Learning a graph-structured generative probabilistic grammar of linguistic experience

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Abstract: The mechanisms that allow situated, embodied learning systems employed by human babies or juvenile songbirds to distill their multimodal experience into a form that supports flexible and open-ended generation of behavior are still poorly understood. We describe an ongoing attempt to gain insight into those mechanisms, by developing a biologically motivated model capable of incremental unsupervised learning of a generative probabilistic grammar of behavior, focusing initially on language. The implemented model demonstrates learning from unannotated text corpora, including those of transcribed natural speech, while replicating the effect of variation sets on learning, an effect documented in a recent study with human subjects.