

Learning to talk by listening

Alex Rudnicky
School of Computer Science
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213, USA
air@cs.cmu.edu

Real-time studies of comprehension and production in dialogue: Insights from eye movements

Michael K. Tanenhaus and Sarah Brown-Schmidt
Meliora 420
Brain and Cognitive Sciences
University of Rochester
Rochester, NY 14627-0268, USA
{mtan,sschmidt}@bcs.rochester.edu

Much of what we know about the cognitive processes by which speakers generate, and listeners comprehend, utterances come from on-line studies that measure real-time processing. However, the experimental methods used to generate these data are difficult to apply to natural interactive dialogue. In recent work, we have been examining the feasibility of using eye movements to study task-oriented dialog in variations of referential communication tasks. In this talk, I will first outline some reasons for why it is important to pursue such studies, and why monitoring eye movements is a promising approach. I will then summarize results from two lines of investigation. The first line of work uses a referential communication task that examines how referential domains of interlocutors align along task-relevant dimensions, allowing referential expressions to be linguistically underspecified and reducing competition from alternative potential referents. The second line of work investigates the eye movements of speakers as they plan and generate referential expressions in domains where modification might or might not be necessary. The timing of looks to potential contrast members predicts whether a referring expression will be produced fluently or not, and whether modification will be pre or post-nominal. Finally, I will briefly discuss “in progress” work that aims to determine if and when interlocutors monitor each other’s likely intentions and knowledge when planning and interpreting utterances.