

## Gramática LM - LL1 EBNF

MODULE = (1) FUNCTIONS MAIN

FUNCTIONS = (2) 'ID' PARAMS RETURNTYPE ESCAPE ';' FUNCTIONS  
| (3)  $\epsilon$

MAIN = (4) 'main' '(' ')' 'void' ESCAPE ';' ;

PARAMS = (5) '(' PARAMSEXT

PARAMSEXT = (6) ')' ;  
| (7) LISTPARAMS ')' ;

LISTPARAMS = (8) TYPE NAME LISTPARAMSEXT

LISTPARAMSEXT = (9) ',' LISTPARAMS  
| (10)  $\epsilon$

TYPE = (11) 'int'  
| (12) 'bool'  
| (13) 'char'  
| (14) 'string'  
| (15) 'float'

RETURNTYPE = (16) 'void'  
| (17) TYPE RETURNTYPEEXT

RETURNTYPEEXT = (18) '[' ']'  
| (19)  $\epsilon$

NAME = (20) 'ID' NAMEEXT

NAMEEXT = (21) '[' EA ']'  
| (22)  $\epsilon$

ESCAPE = (23) '{' COMMANDS '}'

COMMANDS = (24) CMD ';' COMMANDS  
| (25)  $\epsilon$

CMD = (26) DECLARATION  
| (27) 'ID' CMDEXT  
| (28) PRINT

| (29) READ  
| (30) IFELSE  
| (31) WHEN  
| (32) REPEATER  
| (33) RETURN

DECLARATION = (34) TYPE NAME

CMDEXT = (35) ATTRIBUTION  
| (36) FUNCTIONCALL

ATTRIBUTION = (37) NAMEEXT '=' VALUE

VALUE = (38) ARRAY  
| (39) EA

ARRAY = (40) '[' ARRAYEXT

ARRAYEXT = (41) ELEMENTS ']  
| (42) ']

ELEMENTS = (43) EB ELEMENTSEXT

ELEMENTSEXT = (44) ',' ELEMENTS  
| (45)  $\epsilon$

FUNCTIONCALL = (46) '(' FUNCTIONCALLEXT

FUNCTIONCALLEXT = (47) LISTPARAMSCALL ')'   
| (48) ']

LISTPARAMSCALL = (49) PARAMITEM LISTPARAMSCALLEXT

LISTPARAMSCALLEXT = (50) ',' LISTPARAMSCALL   
| (51)  $\epsilon$

PARAMITEM = (52) EB  
| (53) NAME

PRINT = (54) 'PRINT' '(' MESSAGE PRINTEXT ']

PRINTEXT = (55) ',' NAME PRINTEXT  
| (56)  $\epsilon$

MESSAGE = (57) 'CTESTRING' MESSAGEEXT  
| (58) NAME MESSAGEEXT

MESSAGEEXT = (59) '++' MESSAGE  
| (60)  $\epsilon$

READ = (61) 'read' '(' READEXT ')'

READEXT = (62) NAME READEXTR

READEXTR = (63) ',' READEXT  
| (64)  $\epsilon$

IFELSE = (65) IF ELIF ELSE

IF = (66) 'if' '(' EB ')' ESCOPE

ELIF = (67) 'elif' '(' EB ')' ESCOPE ELIF  
| (68)  $\epsilon$

ELSE = (69) 'else' ESCOPE  
| (70)  $\epsilon$

WHEN = (71) 'when' '(' EB ')' ESCOPE

REPEATER = (72) 'repeater' '(' 'ID' ATTRIBUTION ';' PARAMITEM ';' PARAMITEM ')'  
ESCOPE

RETURN = (73) 'return' RETURNEXT

RETURNEXT = (74) EB  
| (75) NAME

EB = (76) TB EBR

EBR = (77) 'or' TB EBR  
| (78)  $\epsilon$

TB = (79) FB TBR

TBR = (80) 'and' FB TBR  
| (81)  $\epsilon$

FB = (82) 'not' FB  
| (83) EA EREL

EREL = (84) 'ORC' EA  
| (85) 'ORE' EA

| (86)  $\epsilon$

EA = (87) TA EAR

EAR = (88) 'OPA' TA EA  
| (89)  $\epsilon$

TA = (90) PA TAR

TAR = (91) 'OPM' PA TAR  
| (92)  $\epsilon$

PA = (93) FA PAFAT

PAFAT = (94) 'OPE' PA  
| (95)  $\epsilon$

FA = (96) 'OPU' FA  
| (97) '(' EB ')'  
| (98) CONSTANT  
| (99) ID

ID = (100) 'ID' IDFAT

IDFAT = (101) '[' EA ']'  
| (102) FUNCTIONCALL  
| (103)  $\epsilon$

CONSTANT = (104) 'CTEINT'  
| (105) 'CTEFLOAT'  
| (106) 'CTEBOOL'  
| (107) 'CTECHAR'  
| (108) 'CTESTRING'