Language learning and the emergence of polysemy across languages.

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Prevailing theory in language development proposes that—to simplify a challenging inductive learning problem—children initially assume that a new word will carry only one meaning and label a single taxonomic category. Yet although this assumption is thought to support learning, most words in English and other languages violate it, and express multiple, related meanings—a phenomenon called *polysemy*. For example, the English word *chicken* can label an animal or meat (thirsty/tasty *chicken*), *glass* can label a material or artifact (broken/drinking *glass*), and *book* can label an object or its intellectual content (heavy/interesting *book*).

In this talk, I will review research from my lab showing that—contrary to current theories—children are able to learn multiple meanings for polysemous words from early in development, and represent them similarly to adults. Moreover, I will review my research which shows some of the ways in which polysemy facilitates—rather than impedes—learning. First, polysemy allows children to use their knowledge of one meaning of a word to guess the structure of its other meanings (e.g., if a child has learned that *glass* labels a material, they can infer that *glasses* should be made of glass). Second, polysemy allows children to *spontaneously infer* new word meanings (e.g., upon learning that *rake* labels a tool, a child can guess that an action using a rake will be called *raking*, generalizing from how words like *hammer* and *shovel* are used).

Evidence that polysemy facilitates lexical development opens a functional explanation for its ubiquity: polysemy may arise in response to the pressure on language to be maximally learnable. From this perspective, we can make sense of cross-linguistic regularities and variability in polysemy by considering learning constraints. In the second part of my talk, I will review my research supporting this proposal, which finds that instances of polysemy that more often recur across languages reflect conceptual relations that are easier to grasp. Moreover, I will discuss research suggesting that one pattern of English polysemy that is rare across languages is also difficult for English learners to acquire. Also attesting to the role of learning constraints in shaping the lexicon, I will review my recent work which suggests that children can use spatial metaphors to learn new meanings for words that would otherwise be difficult to acquire, helping to explain why such metaphors are so common in languages.

Finally, I will close by discussing research from my lab which explores the origins of children's intuitions about flexible word meanings, and the extent to which they are rooted in early-developing cognitive biases or instead constructed from exposure to polysemy in the language input. Our most recent work is addressing this question by asking how Deaf children, who have not been exposed to a language model, use gestures in the "home sign" systems they *invent*. Strikingly, these gestures exhibit semantic flexibility akin to the polysemy found in full natural languages, suggesting that children play a key role in creating polysemy.