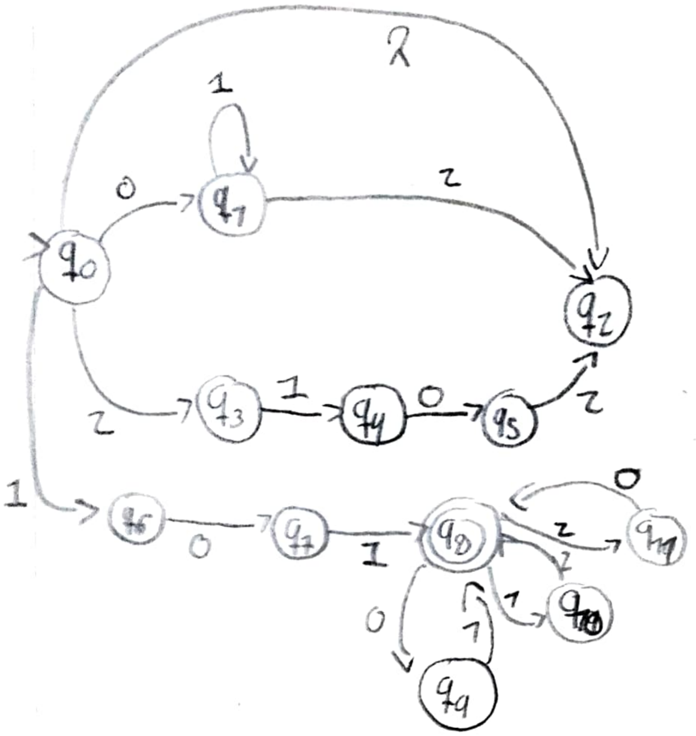
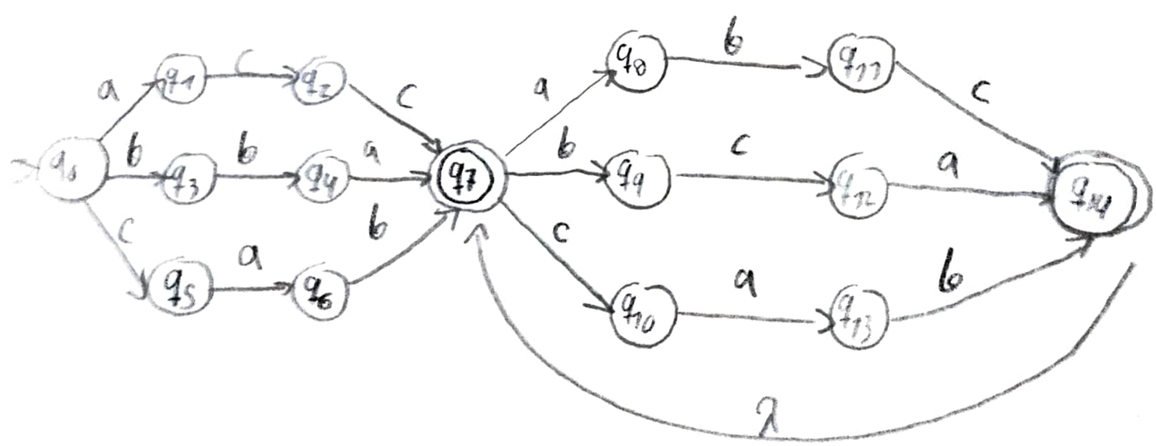
Walter Alejandro Suárez Fonseca
20211020707

Workshop I

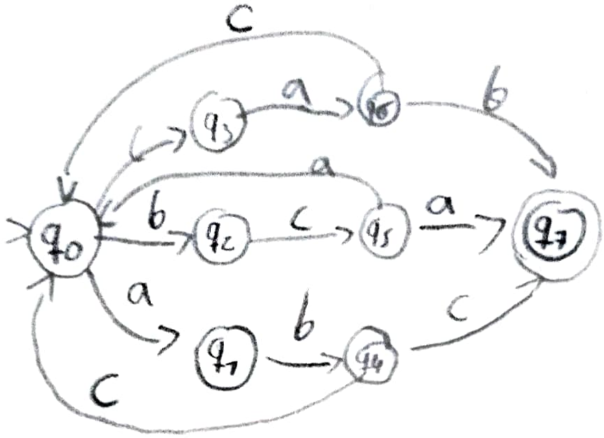
1) $\Sigma = \{0, 1, 2\}$ $L = (01^*2 \cup 2102)^* 101 (01 \cup 12 \cup 20)^*$



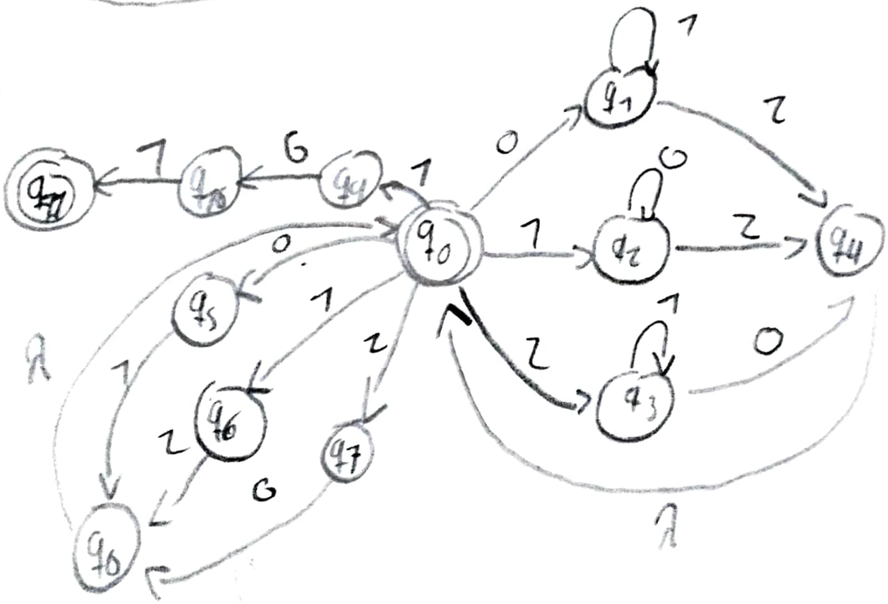
2) $\Sigma = \{a, b, c\}$ $L = (abc \cup bca \cup cab)(abc \cup bca \cup cab)^*$



III) $\Sigma = \{a, b, c\}$ $L = (abc \cup bca \cup cab)^* (abc \cup bca \cup cab)$



IV)



2) I Regular expression: $(0 \cup 10^*)^*$

Generative Grammar:

$$G = \begin{cases} S \to 0A \mid \lambda \\ A \to 0A \mid 1B \\ B \to 0B \mid 0C \\ C \to 1C \mid 1S \mid \lambda \end{cases}$$

II Regular expression: $((a \cup b)c(\lambda \cup a \cup ac) \cup (b \cup c)a(\lambda \cup c \cup ca))((a(b \cup c)^*) \cup \lambda)$

Generative Grammar

$$G = \begin{cases} S \to aA \mid bA \mid bB \mid cB \\ A \to cB \mid cD \\ B \to aA \mid aD \\ D \to ab \\ E \to bG \mid cG \mid \lambda \end{cases}$$

3) i)

$$G \begin{cases} S \to AB \\ A \to aAb \\ B \to ab \\ C \to cBd \\ D \to cd \end{cases}$$

ii)

$$G \begin{cases} S \to aSd \\ A \to A \\ B \to bAc \\ C \to bc \end{cases}$$

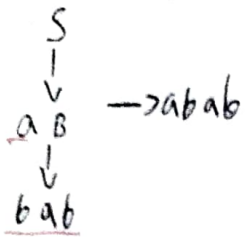
iii)

$$G \begin{cases} S \to A \mid D \\ A \to aBd \\ B \to aBd \mid bC_c \\ C \to bC_c \mid \lambda \\ D \to EF \\ E \to aEb \mid ab \\ F \to cFd \mid cd \end{cases}$$

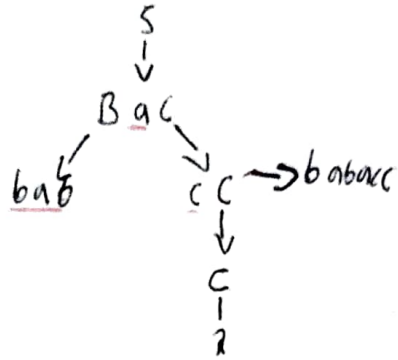
iv)

$$G \begin{cases} S \to AB \\ A \to aAc \mid \lambda \\ B \to bBc \mid bc \end{cases}$$

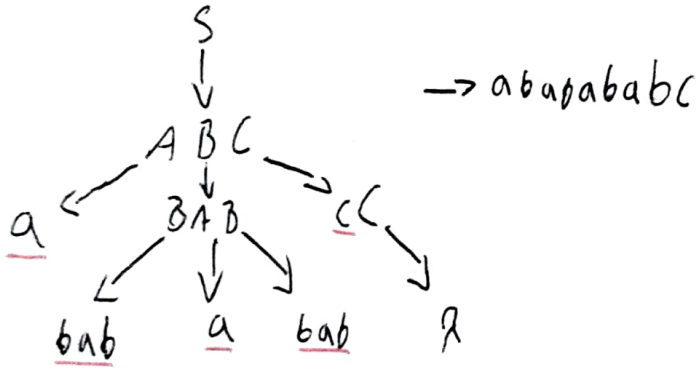
4) i) $\omega_1 = abab$



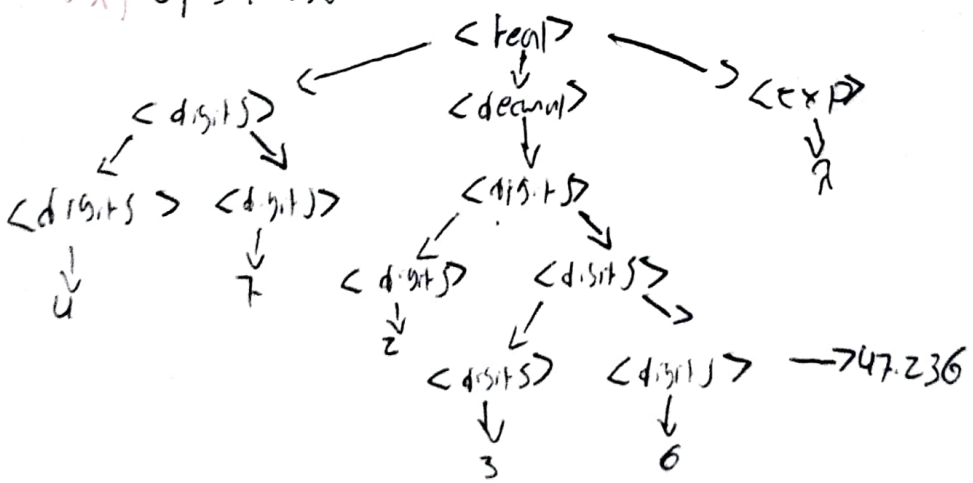
ii) $\omega_2 = babacc$



iii) $\omega_3 = ababababc$

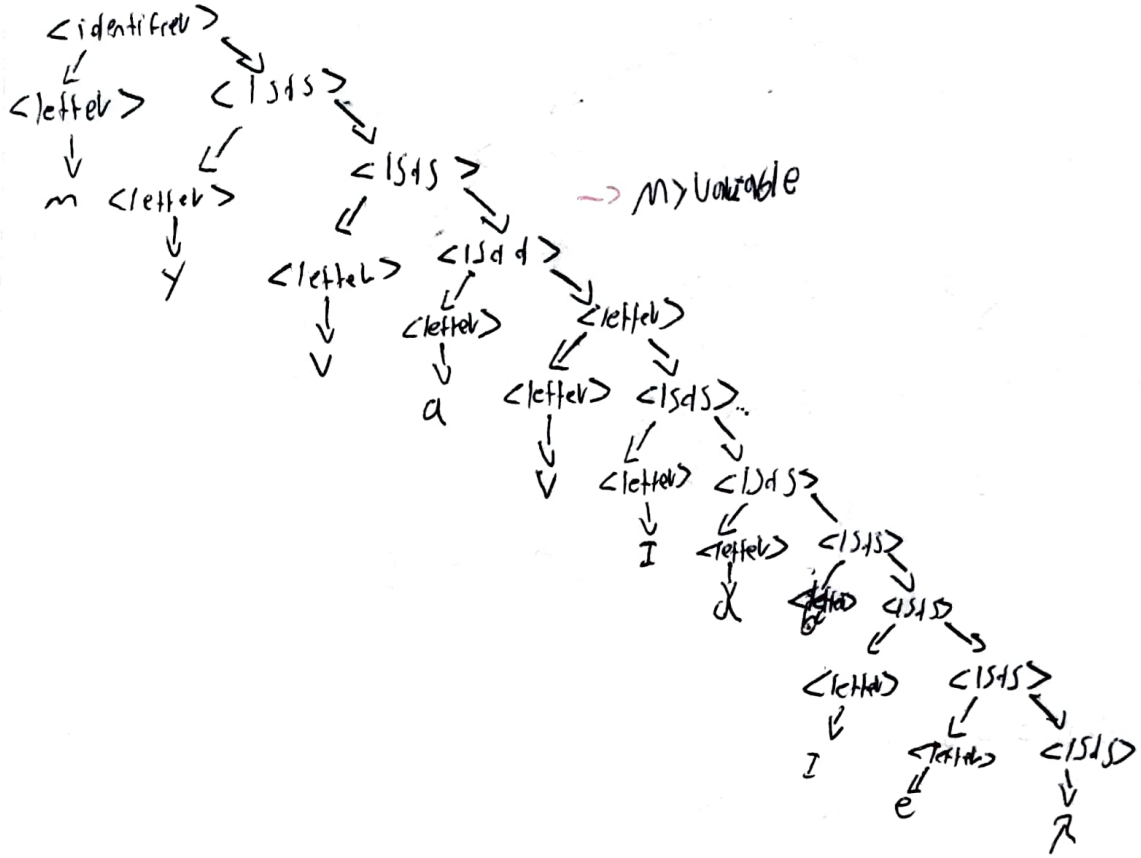


5) i) $\omega_1 = 47.236$

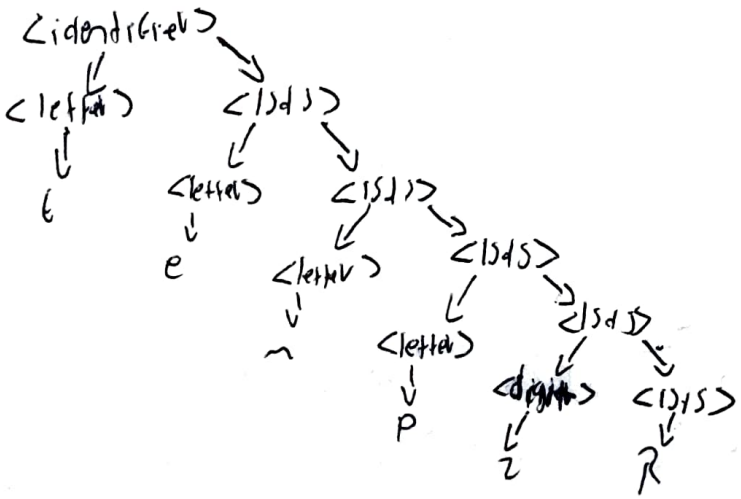


6)

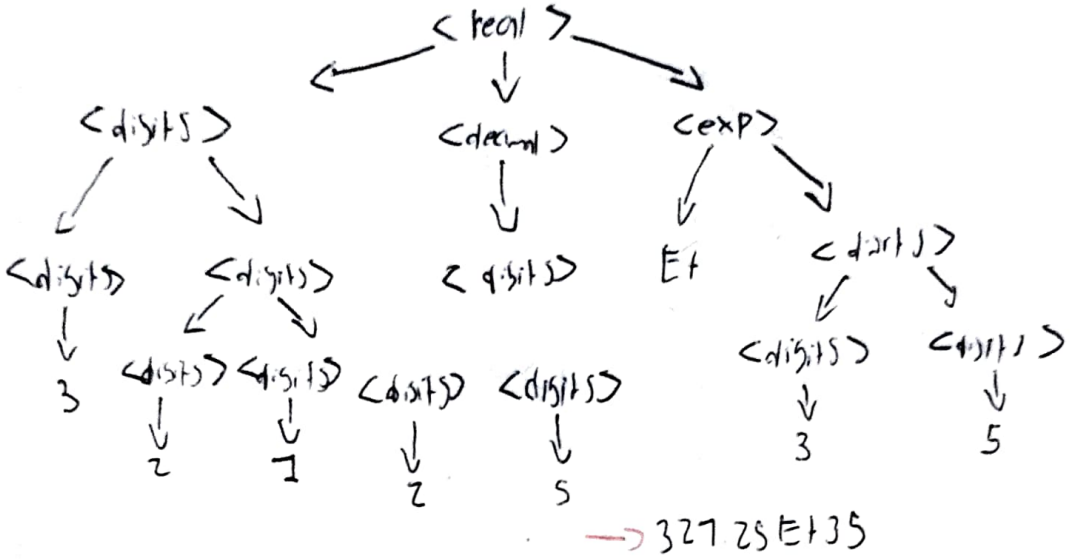
i) w1 = my variable



ii) w2 = temp2

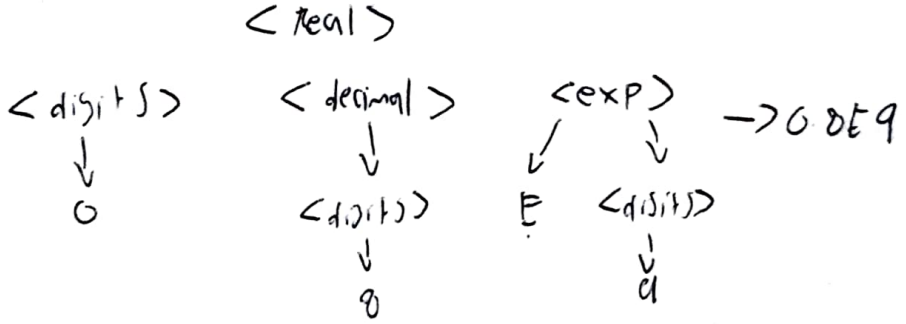


ii) $w_2 = 327.25E+35$



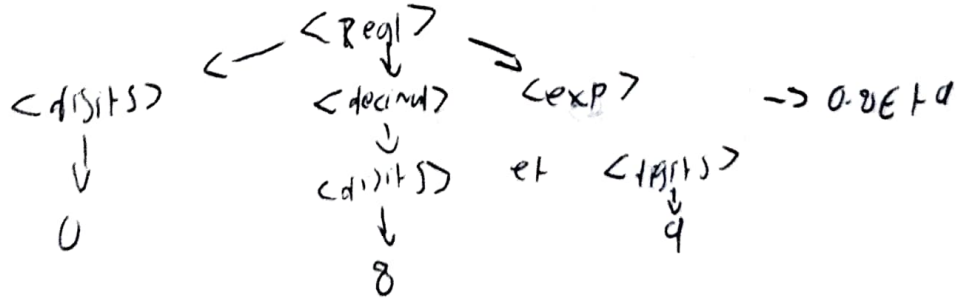
→ 327.25E+35

iii) $w_3 = 0.8.6a$



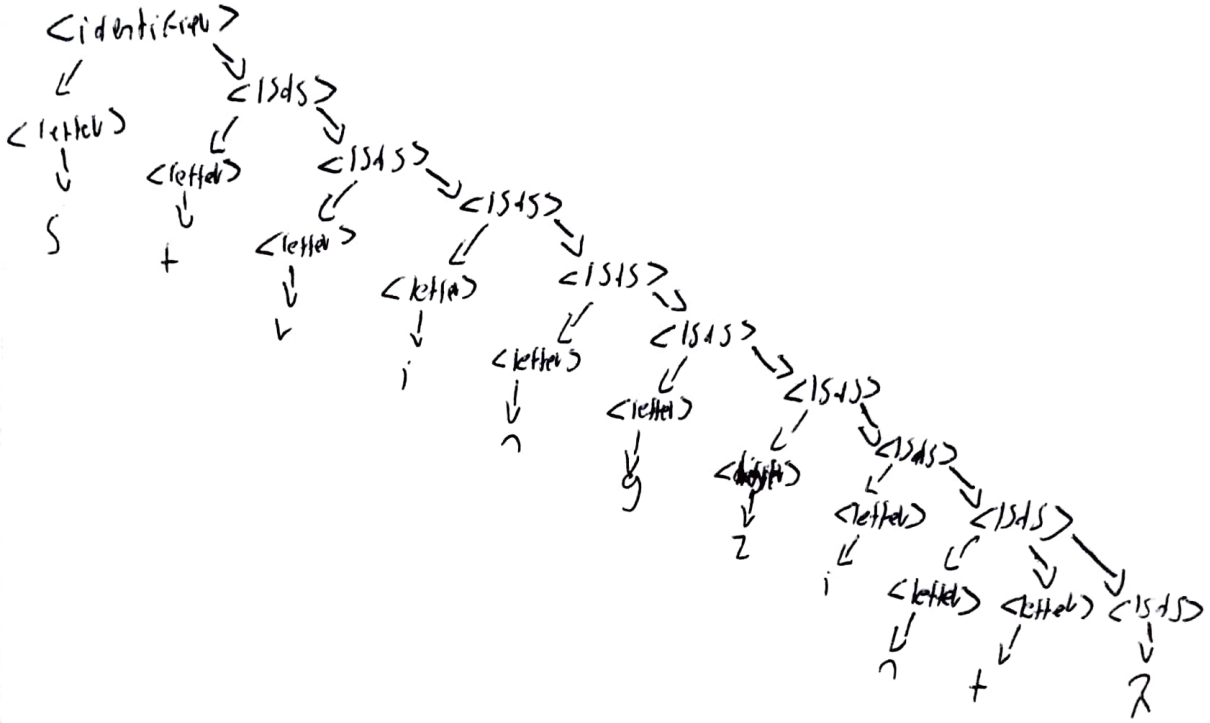
→ 0.8E9

iv) $w_4 = 0.8E+a$



→ 0.8E+a

iii) w_3 = Sfuing2int



iv) w_4 = 2Not Available

→ with the Generative grammar is not posible genelate this word because it starts with a digit