Practical "Introduction to Artificial Intelligence"

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Block 1: Prolog

Sheet 1: Introduction and Basic Concepts

Excercise 1.1

Read Chapter 1 and 2 of LearnPrologNow!

- Start SWI-Prolog and make yourself familiar with it.
- Reproduce the examples from the two chapters on your machine. You can do this by
  - writing the facts in a file (e.g. `examples.pl`)
  - loading the file into prolog by typing `[example].`
  - issue the queries
  - (if you changed your file you can update it in prolog by `make.`).

Excercise 1.2

a) Write a Prolog program that formalizes the following descriptions:

- Peter loves Susi.
- Hans loves Susi and Sabine.
- Sabine loves Peter und hates Hans.
- Susi loves Peter and Felix.
- Susi hates Sabine.
- Felix loves himselfes

b) Issue the following queries to Prolog. Simulate the process of finding the solution.

- Does Peter love Susi?
- Does Susi love Felix?
- Who loves Sabine?
- Who is Sabine loving?
- Who loves somebody who is loving him/her?
- Who`s love is replied by hate?

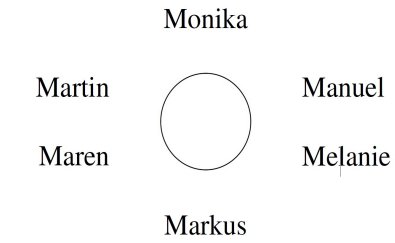
c) Trace your queries from b).

Excercise 1.3

Invent a couple of terms and unify it. Verify your results by prolog.

Excercise 1.4

You have a round table with following persons sitting there:



a) Write a prolog program using the predicate `right_of/2` that describes the above situation.

b) Issue the following queries to Prolog.:

- Who sits right of Melanie?
- Maren is the left neighbour of whom?
- Who are the neighbours of Monika?
- Who sits opposite of Melanie?
- Who sits opposite of whom?

c) Expand your program with rules for

- `left_of/2`
- `neighbour_of/2`
- `opposite/2`

d) Expand your program so that the table can be of arbitrary size.