

Multi-Agent Systems

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Exercise Sheet 8

Due: July 19th, 2016, 10:00

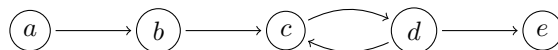
Exercise 8.1 (BDI Agents with Communication, 3+3+3)

We want to improve coordination between our agents in the Domination World. E.g., important observations should be relayed to other agents and the agents should agree upon which agent is responsible for which checkpoints (they even might agree to change this assignment over time). As a starting point, we provide a working implementation containing agents that already perform practical reasoning with the ability to explore the map and (re-)activate known checkpoints. It can be found in the folder `ex08/workspace` in your group's repository.

- Design a protocol for handling these issues. Make a short presentation (maximally three or four slides for a three to five minute talk) describing your protocol and discussing its advantages and disadvantages.
- Implement the required communication, starting either with the provided implementation, or, if you prefer, with your own submission for Exercise 7.2 (in this case, you are still allowed to use arbitrary parts of our implementation, e.g., the shortest path implementations in `utils.pl`).
- Adapt the agents' practical reasoning to comply with the assignment of checkpoints as agreed on with the other agents.

Exercise 8.2 (Argumentation Frameworks, 2+2+2)

Consider the following argumentation framework:



- List all complete labelings for the given framework. Is there a stable labeling?
- Using the grounded labeling algorithm, find a grounded labeling for the given framework.
- Using admissible discussion, find a preferred labeling for the given framework.