

TEK5010 Multiagent systems

Lecture 2: Agents, communication and cooperation

Exercise: Agency

Question 1

a) Could you give a definition of an agent?

"An agent is a computer system that is situated in some environment, and that is capable of autonomous action in this environment in order to meet its delegated objectives." [Wooldridge and Jennings, 1995]

- 1) Objective/goal is to affect the environment in some desirable way.
- 2) Autonomy is the only generally accepted requirement.
- 3) Acting on behalf of someone.
- 4) Reactivity - respond to changes in the environment.
- 5) The intelligent agent is also proactive - initiate goal-directed behaviour on its own.
- 6) The intelligent agent engages in social activities - like cooperation, coordination, negotiations, competition, etc.

b) How would you define a multiagent system?

"Multiagent systems are systems composed of multiple interacting elements, known as agents." [Wooldridge, 2009]

- 1) Reactive agents can produce complex collective properties/performance - this is often modelled by swarm intelligence.
- 2) Interactive or intelligent agents engage in strategic interaction - this is often modelled by game theory.
- 3) Research goal is to connect the micro scale behaviour with macro scale properties/effects, and vice versa.