Self-Organising Systems

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Exercise 1 – topics

- Group Work (max. 2 persons per group)
- Two types of exercises
  - Focussed on implementing & relatively short evaluation
  - Focussed on comparative experimentation & detailed evaluation

Comparative experimentation

- Take 2 (or more) self-organising techniques presented so far
- Use / adapt existing implementations

- Find a set of ~2-3 different problem tasks, and compare how these techniques fit to solve them
  - Compare relative runtimes in regard to size of the problem
  - Compare time needed to find solutions
  - Analyse for which type of problem which solution works better
  - Focus is on representing the problem domain & analysis

Implementation of a MAS

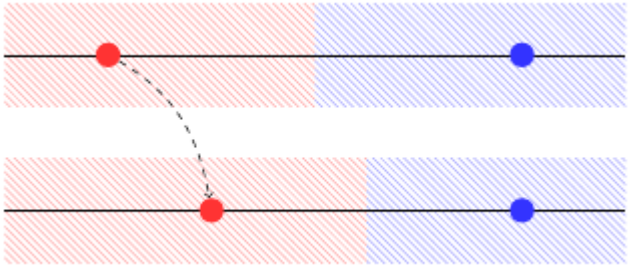
- Select an example (see a list of proposed application domains on the next slides), select topic that shows the strengths of multi-agent systems

- Describe example (include use case diagram and use case descriptions, agent descriptions using a class diagram, structure and description exchanged messages, state charts of agents and agent communications) in a short technical report

- Follow JADE Tutorial, implement chosen example in a prototypical way, and test it using the JADE graphical tools

Practical Exercise Topics

- Prisoner's dilemma
- Hotelling's law: in a free market rational producers will tend to supply very similar products



- Transportation and Logistics – e.g. An order & delivery system
- Voting scenarios
- Multi-Agent Learning
- …