

Construindo a tabela de parsing (analísadores sintáticos tabulares preditivos)

Gramáticas originais

(A) $S \rightarrow aS \mid A$ $A \rightarrow bA \mid B$ $B \rightarrow cB \mid c$	(B) $S \rightarrow abA \mid acS$ $A \rightarrow Ac \mid b$	(C) $S \rightarrow bcA \mid bcd \mid Ba \mid d$ $A \rightarrow Ab \mid Ac \mid d$ $B \rightarrow bc$
(D) $S \rightarrow AS \mid A$ $A \rightarrow id = E$ $E \rightarrow E + num \mid E + id \mid id \mid num$	(E) $S \rightarrow aAb \mid b$ $A \rightarrow aA \mid B$ $B \rightarrow bB \mid \lambda$	(F) $S \rightarrow IF$ $I \rightarrow 1I \mid 0I \mid \lambda$ $F \rightarrow .D \mid \lambda$ $D \rightarrow 1D \mid 0D \mid E$ $E \rightarrow 1 \mid 0$

Gramáticas corrigidas

(A) $S' \rightarrow aS \mid bA \mid cR$ $S \rightarrow aS \mid bA \mid cR$ $A \rightarrow bA \mid cR$ $R \rightarrow cR \mid \lambda$	(B) $S' \rightarrow aZ1$ $S \rightarrow aZ1$ $A \rightarrow bZ2$ $Z1 \rightarrow bA \mid cS$ $Z2 \rightarrow cZ2 \mid \lambda$	(C) $S \rightarrow bX1 \mid d$ $X1 \rightarrow cZ$ $X2 \rightarrow bX2 \mid cX2 \mid \lambda$ $Z \rightarrow dW \mid a$ $W \rightarrow bX2 \mid cX2 \mid \lambda$
(D) $S' \rightarrow idT1X1$ $E \rightarrow idX2 \mid numX2$ $T1 \rightarrow =E$ $X1 \rightarrow idT1X1 \mid \lambda$ $X2 \rightarrow +X3 \mid \lambda$ $X3 \rightarrow numX2 \mid idX2$	(E) $S \rightarrow aZ1 \mid b$ $B' \rightarrow b$ $Z1 \rightarrow aZ4 \mid bZ6$ $Z2 \rightarrow aZ2 \mid bZ3 \mid \lambda$ $Z3 \rightarrow bZ3 \mid \lambda$ $Z4 \rightarrow aZ2B' \mid bZ7$ $Z6 \rightarrow bZ7 \mid \lambda$ $Z7 \rightarrow bZ3B' \mid \lambda$	(F) $S \rightarrow 1X \mid 0X \mid .D \mid \lambda$ $D \rightarrow 1W \mid 0W$ $X \rightarrow 1JZ \mid 0JZ \mid .D \mid \lambda$ $J \rightarrow 1J \mid 0J \mid \lambda$ $W \rightarrow 1W \mid 0W \mid \lambda$ $Z \rightarrow .D \mid \lambda$

(A)

$S \rightarrow aS \mid A$ 
 $A \rightarrow bA \mid B$ 
 $B \rightarrow cB \mid c$

	First	Follow
S	a, b, c	\$
A	b, c	\$
B	c	\$

	a	b	c	\$
S	$S \rightarrow aS$	$S \rightarrow A$	$S \rightarrow A$	
A		$A \rightarrow bA$	$A \rightarrow B$	
B			$B \rightarrow cB$ $B \rightarrow c$	

(A)

$S' \rightarrow aS \mid bA \mid cR$ 
 $S \rightarrow aS \mid bA \mid cR$ 
 $A \rightarrow bA \mid cR$ 
 $R \rightarrow cR \mid \lambda$

	First	Folow
S'	a, b, c	\$
S	a, b, c	\$
A	b, c	\$
R	c, $\lambda$	\$

	a	b	c	\$
S'	$S' \rightarrow aS$	$S' \rightarrow bA$	$S' \rightarrow cR$	
S	$S \rightarrow aS$	$S \rightarrow bA$	$S \rightarrow cR$	
A		$A \rightarrow bA$	$A \rightarrow cR$	
R			$R \rightarrow cR$	$R \rightarrow \lambda$

(B)

$S \rightarrow abA \mid acS$   
 $A \rightarrow Ac \mid b$

	First	Follow
S	a	\$
A	b	c, \$

	a	b	c	\$
S	$S \rightarrow abA$ $S \rightarrow acS$			
A		$A \rightarrow Ac$ $A \rightarrow b$		

(B)

$S' \rightarrow aZ1$   
 $S \rightarrow aZ1$   
 $A \rightarrow bZ2$   
 $Z1 \rightarrow bA \mid cS$   
 $Z2 \rightarrow cZ2 \mid \lambda$

	First	Follow
S'	a	\$
S	a	\$
A	b	\$
Z1	b, c	\$
Z2	c, $\lambda$	\$

	a	b	c	\$
S'	$S' \rightarrow aZ1$			
S	$S \rightarrow aZ1$			
A		$A \rightarrow bZ2$		
Z1		$Z1 \rightarrow bA$	$Z1 \rightarrow cS$	
Z2			$Z2 \rightarrow cZ2$	$Z2 \rightarrow \lambda$

(C)

$S \rightarrow bcA \mid bcd \mid Ba \mid d$   
 $A \rightarrow Ab \mid Ac \mid d$   
 $B \rightarrow bc$

	First	Follow
S	b, d	\$
A	d	b, c, \$
B	b	a

	a	b	c	d	\$
S		$S \rightarrow bcA$ $S \rightarrow bcd$ $S \rightarrow Ba$		$S \rightarrow d$	
A				$A \rightarrow Ab$ $A \rightarrow Ac$ $A \rightarrow d$	
B		$B \rightarrow bc$			

(C)

$S \rightarrow bX1 \mid d$   
 $X1 \rightarrow cZ$   
 $X2 \rightarrow bX2 \mid cX2 \mid \lambda$   
 $Z \rightarrow dW \mid a$   
 $W \rightarrow bX2 \mid cX2 \mid \lambda$

	First	Follow
S	b, d	\$
X1	c	\$
X2	b, c, $\lambda$	\$
Z	d, a	\$
W	b, c, $\lambda$	\$

	a	b	c	d	\$
S		$S \rightarrow bX1$		$S \rightarrow d$	
X1			$X1 \rightarrow cZ$		
X2		$X2 \rightarrow bX2$	$X2 \rightarrow cX2$		$X2 \rightarrow \lambda$
Z	$Z \rightarrow a$			$Z \rightarrow dW$	
W		$W \rightarrow bX2$	$W \rightarrow cX2$		$W \rightarrow \lambda$

(D)

$S \rightarrow AS \mid A$   
 $A \rightarrow id = E$   
 $E \rightarrow E + num \mid E + id \mid id \mid num$

	First	Follow
S	id	\$
A	id	id, \$
E	id, num	+, id, \$

	id	num	=	+	\$
S	$S \rightarrow AS$ $S \rightarrow A$				
A	$A \rightarrow id=E$				
E	$E \rightarrow E+num$ $E \rightarrow E+id$ $E \rightarrow id$	$E \rightarrow E+num$ $E \rightarrow E+id$ $E \rightarrow num$			

(D)

$S' \rightarrow idT1X1$   
 $E \rightarrow idX2 \mid numX2$   
 $T1 \rightarrow =E$   
 $X1 \rightarrow idT1X1 \mid \lambda$   
 $X2 \rightarrow +X3 \mid \lambda$   
 $X3 \rightarrow numX2 \mid idX2$

	First	Follow
S'	id	\$
E	id, num	id, \$
T1	=	id, \$
X1	id, $\lambda$	\$
X2	+, $\lambda$	id, \$
X3	num, id	id, \$

	id	num	=	+	\$
S'	$S' \rightarrow idT1X1$				
E	$E \rightarrow idX2$	$E \rightarrow numX2$			
T1			$T1 \rightarrow =E$		
X1	$X1 \rightarrow idT1X1$				$X1 \rightarrow \lambda$
X2	$X2 \rightarrow \lambda$			$X2 \rightarrow +X3$	$X2 \rightarrow \lambda$
X3	$X3 \rightarrow idX2$	$X3 \rightarrow numX2$			

(E)

$S \rightarrow aAb \mid b$   
 $A \rightarrow aA \mid B$   
 $B \rightarrow bB \mid \lambda$

	First	Follow
S	a, b	\$
A	a, b, $\lambda$	b
B	b, $\lambda$	b

	a	b	\$
S	$S \rightarrow aAb$	$S \rightarrow b$	
A	$A \rightarrow aA$	$A \rightarrow B$	
B		$B \rightarrow bB$ $B \rightarrow \lambda$	

(E)

$S \rightarrow aZ1 \mid b$   
 $B' \rightarrow b$   
 $Z1 \rightarrow aZ4 \mid bZ6$   
 $Z2 \rightarrow aZ2 \mid bZ3 \mid \lambda$   
 $Z3 \rightarrow bZ3 \mid \lambda$   
 $Z4 \rightarrow aZ2B' \mid bZ7$   
 $Z6 \rightarrow bZ7 \mid \lambda$   
 $Z7 \rightarrow bZ3B' \mid \lambda$

	First	Follow
S	a, b	\$
B'	b	\$
Z1	a, b	\$
Z2	a, b, $\lambda$	b
Z3	b, $\lambda$	b
Z4	a, b	\$
Z6	b, $\lambda$	\$
Z7	b, $\lambda$	\$

	a	b	\$
S	$S \rightarrow aZ1$	$S \rightarrow b$	
B'		$B' \rightarrow b$	
Z1	$Z1 \rightarrow aZ4$	$Z1 \rightarrow bZ6$	
Z2	$Z2 \rightarrow aZ2$	$Z2 \rightarrow bZ3$ $Z2 \rightarrow \lambda$	
Z3		$Z3 \rightarrow bZ3$ $Z3 \rightarrow \lambda$	
Z4	$Z4 \rightarrow aZ2B'$	$Z4 \rightarrow bZ7$	
Z6		$Z6 \rightarrow bZ7$	$Z6 \rightarrow \lambda$
Z7		$Z7 \rightarrow bZ3B'$	$Z7 \rightarrow \lambda$

(F)

$$S \rightarrow IF$$

$$I \rightarrow 1I \mid 0I \mid \lambda$$

$$F \rightarrow .D \mid \lambda$$

$$D \rightarrow 1D \mid 0D \mid E$$

$$E \rightarrow 1 \mid 0$$

	First	Follow
S	1, 0, ., $\lambda$	\$
I	1, 0, $\lambda$	., \$
F	., $\lambda$	\$
D	1, 0	\$
E	1, 0	\$

	1	0	.	\$
S	$S \rightarrow IF$	$S \rightarrow IF$	$S \rightarrow IF$	$S \rightarrow IF$
I	$I \rightarrow 1I$	$I \rightarrow 0I$	$I \rightarrow \lambda$	$I \rightarrow \lambda$
F			$F \rightarrow .D$	$F \rightarrow \lambda$
D	$D \rightarrow 1D$ $D \rightarrow E$	$D \rightarrow 0D$ $D \rightarrow E$		
E	$E \rightarrow 1$	$E \rightarrow 0$		

(F)

$$S \rightarrow 1X \mid 0X \mid .D \mid \lambda$$

$$D \rightarrow 1W \mid 0W$$

$$X \rightarrow 1JZ \mid 0JZ \mid .D \mid \lambda$$

$$J \rightarrow 1J \mid 0J \mid \lambda$$

$$W \rightarrow 1W \mid 0W \mid \lambda$$

$$Z \rightarrow .D \mid \lambda$$

	First	Follow
S	1, 0, ., $\lambda$	\$
D	1, 0	\$
X	1, 0, ., $\lambda$	\$
J	1, 0, $\lambda$	., \$
W	1, 0, $\lambda$	\$
Z	., $\lambda$	\$

	1	0	.	\$
S	$S \rightarrow 1X$	$S \rightarrow 0X$	$S \rightarrow .DX$	$S \rightarrow \lambda$
D	$D \rightarrow 1W$	$D \rightarrow 0W$		
X	$X \rightarrow 1JZ$	$X \rightarrow 0JZ$	$X \rightarrow .D$	$X \rightarrow \lambda$
J	$J \rightarrow 1J$	$J \rightarrow 0J$	$J \rightarrow \lambda$	$J \rightarrow \lambda$
W	$W \rightarrow 1W$	$W \rightarrow 0W$		$W \rightarrow \lambda$
Z			$Z \rightarrow .D$	$Z \rightarrow \lambda$

PILHA	ENTRADA	SAÍDA
\$ S	1.0 \$	$S \rightarrow 1X$
\$ X1	1.0 \$	
\$ X	.0 \$	$X \rightarrow .D$
\$ D.	.0 \$	
\$ D	0 \$	$D \rightarrow 0W$
\$ W0	0 \$	
\$ W	\$	$W \rightarrow \lambda$
\$	\$	Aceitação

$S \Rightarrow 1X \Rightarrow 1.D \Rightarrow 1.0W \Rightarrow 1.0$