Coevolutionary and Diversity in Evolutionary Game Theory: Random Environment

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This talk is about the impacts of environmental variation on the game. Here environmental variation corresponds to the fitness variation.

In mathematical biology, we know that the player choices Bet-Hedging strategy in the stochastic environment, if the fitness is "Geometric mean" and the player doesn't, if it is "Arithmetic average" ([3]). In addition, Selten [4] showed that no mixed equilibria i.e., Bet-Hedging strategy, are evolutionarily stable when players can condition their strategies on their roles in a game. On the other hand, we know that Nash equilibrium in the game with randomly disturbed payoffs is always mixed strategy ([2]).

Thus, these results are discrepancy in spite of the similar model. Binmore and Samuelson [1] examines this discrepancy and reconciles these results. This study examines this discrepancy with the Replicator equation.

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