

Elizabeth Musz – Abstract

## **Category Typicality Modulates Goal-Directed Retrieval of Living and Nonliving Things**

Semantic cognition enables us to flexibly represent an object as a member of several different categories. This ability requires the dynamic selection of information relevant for the category judgment at hand while task-irrelevant aspects are ignored. We investigated how fluctuations in neural response track the selection of task-relevant information during category judgments of typical and atypical living and nonliving things. In an fMRI experiment, we measured multi-voxel patterns evoked by each item during three separate instances: two “baseline” patterns, while subjects retrieved the item’s meaning, and one “biased” pattern while subjects performed a living-versus-nonliving judgment. We then computed pairwise dissimilarities between each item’s two baseline patterns and its biased pattern. We found that atypical items exhibited greater divergence between their baseline and biased neural patterns, relative to typical items. This finding suggests that the neural responses evoked by atypical items undergo greater shifts to bring their patterns in line with a category-relevant response. In addition, we measured changes in response magnitude during category judgments. A whole-brain analysis revealed increased recruitment of left inferior frontal gyrus during judgments of atypical versus typical items. These findings illustrate how dynamic, context-dependent retrieval of task-relevant information is manifested in neural signals.