

# Taller #3

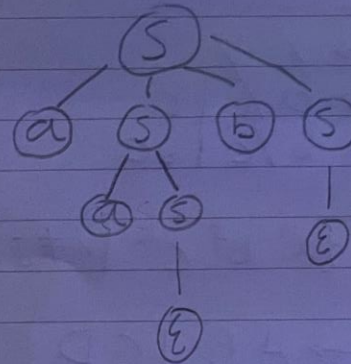
ses original

$$1) \quad S \rightarrow aS \mid aSbS \mid \epsilon$$

aa b

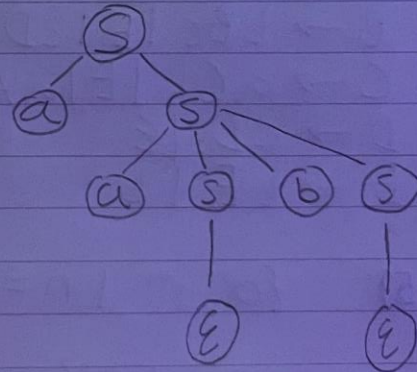
IZquierda

$S$	$S$
$\rightarrow aS$	$\rightarrow aSbS$
$\rightarrow aaSbS$	$\rightarrow aaSbS$
$\rightarrow aa\epsilon bS$	$\rightarrow aa\epsilon bS$
$\rightarrow aa\epsilon b\epsilon$	$\rightarrow aa\epsilon b\epsilon$
$\rightarrow aab$	$\rightarrow aab$



derecha

$S$	$S$
$\rightarrow aS$	$\rightarrow aSbS$
$\rightarrow aaSbS$	$\rightarrow aSb\epsilon$
$\rightarrow aaSb\epsilon$	$\rightarrow aaSb\epsilon$
$\rightarrow aa\epsilon b\epsilon$	$\rightarrow aa\epsilon b\epsilon$
$\rightarrow aab$	$\rightarrow aab$



2)  $\{0^n 1^n \mid n \geq 1\}$

$S \rightarrow 0S1 \mid \epsilon$

3)  $\{a^i b^k c^k \mid i \geq 0 \wedge k > 0\}$

$S \rightarrow XY$

$X \rightarrow aX \mid \epsilon$

$Y \rightarrow bYc \mid bc$

4)  $\{a^i b^j c^k \mid i \neq j \vee j \neq k\}$

$S \rightarrow ABCD$

$A \rightarrow aA \mid \epsilon$

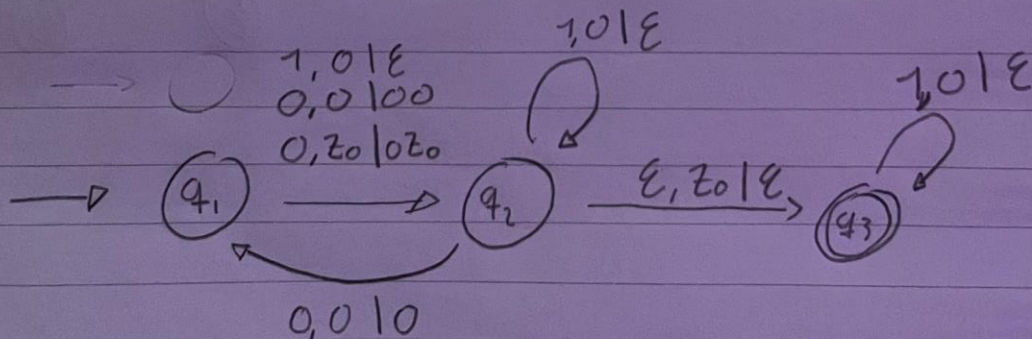
$B \rightarrow bBc \mid \epsilon \mid cD$

$C \rightarrow aCb \mid \epsilon \mid aA$

$D \rightarrow cD \mid \epsilon$

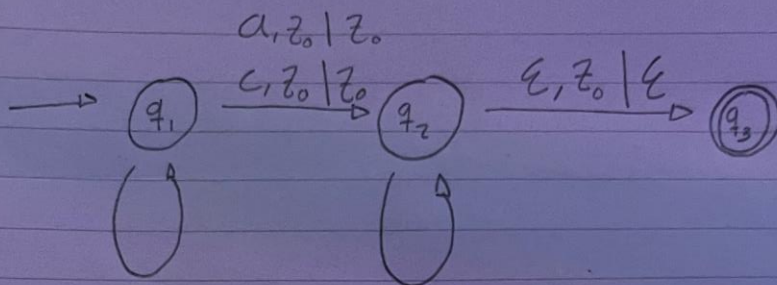
$E \rightarrow bE \mid b$

5)  $\{0^n 1^m \mid n = 2m \wedge m \geq 0\}$





$$6) \{a^i b^j c^k \mid i=j \vee j=k\}$$



$a, z_0 \mid az_0$   
 $a, a \mid aa$   
 $b, a \mid \epsilon$   
 $a, a \mid \epsilon$

$c, z_0 \mid z_0$   
 $a, z_0 \mid z_0$   
 $b, z_0 \mid bz_0$   
 $b, b \mid bb$   
 $c, b \mid \epsilon$

$$7) A_1 \rightarrow A_2 a \mid b \quad A_2 \rightarrow A_2 c \mid A_1 d \mid e$$

$A_1, A_2$   
 $i=1 \quad j=2$   
 $J=x \quad J=1$

$i=2$   
 $J=1$

$$A_i \rightarrow A_j d \quad A_2 \rightarrow A_2 d$$

$$A_2 \rightarrow A_1 d$$

$$A_2 \rightarrow A_2 d$$

$$A_1 \rightarrow A_2 a \mid b$$

$d_1 \quad d_2$

$$A_2 \rightarrow A_2 ad \mid bd$$

$$A_i \rightarrow d_1 d \quad d_2 d$$

$$A_2 \rightarrow A_2 c \mid A_2 cd \mid bd \mid e$$

$a_1$

$d_2$

$B_1$

$B_2$

$$A_2 \rightarrow b d A'_2 \mid e A_2$$

$$A_2 \rightarrow c A'_2 \mid a d A'_2 \mid \epsilon$$