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"Essays in Cooperative Game Theory"

The chapters of this thesis consist of three self-contained papers addressing different subjects within cooperative games. The first chapter concerns the ability of players to manipulate a TU game by forming (or dissolving) so-called partnership. We explore the existence of allocation rules that are immune to such manipulations and consider whether some well-known allocation rules are immune to manipulations. The second chapter provides a new characterization of the class of compromise stable TU games. A game is called compromise stable if the core is the convex hull of the larginal vectors. A larginal vector corresponds to an order of the players and describes the efficient payoff vector giving the first players in the order their utopia demand as long as it is still possible to assign the remaining players at least their minimum right. We characterize sets of larginal vectors that satisfy the condition that if every larginal vector of the set is a core element, then the game is compromise stable. We find characterizing sets of minimum cardinality, a closed formula for the minimum number of orders in these sets, and a partition of the set of all orders in which each element of the partition is a minimum characterizing set. The third chapter analyzes a class of cooperative cost games arising from the Chinese postman problem on a graph. If we associate players with the edges of a graph, we can address the related cost allocation problem by analyzing the induced cooperative (cost) game. We analyze games induced by Chinese postman problems in which multiple depots exist and characterize classes of graphs such that the induced games are balanced and sub modular respectively.