CS395T
Agent-Based Electronic Commerce
Fall 2006

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Week 4a

Good Afternoon, Colleagues

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- Realism: how well do designs transfer?
- Collusion: does it happen?
- Did agents know identities of others?
- Open vs. closed loop strategies
- Does reasoning about timing help?

28 Simultaneous Auction

Flights: Inflight days 1-4, Outflight days 2-5 (8)

- Unlimited supply; prices random walk; immediate clear; no resale

Hotels: Tampa Towers/Shanties 1-4 (8)

- 16 rooms per auction; 16th-price ascending auction; quote is ask price; no resale
- Auctions can close early; "beat the quote"

Entertainment: MU/AP/AW days 1-4 (12)

- Continuous double auction; initial endowments; quote is bid-ask spread; resale allowed

Client Preferences and Utility

Preferences: randomly generated per client

- Ideal arrival, departure days
- Good Hotel Value
- Entertainment Values

Utility: 1000 (if valid) − travel penalty + hotel bonus + entertainment bonus

Score: Sum of client utilities − expenditures

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- Regression analysis to compute factors for individual games

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- Globally optimal solution; *usually* $< .01$ sec

TAC 2000

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Controlled experiments from ATTac-2000

ATTac vs. non-adaptive high and low bidders

#high	agent 2	agent 3	agent 4	agent 5	agent 6	agent 7	agent 8
7	←	9526	→				
6	←	10679	→				1389
5	←	10310	→			←	2650
4	←	10005	→			←	4015
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2	←	*209*			←		2710

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- Shows ATTac's average score difference
- ATTac adapts over successive runs
- All numbers positive, most are significant

Class Discussion

- Todd on hotel price prediction

AverageMU

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- Open vs. closed loop experiments

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- Heuristics defined in chapter 5 (book.pdf in same place)

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- What if you play infinitely?
- What if you play for a known finite amount of time?
- Some strategies:
  - hawk (always Fink)
  - Grim trigger (cooperate until the other defects)
  - tit-for-tat
  - Joss (tit-for-tat with periodic defection)