

Measuring the power of the dominant partner among married couples

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Abstract

Cooperative TU games admit two unique single-point solution concepts, namely the Shapley value and the nucleolus. While computing Shapley value for assignment games is an open problem, one can compute the nucleolus of assignment games in polynomial time. The core has the lattice structure for assignment games that helps to locate the nucleolus by an iterative procedure that uses the Southwest corner element of the current subset of the core as the iterative approximation to the nucleolus. Suppose N men and N women, based on personal preferences select subsets of acceptable partners. We can associate a zero-one matrix where a one in row i column j means the i th woman and j th man are mutually acceptable to each other. Suppose they are paired and we have complete matching. Then after the matching, we want to quantify the dominant person's relative power. We suggest the associated assignment game as a natural model and develop an algorithm to compute the nucleolus and propose the nucleolus as the measure of the relative power.

Speaker Profile

Prof. Raghavan is an emeritus professor at the University of Illinois at Chicago, and a pioneer and globally renowned authority in the field of game theory. He is a Ph.D. from Indian Statistical Institute. His research interests are in game theory, linear and non-linear programming, matrix theory, applied statistics, and operations research. He has published more than 60 remarkable papers in the fields of stochastic games, dynamic games, and cooperative games. "*Stochastic and Differential Games: Theory and Numerical Methods*" and "*Stochastic Games and Related Topics*" are some of the books authored by Prof. Raghavan. He has been running a Gurukulam in Game theory in Pulavanur, a village in Tamil Nadu. Prof. Raghavan's profile can be accessed at <https://mscs.uic.edu/profiles/ter/> .