

On the Maximum Guaranteed Payoff in Some Problems of Conflict Control of Multistep Processes

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Abstract—We consider multistep conflict-controlled processes with two controlling parties. The duration of the process is fixed, and there are no constraints on the right end of the discrete trajectory. The first player aims to maximize the terminal functional without information about the future behavior of the second player. We study the important notion of maximum guaranteed payoff of the first player using the ideas of Bellman's dynamic programming method. Based on this method, a formula for the maximum guaranteed payoff is derived in Theorem 1 under broad assumptions on the conflict-controlled process. In Theorem 2, we obtain sufficient conditions under which the corresponding functions of Bellman type are Lipschitz. Two examples are considered.

Keywords: discrete controlled processes, conflict, dynamical programming.

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