TWO-LEVEL COOPERATION IN A CLASS
OF NON-ZERO-SUM DIFFERENTIAL GAMES

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A two-level game is considered. At the first level, the set of players N is partitioned into coalitions $S_i \subset N$, $i = 1, \ldots, m$, such that $S_i \cap S_j = \varnothing$ for $i \neq j$ and each coalition plays against other coalitions a non-zero-sum cooperative differential game with prescribed duration and nontransferable payoffs. At the second level, within each coalition, the players are engaged in a cooperative differential game with prescribed duration and transferrable payoffs. The concept of solution is proposed for this type of two-level games. The properties of a solution, namely, its time consistency or dynamic stability, are studied.

Keywords: coalition partition, cooperative differential game with transferable payoffs, Pareto optimality, payoff distribution procedure, time consistency.

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