Optimal reallocation under additive and ordinal preferences *

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Reallocating resources to get mutually beneficial outcomes is a fundamental problem in various multi-agent settings. In the first part of the paper we focus on the setting in which agents express additive cardinal utilities over objects. We present computational hardness results as well as polynomial-time algorithms for testing Pareto optimality under different restrictions such as two utility values or lexicographic utilities. In the second part of the paper we assume that agents express only their (ordinal) preferences over single objects, and that their preferences are additively separable. In this setting, we present characterizations and polynomial-time algorithms for possible and necessary Pareto optimality.

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