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ALTRUISTIC AND AGGRESSIVE TYPES OF BEHAVIOR IN A NONANTAGONISTIC POSITIONAL DIFFERENTIAL GAME OF THREE PERSONS

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In this paper, the results of the author's previous work concerning a nonantagonistic positional differential game of two persons with different types of the players' behavior are generalized to a game of three persons. For simplicity, the paradoxical type of behavior is not used by the players. The notions of altruistic and aggressive behavior types are generalized. As in the two-person game, it is assumed that each player chooses not only a positional strategy but also an indicator program function. The rules for forming controls for each triple of behavior types and the definition of a BT-solution are clarified. An example of a game with the dynamics of simple motion on a plane and a phase constraint is considered. It is assumed that the players can show altruism and aggression towards their partners, and the case of simultaneous aggression from all the players is not excluded. A description of BT-solutions of the game is given.

Keywords: nonantagonistic positional differential game, terminal payoff functionals, altruistic and aggressive behavior types, Nash equilibrium.

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