

The Effects of Text Genre on the Intensity and Localization of Cortical Activation in Normal Adult Brains

Discourse processing is a complex communication behavior that integrates many types of information (e.g., linguistic, cognitive, organizational, social), enabling us to produce or comprehend a coherent message. Damage to the supportive neurological substrates, through traumatic brain injury, cancer, or neurodegenerative diseases, can disrupt this complex process, leading to an impaired ability to communicate in a variety of recognized discourse categories (e.g., narrative, procedural, conversational). Because discourse is a medium for educational, vocational and social information exchange, it is essential for satisfactory participation and quality of life. Consequently, there is an urgent need for research that will shape efficacious therapeutic approaches for persons with discourse processing impairment secondary to acquired brain damage. This research will contribute to clarification of the structure and role of the neural architecture that supports discourse processing in neuro-typical adults, thus forming a framework for therapeutic remediation of discourse deficits. Neuroimaging data supports the existence of a bilateral language-processing network in the brain that facilitates discourse level communication, but little is known about how activation patterns correlate with language structure and organization. In this study, 12 neuro-typical native English speakers will participate in an event related fMRI study. Stimuli include 60 word narratives of three different genres: stories, personal recounts, and procedural texts, while the baseline condition is temporally consistent, but not a goal directed sequence found in the other genres. Subjects will silently read each narrative while neuroimaging data is collected. Hemodynamic response during the processing of each genre will be compared to response in the other conditions, potentially revealing differential activation patterns and processing demands. If identified, a distinction in the processing of varying narrative genres would have practical implications for the diagnosis and treatment of discourse deficits.