Exercise II

Implementation of formulas with priorities

The language MINI has to be extended by formulas with priorities and parentheses. Secondly the operator

```
INT OP ** (INT CONST a, INT CONST b)
```

has to be added to the standard prelude. Example:

```
(a + b) ** 2 + c DIV 5 - 3
```

The syntax of the MINI language is therefore changed and augmented by the following syntax rules.

Expressions

a) `expression:`
```
    assignment;
    priority ii formula.
```

Assignments

a) `assignment:`
```
    destination, becomes token, source.
```

b) `destination:`
```
    priority ii formula.
```

c) `source:`
```
    priority ii formula.
```

Note that the assignment may therefore be viewed as a special priority one formula.

Formulas

a) `priority ii formula:`
```
    priority ii formula, priority ii operator, priority iii formula;
    priority iii formula.
```

b) `priority ii operator:`
```
    capital name.
```

c) `priority iii formula:`
```
    priority iii formula, priority iii operator, priority iv formula;
    priority iv formula.
```

d) `priority iii operator:`
```
    or token.
```

e) `priority iv formula:`
```
    priority iv formula, priority iv operator, priority v formula;
    priority v formula.
```

f) `priority iv operator:`
```
    and token.
```

g) `priority v formula:`
```
    priority v formula, priority v operator, priority vi formula;
    priority vi formula.
```

h) `priority v operator:`
```
    equal token;
    not equal token.
```

i) `priority vi formula:`
```
    priority vi formula, priority vi operator, priority vii formula;
    priority vii formula.
```

j) `priority vi operator:`
```
    less than token;
    less equal token;
    greater than token;
    greater equal token.
```

k) `priority vii formula:`
```
    priority vii formula, priority vii operator, priority viii formula;
    priority viii formula.
```

l) `priority vii operator:`
```
    plus token;
    minus token.
```

m) `priority viii formula:`
```
    priority viii formula, priority viii operator, priority ix formula;
    priority ix formula.
```

n) `priority viii operator:`
```
    asterix token;
    div token;
    mod token.
```

o) `priority ix formula:`
```
    priority ix formula, priority ix operator, monadic formula;
    monadic formula.
```

p) `priority ix operator:`
```
    obelix token.
```

q) `monadic formula:`
```
    monadic operator, monadic formula;
    primary.
```

r) `monadic operator:`
```
    capital name;
    plus token;
    minus token;
    not token.
```

Primaries and calls

a) `primary:`
```
    repetition;
    call;
    denoter;
    identifier application;
    open token, expression, close token.
```

Semantics

a) The type and access of the primary are the same as those of the expression.

Names

h) `special name:`
```
        or token;
        and token;
        equal token;
        not equal token;
        less token;
        less equal token;
        greater token;
        greater equal token;
        plus token;
        minus token;
        asterix token;
        obelix token;
        div token;
        mod token;
        not token.
```

Symbols

The following symbol is added to the language

```
obelix symbol                    **
```

A small set of test programs can be obtained by unpacking the file `ftp.cs.kun.nl://pub/cdl3/ex2.tgz` in your MINI working directory.