

Efficiency and stability in sender-receiver games under the selection-mutation dynamics

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Abstract

The purpose of this paper is to explore neutrally stable strategies in sender-receiver games of Lewis' type that give the maximal payoff of the game and have asymptotically stable rest points close to those strategies under the selection-mutation dynamics. Since an evolutionarily stable strategy exists only in the case the number of states and that of signals are equal, we introduce two neutrally stable strategies, an *extended signaling system* and a *max hybrid strategy*, in the less specific case. We show the condition that the rest point close to *the extended signaling system* is asymptotically stable in general. Moreover, it is proved that the rest point close to *the max hybrid strategy* with some restriction on parameters is asymptotically stable. We also show the relationships among the number of states, that of signals and mutation rates that allow the rest point to be asymptotically stable.

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