

# Strategyproof Voluntary Pairwise Exchange with Dichotomous Preferences\*

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April 23, 2026

## Abstract

This study investigates pairwise endowment exchange without monetary transfers under dichotomous preferences, motivated by living donor kidney exchange problem. In contrast to the standard strict preference domain—where no mechanism satisfies efficiency, incentive compatibility, and individual rationality simultaneously—these properties are jointly achievable in this setting. We adopt a definition of mechanisms as welfare-based correspondences rather than single-valued functions, treating welfare-equivalent outcomes as identical. We provide the first characterization of mechanisms satisfying these properties and show that all mechanisms in this class closely resemble the priority mechanism (Roth, Sönmez, and Ünver, 2005), supporting its use in pairwise kidney exchange.

Keywords: Dichotomous preference, Kidney exchange, Matching, Matroid

JEL classification: D45; D47; D71

## References

Roth, Alvin E., Sönmez, Tayfun, and Ünver, M. Utku (2005). “Pairwise kidney exchange”. *Journal of Economic Theory* 125.2, 151–188.

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\*I am grateful to Hideo Kinishi, Morimitsu Kurino, Tayfun Sönmez, Utku Ünver for their helpful comments and instructions. I also thank seminar participants at Boston College, Keio University, and The University of Osaka.

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