

Abstract:

In every multiplayer discounted stochastic game a stationary equilibrium exists. The equilibrium strategy usually depends on the discount factor. When there are more than two players, it is not known whether there exists a strategy profile that is an epsilon-equilibrium for every discount factor sufficiently close to 1.

I will introduce a new concept to the theory of stochastic games: epsilon-acceptable strategy profiles. A strategy profile in a multiplayer stochastic game is epsilon-acceptable if it yields every player at least his min-max value up to **epsilon**, provided the players' discount factors are sufficiently close to 1. It is well known that a quite complex history-dependent epsilon acceptable strategy profile exists. The question I raise is whether there are simple epsilon-acceptable strategy profiles. If such a strategy profile exists, then the players can implement a simple strategy profile that yields each player a reasonable payoff. I will discuss the existence of such a strategy profile.