

On computing the per-capita nucleolus in balanced games

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Abstract

The nucleolus lexicographically maximizes the nondecreasingly ordered vector of the coalitional satisfactions (the difference of the payoff to and the value of the coalition) over the set of imputations. This satisfaction measure, however, does not take into account neither the size, nor the value (or any other characteristic that maybe important for an application) of the coalitions. Various weighted nucleoli (based on weighted satisfaction measures) were considered by several authors, but mostly from an axiomatization point of view.

In the talk we focus on the per-capita nucleolus (defined in the same way as the nucleolus, but based on the per-capita satisfaction) from a computability perspective. We show that if the core of the game is not empty, coalitions which are not anti-essential in the dual game can be ignored in the computation of the per-capita nucleolus. In specific classes of balanced games (e.g. standard tree games, assignment games, etc.) this could imply a polynomial time computability of the per-capita nucleolus.