

Network guessing games

Coralio Ballester, Giovanni Ponti and Marc Vorsatz

Abstract: We define an extended class of guessing games (Nagel 1996) where interactions among players are allowed to be heterogeneous. We first characterize a unique, stable and dominance solvable equilibrium. We find that equilibrium uniqueness directly relates to the network of dependencies (i.e., disregarding specific weights of interactions among players). Second, we settle the model in a level- k framework (Nagel 1996; Stahl and Wilson, 1994, 1995) with heterogeneous beliefs on level-0 opponents. The model yields macroscopic identical behavior across levels under mild conditions: the distributions of actions have the same shape across levels. One application of this property is that it reduces the degrees of freedom in the estimation of a mixture model: once we estimate the parameters for the distribution of level-1 actions, we implicitly estimate those parameters for higher levels.