

- Gramática 1

$$S \rightarrow TS'$$

$$S' \rightarrow +TS' \mid \varepsilon$$

$$T \rightarrow FT'$$

$$T' \rightarrow FT' \mid \varepsilon$$

$$F \rightarrow (S) \mid S^* \mid a$$

Quitar Paso

Calcular el FIRST de la gramática resultante

	a	+	*	(	)	\$
S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S'	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
T	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T'	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Calcular el FOLLOW para la gramática resultante

	a	+	*	(	)	\$
S	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
S'	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
T	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
T'	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Continuar

Quitar Paso

	a	+	*	(	)	\$
S	$S \rightarrow TS'$ 5/50	$\rightarrow$	$\rightarrow$	$S \rightarrow TS'$ 5/50	$\rightarrow$	$\rightarrow$
S'	$\rightarrow$	$S' \rightarrow TS'$ 5/50	$S' \rightarrow \varepsilon$ 4/50	$\rightarrow$	$S' \rightarrow \varepsilon$ 4/50	$S' \rightarrow \varepsilon$ 4/50
T	$\rightarrow$	$\rightarrow$	$\rightarrow$	$T \rightarrow FT'$ 5/50	$\rightarrow$	$\rightarrow$
T'	$\rightarrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$	$T' \rightarrow FT'$ 5/50	$T' \rightarrow \varepsilon$ 5/50
F	$\rightarrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$

Quitar Paso

	a	+	*	(	)	\$
S	$S \rightarrow TS'$ 5/50	$\rightarrow$	$\rightarrow$	$S \rightarrow TS'$ 5/50	$\rightarrow$	$\rightarrow$
S'	$\rightarrow$	$S' \rightarrow TS'$ 5/50	$S' \rightarrow \varepsilon$ 4/50	$\rightarrow$	$S' \rightarrow \varepsilon$ 4/50	$S' \rightarrow \varepsilon$ 4/50
T	$\rightarrow$	$\rightarrow$	$\rightarrow$	$T \rightarrow FT'$ 5/50	$\rightarrow$	$\rightarrow$
T'	$\rightarrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$	$T' \rightarrow FT'$ 5/50	$T' \rightarrow \varepsilon$ 5/50
F	$\rightarrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$	$\rightarrow$

Análisis sintáctico LL(1) para la cadena (a + a)\*

Pila	Entrada	Acción
\$S\$	(a + a)*\$	$S \rightarrow TS'$
TS\$	(a + a)*\$	$T \rightarrow FT'$
FTS\$	(a + a)*\$	$F \rightarrow S^*$

$S^*TS\$$	$(a+aj)^*\$$	$S \rightarrow TS^*$	
$TS^*TS\$$	$(a+aj)^*\$$	$T \rightarrow FT^*$	
$FTS^*TS\$$	$(a+aj)^*\$$	$F \rightarrow (S)$	
$(S)TS^*TS\$$	$(a+aj)^*\$$	acepta	
$S)TS^*TS\$$	$a+aj)^*\$$	$S \rightarrow TS^*$	
$TS)TS^*TS\$$	$a+aj)^*\$$	$F \rightarrow a$	
$aTS)TS^*TS\$$	$a+aj)^*\$$	acepta	
$TS)TS^*TS\$$	$+aj)^*\$$	$T \rightarrow S$	
$S)TS^*TS\$$	$+aj)^*\$$	$S' \rightarrow +TS^*$	
$+TS)TS^*TS\$$	$+aj)^*\$$	acepta	
$TS)TS^*TS\$$	$aj)^*\$$	$T \rightarrow FT^*$	
$FTS)TS^*TS\$$	$aj)^*\$$	$F \rightarrow a$	
$aTS)TS^*TS\$$	$aj)^*\$$	acepta	
$TS)TS^*TS\$$	$j)^*\$$	$T \rightarrow \epsilon$	
$S)TS^*TS\$$	$j)^*\$$	$S' \rightarrow \epsilon$	

- Gramática 2

 $S \rightarrow (L)a$ 
 $L \rightarrow SL'$ 
 $L \rightarrow ,SL' \epsilon$ 

Construir la tabla de análisis LL(1)

Calcular el FIRST de la gramática resultante

	(	,	,	,	a
S	✓	✓	□	□	□
L	✓	✓	□	□	□
L'	□	□	□	✓	✓

Calcular el FOLLOW para la gramática resultante

	(	,	,	,	a
S	□	□	✓	✓	✓
L	□	□	✓	□	□
L'	□	□	✓	□	□

	(	,	,	,	a
S	$S \rightarrow (L)a$ 2/10	$S \rightarrow (L)$ 5/10	→	→	→
L	$L \rightarrow SL'$ 9/10	$L \rightarrow SL'$ 5/10	→	→	→
L'	→	→	$L' \rightarrow \epsilon$ 4/10	$L' \rightarrow SL'$ 7/10	→

Análisis sintáctico LL(1) la cadena ((a), a)

SS	(a)a\$	$S \rightarrow (L)$	→
(,S	(a)a\$	→	→
(,L\$	(a)a\$	acepta	→
(,L'\$	(a)a\$	$L \rightarrow SL'$	→
SL\$	(a)a\$	$S \rightarrow (L)$	→
(,L'L\$	(a)a\$	acepta	→
(,L'L'\$	(a)a\$	$L \rightarrow SL'$	→
SL'L\$	a)a\$	$S \rightarrow a$	→
aL'L'\$	a)a\$	acepta	→
(,L'L'\$	,a)\$	$L' \rightarrow \epsilon$	→
,L'\$	,a)\$	acepta	→
(,L'\$	,a)\$	$L' \rightarrow ,SL'$	→
SL'\$	,a)\$	acepta	→

SL)S	a)S	S → a	<input type="button" value="✓"/>
AL)S	a)S	acepta	<input type="button" value="✓"/>
L)S	)S	L' → ε	<input type="button" value="✓"/>
)S	a)S	acepta	<input type="button" value="✓"/>

- Gramática 3

 $G \rightarrow PG'$ 
 $G' \rightarrow G \mid \varepsilon$ 
 $P \rightarrow is:R$ 
 $R \rightarrow idR \mid \varepsilon$ 

Construir

Quitar Paso

	id	:	ε
G	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G'	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

  

	id	:	ε
G	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
G'	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

  

	id	:	ε
G	$G \rightarrow PG'$	—	—
	5/50	—	1/50
G'	$G' \rightarrow G$	—	$G' \rightarrow \varepsilon$
	4/50	—	4/50
P	$P \rightarrow id:R$	—	—
	6/50	—	—
R	$R \rightarrow id R$	—	$R \rightarrow \varepsilon$
	6/50	—	3/50

  

Análisis sintáctico LL(1) id id id id

GS	id id id idS	G → PG'	<input type="button" value="✓"/>
	2/40	15/40	9/40
PGS	id id id idS	P → idR	<input type="button" value="✓"/>
idPGS	id id id idS	acepta	<input type="button" value="✓"/>
RGGS	id id idS	R → idR	<input type="button" value="✓"/>
idRGS	id id idS	acepta	<input type="button" value="✓"/>
RGS	id idS	R → idR	<input type="button" value="✓"/>
idRGS	id idS	acepta	<input type="button" value="✓"/>
RGS	idS	R → idR	<input type="button" value="✓"/>

idRiQ\$	id\$	aceptar	<input type="button" value="→"/>
RQ\$	\$	$E' \rightarrow \epsilon$	<input type="button" value="→"/>
Q\$	\$	$Q' \rightarrow \epsilon$	<input type="button" value="→"/>
\$	\$	aceptada	<input type="button" value="→"/>

- Gramática 4

$S \rightarrow S'$

$S' \rightarrow E$

$E \rightarrow \text{while } E \text{ do } E' | \text{id} := E' | \text{id}$

$E' \rightarrow E | \epsilon$

Calcular el FIRST para la gramática resultante

	id	while	do	:=	$\epsilon$
S	✓	✓	□	□	□
S'	✓	✓	□	□	□
E	✓	✓	□	□	□
E'	✓	✓	□	□	□

Calcular el FOLLOW para la gramática resultante

	id	while	do	:=	$\epsilon$
S	□	□	□	□	✓
S'	□	□	□	□	✓
E	□	□	□	✓	✓
E'	□	□	□	✓	✓

Construir la tabla LL(1)

	id	while	do	:=	$\epsilon$
$S \rightarrow S'$					
$S' \rightarrow E$					
$E \rightarrow \text{id} :=$					
$E' \rightarrow E$					

Análisis sintáctico para while id do id := id

\$S	while id do id := id\$	$S \rightarrow S'$	<input type="button" value="→"/>
\$S\$	while id do id := id\$	$S' \rightarrow E$	<input type="button" value="→"/>
ES	while id do id := id\$	$E \rightarrow \text{while } E \text{ do } E'$	<input type="button" value="→"/>
while E do E\$	while id do id := id\$	acepta	<input type="button" value="→"/>
E do E\$	id do id := id\$	$E \rightarrow \text{id}$	<input type="button" value="→"/>
id do E\$	id do id := id\$	acepta	<input type="button" value="→"/>
id := E\$	id := id\$	acepta	<input type="button" value="→"/>
E\$	id\$	$E' \rightarrow \epsilon$	<input type="button" value="→"/>

es	id\$	E->id	OK
id\$	id\$	acepta	OK
<hr/>			
\$	\$	aceptada	OK