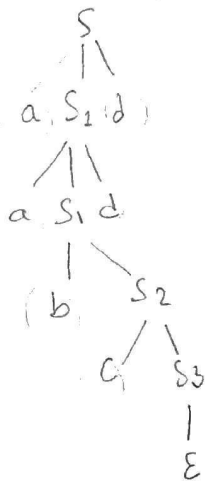


# Socio

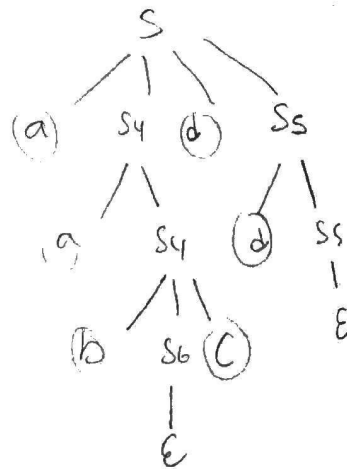
## Relación Práctica S

①

A.  $a S_1 d$   
 $a a S_1 d d$   
 $a a b S_2 d d$   
 $a a b c S_3 d d$   
 $a a b c d d$



$a S_4 d S_5$   
 $a a S_4 d S_5$   
 $a a b S_6 c d S_5$   
 $a a b c d d$



¡AMBIGUO!

B. Determina el lenguaje que genera la gramática

$$L_1 = \{ a^i b^j c^k d^l, i, j, k \geq 1 \} \cup L_2 = \{ a^i b^j c^k d^l, i, j, k \geq 1 \}$$

C. Encuentra una gramática no ambigua que genere el mismo lenguaje.

$$S \rightarrow S_1 \mid S_2 \mid S_3 \mid S_4$$

$$S_1 \rightarrow a S_2 d \mid S_2$$

$$S_2 \rightarrow b S_2 \mid S_3$$

$$S_3 \rightarrow S_3 c \mid S_4$$

$$S_4 \rightarrow \epsilon$$

②

$$S \rightarrow S + S$$

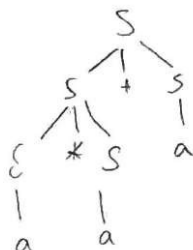
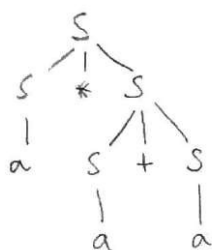
$$S \rightarrow S * S$$

$$S \rightarrow (S)$$

$$S \rightarrow a$$

A. Determina si es ambigua

$$a * a + a$$



B. Gramáticas que genere mismo lenguaje y no sea ambigua.

$$S \rightarrow (S + S)$$

$$S \rightarrow (S * S)$$

$$S \rightarrow (S)$$

$$S \rightarrow a$$

③ Dada la siguiente gramática libre de contexto.

$$S \rightarrow A \mid BCa \mid aDcd \mid EDF$$

$$A \rightarrow aAb \mid c$$

$$B \rightarrow CD \mid ECd \mid Ad \mid \epsilon$$

$$C \rightarrow Cc \mid Bb \mid AaE \mid c$$

$$D \rightarrow aDd \mid Dd \mid \epsilon$$

$$E \rightarrow aaEB \mid EFG$$

A. Elimina todas las producciones inútiles

$$V_T = \{ S, A, C, B, D \} \quad V/V_T = \{ \epsilon \}$$

$$S \rightarrow A \mid BCa \mid aDcd \quad C \rightarrow Cc \mid Bb \mid c$$

$$A \rightarrow aAb \mid c$$

$$D \rightarrow aDd \mid Dd \mid \epsilon$$

$$B \rightarrow CD \mid Ad \mid \epsilon$$

B. Elimina las producciones nulas

$B \rightarrow \epsilon$ ,  $D \rightarrow \epsilon$

$$S \rightarrow A | BCa | aDcd | Ca | acd$$

$$A \rightarrow aAb | c$$

$$B \rightarrow CD | Ad | C$$

$$C \rightarrow Cc | Bb | c | b$$

$$D \rightarrow aDd | Dd | ad | d$$

C. Producciones unitarias

$$S \rightarrow aAb | c | BCa | aDcd | Ca | acd$$

$$A \rightarrow aAb | c$$

$$B \rightarrow CD | Ad | Cc | Bb | c | b$$

$$C \rightarrow Cc | Bb | c | b$$

$$D \rightarrow aDd | Dd | ad | d$$

D. Forma Normal Chomsky

$$\textcircled{1} S \rightarrow C_1 AC_2 | c | BCC_1 | C_1 DC_3 C_4 | CC_1 | C_1 C_3 C_4$$

$$A \rightarrow C_1 AC_2 | c$$

$$B \rightarrow CD | AC_4 | CC_3 | BC_2 | c | b$$

$$C \rightarrow CC_3 | BC_2 | c | b$$

$$D \rightarrow C_2 DC_4 | DC_4 | C_1 C_4 | d$$

$C_1 \rightarrow a$
$C_2 \rightarrow b$
$C_3 \rightarrow c$
$C_4 \rightarrow d$

$$\textcircled{2} S \rightarrow C_1 X_1 | c | B X_2 | CC_1 | C_1 X_3 | C_1 X_4$$

$$A \rightarrow C_1 X_1 | c$$

$$B \rightarrow CD | AC_4 | CC_3 | BC_2 | c | b$$

$$C \rightarrow CC_3 | BC_2 | c | b$$

$$D \rightarrow C_1 X_5 | DC_4 | C_1 C_4 | d$$

$$X_1 \rightarrow AC_2$$

$$X_2 \rightarrow CC_1$$

$$X_3 \rightarrow C_3 C_4$$

$$X_4 \rightarrow D X_3$$

$$X_5 \rightarrow DC_4$$