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Correlated relaxed equilibria in nonzero-sum linear differential games. (English)

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J. Math. Anal. Appl. 163, No. 1, 104-112 (1992).

The paper extends the concept of “correlation in randomized strategies”, as introduced by Aumann, to differential games. Correlation in randomized strategies is related to cooperation among players, without making compulsory commitments. The equilibrium in question, the correlated equilibrium, is in some sense an extension of Nash equilibrium solutions and may have some advantages.

The extension to differential games is confined to linear differential games of prescribed duration. The main part of the paper deals with open-loop strategies. The last section states that closed-loop strategies can be treated along the same lines and do not cause any intrinsic difficulties. The set of strategies available to the players is extended by allowing them to correlate their decisions during a preplay communication process. This leads to a so-called correlated relaxed strategy. Subsequently the players make their final decisions independently of each other.

The analysis uses concepts from relaxed control theory. The proof of the statement that an open-loop correlated relaxed equilibrium point exists is not based on any fixed-point argument but on a minimax argument which uses Fan’s minimax theorem.

An interesting paper.

Reviewer: G.J.Olsder (Delft)

MSC:

[91A23](#) Differential games (aspects of game theory)

[91A10](#) Noncooperative games

Cited in **1** Review
Cited in **3** Documents

Keywords:

relaxed control; correlation in randomized strategies; correlated equilibrium; Nash equilibrium; open-loop strategies; open-loop correlated relaxed equilibrium point; minimax theorem

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