Representativeness Heuristics and Evolutionary Dynamics

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Abstract

This paper models a situation in which players are playing a two strategies coordination game with random matching. They first randomly choose the size of sample they would like to observe according to a certain distribution, then they randomly observe a sample with this sample size of the opponents' strategies, and switch their strategies according to the distribution of strategies in the sample for the reason that they believe that this represents the distribution of the whole population (In Tversky and Kahneman (1974), this kind of representativeness heuristic is called insensitivity to sample size). We find that in random matching coordination game, Risk Dominant equilibrium is still uniquely selected. In addition, the upper bound of waiting time is determined by the smallest number of opponents each agent can observe with positive probability. Therefore, no matter how large the total population is, the transition can be still very fast.

Key words: representativeness heuristics, evolutionary game theory, coordination games