

Übungsblatt 10

„Künstliche Intelligenz“

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1 Parser / DCG

```
1 test(X) :- expr(X,"1.3*23+(-4)*(8+5)",[]).
2 test2(X) :- expr(X,"1*2",[]). /* extra Test */
3
4 expr(add(Y,Z)) -> term(Y), "+", expr(Z).
5 expr(X) -> term(X).
6
7 term(mul(Y,Z)) -> n(Y), "*", n(Z).
8 term(mul(Y,Z)) -> n(Y), "*", term(Z).
9
10 term(X) -> n(X).
11 term(X) -> "(", expr(X), ")".
12
13 /****** L S U N G *****/
14 term(mul(X,Y)) -> n(X), "*", term(Y).
15 term(mul(X,Y)) -> "(", expr(X), ")", "*", term(Y).
16 /****** */
17
18 n(X) -> z(X,_).
19 n(X) -> z(Y,_), ".", z(Z,A), {X is Y+10^(-A)*Z}.
20 n(X) -> "-", z(Y,_), {X is -Y}.
21 n(X) -> "-", z(Y,_), ".", z(Z,A), {X is -(Y+10^(-A)*Z)}.
22 % z(wert,anzahl der ziffern)
23 z(X,B) -> num(Y), z(Z,A), {X is Y*10^A+Z, B is A+1}.
24 z(X,1) -> num(X).
25 num(1) -> "1".
26 num(2) -> "2".
27 num(3) -> "3".
28 num(4) -> "4".
29 num(5) -> "5".
30 num(6) -> "6".
31 num(7) -> "7".
32 num(8) -> "8".
33 num(9) -> "9".
34 num(0) -> "0".
```

2 Certainty Factors / MYCIN Algebra

```
1 main :greeting, repeat, write('> '), read(X), do(X), X == quit,!.
2
3 algebra1(RuleCF,CF,AdjustedCF):X is RuleCF*CF/100, int_round(X,AdjustedCF).
4 algebra2(CF,OldCF,NewCF):minimum(CF,OldCF,NewCF).
5 algebra3(CF,RestCF,NewCF):CF >= 0, RestCF >= 0, X is CF + RestCF * (100 - CF) <-
  / 100, int_round(X,NewCF).
6 algebra3(CF,RestCF,NewCF):CF < 0, RestCF < 0, X is (CF + RestCF * (100 + CF))<-
  / 100, int_round(X,NewCF).
7 algebra3(CF,RestCF,NewCF):(CF < 0; RestCF < 0), (CF > 0; RestCF > 0), <-
  abs_minimum(CF,RestCF,MCF), X is 100 * (CF + RestCF) / (100 - MCF), <-
  int_round(X,NewCF).
8 int_round(X,I):X >= 0, I is integer(X+0.5).
9 int_round(X,I):X < 0, I is integer(X-0.5).
10 minimum(X,Y,X) :X <= Y,!.
11 minimum(X,Y,Y) :Y <= X.
12 abs_minimum(A,B,X) :absolute(A, AA),absolute(B, BB),minimum(AA,BB,X).
13 absolute(X, X) :X >= 0.
14 absolute(X, Y) :X < 0, Y is -X.
```