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The Nonconceptual Gateway to Early Word Learning

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My research investigates why nouns are learned disproportionately more frequently than other kinds of words during early language acquisition (Gentner, 1982; Gleitman, et al., 2004). This question must be considered in the context of cognitive development in general. Infants have two major streams of environmental information to make meaningful: perceptual and linguistic. Perceptual information flows in from the senses and is processed into symbolic representations by the primitive language of thought (Fodor, 1975). These symbolic representations are then linked to linguistic input to enable language comprehension and ultimately production. Yet, how exactly does perceptual information become conceptualized? Although this question is difficult, there has been progress. One way that children might have an easier job is if they have structures that simplify the data. Thus, if particular sorts of perceptual information could be separated from the mass of input, then it would be easier for children to refer to those specific things when learning words (Spelke, 1990; Pylyshyn, 2003). It would be easier still, if linguistic input was segmented in predictable ways (Gentner, 1982; Gleitman, et al., 2004)

Unfortunately the frequency of patterns in lexical or grammatical input cannot explain the cross-cultural and cross-linguistic tendency to favor nouns over verbs and predicates. There are three examples of this failure: 1) a wide variety of nouns are uttered less frequently than a smaller number of verbs and yet are learnt far more easily (Gentner, 1982); 2) word order and morphological transparency offer no insight when you contrast the sentence structures and word inflections of different languages (Slobin, 1973) and 3) particular language teaching behaviors (e.g. pointing at objects and repeating names for them) have little impact on children's tendency to prefer concrete nouns in their first fifty words (Newport, et al., 1977). Although the linguistic solution appears problematic, there has been increasing evidence that the early visual system does indeed segment perceptual information in specific ways before the conscious mind begins to intervene (Pylyshyn, 2003).

I argue that nouns are easier to learn because their referents directly connect with innate features of the perceptual faculty. This hypothesis stems from work done on visual indexes by Zenon Pylyshyn (2001, 2003). Pylyshyn argues that the early visual system (the architecture of the "vision module") segments perceptual data into pre-conceptual proto-objects called FINSTs. FINSTs typically correspond to physical things such as Spelke objects (Spelke, 1990). Hence, before conceptualization, visual objects are picked out by the perceptual system demonstratively, like a finger pointing indicating 'this' or 'that'. I suggest that this primitive system of demonstration elaborates on Gareth Evan's (1982) theory of nonconceptual content. Nouns are learnt first because their referents attract demonstrative visual indexes. This theory also explains why infants less often name stationary objects such as plate or table, but do name things that attract the focal attention of the early visual system, i.e., small objects that move, such as 'dog' or 'ball'. This view leaves open the question how blind children learn words for visible objects and why children learn category nouns (e.g. 'dog'), rather than proper nouns (e.g. 'Fido') or higher taxonomic distinctions (e.g. 'animal').

Acknowledgments

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