

nanoc grammar

CompUnit → { CompUnit } (Decl | FuncDef | StructDef | ImplDef)
Decl → ConstDecl | VarDecl
ConstDecl → ‘const’ BType ConstDef { ‘,’ ConstDef } ‘;’
BType → (‘int’ | ‘float’ | Ident) { ‘*’ }
支持指针类型，如 int*, float*, struct S*
ConstDef → Ident { '[' ConstExp ']' } ‘=’ ConstInitVal
ConstInitVal → ConstExp | '{' [ConstInitVal { ‘,’ ConstInitVal }] '}'
VarDecl → BType VarDef { ‘;’ VarDef } ‘;’
VarDef → Ident { '[' ConstExp ']' } [‘=’ InitVal]
InitVal → Exp | '{' [InitVal { ‘,’ InitVal }] '}'
FuncDef → FuncType Ident ‘(’ [FuncFParams] ‘)’ Block
FuncType → ‘void’ | ‘int’ | ‘float’
FuncFParams → FuncFParam { ‘,’ FuncFParam }
FuncFParam → BType Ident ['[' ']' { '[' Exp ']' }]
Block → '{' { BlockItem } '}'
BlockItem → Decl | Stmt
LVal ‘=’ Exp ‘;’
| [Exp] ‘;’
| Block
Stmt → | ‘if’ ‘(’ Exp ‘)’ Stmt [‘else’ Stmt]
| ‘while’ ‘(’ Exp ‘)’ Stmt
| ‘break’ ‘;’
| ‘continue’ ‘;’
| ‘return’ [Exp] ‘;’
StructDef → ‘struct’ Ident '{' { StructField } '}'
StructField → BType Ident { '[' ConstExp ']' } ‘;’
结构体字段定义
ImplDef → ‘impl’ Ident '{' { MethodDef } '}'
MethodDef → FuncType Ident ‘(’ [FuncFParams] ‘)’ Block
方法隐式带 this 指针

使用 pratt parse

PrimaryExp
| Exp BinaryOp Exp
| UnaryOp Exp
Exp → | Exp '[' Exp ']'
| Exp ‘:’ Ident
| Exp ‘->’ Ident
| Exp ‘(’ [FuncRParams] ‘)’
-> 为指针成员访问

LVal \rightarrow Ident { '[' Exp ']' | ':' Ident }

PrimaryExp \rightarrow '(' Exp ')' | Ident | Number

Number \rightarrow IntConst | floatConst

UnaryOp \rightarrow '+' | '-' | '!' | '&' | '**'

& 为取地址, * 为解引用

'+' | '-' | '*' | '/' | '%'

BinaryOp \rightarrow '| '<' | '>' | '<=' | '>='

| '==' | '!='

| '&&' | '||'