Linguistic Distributional Information and Sensorimotor Similarity Both Contribute to Semantic Category Production

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Abstract

We investigated the contribution of sensorimotor and linguistic distributional information in a semantic category production task, hypothesizing that the task would rely on both but particularly on linguistic distributional information, which may provide a shortcut for conceptual processing. In a pre-registered study, we asked participants to name members of semantic categories and tested whether responses were predicted by a novel measure of sensorimotor proximity (based on an 11-dimension representation of sensorimotor experience) and linguistic proximity (based on word co-occurrence derived from a large subtitle corpus). Both proximity measures predicted the order and frequency of responses and, critically, linguistic proximity had an effect above and beyond sensorimotor proximity. Our findings support linguistic-sensorimotor accounts of the conceptual system and suggest that category production is based on both the similarity of sensorimotor experience between the category and member concepts, and on the linguistic distributional relationship between the category and member labels.