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mhe authored 1 month ago

7845144f

ConcreteSyntax.md 1.15 KB

Concrete syntax

Here is a grammar for our language, written in [BNF](#), where expressions with lower numbers describe operators with lower precedence. The grammar is [ambiguous](#) regarding `else`. We resolve the ambiguity by associating `else`'s to the closest `if`'s to the left.

```
Program ::= Identifier := Expr;
         | { [Program] }
         | while (Expr) Program
         | if (Expr) Program
         | if (Expr) Program else Program

Expr ::= Expr1 | Expr1 OrOp Expr
Expr1 ::= Expr2 | Expr2 AndOp Expr1
Expr2 ::= Expr3 | Expr3 EqOp Expr2
Expr3 ::= Expr4 | Expr4 CompOp Expr3
Expr4 ::= Expr5 | Expr5 AddOp Expr4
Expr5 ::= Expr6 | Expr6 MulOp Expr5
Expr6 ::= Expr7 | NotOp Expr6
Expr7 ::= Constant | Identifier | (Expr)

OrOp ::= ||
AndOp ::= &&
EqOp ::= ==
CompOp ::= <= | < | >= | >
AddOp ::= + | -
MulOp ::= * | / | %
NotOp ::= !
```

We will use monadic parsing (please read chapter 13 of the book) to convert from concrete syntax to [abstract syntax](#).

Next: [Abstract syntax](#)