CS 136: Economics and Computation

Lecture 21
Wrap-Up

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Topics

Part I
- Game theory (simultaneous, sequential)
- Algorithmic game theory
- P2P systems
- AGT
- Reputation mechanisms
- Information elicitation
- Prediction markets
- Auction design
- Mechanism design

Part II
- Internet advertising
- Combinatorial auctions
- Matching markets
- Price of Anarchy
- Networks
- Network formation games
- Games on networks
- Bitcoin
- Privacy
Econ/CS Interactions

- Complexity of Nash eq, Corr eq.
- Representations
  - Games
  - Strategies on games
  - Valuations fcns Cas
- Protocol design
  - Bittorrent as “rules of the game”; c.f., TtT
- Algs with private inputs
  - Aka “mech. design”
  - VCG
  - Monotonicity
- Market making/clearing
  - LMSR for prediction markets
  - WDP in CAs
  - Matching in KX
- Extrinsic incentives
  - Peer prediction

Econ/CS Interactions (2 of 2)

- eCommerce Platforms
  - Reputation system design
  - Dynamic pricing algorithms (e.g., ad auctions)
- Networks
  - Understand structure
  - How they form?
  - Cascades, seeding
- Worst-case analysis
  - Price of Anarchy
  - Smoothness framework
- Digital currencies
  - Block chain, BTC
- Privacy
  - Differential privacy
  - Laplace mechanism
Today

• Trustworthy dark pools.
• Real world
  – Bitcoin
  – Privacy
• Strategic behavior in Doodle polls, coordination mechanism design.