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Robust Minimal Instability of the Top Trading Cycles Mechanism

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In the context of priority-based allocation of objects, we formulate methods to compare assignments in terms of their stability. We introduce three basic properties that a reasonable stability comparison should satisfy. We show that, for any stability comparison satisfying the three properties, the top trading cycles mechanism is minimally unstable among efficient and strategy-proof mechanisms when objects have unit capacities. Our unifying approach covers basically all natural stability comparisons and establishes the robustness of a recent result by Abdulkadiroğlu et al. (2020). When objects have non-unit capacities, we characterize the capacity-priority structures for which our result is preserved.

Joint work with Battal Doğan, University of Bristol.