Learning to expect the, uhh, unexpected: Adapting to the implicit utility of speech disfluencies in an ERP paradigm

Previous work indicates that the N400 expectancy effect can be attenuated following speech disfluency (e.g. “um”), suggesting that disfluency decreases listeners' certainty about upcoming words' semantic features. This study investigates whether and how listeners adapt to the implicit utility of speech disfluencies over time. First, we ask whether disfluency influences effects of violating very high-certainty lexical predictions, by examining its effect on a late frontal positivity evoked by unexpected words in highly lexically-constraining (relative to low-constraint) sentence contexts. Second, we explore how listeners dynamically adapt to speaker variability by manipulating how frequently disfluency precedes unexpected versus expected words between two participant groups. We replicated the diminished N400 effect after a disfluency while varying the distributional characteristics of disfluent utterances in the experiment. We further predict that disfluency attenuates the processing cost of violating high-certainty lexical predictions, and that neural effects of disfluency depend on how reliably disfluency signals unexpected words.