

# Übungsaufgaben

Logik in der Praxis - Logikprogrammierung (Prolog)

**Abgabe bis 04.11.08**

## Exercise 5.1 (3 Punkte)

How does Prolog respond to the following queries?

1.  $X = 3*4$ .
2.  $X \text{ is } 3*4$ .
3.  $4 \text{ is } X$ .
4.  $X = Y$ .
5.  $3 \text{ is } 1+2$ .
6.  $3 \text{ is } +(1,2)$ .
7.  $3 \text{ is } X+2$ .
8.  $X \text{ is } 1+2$ .
9.  $1+2 \text{ is } 1+2$ .
10.  $\text{is}(X,+(1,2))$ .
11.  $3+2 = +(3,2)$ .
12.  $*(7,5) = 7*5$ .
13.  $*(7,+(3,2)) = 7*(3+2)$ .
14.  $*(7,(3+2)) = 7*(3+2)$ .
15.  $*(7,(3+2)) = 7*(+(3,2))$ .

## Exercise 5.2 (4 Punkte)

1. Define a 2-place predicate `increment` that holds only when its second argument is an integer one larger than its first argument. For example, `increment(4,5)` should hold, but `increment(4,6)` should not.
2. Define a 3-place predicate `sum` that holds only when its third argument is the sum of the first two arguments. For example, `sum(4,5,9)` should hold, but `sum(4,6,12)` should not.

## Exercise 5.3 (3 Punkte)

Write a predicate `addone/2` whose first argument is a list of integers, and whose second argument is the list of integers obtained by adding 1 to each integer in the first list. For example, the query

`addone([1,2,7,2],X)`.

should give

$X = [2,3,8,3]$ .