

Game Theory and Internet Protocols

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1 Assignment 2

Assignment 2: Do five problems. Due Monday before class.

Exercise

- Prove Boy Proposal Algorithm returns the best mate of a boy in any stable matching
- Prove every girl in BPA gets her worst mate in a stable matching.

Exercises

Find the reduced form and CRF function and discuss allocation rules and pricing rules for the following distributions

- Consider three buyers of value ranges in $[1, 2]$ and $[1, 2]$ in the independent uniform distribution.
- two buyers independent in $[1, 4]$ and $[2, 3]$.
- n buyers iid uniform in $[0, 1]$.
- n buyers iid in the same powerlaw distribution.
- two buyers independent in different powerlaw distributions.
- two buyers in Guassian distribution.

Solving Zero Sum Game

- Develop a linear program to solve the game of prisoner's dilemma.
- Find your favorite LP solver and demonstrate how to solve the above.