Structured Connectionist Modeling of Word Learning

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We have now been studying structured connectionist models of word and concept learning for about a decade. The original name of the project, L0, was chosen because zero was about the percentage of language we were attempting to cover. The current effort is still only concerned with a tiny fraction of the complexity of language learning, but we are now trying to deal with all of a child's first (say) 200 words and so we have presumptuously renamed the project as NTL, the Neural Theory of Language.

Grounded (or as we prefer, embodied) meaning has been and remains at the core of the project. The first major results of the group appear in Regier's thesis and book, which we assume are well known to this workshop. The current results and efforts are available from the web page: www.icsi.berkeley.edu/NTL/ Of particular interest for this workshop is the submission to the Cognitive Science Conference called "Extending Embodied Lexical Development".

Work in the near future will focus on three topics related to embodied word meanings. All of these are based on the active representation, called X-schemas, developed in Bailey's and Narayanan's theses as the grounding for action words and linguistic aspect and described in the paper mentioned above. One project will focus on how X-schemas themselves are learned. A second focus will be on extending our models to cover speech acts as a grounding for the meaning of words that refer to the discourse itself. The third topic, which we believe to be closely related to the second, is how early grammar emerges from word meaning. All of this work is being done in our standard fashion: combining linguistic, psychological, biological and computational insights in structured connectionist models.