

# Laboratorio 7

## Ejercicio 1

### Problema 1

$$1. S \rightarrow OAO | 1B1 | BB$$

$$A \rightarrow C$$

$$B \rightarrow S1A$$

$$C \rightarrow S1\epsilon$$

- Eliminación de  $\epsilon$

$$C \rightarrow S1\epsilon$$

$$A \rightarrow C \quad 2^m = m + 1 \Rightarrow 2^1 = 2$$

$$A \rightarrow C1\epsilon \quad | \quad BA \rightarrow C$$

$$S \rightarrow OAO | 1B1 | BB$$

$$A \rightarrow C$$

$$B \rightarrow S1A$$

$$C \rightarrow S$$

- Eliminar operaciones unitarias

$$(S, S) (A, A) (B, B) (C, C)$$

$$(C, C) \quad y \quad C \rightarrow S \quad \text{dan} \quad (C, S)$$

$$(B, B) \quad y \quad B \rightarrow A \quad \text{dan} \quad (B, A)$$

$$(B, A) \quad y \quad B \rightarrow C \quad \text{dan} \quad (B, C)$$

$$(B, C) \quad y \quad B \rightarrow S \quad \text{dan} \quad (B, S)$$

$$(A, A) \quad y \quad A \rightarrow C \quad \text{dan} \quad (A, C)$$

$$(A, C) \quad y \quad A \rightarrow S \quad \text{dan} \quad (A, S)$$

Pareja	Producción
$(B, S)$	$B \rightarrow OAO   1B1   BB   \cancel{OAO}   1B1   BB$
$(A, S)$	$A \rightarrow OAO   1B1   BB$
$(\epsilon, S)$	$C \rightarrow OAO   1B1   BB$
$(S, S)$	$S \rightarrow OAO   1B1   BB$

- Eliminación símbolos inútiles

$$S \rightarrow 0101101100$$

$$A \rightarrow 0101101100$$

$$B \rightarrow 0101101100101101100$$

- CFG

$$C_1 \rightarrow 0$$

$$C_2 \rightarrow 1$$

$$C_a \rightarrow 10$$

$$C_b \rightarrow 11$$

$$S \rightarrow C_1 C_a | C_2 C_b | 00$$

$$1 \rightarrow$$

$$A \rightarrow C_1 C_a | C_1 C_b | 00$$

$$B \rightarrow C_1 C_a | C_1 C_b | 00 | C_2 C_a | C_2 C_b | 00$$

## Ejercicio 2

$$S \rightarrow aAa | bBb | \epsilon$$

$$A \rightarrow Ca$$

$$B \rightarrow Cb$$

$$C \rightarrow CD\epsilon | \epsilon$$

$$D \rightarrow A | B | ab$$

- Eliminación de  $\epsilon$

$$S \rightarrow \epsilon | C \rightarrow \epsilon$$

$$m=1 \Rightarrow 2^m = 2^1 = 2$$

$$A \rightarrow Ca | \epsilon | B \rightarrow Cb | \epsilon$$

$$S \rightarrow aAa | bBb |$$

$$A \rightarrow Ca$$

$$B \rightarrow Cb$$

$$C \rightarrow CD\epsilon$$

$$D \rightarrow A | B | ab$$

- Eliminasi produksi unitas  
 $(S, S) (A, A) (B, B) (C, C) (D, D)$

$(A, A) \vee A \rightarrow C \text{ dan } (A, C)$   
 $(A, C) \vee A \rightarrow CDE \text{ dan } (A, CDE)$   
 $(B, B) \vee B \rightarrow C \text{ dan } (B, C)$   
 $(B, C) \vee B \rightarrow CDE \text{ dan } (B, CDE)$   
 $(D, D) \vee D \rightarrow A \text{ dan } (D, A)$   
 $(D, A) \vee D \rightarrow C \text{ dan } (D, C)$   
 $(D, C) \vee D \rightarrow CDE \text{ dan } (D, CDE)$   
 $(D, D) \vee D \rightarrow B \text{ dan } (D, B)$   
 $(D, B) \vee D \rightarrow C \text{ dan } (D, C)$   
 $(D, C) \vee D \rightarrow CDE \text{ dan } (D, CDE)$

Pangas	Produksi
$(b, c)$	$B \rightarrow CDE   b$
$(A, c)$	$A \rightarrow CDE   a$
$(D, A)$	$D \rightarrow CDE   B   ab$
$(D, A)$	$D \rightarrow CDE   CDE   ab$

- Eliminasi de produksioes inútiles

$S \rightarrow aAa | bBb$   
 $A \rightarrow CDE | a$   
 $B \rightarrow CDE | b$   
 $D \rightarrow CDE | CDE | ab$   
 $S \rightarrow aAa | bBb$   
 $A \rightarrow a$   
 $B \rightarrow b$

→ CFG

$G_1 \rightarrow a, bBb$   
 $G_2 \rightarrow b$   
 $G_a \rightarrow Aa$   
 $G_b \rightarrow Bb$   
 $S \rightarrow G_1 G_a | G_2 G_b$   
 $A \rightarrow G_1$   
 $B \rightarrow G_2$