Department of Decision Sciences   **Department of Economics**

Economic Theory, Decision Theory and Experimental Economics Seminar

Finite Depth of Reasoning and Equilibrium Play in Games with Incomplete Information

Willemien Kets

Kellogg School of Management, Evanston

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Abstract

The standard framework for analyzing games with incomplete information models players as if they have an infinite depth of reasoning, which is not always consistent with experimental evidence. This paper generalizes the type spaces of Harsanyi (1967--1968) so that players can have a finite depth of reasoning. We do this restricting the set of events that a player of a finite depth can reason about. This approach allows us to extend the Bayesian-Nash equilibrium concept to environments with players with a finite depth of reasoning. We demonstrate that the standard approach of modeling beliefs with Harsanyi type spaces fails to capture the equilibrium behavior of players with a finite depth, at least in some games. Consequently, the standard approach cannot be used to describe the equilibrium behavior of players with a finite depth in general.