Graph-Theoretic Models of Behavioral Phenomena

Jon Kleinberg, Cornell University

A growing line of research aims to build mathematical models of collective human behavior, and an important strand of this work focuses on behavioral biases – regularities in people's behavior leading to outcomes that are inconsistent with standard frameworks for rational optimization. We show how graph-theoretic models can be a powerful way to abstract some of the underlying phenomenon at work when people form plans in the presence of behavioral biases. Among other results, we find that using graph structures to model the formation of plans can allow us to represent and unify a wide range of qualitative phenomena observed in the literature on biased behavior, including procrastination, abandonment of long-range tasks, and the benefits of reduced sets of choices.

This talk is based on joint work with Sigal Oren and Manish Raghavan.