Universidad de San Carlos de Guatemala

Facultad de Ingeniería

Escuela de Ciencias y Sistemas

Proyecto 2: MINOR-C

GRAMATICA

Organización de Lenguajes y Compiladores II

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GRAMATICA ASCENDENTE

init → program

init → ε

program → main

program → declars main

declars → declars declar

declars → declar

declar → primitive_type function

declar → VOID function

declar → declaration

declar → assignation

declar → struct

main → MAIN PAR_IZQ PAR_DER function_block

function → function_type ID param function_block

param → PAR_IZQ PAR_DER

param → PAR_IZQ parameter_list PAR_DER

parameter_list → parameter_list COMA parameter

parameter_list → parameter

parameter → primitive_type ID

primitive_type → INT

primitive_type → DOUBLE

primitive_type → CHAR

primitive_type → STRUCT ID

struct → STRUCT ID struct_block

struct_block → BRA_IZQ declarations BRA_DER

function_block → BRA_IZQ instructions BRA_DER

function_block → BRA_IZQ BRA_DER

instructions → instructions instruction

instructions → instruction

instruction → declaration PUNTO_COMA

instruction → assignation PUNTO_COMA

instruction → for

instruction → while

instruction → do PUNTO_COMA

instruction → if

instruction → switch

instruction → label

instruction → goto PUNTO_COMA

instruction → break PUNTO_COMA

instruction → continue PUNTO_COMA

instruction → return PUNTO_COMA

instruction → expression PUNTO_COMA

instruction → PUNTO_COMA

declarations → declarations declaration PUNTO_COMA

declarations → declaration PUNTO_COMA

declaration → primitive_type declaration_list

declaration → ID declaration_list

declaration_list → declaration_list COMA ID IGUAL expression

declaration_list → declaration_list COMA ID brackets IGUAL BRA_IZQ expression_list BRA_DER

declaration_list → declaration_list COMA ID

declaration_list → declaration_list COMA ID brackets

declaration_list → declaration_list COMA ID COR_IZQ COR_DER IGUAL CADENA

declaration_list → ID IGUAL expression

declaration_list → ID brackets IGUAL BRA_IZQ expression_list BRA_DER

declaration_list → ID

declaration_list → ID brackets

declaration_list → ID COR_IZQ COR_DER IGUAL CADENA

identifier → ID

identifier → ID bracket

brackets → bracket

brackets → COR_IZQ COR_DER

bracket → bracket COR_IZQ expression COR_DER

bracket → COR_IZQ expression COR_DER

assignation → identifier equals expression

assignation → identifier PUNTO ID equals expression

equals → IGUAL

equals → SUMA_IGUAL

equals → RESTA_IGUAL

equals → MULT_IGUAL

equals → DIV_IGUAL

equals → MOD_IGUAL

equals → SHIFT_IZQ_IGUAL

equals → SHIFT_DER_IGUAL

equals → AND_BIT_IGUAL

equals → XOR_BIT_IGUAL

equals → OR_BIT_IGUAL

if → IF PAR_IZQ expression PAR_DER function_block

if → IF PAR_IZQ expression PAR_DER function_block ELSE if

if → IF PAR_IZQ expression PAR_DER function_block ELSE function_block

while → WHILE PAR_IZQ expression PAR_IZQ function_block

do → DO function_block WHILE PAR_IZQ expression PAR_DER

for → FOR PAR_IZQ for_declaration PUNTO_COMA expression PUNTO_COMA step PAR_DER function_block

for_declaration → declaration

for_declaration → assignation

step → assignation

step → increase

step → decrease

switch → SWITCH PAR_IZQ expression PAR_DER BRA_IZQ cases BRA_DER

cases → cases case

cases → cases default

cases → case

case → CASE expression DOS_PUNTOS instructions

default → DEFAULT DOS_PUNTOS instructions

label → ID DOS_PUNTOS

goto → GOTO ID

break → BREAK

continue → CONTINUE

return → RETURN expression

return → RETURN

function_call → ID param_val

param_val → PAR_IZQ PAR_DER

param_val → PAR_IZQ expression_list PAR_DER

expression_list → expression_list COMA expression

expression_list → expression

expression → expression SUMA expression

expression → expression RESTA expression

expression → expression MULT expression

expression → expression DIV expression

expression → expression MOD expression

expression → expression AND expression

expression → expression OR expression

expression → expression ES_IGUAL expression

expression → expression NO_IGUAL expression

expression → expression MENOR_IGUAL expression

expression → expression MAYOR_IGUAL expression

expression → expression MENOR expression

expression → expression MAYOR expression

expression → expression AND_BIT expression

expression → expression OR_BIT expression

expression → expression XOR_BIT expression

expression → expression SHIFT_IZQ expression

expression → expression SHIFT_DER expression

expression → expression INTERROGACION expression DOS_PUNTOS expression

expression → RESTA expression

expression → AND_BIT expression

expression → NOT expression

expression → NOT_BIT expression

expression → PAR_IZQ expression PAR_DER

expression → increase

expression → decrease

expression → ENTERO

expression → DECIMAL

expression → CARACTER

expression → CADENA

expression → function_call

expression → conversion

expression → identifier

expression → identifier PUNTO ID

conversion → PAR_IZQ INT PAR_DER expression

conversion → PAR_IZQ DOUBLE PAR_DER expression

conversion → PAR_IZQ CHAR PAR_DER expression

increase → SUMA_SUMA expression

increase → expression SUMA_SUMA

decrease → RESTA_RESTA expression

decrease → expression RESTA_RESTA