

Matrix games on digraphs

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ABSTRACT

Suppose that several companies manage the activity of a big network. They have their personal local frequently antagonistic interests. In this situation well-known extremal net problems and problems of constructing graph structures become multi-criteria game problems.

Some such problems are investigated in literature [1, 2]. But they were arised in context of cyclic games solving. That approach determined a special type of strategies definition [1]. This work, by generalizing the notion of pure strategy and cost function, introduces and investigate some interesting types of games on digraphs [3].

The poster is organized as follows. Section 2 introduces the notion of zero-sum matrix game on digraphs. Some properties giving a general tool for matrix games investigations are proved. Section 3 presents some particular solvable games. A special investigation is done for flow game. It is proved that the problem of maximin cost flow finding is NP-hard. Section 4 generalizes the notion of matrix game on digraphs in the case of arbitrary finite number of players. Section 5 introduces the notion of dynamic games on digraphs using notions from previous sections.

References

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