21st Annual Meeting of the Cognitive Neuroscience Society. Symposium organized by Gina Kuperberg. Boston, MA. April 7, 2014.

PREDICTION, ADAPTATION AND PLASTICITY OF LANGUAGE PROCESSING IN THE ADULT BRAIN

This mini-symposium focuses on adaptation and plasticity of language processing in the healthy adult brain. It explores the idea that prediction in language is inherently linked to language adaptation and learning. We bring together several leaders who will discuss these relationships from different perspectives, presenting data collected using multiple techniques. First, Florian Jaeger, together with Dave Kleinschmidt, will situate the relationship between prediction and learning in a changing environment within a rational "ideal observer" framework, discussing data from computational Bayesian models. Second, Matt Davis will discuss a series of magneto-encephalography (MEG) and functional MRI (fMRI) experiments suggesting that the brain's adaptation to degraded speech depends on the accuracy of prior predictions, linking these findings to predictive coding models of neural processing. Third, Kara Federmeier, together with Eddie Wlotko, will discuss a large body of electrophysiological research examining the impact of prediction violations at the levels of semantic, lexical, and perceptual features, highlighting how quickly we adapt to such errors, and how this varies across the lifespan. Finally, Gina Kuperberg will discuss electrophysiological and fMRI studies examining prediction at the semantic-syntax interface, suggesting that the certainty of our predictions can directly influence the neurocognitive mechanisms we engage to comprehend realworld events in different discourse contexts. This symposium is timely and important. It revisits key questions about the architecture of language comprehension in the brain in the light of core computational and neural principles of learning, adaptation and executive function.