

Matching mechanisms for kidney transplantations

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1 Two Simple Approaches

Question 1

Question 2

2 Efficient strategy-proof exchange mechanism

Question 3

Let (k_1, t_1) be a pair of donor-patient and assume there is no cycle. Consider the chain starting from (k_1, t_1) . Since there is a finite number n of donor-patient pairs and there is no cycle, the chain cannot be infinite. Finally, since the only way for a chain to stop is that w belong to the chain, (k_1, t_1) is indeed a tail of a w -chain.

Thus either there exists a cycle, or each pair is the tail of some w -chain.