

CS344M

Autonomous Multiagent Systems

Spring 2008

Prof: Peter Stone

Department of Computer Sciences
The University of Texas at Austin

Good Afternoon, Colleagues

Are there any questions?

Class Discussion

David Li on team modeling

Where do Models Come From

Observation:

- Tambe and RMM: use existing model
 - No building a model

Where do Models Come From

Observation:

- Tambe and RMM: use existing model
 - No building a model

What if we can't build a full model in advance?

Where do Models Come From

Observation:

- Tambe and RMM: use existing model
 - No building a model

What if we can't build a full model in advance?

- What are some incremental approaches for building a predictive model?

Play me at RoShamBo

- Rock beats scissors
- Scissors beats paper
- Paper beats rock

Play me at RoShamBo

- Rock beats scissors
 - Scissors beats paper
 - Paper beats rock
-
- What is your strategy before modeling me?

Play me at RoShamBo

- Rock beats scissors
 - Scissors beats paper
 - Paper beats rock
-
- What is your strategy before modeling me?
 - What is your strategy after modeling me?

Play me at RoShamBo

- Rock beats scissors
 - Scissors beats paper
 - Paper beats rock
-
- What is your strategy before modeling me?
 - What is your strategy after modeling me?
 - Am I modeling you?

Play me at RoShamBo

- Rock beats scissors
 - Scissors beats paper
 - Paper beats rock
-
- What is your strategy before modeling me?
 - What is your strategy after modeling me?
 - Am I modeling you?
 - Would your end strategy change if I can?

Reinforcement Learning

- Slides from Tom Mitchell's ML book

Discussion

- How useful is the concept of Nash equilibrium?

Discussion

- How useful is the concept of Nash equilibrium?
- Shoham:
 - 0-sum = single agent problem
 - common payoff = search for pareto optimum

Discussion

- How useful is the concept of Nash equilibrium?
- Shoham:
 - 0-sum = single agent problem
 - common payoff = search for pareto optimum
 - General sum is the interesting case:

Discussion

- How useful is the concept of Nash equilibrium?
- Shoham:
 - 0-sum = single agent problem
 - common payoff = search for pareto optimum
 - General sum is the interesting case:
 - Learning in an environment with other, unknown, independent agents who may also be learning

Discussion

- How useful is the concept of Nash equilibrium?
- Shoham:
 - 0-sum = single agent problem
 - common payoff = search for pareto optimum
 - General sum is the interesting case:
 - Learning in an environment with other, unknown, independent agents who may also be learning
 - Need to do well against some set of agents, never too poorly, and well against yourself.