Multiagent Systems

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Exercise Sheet 4
Due: Friday, May 30, 2pm

Important: Each exercise sheet is to be solved in groups of **two students**.
Thus, please note your names on each solution sheet and, if applicable, in
the source code (as a comment on top of each source file).
After SVN-accounts have been created for you, the solutions are to be
handed in as pdf or plain text files (UTF-8 encoded). We strongly sug-
gest the use of LATEX for typesetting your solutions.
You might complete your solutions in English or German.
Hint: The API documentation in `<jason path>/doc/index.html` will be
very helpful to solve these exercises!

Exercise 4.1 (Jason, Domestic Robot multiple supermarkets; 4 points)
In Exercise 2.4 (on exercise sheet 2) you improved the supermarket agents
so that they initially tell the robot about their respective price for beer.
Now, extend this idea further by realizing the following:

- The robot should be able to deal with a variable number of supermar-
  kets not known in advance.

- Supermarkets frequently announce new prices with random delays be-
  tween announcements.

- Supermarkets also announce new prices for wine from time to time,
  which the robot is supposed to ignore.

- The robot keeps track of the beer prices and buys at maximum three
  beer from the cheapest supermarket whenever the fridge is empty.

Provide your agents with meaningful, correct, and human-readable output
(using `.print`) so that their behavior can be traced easily.

Exercise 4.2 (Jason, Domestic Robot communication; 6 points)
Create a new supermarket agent (called `superdumb`) that does not have a
plan for goal `+!order(P,Q)`, but once started, uses the performative `askHow`
to ask another supermarket for such a plan. Rewrite the program for the
supermarket agent that sent the plan so that after 10 seconds from the start
of the application it sends an `untellHow` message to `superdumb`.
(You should consider studying Chapter 6 of the Jason book for solving this
exercise.)