

Title: Expectations, Networks, and Conventions

(joint work with Stephen Morris, Princeton)

Agents have uncertainty over a random variable and over each other's beliefs; they play a game where each wants to match a weighted average of network neighbors' actions and the true state. Equilibria are determined by certain iterated expectations of the random variable. First, we characterize these iterated expectations in terms of centralities in an *interaction structure* that combines both the network and agents' higher-order beliefs about each other. This characterization of equilibrium generalizes existing results on complete-information network games, and on beauty contests with incomplete information in homogeneous populations. Second, we observe that network structure matters only when agents' priors are heterogeneous. Third, for that case, we study whose priors matter most in determining the equilibrium. We emphasize throughout a particular relaxation of the common prior assumption, which requires players' higher-order beliefs about each other to be consistent, while allowing first-order disagreement. In that case, the equilibrium depends on the network and on agents' beliefs in a nicely separable way.