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Existence of Equilibria in Certain Games: Topological and Geometric Aspects

The motivation for our research comes from considering the problem of the existence of equilibria in a class of games. (These are two-person, infinitely repeated games with incomplete information on one side.) This problem may be translated into a geometric language and solved using topological methods. I intend to describe the geometrical and topological results obtained, which deal with separation of members of a family of convex functions and with an analogue, for set-valued functions, of a weak form of Borsuk-Ulam theorem. As compared with a talk at an earlier Dubrovnik conference the progress has its source in establishing connection between the homological property needed and the fact that a set-valued function associated with the game disconnects the target cube between a vertex and the union of faces disjoint from it. This allows to broaden essentially the class of the games considered.

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