# The Place of Gamygdala in GOAL

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## 1  GOAL - Runtime

Modifications of the runtime [4] repository:

### 1.1  The emotionbase

To add emotions there will need to be a database in the mentalstate of an agent similar to how there is a beliefbase and goalbase. Just like the beliefbase there should also be the possibility to query this database. For this we will need to make modifications in the the goal.core.mentalstate package. Here we will need to add a new class representing this emotionbase. We will also need to modify mentalModel to add this emotionbase to the model.

### 1.2  Updating the emotions

Each cycle the emotions of the agents will need to be updated according to the new beliefs that the agents hold. For this we will need to modify the goal.core.runtime.service.agent.RunState class. This class has the methods that are used to evaluate a cycle for a specific agent. We will need to modify this class so that Gamygdala is notified of beliefs that will have an effect on the emotions of the agent. Here we will also need to make a decision about the emotionbase, we could either add methods here to update the emotionbase so that it contains all the emotions of the agents or we could use emotionbase as an interface to call functions of Gamygdala when we want information about the current emotional state.

## 2  GOAL - Grammar

Modifications of the grammar [5] repository:

### 2.1  Changing the structure of agent files

To implement some of our functions we will need to change the structure of the files that GOAL uses to program agents (to add properties about the default

emotional state of an agent for example). For this we will need to modify a few things. First we need to change the structure of an agent program from the package languageTools.program.agent. Then we will need to be able to parse the new text format into this new program format so we will need to modify the parser which can be found in languageTools.parser these use ANTLR V4 (another tool for language recognition), we'll need to take a closer look at how this framework works.

## 2.2 Changing the structure of MAS files

Changing the structure of MAS files is similar to the agent files except that the program class that we will need to modify resides in languageTools.program.agent.mas.

# References

[1] GOAL programming language `http://ii.tudelft.nl/trac/goal`

[2] Gamygdala emotion engine `http://ii.tudelft.nl/~joostb/gamygdala/index.html`

[3] ANTLR, another tool for language recognition `http://www.antlr.org/`

[4] Goalhub, runtime repository `https://github.com/goalhub/runtime`

[5] Goalhub, grammar repository `https://github.com/goalhub/grammar`