

CS378
Autonomous Multiagent Systems
Spring 2004

Prof: Peter Stone
TA: Mazda Ahmadi

Department of Computer Sciences
The University of Texas at Austin

Week 9b: Thursday, March 25th

Good Afternoon, Colleagues

Are there any questions?

Good Afternoon, Colleagues

Are there any questions?

- Where do the numbers come from? Do they matter?

Good Afternoon, Colleagues

Are there any questions?

- Where do the numbers come from? Do they matter?
- Proportional games

Logistics

- Schedule overview
- Be working towards progress reports!

Game Theory

- Multiagent systems
- Economics
- Social science, law, etc.

Bach/Stravinsky

- My wife and I agree to meet at a concert

Bach/Stravinsky

- My wife and I agree to meet at a concert
- Unfortunately, there are 2: Bach and Stravinsky

Bach/Stravinsky

- My wife and I agree to meet at a concert
- Unfortunately, there are 2: Bach and Stravinsky
- No time to get in touch with each other

Bach/Stravinsky

- My wife and I agree to meet at a concert
- Unfortunately, there are 2: Bach and Stravinsky
- No time to get in touch with each other
- I prefer Stravinsky, she prefers Bach

Bach/Stravinsky

- My wife and I agree to meet at a concert
- Unfortunately, there are 2: Bach and Stravinsky
- No time to get in touch with each other
- I prefer Stravinsky, she prefers Bach
- But most of all, we want to be together

Bach/Stravinsky

- My wife and I agree to meet at a concert
- Unfortunately, there are 2: Bach and Stravinsky
- No time to get in touch with each other
- I prefer Stravinsky, she prefers Bach
- But most of all, we want to be together
- Propose a payoff matrix

Bach/Stravinsky

| | | | | |
|----|---|-----|------|-----|
| | | | Wife | |
| | | S | | B |
| Me | S | 2,1 | | 0,0 |
| | B | 0,0 | | 1,2 |

Matching Pennies

- We each turn put a penny down covered
- If they match, I win, if they don't, you win

Matching Pennies

- We each turn put a penny down covered
- If they match, I win, if they don't, you win

| | | | |
|----------|---|----------|-------|
| | | Player 2 | |
| | | H | T |
| Player 1 | H | 1, -1 | -1, 1 |
| | T | -1, 1 | 1, -1 |

Matching Pennies

- We each turn put a penny down covered
- If they match, I win, if they don't, you win

| | | | |
|----------|---|----------|-------|
| | | Player 2 | |
| | | H | T |
| Player 1 | H | 1, -1 | -1, 1 |
| | T | -1, 1 | 1, -1 |

Nash equilibrium?

Mixed strategy equilibrium

| | | Player 2 | |
|----------|----------|----------|----------|
| | | Action 1 | Action 2 |
| Player 1 | Action 1 | 4,8 | 2,0 |
| | Action 2 | 6,2 | 0,8 |

Mixed strategy equilibrium

| | | Player 2 | |
|----------|----------|----------|----------|
| | | Action 1 | Action 2 |
| Player 1 | Action 1 | 4,8 | 2,0 |
| | Action 2 | 6,2 | 0,8 |

Do actual numbers matter?