

Gramática

$Expr \rightarrow Expr + Term$

$Expr \rightarrow Expr - Term$

$Expr \rightarrow Term$

$Term \rightarrow Term * Factor$

$Term \rightarrow Term / Factor$

$Term \rightarrow Factor$

$Factor \rightarrow (Expr)$

$Factor \rightarrow - Factor$

$Factor \rightarrow id$

$Factor \rightarrow num$

Definición Dirigida por Sintaxis (DDS)

Producción Gramatical	Acción Semántica
$Expr \rightarrow Expr_1 + Term$	$Expr.ptr := mknode('+', Expr_1.ptr, Term.ptr)$
$Expr \rightarrow Expr_1 - Term$	$Expr.ptr := mknode('-', Expr_1.ptr, Term.ptr)$
$Expr \rightarrow Term$	$Expr.ptr := Term.ptr$
$Term \rightarrow Term_1 * Factor$	$Term.ptr := mknode('*', Term_1.ptr, Term.ptr)$
$Term \rightarrow Term_1 / Factor$	$Term.ptr := mknode('/', Term_1.ptr, Term.ptr)$
$Term \rightarrow Factor$	$Term.ptr := Factor.ptr$
$Factor \rightarrow (Expr)$	$Factor.ptr := Expr.ptr$
$Factor \rightarrow - Factor_1$	$Factor.ptr := mkunode('-', Factor_1.ptr)$
$Factor \rightarrow id$	$Factor.ptr := mkleaf(id, id.ptr)$
$Factor \rightarrow num$	$Factor.ptr := mkleaf(num, num.ptr)$

Esquema de Traducción (ETDS)

$Expr \rightarrow Expr_1 + Term \{ Expr.ptr := mknode('+', Expr_1.ptr, Term.ptr) \}$

$Expr \rightarrow Expr_1 - Term \{ Expr.ptr := mknode('-', Expr_1.ptr, Term.ptr) \}$

$Expr \rightarrow Term \{ Expr.ptr := Term.ptr \}$

$Term \rightarrow Term_1 * Factor \{ Term.ptr := mknode('*', Term_1.ptr, Term.ptr) \}$

$Term \rightarrow Term_1 / Factor \{ Term.ptr := mknode('/', Term_1.ptr, Term.ptr) \}$

$Term \rightarrow Factor \{ Term.ptr := Factor.ptr \}$

$Factor \rightarrow (Expr) \{ Factor.ptr := Expr.ptr \}$

$Factor \rightarrow - Factor_1 \{ Factor.ptr := mkunode('-', Factor_1.ptr) \}$

$Factor \rightarrow id \{ Factor.ptr := mkleaf(id, id.ptr) \}$

$Factor \rightarrow num \{ Factor.ptr := mkleaf(num, num.ptr) \}$

Gramática sin Recursividad por la Izquierda

$Expr \rightarrow Term\ Expr'$

$Expr' \rightarrow +\ Term\ Expr'$

$Expr' \rightarrow -\ Term\ Expr'$

$Expr' \rightarrow \epsilon$

$Term \rightarrow Factor\ Term'$

$Term' \rightarrow *\ Factor\ Term'$

$Term' \rightarrow /\ Factor\ Term'$

$Term' \rightarrow \epsilon$

$Factor \rightarrow (\ Expr)$

$Factor \rightarrow -\ Factor$

$Factor \rightarrow id$

$Factor \rightarrow num$

Esquema de Traducción (ETDS) Resultante

$Expr \rightarrow Term \{ Expr'.h := Term.ptr \} \ Expr' \{ Expr.ptr := Expr'.s \}$

$Expr' \rightarrow +\ Term \{ Expr'_1.h := mknode('+', Expr'.h, Term.ptr) \} \ Expr'_1 \{ Expr'.s := Expr'_1.s \}$

$Expr' \rightarrow -\ Term \{ Expr'_2.h := mknode('-', Expr'.h, Term.ptr) \} \ Expr'_2 \{ Expr'.s := Expr'_2.s \}$

$Expr' \rightarrow \epsilon \{ Expr'.s := Expr'.h \}$

$Term \rightarrow Factor \{ Term'.h := Factor.ptr \} \ Term' \{ Term.ptr := Term'.s \}$

$Term' \rightarrow *\ Factor \{ Term'_1.h := mknode('*', Term'.h, Factor.ptr) \} \ Term'_1 \{ Term'.s := Term'_1.s \}$

$Term' \rightarrow /\ Factor \{ Term'_2.h := mknode('/', Term'.h, Factor.ptr) \} \ Term'_2 \{ Term'.s := Term'_2.s \}$

$Term' \rightarrow \epsilon \{ Term'.s := Term'.h \}$

$Factor \rightarrow (\ Expr) \{ Factor.ptr := Expr.ptr \}$

$Factor \rightarrow -\ Factor_1 \{ Factor.ptr := mkunode('-', Factor_1.ptr) \}$

$Factor \rightarrow id \{ Factor.ptr := mkleaf(id, id.ptr) \}$

$Factor \rightarrow num \{ Factor.ptr := mkleaf(num, num.ptr) \}$

Estudio de la Gramática

NO TERMINAL	FIRST	FOLLOW
Expr	(- id num	\$)
Expr'	+ - ϵ	\$)
Term	(- id num	+ - \$)
Term'	* / ϵ	+ - \$)
Factor	(- id num	* / + - \$)

PRODUCCIÓN	PREDICTION
Expr \rightarrow Term Expr'	(- id num
Expr' \rightarrow + Term Expr'	+
Expr' \rightarrow - Term Expr'	-
Expr' \rightarrow ϵ	\$)
Term \rightarrow Factor Term'	(- id num
Term' \rightarrow * Factor Term'	*
Term' \rightarrow / Factor Term'	/
Term' \rightarrow ϵ	+ - \$)
Factor \rightarrow (Expr)	(
Factor \rightarrow - Factor	-
Factor \rightarrow id	id
Factor \rightarrow num	num