# 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?





• All readings up





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- Final projects due in 2 weeks!



Recursive Modeling Method

• What should I do?



Recursive Modeling Method

- What should I do?
- What should I do given what I think you'll do?



Recursive Modeling Method

- What should I do?
- What should I do given what I think you'll do?
- What should I think you'll do given what I think you think I'll do?



Recursive Modeling Method

- What should I do?
- What should I do given what I think you'll do?
- What should I think you'll do given what I think you think I'll do?
- etc.



• Rely on communication



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  - Might have incorrect expectations, especially if environment changes
- Use deeper models
  - Includes physical and mental states
  - Could be computationally expensive





Example: pursuit task

#### No-information: Random choice





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Example: pursuit task

No-information: Random choice

Sub-intentional: Not rational

Intentional: Others use same model



#### Lessons

- Modeling can help
- There is a lot of useless information in recursive models
- Approximations (limited rationality) can be useful



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- Use explicit team operators



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- Use your own plans to model others
- Use explicit team operators
  - Introduces challenges of role assignments, and
  - Minimum cost repair
- Assume agent is using a plan that you could use,
  - But not modeling you
- Act based on assumed actions of others



Srinivas Ashok on modeling for poker



• Slides from Tom Mitchell's ML book

