完全記憶がある確率的進化ゲーム理論

(Stochastic Evolutionary Game Theory with Perfect Recall)

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Abstract

This talk reformulates the stochastic evolutionary game theory as a stochastic process. First, this study generalizes Nowak [17]'s results and characterizes the properties of the stationary distribution of this game. This theory corresponds to an extensive form game in noncooperative game theory.

Second, this study formulates the stochastic evolutionary game theory with perfect recall: each player decides the action based on all past actions. This study shows that the random variable in this game and the noisy game is a martingale under some conditions. In addition, this study derives Wald's equation for the random variable's product.

Accordingly, this study constructs a new stochastic evolutionary game and shows the game is solved easily when we pay attention to the stochastic aspect of the game.

REFERENCE

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[2] Nowak, Martin (1990): "Stochastic Strategies in the Prisoner's Dilemma," *Theoretical Population Biology*, Vol.**38**, pp.93-112.

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