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A computational cognitive model of pronoun resolution

The goal of this talk is to propose a computational model of pronoun resolution that is grounded in a general cognitive architecture -- ACT-R. The model incorporates various linguistic constraints on different types of pronouns as a set of representations and computations in ACT-R. The model is an extension of the cue-based retrieval (CBR) theory of sentence processing which is also implemented in ACT-R. CBR proposes that sentence processing takes place as a set of parsing and memory retrieval computations (procedural memory) operating on memory representations of linguistic units (declarative memory). I will first briefly describe ACT-R and CBR architectures, and then demonstrate, using explicit models and psycholinguistic data for English reflexives and German possessive pronouns, how linguistic and processing constraints on pronoun resolution can be realised within ACT-R and CBR. I will also demonstrate how such models can be extended to generate novel predictions about unseen data and can then be used to experimentally evaluate or falsify the assumptions of the model. Finally, I will outline the assumptions for a generic modeling framework for pronoun resolution.

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