Autonomous Multiagent Systems

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Week 11, Tuesday (11/5)

Any Questions?

Reading Overview — Chapter 5

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

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Evaluation Criteria

- Social welfare
- Pareto Efficiency
- Stability
- Individual Rationality
- Efficiency (computational, communication)

Voting vs. auctions

- Voting: maximize social good
  - result affects all
- Auctions: maximize profit
  - result affects buyer and seller

Gibbard-Satterthwaite

- Example: Bush, Gore, or Nader?
  - For whom should you vote?
  - What if we change the system?

Gibbard-Satterthwaite

- Example: Bush, Gore, or Nader?
  - For whom should you vote?
  - What if we change the system?
- 3+ candidates $\Longrightarrow$ only **dictatorial system** eliminates need for tactical voting
  - One person appointed
- No point thinking of a "better" voting system
- Assumption: no restrictions on preferences

What about Clarke tax algorithm?

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
- What strategy if auction is:
  - English
  - first-price sealed-bid
  - Descending
  - Vickrey
- What if it's an antique?

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?

Student-led discussion – auctions

- eBay auctions
- sniping

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Question

- What are some possible countermeasures to sniping that auction sites can take and how does that effect the auction format?

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Next Week's Readings – Auctions

- FCC Spectrum Auctions
- The Trading Agent Competition
- Comparison of eBay and Amazon mechanisms (optional)