Good Afternoon, Colleagues

Are there any questions?
Logistics

- Final tournament times
  - M-F 10:30am, 12:30, 2:30pm?
Logistics

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• Next week’s readings
Logistics

- Final tournament times
  - M-F 10:30am, 12:30, 2:30pm?

- Next week’s readings

- Questions required on Thursday!
Distributed Rational Decision Making

Self-interested, rational agent
Distributed Rational Decision Making

Self-interested, rational agent

- Self-interested:
Distributed Rational Decision Making

Self-interested, rational agent

- Self-interested: maximize own goals
  - No concern for global good
Distributed Rational Decision Making

Self-interested, rational agent

• Self-interested: maximize own goals
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• Rational:
Distributed Rational Decision Making

Self-interested, rational agent

- Self-interested: maximize own goals
  - No concern for global good

- Rational: agents are smart
  - Ideally, will act optimally
Distributed Rational Decision Making

Self-interested, rational agent

- Self-interested: maximize own goals
  - No concern for global good
- Rational: agents are smart
  - Ideally, will act *optimally*

The protocol is key
Evaluation Criteria

- Social welfare
- Pareto efficiency
- Stability
Evaluation Criteria

- Social welfare
- Pareto efficiency
- Stability
- Individual Rationality
Evaluation Criteria

- Social welfare
- Pareto efficiency
- Stability
- Individual Rationality
- Efficiency (computational, communication)
Voting vs. auctions

- Voting: maximize social good
  - result affects all
Voting vs. auctions

- Voting: maximize social good
  - result affects all

- Auctions: maximize profit
  - result affects buyer and seller
Irvin Hwang on auctions (and candy bars)
Auctions

- Valuations:
Auctions

- Valuations:
  - private value
Auctions

- Valuations:
  - private value
  - common value
Auctions

- Valuations:
  - private value
  - common value
  - correlated value
Auctions

- Valuations:
  - private value
  - common value
  - correlated value

- Types:
  - first-price open-cry (English)
Auctions

- Valuations:
  - private value
  - common value
  - correlated value

- Types:
  - first-price open-cry (English)
  - first-price sealed-bid
Auctions

- Valuations:
  - private value
  - common value
  - correlated value

- Types:
  - first-price open-cry (English)
  - first-price sealed-bid
  - descending (Dutch)
Auctions

- Valuations:
  - private value
  - common value
  - correlated value

- Types:
  - first-price open-cry (English)
  - first-price sealed-bid
  - descending (Dutch)
  - second-price sealed-bid (Vickrey)
Auctions

- Valuations:
  - private value
  - common value
  - correlated value

- Types:
  - first-price open-cry (English)
  - first-price sealed-bid
  - descending (Dutch)
  - second-price sealed-bid (Vickrey)

**Revenue equivalence: private-value, risk-neutral**
Auctions

- You value a bunch of flowers at $100
Auctions

• You value a bunch of flowers at $100

• What strategy if auction is:
  – English
Auctions

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- What strategy if auction is:
  - English
  - first-price sealed-bid
Auctions

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- What strategy if auction is:
  - English
  - first-price sealed-bid
  - Descending
Auctions

- You value a bunch of flowers at $100

- What strategy if auction is:
  - English
  - first-price sealed-bid
  - Descending
  - Vickrey
Auctions

- You value a bunch of flowers at $100

- What strategy if auction is:
  - English
  - first-price sealed-bid
  - Descending
  - Vickrey

- What if it’s an antique?
Auctions

- Vickrey, English are truthful
Auctions

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- First-price sealed-bid: bidders bid lower than values
Auctions

• Vickrey, English are truthful

• First-price sealed-bid: bidders bid lower than values
  – Private value case: why?
Auctions

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- In common (and correlated) value case, bids lower in all mechanisms
Auctions

- Vickrey, English are truthful
- First-price sealed-bid: bidders bid lower than values
  - Private value case: why?
- In common (and correlated) value case, bids lower in all mechanisms
  - Why?