

Decision Processes Colloquia

Monday, February 20, 2023

Where: **260 JMHH**

When: **12:00 – 1:20 pm**

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Contextual Sensitivity in Multi – alternative Decision – making

ABSTRACT:

Over the past several decades, researchers in psychology, neuroscience, marketing, and economics have been keen to understand context effects in multi-alternative, multi-attribute decision-making. These effects occur when choices among existing alternatives are altered by the addition of a new alternative to the choice set. The effects violate classic decision theories and have led to the development of computational and mathematical models that explain how the effects arise due to underlying cognitive and neural mechanisms. While numerous theories have been developed to explain the existence of the effects, these theories have difficulty explaining recent empirical findings showing that the effects often disappear or reverse. Building off of these existing theories, we propose a new theoretical framework for understanding the elusive nature of context effects. The model predicts the occurrence of context effects when attention is restricted to intra-attribute comparisons, and a gradual weakening of the effects as the frequency of inter-attribute comparisons increases. Based on this, we hypothesized that context effects would be larger with non-comparable attributes, since this format should discourage inter-attribute comparisons, and weaker when attributes are easily comparable. We confirmed this hypothesis in separate experiments for the attraction and compromise effects. Additionally, we show how the modeling framework can be coupled with representations from machine learning models to study context effects in naturalistic decision tasks. In sum, this framework provides a powerful tool for understanding multi-alternative decision-making, explaining diverse behavioral patterns across a wide range of decision paradigms from stylized laboratory tasks to naturalistic decisions.

