Good Afternoon, Colleagues

Are there any questions?
Logistics

- Next week’s readings
Logistics

• Next week’s readings

• Class Survey (21 as of this morning)

• Talks in the department:
  – Patrick MacAlpine, PhD Proposal, Wednesday at 2:30pm (GDC 4.816) “Multilayered Skill Learning and Movement Coordination for Autonomous Robotic Agents in Spatial Domains”
Game Theory

- Multiagent systems
- Economics
- Social science, law, etc.
Goals for Today

• Understand premises of game theory
• Understand the notion of utility
• Understand solution concepts
Goals for Today

• Understand premises of game theory

• Understand the notion of utility

• Understand solution concepts
  – Dominant strategy
  – Nash equilibrium
  – Pareto optimality
  – Maximum social welfare
  – Maximin strategy
Prisoner’s Dilemma

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Patrick MacAlpine
Game Theory Premises

- Simultaneous actions
- No communication
- Outcome depends on combination of actions
Game Theory Premises

- Simultaneous actions
- No communication
- Outcome depends on combination of actions
- Utility (payoff) encapsulates everything about preferences over outcomes
Utility

- Money is a useful analogy for utility
  - But they’re not equivalent
Utility

- Money is a useful analogy for utility
  - But they’re not equivalent

- Diminishing values
Utility

- Money is a useful analogy for utility
  - But they’re not equivalent

- Diminishing values

- Risk aversion
Utility

- Money is a useful analogy for utility
  - But they’re not equivalent
- Diminishing values
- Risk aversion
- Loss aversion
Utility

- Money is a useful analogy for utility
  - But they’re not equivalent

- Diminishing values

- Risk aversion

- Loss aversion

- Friendliness/vindictiveness
Solution Concepts

- Dominant strategy
Solution Concepts

- Dominant strategy
- Nash equilibrium
Solution Concepts

- Dominant strategy
- Nash equilibrium
- Pareto optimality
Solution Concepts

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