

## Gramática LM - Sem Restrições

MODULE = FUNCTIONS MAIN

FUNCTIONS = 'ID' 'OP' 'CP' RETURNTYPE ESCOPE FUNCTIONS  
          | 'ID' 'OP' LISTPARAMS 'CP' RETURNTYPE ESCOPE FUNCTIONS  
          |  $\epsilon$

MAIN = 'MAIN' 'OP' 'CP' 'VOID' ESCOPE

ESCOPE = 'OK' COMMANDS 'CK' 'SCO'

LISTPARAMS = TYPE NAME 'SPTR' LISTPARAMS  
             | TYPE NAME

TYPE = 'INT'  
      | 'BOOL'  
      | 'CHAR'  
      | 'STRING'  
      | 'FLOAT'

RETURNTYPE = 'VOID'  
             | TYPE 'OB' 'CB'  
             | TYPE

NAME = 'ID' 'OB' EA 'CB'  
      | 'ID'

COMMANDS = DECLARATION 'SCO' COMMANDS  
          | 'ID' ATTRIBUTION 'SCO' COMMANDS  
          | 'ID' FUNCTIONCALL 'SCO' COMMANDS  
          | PRINT 'SCO' COMMANDS  
          | READ 'SCO' COMMANDS  
          | IFELSE 'SCO' COMMANDS  
          | WHEN 'SCO' COMMANDS  
          | REPEATER 'SCO' COMMANDS  
          | RETURN 'SCO' COMMANDS  
          |  $\epsilon$

DECLARATION = TYPE NAME

ATTRIBUTION = 'OB' EA 'CB' 'ATR' VALUE  
              | 'ATR' VALUE

VALUE = ARRAY  
| EA

ARRAY = 'OB' ELEMENTS 'CB'  
| 'OB' 'CB'

ELEMENTS = CONSTANT 'SPTR' ELEMENTS  
| CONSTANT

FUNCTIONCALL = 'OP' LISTPARAMSCALL 'CP'  
| 'OP' 'CP'

LISTPARAMSCALL = PARAMITEM 'SPTR' LISTPARAMSCALL  
| PARAMITEM

PARAMITEM = CONSTANT  
| NAME

PRINT = 'PRINT' 'OP' MESSAGE PRINTEXT 'CP'

PRINTEXT = 'SPTR' NAME PRINTEXT  
|  $\epsilon$

MESSAGE = 'CTESTRING'  
| 'CTESTRING' 'CONCAT' MESSAGE  
| NAME  
| NAME 'CONCAT' MESSAGE

READ = 'READ' 'OP' READEXT 'CP'

READEXT = NAME 'SPTR' READEXT  
| NAME

IFELSE = IF ELIF ELSE

IF = 'IF' 'OP' EB 'CP' 'OK' COMMANDS 'CK'

ELIF = 'ELIF' 'OP' EB 'CP' 'OK' COMMANDS 'CK' ELIF  
|  $\epsilon$

ELSE = 'ELSE' 'OK' COMMANDS 'CK'  
|  $\epsilon$

WHEN = 'WHEN' 'OP' EB 'CP' 'OK' COMMANDS 'CK'

REPEATER = 'REPEATER' 'OP' 'ID' ATTRIBUTION 'SCO' PARAMITEM 'SCO'  
PARAMITEM 'CP' 'OK' COMMANDS 'CK'

RETURN = 'RETURN' CONSTANT  
| 'RETURN' NAME

EB = EB 'OR' TB  
| TB

TB = TB 'AND' FB  
| FB

FB = 'NOT' FB  
| EA 'ORC' EA  
| EA 'ORE' EA

EA = EA 'OPA' TA  
| TA

TA = TA 'OPM' PA  
| PA

PA = FA 'OPE' PA  
| FA

FA = 'OPU' FA  
| 'OP' EB 'CP'  
| CONSTANT  
| ID

ID = 'ID'  
| 'ID' 'OB' EA 'CB'  
| 'ID' 'OP' LISTPARAMSCALL 'CP'

CONSTANT = 'CTEINT'  
| 'CTEFLOAT'  
| 'CTEBOOL'  
| 'CTECHAR'  
| 'CTESTRING'