IN3070
IN4070

Autumn 2025

Exercises for the Course

Logic

Week 9



Exercise 9.1 (Prolog and SLD Resolution)

a) For which queries `pp(X)` does the following Prolog program succeed? Provide an SLD resolution for `pp(f(f(f(a))))`.

```
pp(a).
pp(f(X)) :- pp(X).
```

b) What does the following predicate `what(A,B)` calculate when A is a list of numbers and B is a variable, e.g., `what([3,7,4,2,6],B)`?

```
what([H|T],I) :- what(T,I), I>H, !.
what([H|_],H).
```

Exercise 9.2 (The Beauty of Prolog)

a) Write a Prolog program `sum(L,S)` that calculates the sum `S` of a list `L` of numbers.

b) Write a one-clause Prolog program that calculates the minimum element of a list of numbers.

Remark: You can download SWI-Prolog from `http://www.swi-prolog.org/`.

Or GNU Prolog from `http://www.gprolog.org/`.