Computer Simulations in Game Theory

Weirich, Paul (2006) Computer Simulations in Game Theory. In *Proceedings (Models and Simulations, London, 2006)*, Paris.

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Abstract

A computer simulation runs a model generating a phenomenon under investigation. For the simulation to be explanatory, the model has to be explanatory. The model must be isomorphic to the natural system that realizes the phenomenon. This paper elaborates the method of assessing a simulation's explanatory power. Then it illustrates the method by applying it to two simulations in game theory. The first is Brian Skyrms's (1990) simulation of interactive deliberations. It is intended to explain the emergence of a Nash equilibrium in a noncooperative game. The second is Skyrms's (2004) simulation of the evolution of cooperation. It is intended to explain cooperation in assurance games. The final section suggests ways of enhancing the explanatory power of these simulations.

Keywords:	Game theory
Subjects:	General Issues: Models and Idealization
Conferences and Volumes:	(Models and Simulations, London, 2006)
ID Code:	2754
Deposited By:	Weirich, Paul
Deposited On:	01 June 2006