"Matching in Dynamic Imbalanced Markets"
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Audience Q&A

1) Q Teddy Mekonnen: Nikhil and Laura: I believe Iyer Krishnamurthy (and co-author) has a paper with homogenous objects and heterogenous agents. They consider the information design problem but with FCFS. Also, heterogeneity is in the outside option instead of the object's valuation.

Laura Doval: Teddy, are you talking about this one: https://arxiv.org/abs/2005.07253

Mekonnen: Yes, that's the paper. Thanks, Laura

Doval: Thank you, Teddy!

2) Q Itai Ashalgi: The result is simply because that there are fewer O donors than O patients. This data is selected -hospitals selected which pairs to enroll. focusing on registries in which this is not the case graph goes down quicker. imagine a registry in which hospitals enroll only O-A patient donor pairs - no two pairs will match.

3) Q Yashodhan Kanoria: Suppose it is impractical to match more frequently than once per day. suppose more than one easy type arrives. I assume the policy then needs to be "smart" in not matching easy types to each other, right?

or does maximum matching already ensure that this never happens…

A Itai Ashalgi: Yes, give priority to hard.

Also, these numbers assume that we don't prioritize those who waited longer.

Kanoria: Thanks. neat model to easily explain why greedy is near model.

Near optimal*

What if you allow three-way cycles, you may need to prioritize three way cycles that involve two hard to match folks, and perhaps greedy may be beatable in some regimes?

Ashalgi: In this model when the market is large enough it won't help. there is no "sparsity" of matching and only two types.

Kanoria: For three way, you will need a more detailed, directed graph model, and presumably there are some directed edges even from one hard to match pair to another. That's what I'm thinking of…

4) Q Nikhil Agarwal: Is the intuition for this proof similar to the paper from yesterday on unbalanced dynamic ride-sharing markets?

A Afshin Nikzad: There are differences in objectives. But broadly speaking there is a similarity to note, as you suggest: excess supply of one side leads to greedy being optimal with respect to the specific objective considered.