UC San Diego
Cognitive Science

Alyssa Truman's Dissertation Defense

Not the Same River: Flexibility in the Conceptual System

Monday, June 1st, 2026
9:15 – 11:15am
https://ucsd.zoom.us/j/93000672174

Abstract:

Concepts are believed to be the building blocks of our thoughts. Conceptual information in our mind is often described as a network, in which concepts are connected to each other via relations. Therefore, exploration of human cognition entails understanding and characterizing the conceptual network.

Current theories view the conceptual network as malleable and dynamic, changing across individuals, across the life span, and from moment to moment. On the other hand, the conceptual network shows apparent stability, as suggested by data indicating an inherent, pre-existing structure that persists across individuals and different contexts.

This dissertation seeks to reconcile the evident flexibility of the context-sensitive conceptual network with its apparent stability, and to better characterize the changes in the organizational structure of the conceptual system from one moment to another, within each individual.

In this dissertation, we explore the factors that affect the moment-to-moment changes in the structure of the conceptual network, by looking at behavioral data and event-related brain potentials (ERPs). Across a series of experiments, we investigate the temporal dynamics of "context-free" preexisting acquired knowledge and transient contextual demands on different stages of processing of noun-noun word-pairs that share a feature (e.g., *tomato-moon*, both are round). Feature-based similarity priming provides an avenue to examine how manipulating the activation of specific features of a prime concept influences its relations to target concepts that share those features. Our results demonstrate the time course effects and interaction of both sources of information – the "stable" preexisting acquired knowledge and the "flexible" transient contextual demands – at different stages of processing.

We conclude by outlining a view of conceptual network structure that bridges between flexibility and stability, based on behavioral and neurobiological data. Our results suggest that the activated conceptual network is a morphing entity, constantly integrating real-time information with its pre-existing structure.

Committee members:

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