Good Afternoon, Colleagues

Are there any questions?
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Are there any questions?

- shared mental state?
- joint intentions -> maintenance goals
- learn own language
Logistics

- Programming assignment 4 - any questions?
Logistics

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- Final project
Logistics

- Programming assignment 4 - any questions?
- Final project
- RoboCup 2006 qualification
Joint Intentions – Setting

How agents **form and disband** teams
Joint Intentions – Setting

How agents form and disband teams

- Agents in dynamic multiagent world
- Neither complete nor correct beliefs
  - Positive introspection: know own beliefs
- Changeable goals, fallible actions
- Don’t know others’ beliefs/goals
Starting Point – Individuals

**Persistent goal:** relative to $q$ to achieve $p$
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- \( p \) false, but desired true
- \( p \) will keep being desired unless:
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- What’s the role of $q$?
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**Intention**: persistent goal, belief throughout that it’s being done

- What’s the role of $q$?
- What’s the difference between goal, intention?
2 proposals for teams

Joint commitment not just intention where agent is team
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Weak: Joint intention $\equiv$ mutually known intention: each intend to do their part of collective action
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**Strong:** Same, except mutual knowledge persists until mutually known that activity is over
2 proposals for teams

Joint commitment not just intention where agent is team

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**Strong:** Same, except mutual knowledge persists until mutually known that activity is over

Why too weak and too strong?
Joint Commitment

Weak achievement goal (WAG): relative to $q$ with respect to a team to achieve $p$
Joint Commitment

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- Individually wants $p$
Joint Commitment

**Weak achievement goal (WAG):** relative to $q$ with respect to a team to achieve $p$

- Individually wants $p$
- OR
- Believes $p$ true, impossible, or irrelevant, AND has a goal of team knowing it.

4 cases
Joint Commitment

Joint Persistent Goal (JPG): relative to $q$ to achieve $p$

- mutually believe $p$ false, but mutually know all desire $p$ true
- mutually believe that each have WAG $p$ until
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- Intend own action, committed to others’
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Intention: joint persistent goal, mutual belief throughout that it’s being done

- Intend own action, committed to others’
- Overhead: automatic goal to communicate status
Establishing JPGs

- Communication (basis for KQML)
- Observation (requires co-presence)
Establishing JPGs

- Communication (basis for KQML)
- Observation (requires co-presence)
- Any other way?
Locution: What is said (physical)
Locution: What is said (physical)

Illocution: What is meant
**Locution:** What is said (physical)

**Illocution:** What is meant

**Perlocution:** Intended effects
Locution: What is said (physical)

Illocution: What is meant

Perlocution: Intended effects

Example: “Please close the window.”
Beliefs, Desires, Intentions

- Beliefs: What the agent thinks to be true
- Desires: What it wants to be true
- Intentions: What it plans to do
- A way of organizing an agent
- Not a well-defined method
Student-led Discussion

- Terry Ma: Examples of joint intentions.