



PREDICTING CONCEPTUAL CHANGE DURING NATURALISTIC READING

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SUMMARY

The aim of this project is to better understand the mechanisms of online changes in the neural representations of concepts during naturalistic reading using computational models of conceptual change to predict changes in multivoxel representational patterns as participants encounter the same concept multiple times in a cohesive text. In particular, we compare the change in the multivoxel patterns from the first time a participant fixates on a particular concept to the last time. The concepts in the current study are scientific concepts that are being explained in short expository texts, much like one would see in a textbook. This study uses simultaneous eye-tracking and multiband fMRI to allow participants to read naturally while maintaining a high degree of precision in determining both the onset of neural activity for a particular word (the initial fixation captured in the eye tracking data) as well as the particular pattern of brain activity that corresponds to the neural processing of that word (a statistical map from the fMRI data).

Completed

Preprocessing pipelines for neuroimaging data

Analysis of adult monolingual data & compiled results (50 Ss)

In Progress

Initial dip model [end Oct]

Not yet started

Cleaning data with ICA [end Oct]

Increase # data pts using nearest fixation to target word [end Nov]

Write-up of current results [Dec]