

On Play By Means of Computing Machines

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Abstract

This paper examines the “bounded rationality” inherent in play by means of computing machines. The main example is the finitely repeated prisoners’ dilemma game which is discussed under different models. The game is played by Turing machines with restricted number of internal states using unlimited time and space. The observations in this paper strongly suggest that the cooperative outcome of the game can be approximated in equilibrium. Thus, the cooperative play can be approximated even if the machines memorize the entire history of the game and are capable of counting the number of stages.