The kernel is in the least core for permutation games

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Abstract

Permutation games are totally balanced transferable utility cooperative games arising from certain sequencing and re-assignment optimization problems. It is known that for permutation games the bargaining set and the core coincide, consequently, the kernel is a subset of the core. We prove that for permutation games the kernel is contained in the least core, even if the latter is a lower dimensional subset of the core. By means of a 5-player permutation game we demonstrate that, in sense of the lexicographic center procedure leading to the nucleolus, this inclusion result can not be strengthened. Our 5-player permutation game is also an example (of minimum size) for a game with a non-convex kernel.