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Unsupervised learning of VerbNet argument structure

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Abstract: The relationship between a verb and the syntactic frames in which it can appear has been closely studied by psychologists and linguists. Research suggests that the semantics of a verb and its arguments determine the verb's syntactic frames, but various theories (Levin & Hovav, 2005) disagree on the nature and complexity of these relationships, in part because most investigations have focused on a small subset of verbs that may not generalize. Investigating the semantic and syntactic relationships present in larger sets of verbs would provide more substantial evidence for evaluating and selecting theories of verb argument structure. We report on initial analyses of the 6000+ verbs and 280+ syntactic frames of VerbNet (Kipper et al., 2008), the largest English verb syntax resource available, using nonparametric Bayesian methods (e.g. Shafto et al., 2006) for cluster analysis and dimensionality reduction.