Approximating mental representation of verbs using semantic graphs

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Abstract

One of the most important questions in language sciences is concerned with argument structure acquisition. Here, we focus the role of semantically most general verbs in argument structure bootstrapping. We propose a novel computational framework that combines word embedding techniques with theories of semantic representation. Using graph vertex degree as an index of semantic generality, we rank the semantic generality of verbs that appear in select five selective argument structures, the ditransitive, the spray/load, the conative, the causative-inchoative and the active-passive alternations (Levin, 1993), from three corpora of children and their caregivers language productions (MacWhinney, 2000). We found Zipfian distributions of vertex degrees in all three corpora, where verbs in children's language input are semantically more restricted than adult-to-adult interactions. Except for the ditransitive, semantic general verbs do not take high rank in the vertex degree, suggesting that semantic generality might not play a role as important as previously argued.