Refining the distributional hypothesis: A role for time and context in semantic representation

Cotie Long
Indiana University

Melody Dye
Indiana University

Michael Ramscar
University of Tübingen

Abstract: Distributional models of semantics assume that the meaning of a word is a function of the contexts in which it occurs. In line with this, prior research suggests that a word's semantic representation can be manipulated – pushed toward a target meaning, e.g. – by situating that word in distributional contexts frequented by the target. Left open to question is the role that sequence plays in the distributional construction of meaning. In particular, learning occurs in time, and it can produce asymmetric outcomes depending on the order in which information is presented. Learning theory predicts that systematically manipulating a word's preceding context should more strongly influence its meaning than should varying what follows. We find support for this hypothesis in two experiments in which we manipulated subjects' contextual experience with both high and low frequency words, while varying the location of manipulation. We consider the implications for various modeling approaches.