Graz University of Technology

Institut für Optimierung und Diskrete Mathematik

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Group activity selection from ordinal preferences

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We consider the situation in which group activities need to be organized for a set of agents when each agent can take part in at most one activity. The agents' preferences depend both on the activity and the number of participants in that activity. In particular, the preferences are given by means of strict orders over such pairs (activity, group size), including the possibility "do nothing". Our goal will be to assign agents to activities on basis of their preferences, the minimum requirement being that no agent prefers doing nothing, i.e., not taking part in any activity at all. We take three different approaches to establish such an assignment: (i) by use of k-approval and Borda scores; (ii) considering stability concepts such as Nash and core stability; (iii) applying the Condorcet criterion.

For each of these approaches, we analyse the computational complexity involved in finding a desired assignment. Particular focus is laid on two natural special cases of agents' preferences which allow for positive complexity results.

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