

Avance 1 - Tokens, gramática y diagramas

Tokens

Token	Contenido
PROGRAM	program
VARS	vars
IF	if
ELSE	else
THEN	then
WHILE	while
FOR	for
TO	to
DO	do
PRINT	print
RETURN	return
INT	int
FLOAT	float
CHAR	char
MAIN	main
FUNCTION	function
READ	read
WRITE	write
ID	[a-zA-Z][a-zA-Z_0-9]*
QUOTATIONMARK	\“
SEMICOLON	\;
EQUALS	\=
EQUALS_BOOLEAN	\==

PLUS	\+
MINUS	\-
DIVIDE	\/
MULTIPLY	*
OPENPARENTHESES	\(
CLOSEPARENTHESES	\)
DOT	\.
TWODOTS	\:
OPENBRACE	\{
CLOSEBRACE	\}
OPENBRACKET	\[
CLOSEBRACKET	\]
DIFFERENT	(!=)
GREATER	\>
GREATEREQUAL	(>=)
LESS	\<
LESSEQUAL	(<=)
COMMA	\,
AND	(&&)
OR	()
CTEF	\d+\.\d+
CTEI	\d+
CTESTRING	[a-zA-Z]+
newline	\n+
ignore	\

Gramática formal

programa: PROGRAM ID SEMICOLON vars funciones bloque

| PROGRAM ID SEMICOLON vars bloque

| PROGRAM ID SEMICOLON funciones bloque

| PROGRAM ID SEMICOLON bloque

;

bloque: MAIN OPENPARENTHESES CLOSEPARENTHESES OPENBRACE estatuto

CLOSEBRACE

| MAIN OPENPARENTHESES CLOSEPARENTHESES OPENBRACE CLOSEBRACE

;

tipo: INT

| FLOAT

| CHAR

;

funciones: FUNCTION tipo ID OPENPARENTHESES params CLOSEPARENTHESES SEMICOLON

 vars OPENBRACE estatuto CLOSEBRACE

| FUNCTION ID OPENPARENTHESES params CLOSEPARENTHESES SEMICOLON

 vars OPENBRACE estatuto CLOSEBRACE

| FUNCTION tipo ID OPENPARENTHESES CLOSEPARENTHESES SEMICOLON

 vars OPENBRACE estatuto CLOSEBRACE

| FUNCTION tipo ID OPENPARENTHESES params CLOSEPARENTHESES SEMICOLON

 OPENBRACE estatuto CLOSEBRACE

| FUNCTION tipo ID OPENPARENTHESES params CLOSEPARENTHESES SEMICOLON

 OPENBRACE estatuto CLOSEBRACE

| FUNCTION ID OPENPARENTHESES CLOSEPARENTHESES SEMICOLON

 vars OPENBRACE estatuto CLOSEBRACE

| FUNCTION ID OPENPARENTHESES params CLOSEPARENTHESES SEMICOLON

 OPENBRACE estatuto CLOSEBRACE

| FUNCTION ID OPENPARENTHESES params CLOSEPARENTHESES SEMICOLON

 vars OPENBRACE CLOSEBRACE

| FUNCTION tipo ID OPENPARENTHESES CLOSEPARENTHESES SEMICOLON

 OPENBRACE estatuto CLOSEBRACE

| FUNCTION tipo ID OPENPARENTHESES CLOSEPARENTHESES SEMICOLON

 vars OPENBRACE CLOSEBRACE

| FUNCTION tipo ID OPENPARENTHESES params CLOSEPARENTHESES SEMICOLON

 OPENBRACE CLOSEBRACE

| FUNCTION ID OPENPARENTHESES CLOSEPARENTHESES SEMICOLON

 OPENBRACE estatuto CLOSEBRACE

```

| FUNCTION ID OPENPARENTHESES params CLOSEPARENTHESES SEMICOLON
  OPENBRACE CLOSEBRACE
| FUNCTION tipo ID OPENPARENTHESES CLOSEPARENTHESES SEMICOLON
  OPENBRACE CLOSEBRACE
| FUNCTION ID OPENPARENTHESES CLOSEPARENTHESES SEMICOLON
  vars OPENBRACE CLOSEBRACE
| FUNCTION ID OPENPARENTHESES CLOSEPARENTHESES SEMICOLON
  OPENBRACE CLOSEBRACE
;

vars: VARS tipo TWODOTS params SEMICOLON
;

params: ID
| ID OPENBRACKET paramsP CLOSEBRACKET
| ID OPENBRACKET paramsP CLOSEBRACKET COMMA params
| ID COMMA params
;

paramsP: CTEI
| ID
| params_index
;

params_index: ID
| ID OPENBRACKET CTEI CLOSEBRACKET
| ID OPENBRACKET ID CLOSEBRACKET
| ID OPENBRACKET params_index CLOSEBRACKET
;

estatuto: asignacion
| llamada
| retorno
| lectura
| escritura
| decision
| repeticion
;

llamada: ID OPENPARENTHESES params CLOSEPARENTHESES SEMICOLON
| ID OPENPARENTHESES CLOSEPARENTHESES SEMICOLON
;

retorno: RETURN OPENPARENTHESES exp CLOSEPARENTHESES SEMICOLON
;

lectura: READ OPENPARENTHESES params CLOSEPARENTHESES SEMICOLON
;

```

escritura: WRITE OPENPARENTHESES escrituraP

;

escrituraP: QUOTATIONMARK CTESTRING QUOTATIONMARK COMMA escrituraP

| exp COMMA escrituraP

| QUOTATIONMARK CTESTRING QUOTATIONMARK CLOSEPARENTHESES

SEMICOLON

| exp CLOSEPARENTHESES SEMICOLON

;

decision: IF OPENPARENTHESES exp CLOSEPARENTHESES THEN OPENBRACE estatuto CLOSEBRACE

ELSE OPENBRACE estatuto CLOSEBRACE

| IF OPENPARENTHESES exp CLOSEPARENTHESES THEN OPENBRACE CLOSEBRACE

ELSE OPENBRACE estatuto CLOSEBRACE

| IF OPENPARENTHESES exp CLOSEPARENTHESES THEN OPENBRACE estatuto CLOSEBRACE

ELSE OPENBRACE CLOSEBRACE

| IF OPENPARENTHESES exp CLOSEPARENTHESES THEN OPENBRACE estatuto CLOSEBRACE

| IF OPENPARENTHESES exp CLOSEPARENTHESES THEN OPENBRACE CLOSEBRACE

;

repeticion: condicional

| no_condicional

;

condicional: WHILE OPENPARENTHESES exp CLOSEPARENTHESES DO OPENBRACE estatuto CLOSEBRACE

| WHILE OPENPARENTHESES exp CLOSEPARENTHESES DO OPENBRACE CLOSEBRACE

;

no_condicional: FOR ID EQUALS exp TO exp DO OPENBRACE estatuto CLOSEBRACE

| FOR ID EQUALS exp TO exp DO OPENBRACE CLOSEBRACE

;

asignacion: ID EQUALS exp SEMICOLON

| ID OPENBRACKET CTEI CLOSEBRACKET EQUALS exp SEMICOLON

| ID OPENBRACKET ID CLOSEBRACKET EQUALS exp SEMICOLON

| ID OPENBRACKET params_index CLOSEBRACKET EQUALS exp SEMICOLON

;

exp: termino

| termino PLUS exp

```
| termino MINUS exp
;

termino: factor
| factor MULTIPLY termino
| factor DIVIDE termino
;

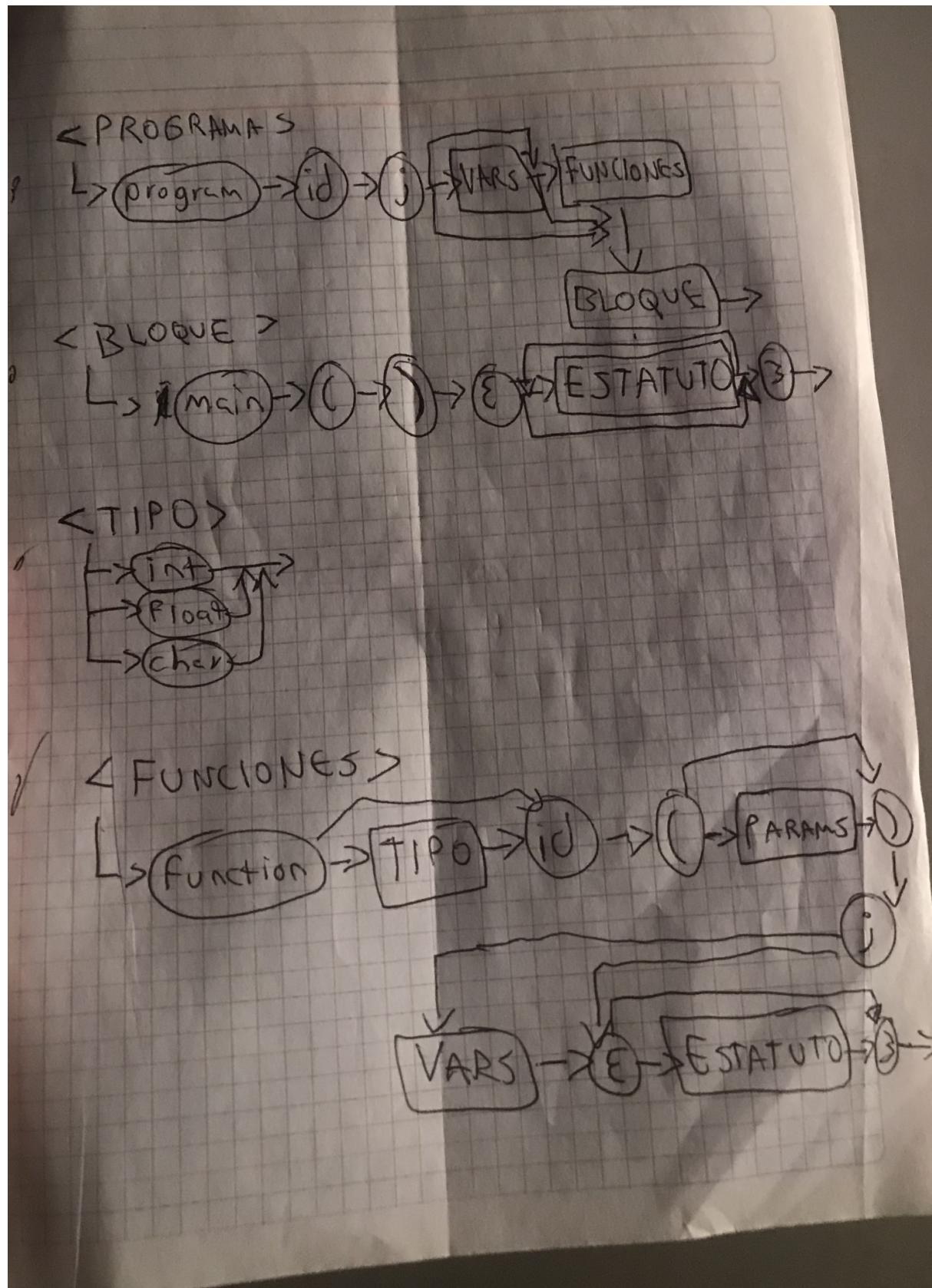
factor: ID OPENPARENTHESES params CLOSEPARENTHESES
| ID
| CTEF
| CTEI
| OPENPARENTHESES h_exp CLOSEPARENTHESES
;

h_exp: s_exp
| s_exp AND h_exp
| s_exp OR h_exp
;

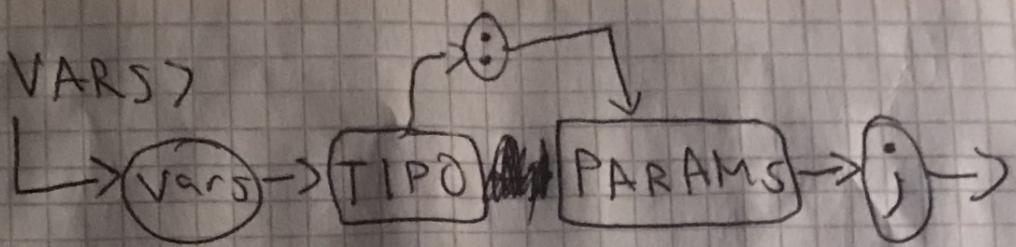
s_exp: exp
| exp GREATER exp
| exp LESS exp
| exp DIFFERENT exp
| exp EQUALS_BOOLEAN exp
| exp LESSEQUAL exp
| exp GREATEREQUAL exp
;

empty::;
```

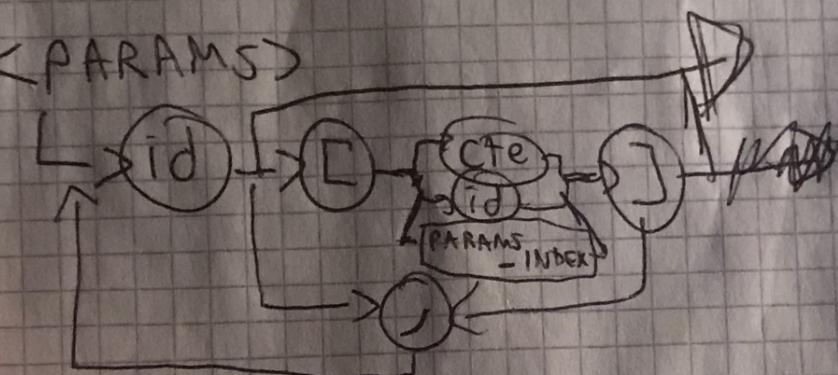
Diagramas de sintaxis



<VARS>



<PARAMS>

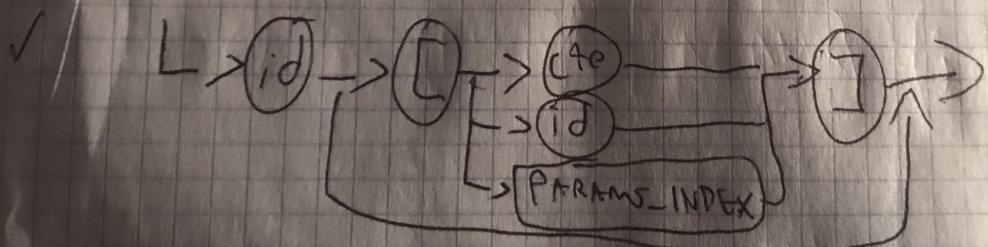


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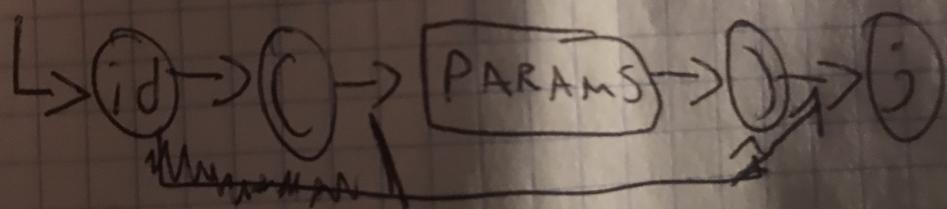
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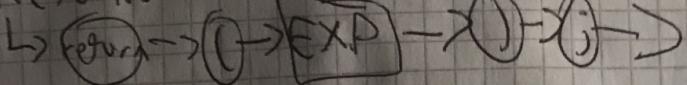
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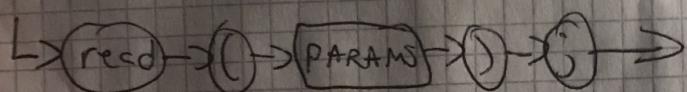
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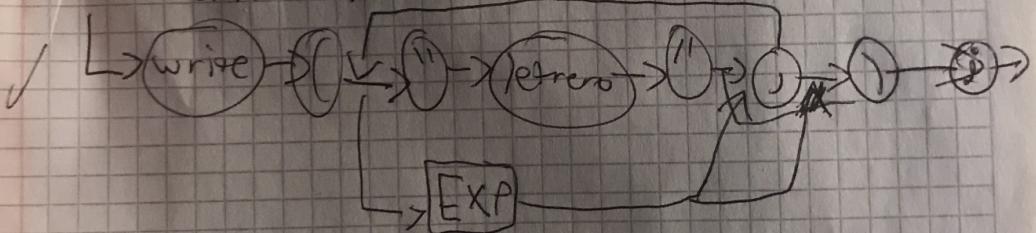
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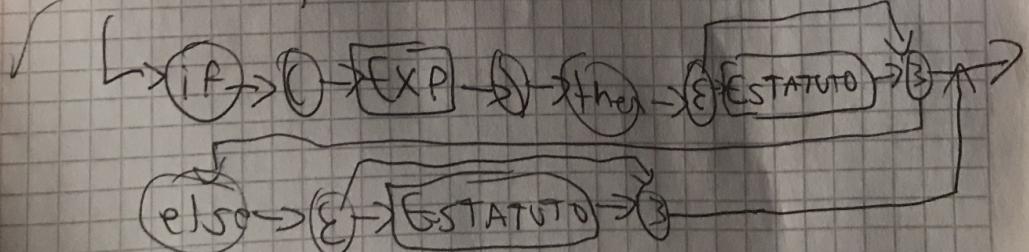
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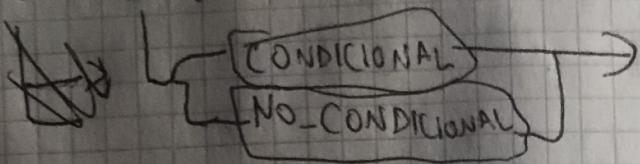
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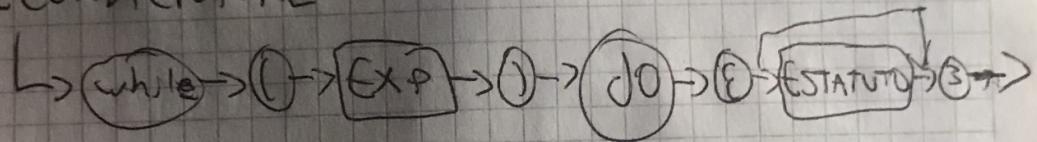
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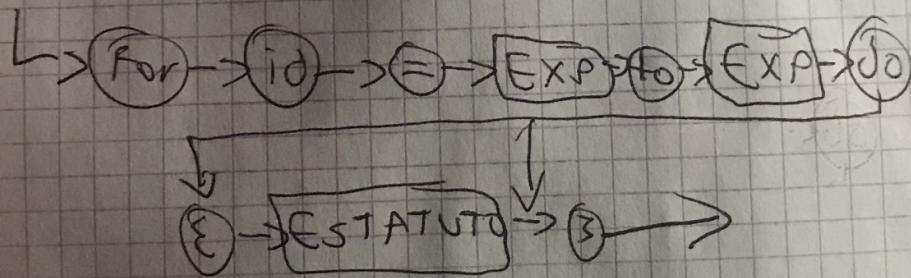
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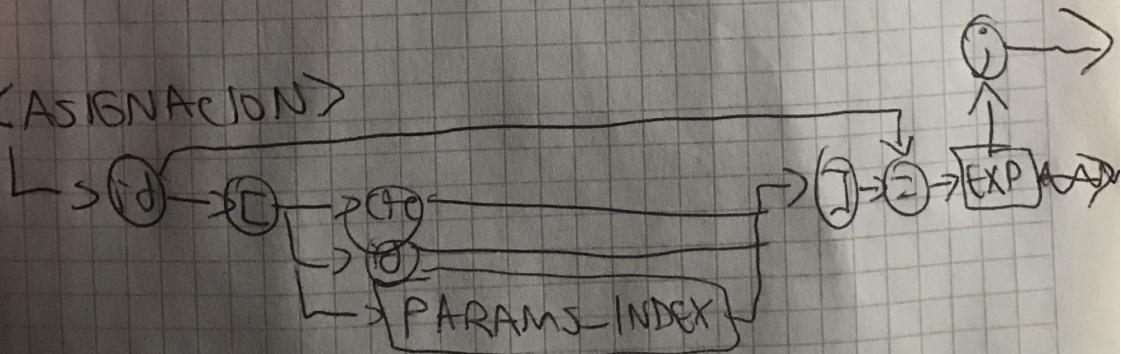
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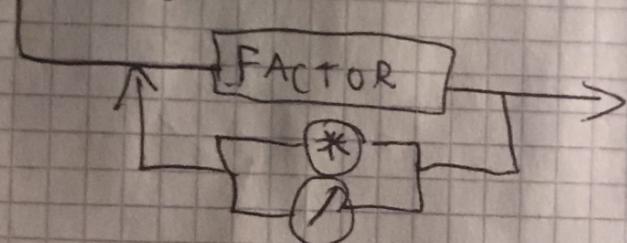
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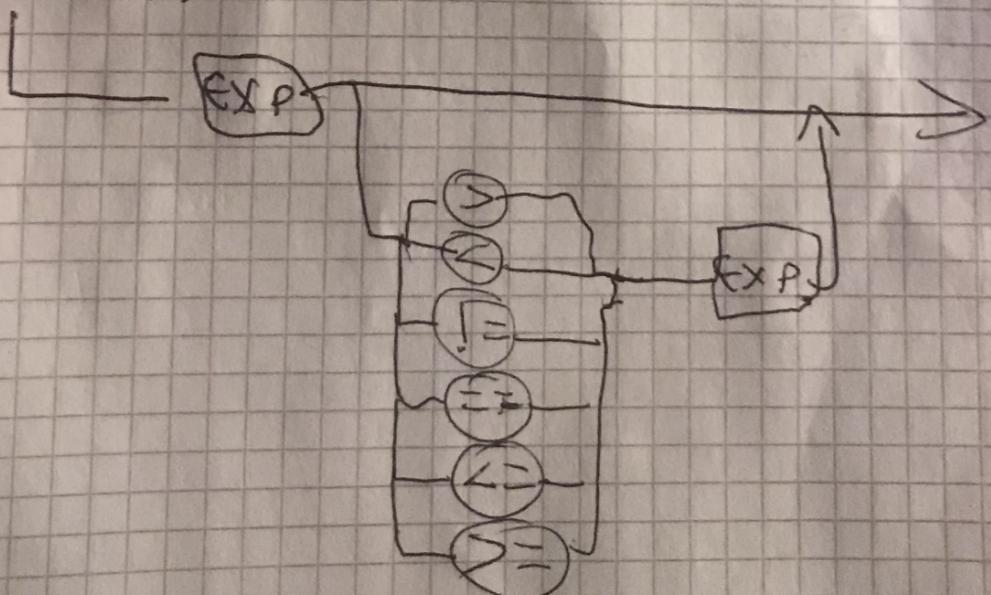
$\langle EXP \rangle$



$\langle TERMINOS \rangle$



$\langle S_EXP \rangle$



$\langle \text{TL-EXP} \rangle$

