The shared origins of associative and taxonomic priming effects in infants

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Recent evidence suggests that even six-month-olds have the rudiments of a semantically organized lexicon (Bergelson & Aslin, 2017), with a number of studies reporting both associative (dog-bone) and taxonomic (dog-bear) priming in children younger than two (e.g., Arias-Trejo & Plunkett, 2013; Sirri, & Rämä, 2015). However, the nature and origins of early semantic links are still poorly understood. To shed light on this topic, we evaluated the potential contributions of simple word co-occurrence regularities in explaining the reported priming effects. To do so, we examined how a learner who has only (1) access to early developing associative learning mechanisms (i.e., ability to learn that words A and B reliably co-occur) and (2) access to language input to young children (i.e., CHILDES corpora, MacWhinney, 2000) would perform in the experiments which reported early associative and taxonomic priming. We demonstrate that in all (nine) priming studies selected for the analyses, related and unrelated conditions (including associative and taxonomic) can be differentiated based on a statistic that captures reliable word co-occurrence in CHILDES corpora (i.e., t-score, Evert, 2008). These findings do not deny the roles that other types of input and learning have in fostering early semantic links, but they do highlight a potentially powerful role of simple word co-occurrence regularities in shaping early lexicon. In addition, they demonstrate that unrealistically complex input and learning mechanisms typical for extant computational language models are unnecessary. We discuss these findings in the light of the contributions and limits of computational approaches in explaining language development.

References

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