studies of children's early language-learning in different cultures around the world—in the Pacific (Korean, Japanese, Mandarin Chinese, Samoan, Kaluli, Warlpiri), in Africa (Sesotho), in the Middle East (Hebrew), and in indigenous societies of the Americas (Inuktitut, several Mayan societies).<sup>1</sup> In one respect this research supports the universalist view: despite wide variation in how parents and other caregivers interact with young children, normal children still learn language relatively quickly and easily in their early years.

A second kind of cultural difference influences the word-learning process more directly: there are enormous structural differences across languages. These include the fact that words are not the same kind of thing in all languages. In a highly polysynthetic language like Inuktitut (spoken in northeastern Canada), the word is more or less a whole sentence, made up of bound morphemes that cannot occur in isolation. Children learning this language start with long strings of morphemes, saying things, for example, at age 2;0<sup>2</sup> like: *qangattajuuqqqaujuq* “She-went-to-the-airplane” (Allen, 1994, p. 68) without isolating individual meaning-units out of the stream of speech. In contrast, the Mayan language Tzeltal (spoken in southern Mexico) has a small set of roots (around 3,000) and a highly productive morphology that can turn almost any kind of a word into another word. In a language of this type, it is unclear how much word-learning (mapping meaning to concept) the child has to do, as opposed to how much rule-learning (recombining elements to form new meanings out of a small set of words). Children learning this language begin by stripping off grammatical morphemes and uttering the root alone (saying, e.g. *k'an* “want,” or *ba* “go”; Brown 1998).

A more complex problem is raised by the fact that word meanings do not map onto word classes in the same way in all languages, so one cannot assume for example that nouns label objects, verbs label actions. For example, Tzeltal concrete inanimate nouns label stuff, not objects; for example the word *lo'bal* means not only “banana fruit” but “banana leaf” and “banana tree” depending on a classifier that modifies the shape of the banana-stuff being referred to (Brown, 2001)

Research based on English tends to overemphasize the primary role of nouns—especially labels for concrete natural categories (like animal and plant names). But many languages allow nouns to be omitted where their referents are clear in the context; such languages are “verb-friendly” with verbs prominent in utterances. The emphasis on nouns is perhaps because many English-learning children start accruing a large number of nouns in their vocabulary while using only a

<sup>1</sup>See Slobin (1985, 1992, 1997), for surveys of many of these studies; see also Allen (1994) for Inuktitut, Brown (1998, 2001) for Tzeltal Maya, Ochs (1988) for Samoan, and Schieffelin (1989) for Kaluli.

<sup>2</sup>2;0 is developmental psychologists' shorthand for two years, zero months old.

handful of verbs. But this is not the case in other languages—Korean, Mandarin Chinese, Tzeltal—where many more verbs are early acquired. And verbs tend to have meanings that are more culturally specific than concrete nouns, so theories using nouns as the prototype for word learning overemphasize category assembly (mapping sounds onto pre-existing concepts), while underemphasizing category formation (creating new categories based on exposure to language).

In fact many—perhaps in some languages most—categories that words label are non-natural, culturally specific, and have to be constructed. Take for example the Tzeltal word *ajk'ol*, meaning (roughly) “uphill.” Given the universal presence of gravity, “up” should be a good candidate for a universal concept, but “up” does not mean just “vertically up” in Tzeltal. In this culture “up” is mapped to the landscape: *ajk'ol* means something that in English would be conceptualized as “towards the south.” It’s meaning is systematically related to that of a set of other words—verbs, nouns, adjectives, directional adverbials—meaning to go, or be positioned, in relation to the abstract overall slope of the land (conceptualized in English as being in the direction of south (up), north (down), or orthogonal to this axis (across)). The whole complex is culturally elaborated in ritual and supported by geographically accurate pointing whenever people talk about places (Brown & Levinson, 2000). Bloom (2001) acknowledges the existence of such “weird words” but fails to understand that *most* words may be of this sort, with meanings that have to be constructed by the child and linked into a network of complex cultural understandings. The social process of situated verbal interaction is what makes it possible for children to construct such culturally-specific categories on the basis of language they hear used around them. Children learn many such language-specific categories very early (for example Bowerman and Choi (2001) have shown that, by 14 months, Korean and English children are attuned to language-specific spatial categories). Clearly, humans are adapted not just to learn language, but to learn *different* languages—different in phonology, in word meanings, and in syntax (Levinson, 2001). This adaptability is what is underplayed in current universalist theories of language acquisition.

## CONCLUSION

For the past 30 years, the *Zeitgeist* in both linguistics and developmental psychology has been innatist and universalist. Much more research is needed into how children acquire different languages, in different social groups and different cultural contexts, before we are in a position to say something more definitive about “how children learn the meanings of words.” Any theory of how children learn meanings has to incorporate research on the communicative process and children’s developing awareness of others’ intentions and strategies. There are currently two streams of language-acquisition research, with different methods and presump-



tions: the ‘cognitivist’ one tries to explain language-in-the-head, the ‘functionalist’ one focuses on language-in-social-interaction. But language is both a cognitive phenomenon—knowledge—and a social phenomenon constructed in the process of interaction. The nature of language as knowledge cannot be understood without taking into account that language is “one type—albeit a very special type—of joint attentional skill. A language is a set of historically evolved social conventions by means of which intentional agents attempt to manipulate one another’s attention” (Tomasello, 2001, p. 1120). A mentalistic theory overlooks the core problem: how two minds can converge on an understand of meaning conveyed interactionally in a context.

The message from this controversy about the nature of word learning is simple, if not very satisfying: in some respects children are essentially the same everywhere, equipped with universal capacities and constraints on how they learn. There is still no consensus—despite 3 decades of research and theory devoted to this issue—on what the word learning process is, whether there is one way or many ways to learn different kinds of words, and what is universal versus what is language-specific and culturally variable in the process. Until we take into our theorizing these two fundamental facts—that meaning is interactionally created, and that languages and meanings are cultural constructions that widely differ—such a consensus seems unobtainable.

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