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Title

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Permalink

<https://escholarship.org/uc/item/94b813wt>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 42(0)

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Publication Date

2020

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Peer reviewed

The Semantic Network: Uncovering The Mechanisms that Build Organized Word Knowledge in Development

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Abstract

Language is rich in statistical regularities that capture meaningful, semantic links between words crucial for language fluency. Words that can be combined to express meaningful ideas (e.g., drink-soda) reliably directly co-occur together, and words similar in meaning share patterns of co-occurrence (e.g. soda and milk share co-occurrence with drink). Here, we investigate whether children (4-year-olds) and adults can capitalize on these regularities to form new semantic links between new and familiar words. Participants hear sentences in which new words directly co-occur or share co-occurrence with familiar words. We then assess the formation of corresponding semantic links using an implicit, gaze-based measure and an explicit labeling measure. Results suggest that new semantic links form only from direct co-occurrence in children, and from both direct and shared co-occurrence in adults. This research is therefore uncovering the development of mechanisms for building organized word knowledge from mere exposure to language.