Game Theory and Internet Protocols

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Assignment 3: Do four problems. Due time Nov 28, 2016

Exercise

Given seller uniform in [1,3], buyer uniform in [2,4]

- Find the optimal revenue solution for the market maker.
- Find the maximum social welfare solution.

References

- Myerson–Satterthwaite theorem (1983)
- Xiaotie Deng, Paul W. Goldberg, Bo Tang, and Jinshan Zhang. Revenue Maximization in a Bayesian Double Auction Market. Theoretical Computer Science 539: 1–12 (2014)

Digital Goods

- Optimal Approximation for digital goods
- Power-law distribution for agents' values. Find out optimal pricing rule.
- Optimal revenue design for 2 consecutive days sale of digital goods.
  Truthful or approximately truthful (ratio = ?)

Sponsors Search Market

Do one of the assignment question or exercise at the end of the lecture note.

Bandwidth Sharing

- Design an algorithm for finding market equilibrium of P2P network which is (i) a line (ii) a cycle (iii) a complete graph in polynomial time of low degree. (something like $O(n^2), O(n^3)$)