

CS395T
Agent-Based Electronic Commerce
Fall 2003

Peter Stone

Department of Computer Sciences
The University of Texas at Austin

Week 4b, 9/18/03

Logistics

- In Tuesday's reading look for typos!

Logistics

- In Tuesday's reading look for typos!
- Any questions?

Carryover from last time

- Endogenous

Carryover from last time

- Endogenous
 - Time between bids is “endogenous” (Crampton)
 - Amount of competition is “endogenous” (Crampton)
 - Quantity is “endogenous” (Milgrom)

Carryover from last time

- Endogenous
 - Time between bids is “endogenous” (Crampton)
 - Amount of competition is “endogenous” (Crampton)
 - Quantity is “endogenous” (Milgrom)
 - “Part of the strategy, or bidder decision”

Carryover from last time

- Endogenous
 - Time between bids is “endogenous” (Crampton)
 - Amount of competition is “endogenous” (Crampton)
 - Quantity is “endogenous” (Milgrom)
 - “Part of the strategy, or bidder decision”
- Distortionary taxes

Carryover from last time

- Endogenous
 - Time between bids is “endogenous” (Crampton)
 - Amount of competition is “endogenous” (Crampton)
 - Quantity is “endogenous” (Milgrom)
 - “Part of the strategy, or bidder decision”
- Distortionary taxes
 - Tax on labor vs. tax on capital

Weber

- Any comments about particular moves by the bidders?

Weber

- Any comments about particular moves by the bidders?
- Why did WirelessCo bid-withdraw-rebid in round 99?
(page 10?)

Weber

- Any comments about particular moves by the bidders?
- Why did WirelessCo bid-withdraw-rebid in round 99?
(page 10?)
- Any other moves you want to discuss?

PRSDR

- Simulator built previously to exactly match auction rules

PRSDR

- Simulator built previously to exactly match auction rules
- We had to define:
 - How many agents
 - Their values
 - Their knowledge of each other's values
 - Their strategies

PRSDR

- Simulator built previously to exactly match auction rules
- We had to define:
 - How many agents
 - Their values
 - Their knowledge of each other's values
 - Their strategies
- Started out as an exploration of strategy space in the simulator

Knowledge Engineering

- Long, iterative process

Knowledge Engineering

- Long, iterative process
- Not a stationary target

Knowledge Engineering

- Long, iterative process
- Not a stationary target
- Unclear how reliable the info is

Knowledge Engineering

- Long, iterative process
- Not a stationary target
- Unclear how reliable the info is
- The auctions are a poker game!

Market Values

- Secondary bidders

Market Values

- Secondary bidders
- Merrill Lynch report

Market Values

- Secondary bidders
- Merrill Lynch report
- Random goals based on a realistic model

Market Values

- Secondary bidders
- Merrill Lynch report
- Random goals based on a realistic model
- Priorities = how many you want

Market Values

- Secondary bidders
- Merrill Lynch report
- Random goals based on a realistic model
- Priorities = how many you want
 - Assumed no more than 2

Market Values

- Secondary bidders
- Merrill Lynch report
- Random goals based on a realistic model
- Priorities = how many you want
 - Assumed no more than 2
 - p.292: $\$5M * 30M \text{ pop} * 10 \text{ mhz} * 1.05 \text{ (priority)} = \$1.575B$

Market Values

- Secondary bidders
- Merrill Lynch report
- Random goals based on a realistic model
- Priorities = how many you want
 - Assumed no more than 2
 - p.292: $\$5M * 30M \text{ pop} * 10 \text{ mhz} * 1.05 \text{ (priority)} = \$1.575B$
- No inter-market dependencies

Market Values

- Secondary bidders
- Merrill Lynch report
- Random goals based on a realistic model
- Priorities = how many you want
 - Assumed no more than 2
 - p.292: $\$5M * 30M \text{ pop} * 10 \text{ mhz} * 1.05 \text{ (priority)} = \$1.575B$
- No inter-market dependencies
- Uncertainties assume reasonably good knowledge

Market Values

- Secondary bidders
- Merrill Lynch report
- Random goals based on a realistic model
- Priorities = how many you want
 - Assumed no more than 2
 - p.292: $\$5M * 30M \text{ pop} * 10 \text{ mhz} * 1.05 \text{ (priority)} = \$1.575B$
- No inter-market dependencies
- Uncertainties assume reasonably good knowledge
 - Agent is told a perturbed value from actual value

Market Values

- Secondary bidders
- Merrill Lynch report
- Random goals based on a realistic model
- Priorities = how many you want
 - Assumed no more than 2
 - p.292: $\$5M * 30M \text{ pop} * 10 \text{ mhz} * 1.05 \text{ (priority)} = \$1.575B$
- No inter-market dependencies
- Uncertainties assume reasonably good knowledge
 - Agent is told a perturbed value from actual value

– Used to compute *satisfaction*

Budget Stretching

- You value A at \$30 and B at \$35
- I value A at \$1 and B at \$30

Budget Stretching

- You value A at \$30 and B at \$35
- I value A at \$1 and B at \$30
- You have \$40 at most to spend

Budget Stretching

- You value A at \$30 and B at \$35
- I value A at \$1 and B at \$30
- You have \$40 at most to spend
- What is the obvious outcome?
 - How much utility?

Budget Stretching

- You value A at \$30 and B at \$35
- I value A at \$1 and B at \$30
- You have \$40 at most to spend
- What is the obvious outcome?
 - How much utility?
- How can you do better?

Fairing and cheater detection

- Does fairing guarantee that all bidders are satisfied eventually?

Fairing and cheater detection

- Does fairing guarantee that all bidders are satisfied eventually?
- Is it possible for cheaters to be misidentified?

PRSDR and efficiency and optimality

- Does PRSDR lead to an efficient outcome?

PRSDR and efficiency and optimality

- Does PRSDR lead to an efficient outcome?
- Is it a dominant strategy in this domain?