Continuous Dependence of Sets in a Space of Measures and a Program Minimax Problem

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Abstract—For conflict-controlled dynamical systems satisfying the conditions of generalized uniqueness and uniform boundedness, the solvability of the minimax problem in the class of relaxed controls is studied. The issues of properness of such a relaxation are considered; i.e., the possibility of approximating relaxed controls in the space of strategic measures by embeddings of ordinary controls is analyzed. For this purpose, the dependence of the set of measures on the general marginal distribution specified on one of the factors of the base space is studied. The continuity of this dependence in the Hausdorff metric defined by the metric corresponding to the ∗-weak topology in the space of measures is established. The density of embeddings of ordinary controls and control–disturbance pairs in sets of corresponding relaxed controls in the ∗-weak topologies is also shown.

Keywords: relaxed controls, strategic measures, minimax problem, ∗-weak convergence, Hausdorff metric.

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