

CS 300

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My history

- 1990s: Logic and philosophy (and company 1)
- 2000s: Economics and game theory (and company 2)
- 2010s: Logic, philosophy, economics and game theory (no company)

Three interests

- Game theory pragmatics
- Intention
- The Intelligent Avatar

Game theory: A one-slide tutorial

	Heads	Tails
Heads	1,-1	-1,1
Tails	-1,1	1,-1

Matching Pennies

	Rock	Paper	Scissors
Rock	0,0	-1,1	1,-1
Paper	1,-1	0,0	-1,1
Scissors	-1,1	1,-1	0,0

Rochambeau (Rock-Paper-Scissors)

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(www.worldrps.com)

Open problems in game theory pragmatics

- Can we rescue Aumann and Dreze?
- What's a heuristic function?
- How do we win the world computer pool tournament (again)?
- What is the role of skill?
- Why do Poker programs work all of a sudden?
- Can we predict how actual people play games, and what's the story with Mechanical Turk?

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If not equilibrium, then what?

- Classical
 - Dominant strategy equilibrium
 - Security-level strategy
 - (Optimistic strategies)
- Postmodern
 - Powers, Shoham & Vu: Targeted optimality
 - Aumann and Dreze: Rational expectations in games
 - Interpolating between the two: Target rational expectations?

“Rational Expectations in Games”

Aumann & Dreze, 2008

	L	C	R
T	0	1/2	1/2
M	1/2	0	1/2
B	1/2	1/2	0

R's beliefs

	L	C	R
T	0	1/2	1/2
M	1/2	0	1/2
B	1/2	1/2	0

C's beliefs

	L	C	R
T	0	1/6	1/6
M	1/6	0	1/6
B	1/6	1/6	0

common prior

	L	C	R
T	0,0	4,5	5,4
M	5,4	0,0	4,5
B	4,5	5,4	0,0

	L	C	R
T ₁	0	0	1
T ₂	0	2/3	1/3
M	1/2	0	1/2
B	1/2	1/2	0

	L	C	R
T ₁	0	0	1/4
T ₂	0	1/2	1/4
M	1/2	0	1/2
B	1/2	1/2	0

	L	C	R
T ₁	0	0	1/12
T ₂	0	1/6	1/12
M	1/6	0	1/6
B	1/6	1/6	0

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Intention

- Why?
 - “When’s the next train to SF?”
 - Search
- Modal logics of intention
- Probabilistic/graded notions

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The intelligent avatar in virtual worlds

- From a passive puppet to an intelligent assistant
 - More fun, more useful to sociologists, a new programming instructional tool
- Engineering: The spatio-temporal database (the Avatar's Shadow), basic APIs, intelligent behaviors, AvaScript
- Analysis: Social laws