

Based off of outputs on mytest.parse and the syntax diagram

Syntax diagram: <https://www.cs.ucr.edu/~amazl001/teaching/cs152/S19/webpages2/syntax.html>

mytest.parse: <https://www.cs.ucr.edu/~amazl001/teaching/cs152/S19/webpages2/mytest.parse>

prog_start: prog_start \rightarrow functions

functions: functions \rightarrow function functions | ϵ

function: function \rightarrow FUNCTION ident SEMICOLON BEGIN_PARAMS declarations END_PARAMS
BEGIN_LOCALS declarations END_LOCALS BEGIN_BODY statements END_BODY

declaration: declaration \rightarrow identifiers COLON INTEGER | identifiers COLON ARRAY
L_SQUARE_BRACKET OF INTEGER

declarations: declarations \rightarrow declaration SEMICOLON declarations | ϵ

statements: statements \rightarrow statement SEMICOLON statements | statement SEMICOLON

statement: statement \rightarrow var ASSIGN | IF bool_expr THEN statements else_statement ENDIF |
WHILE bool_expr BEGINLOOP statements ENDLOOP | DO BEGINLOOP statements ENDLOOP
WHILE bool_expr | FOREACH ident IN ident BEGINLOOP statements ENDLOOP | READ vars |
WRITE vars | CONTINUE | RETURN expression

else_statement: else_statement \rightarrow ELSE statements | ϵ

bool_expr: bool_expr \rightarrow relation_and_expr | relation_and_expr OR bool_expr

relation_and_expr: relation_and_expr \rightarrow relation_expr | relation_expr AND relation_and_expr

relation_expr: relation_expr \rightarrow NOT relation_expr | relation_expr

relation_exp: relation_exp \rightarrow expression comp expression | TRUE | FALSE | L_PAREN bool_expr
R_PAREN

comp: comp \rightarrow GT | GTE | LT | LTE | EQ | NEQ

expression: expression \rightarrow multiplicative_expr | multiplicative_expr ADD expression |
multiplicative_expr SUB expression

expressions: expressions \rightarrow expression COMMA expressions | expression | ϵ

multiplicative_expr: multiplicative_expr \rightarrow term MULT multiplicative_expr | term DIV
multiplicative_expr | term MOD multiplicative_expr

var: $\text{var} \rightarrow \text{ident L_SQUARE_BRACKET expression R_SQUARE_BRACKET} \mid \text{ident}$

vars: $\text{vars} \rightarrow \text{var} \mid \text{var COMMA vars}$

term: $\text{term} \rightarrow \text{var} \mid \text{SUB var} \mid \text{NUMBER} \mid \text{SUB NUMBER} \mid \text{L_PAREN expression R_PAREN} \mid \text{SUB L_PAREN expression R_PAREN} \mid \text{ident L_PAREN expressions R_PAREN}$

identifiers: $\text{identifiers} \rightarrow \text{ident} \mid \text{ident COMMA identifiers}$

ident: $\text{ident} \rightarrow \text{IDENT}$