#4: AOP, Jazzyk, Massim (AE4M36MAS tutorial)
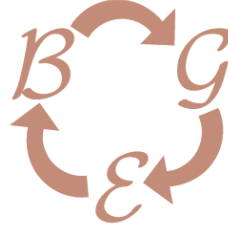
- **Tutorial time:** 9 Oct 2012 @ 14:30
- **Notes by:** Jan Hrnčíř

Agent-oriented programming

- excerpt of slides from A4M33MAS/Lecture #4

> **Structure of agent's internal state**
> - beliefs ⇝ $\mathcal{B}$
> - goals ⇝ $\mathcal{G}$
> - intentions/plans ⇝ $\mathcal{I}$ (optional)
> + an interface to the environment ⇝ $\mathcal{E}$
>
> **Minimal flow of information**
> 1 agent perceives the environment and reflects it in the belief base
> 2 its beliefs about the world determine the goals it pursues
> 3 pursuing goals triggers behaviors aimed at fulfilling them

Jazzyk

- BGE cycle
- Jazzyk language
  - interpreted language (via JVM interpreter)
  - modules (body, beliefs, goals)
    - can be written in different programming languages
    - we will use beanshell script (interpreted Java)
    - modules queried in a loop
  - initialisation
    - `declare module body as jazzyk.module.JzzJava`
    - `notify <module> on initialize [{ beanshell script }]`
  - jazzyk blocks
    - `{ jazzyk block1 }, { jazzyk block2 }` … execution in sequence
    - **when** query *body* (v1, v2) `[{ beanshell script }]` then `{ jazzyk block }`
    - **update** *beliefs* (X,Y) `[{ posX=X; posY=Y; }]`
  - condition evaluation & variables
    - `when query body` **(var1, var2)**
      - variables for a query … when we want to transfer information between modules
      - variables have a scope (all nested when queries)
    - query is evaluated as true if the result of the beanshell script is true
      ```
      when query body (X,Y) [{ X=self.sense().posX; Y=self.sense().posY;
                               return true; }] then {
          update beliefs (X,Y) [{ posX=X; posY=Y; }]
      }
      ```
    - goals check
      ```
      when query goals [{ !goals.isEmpty() }] then { … }
      ```
  - technologies
    - BeanShell script … Lightweight Scripting for Java
    - GNU M4 macro processor … macro definitions, file inclusion

Massim

- download package
  - run server
  - run monitor
  - import agents in Netbeans/Eclipse
  - run agents

- show a template for an agent and explain the code
  - `notify`
  - `main body`
  - `macro definition … PERCEIVE`
  - `when`
  - `update`

First assignment

- [first assignment requirements @ CW](#)