CS395T Agent-Based Electronic Commerce Fall 2006

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Week 4a

Good Afternoon, Colleagues

Are there any questions?



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- Open vs. closed loop strategies
- Collusion
- Realism





• Thursday class in RAS 312





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- SCM readings



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 - Is there a dominant strategy equilibrium?



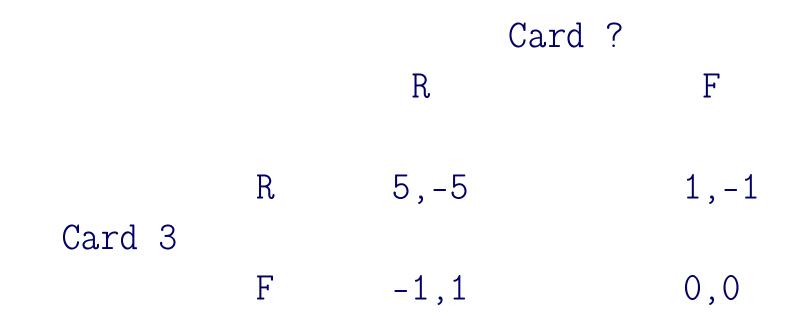
- Allows for uncertainty about opponent **type**
- Consider 1st price auction for my pen
 - Define a Nash equilibrium (what do you need to know)?
 - Define a Bayes-Nash equilibrium (what do you need to know)?
 - Is there a dominant strategy equilibrium?
 - What if I tell you, I'll take what you tell me as your value and compute for you the correct thing to do given what other people bid?



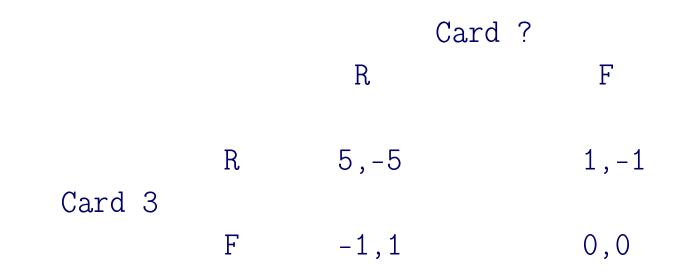
- We each get one of 3 cards: 1,2,3
- If we both fold, we both lose nothing
- If one raises and one folds, the raiser gets 1
- If both raise, the one with the higher card gets 5
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	Card ?			
		R	F	
Card 3	R	5,-5	1,-1	
	F	-1,1	0,0	
Card ?				
		R	F	
Card 1	R	-5,5	1,-1	
	F	-1,1	0,0	



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With more numbers and/or different payoffs, bluffing can be a part of the Nash Equilibrium



Ex ante vs. ex post

• Mechanism: each of you give me \$1, one gets \$100 back



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Ex ante vs. ex post

- Mechanism: each of you give me \$1, one gets \$100 back
- Individually rational?
- Ex ante, yes
- Ex post, no



Vickrey-Clarke-Groves

- Groves: efficient, stategy-proof
- Pivotal: individually-rational

	utility
camera alone	\$50
flash alone	10
both	100
tripod	20



Vickrey-Clarke-Groves

- Groves: efficient, stategy-proof
- Pivotal: individually-rational

	utility
camera alone	\$50
flash alone	10
both	100
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	utility
camera	\$60
flash	20
tripod	30



- Assume quasi-linear values, etc.
- What is the allocation?



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- What is the allocation?
- What are the payments?
- Why is it strategy proof?
- What are choice set monotonic, negative externality, single-agent effects?



Computational considerations

• Why is this mechanism a burden on the bidders?



28 Simultaneous Auction

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

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



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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



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Score: Sum of client utilities – expenditures

