

Calculating the Position Value for Communication Situations

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ABSTRACT

In this work we consider a zero-normalized cooperative game (N,v) with restrictions in the communications. The communication channels between individuals are modeled by an arbitrary graph (N,G) being N simultaneously the nodes set of the graph and the players set of the game, and G a collection of (unordered) pairs $\{i,j\}$ of elements of N (edges).

The seminal work in these so-called communication situations, is debt to Myerson (1977). He introduced the graph restricted-game and provided an axiomatic characterization of the Shapley value for this game. Later, Meessen (1988) introduced a second value for communication situations, the Position value, that was characterized axiomatically by Borm, Owen and Tijs (1992), in cycle-free communication situations.

In this work we propose a method to calculate the Position value for communication situations where the graph is arbitrary, not necessarily cycle-free. Moreover, in order to reduce the volume of the associated calculations, we explore the possibility of splitting the graph in more restrictive communications situations.

References:

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