Tarea 8

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EJERCICIO 1

Considera la GLC G dada por

$$S \to aSbb \mid T, \quad T \to bTaa \mid S \mid \lambda.$$

Encuentra gramáticas en FNC y en FNG equivalentes a G.

$S \to T$ y $T \to S \Rightarrow S \equiv T$ así

$S \to aSbb \mid abb \mid bSaa \mid baa$ 1)

2) CFG a CNF: Ya es GE creamos $Aa \to a$ y reemplazamos

$S \to ASBB \mid ABB \mid BSAA \mid BAA$ $A \to a$ $B \to b$

para C_i

$C_1 \to BB$ $C_2 \to SC_1$ $C_3 \to AA$ $C_4 \to SC_3$

Gram. Chomsky y Norm. Form. Gc:

$S \to AC_1 \mid AC_2 \mid BC_4 \mid BC_3$ $C_1 \to BB$

$C_2 \to SC_1$ $C_3 \to AA$

$A_1 \to a$ $B \to b$ $C_4 \to SC_3$

3) Greibach Norm. Form.

de la Chom. Norm. Form.

$S \to A C_1 \mid A C_2 \mid B C_4 \mid B C_3$

$C_1 \to BB$

$C_2 \to S C_1$

$C_3 \to AA$

$C_4 \to S C_3$

$A \to a$

$B \to b$

no terminales equiv:

$S = A_1$

$A = A_2$

$C_1 = A_3$

$C_2 = A_4$

$B = A_5$

$C_4 = A_6$

$C_3 = A_7$

Se obtienen las Producciones:

$A_4 \to A_1 A_3 \equiv A_4 \to A_2 A_3 A_3 \mid A_2 A_4 A_3 \mid A_5 A_6 A_3 \mid A_5 A_7 A_3$

$\equiv A_4 \to a A_3 A_3 \mid a A_4 A_3 \mid b A_6 A_3 \mid b A_7 A_3$

$A_7 \to A_2 A_2 \equiv A_7 \to a A_2$

$A_6 \to A_1 A_7 \equiv A_6 \to A_2 A_3 A_7 \mid A_2 A_4 A_7 \mid A_5 A_6 A_7 \mid A_5 A_7 A_7$

$\equiv A_6 \to a A_3 A_7 \mid a A_4 A_7 \mid b A_6 A_7 \mid b A_5 A_7 A_7$

$\therefore$ GNF:

$A_1 \to a A_3 \mid a A_4 \mid b A_6 \mid b A_7$

$A_3 \to b A_5$

$A_4 \to a A_3 A_3 \mid a A_4 A_3 \mid b A_6 A_3 \mid b A_7 A_3$

$A_7 \to a A_2$

$A_6 \to a A_3 A_7 \mid a A_4 A_7 \mid b A_6 A_7 \mid b A_7 A_7$

$A_2 \to a$

$A_5 \to b$