

# Happy 50th birthday TTC! & Characterizing the top trading cycles rule for housing markets with lexicographic preferences when externalities are limited

*Tuesday, September 24, 2024 2:00 PM (1 hour)*

In my talk, I would like to commemorate the 50th birthday of the famous top trading cycles algorithm/rule and will mix a survey with a recent paper. The abstract for the paper is as follows.

We consider a housing market model with limited externalities where agents care both about their own consumption via demand preferences and about the agent who receives their endowment via supply preferences (we extend the associated lexicographic preference domains introduced in Klaus and Meo, 2023). If preferences are demand lexicographic, then our model extends the classical Shapley-Scarf housing market (Shapley and Scarf, 1974) with strict preferences model. Our main result is a characterization of the corresponding top trading cycles (TTC) rule by individual rationality, pair efficiency, and strategy-proofness (Theorem 1), which extends that of Ekici (2023) from classical Shapley-Scarf housing markets with strict preferences to our model. Two further characterizations are immediately obtained by strengthening pair efficiency to either Pareto efficiency or pairwise stability (Corollaries 1 and 2). Finally, we show that as soon as we extend the preference domain to include demand lexicographic as well as supply lexicographic preferences (e.g., when preferences are separable), no rule satisfying individual rationality, pair efficiency, and strategy-proofness exists (Theorem 2).

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**Session Classification:** Afternoon Session