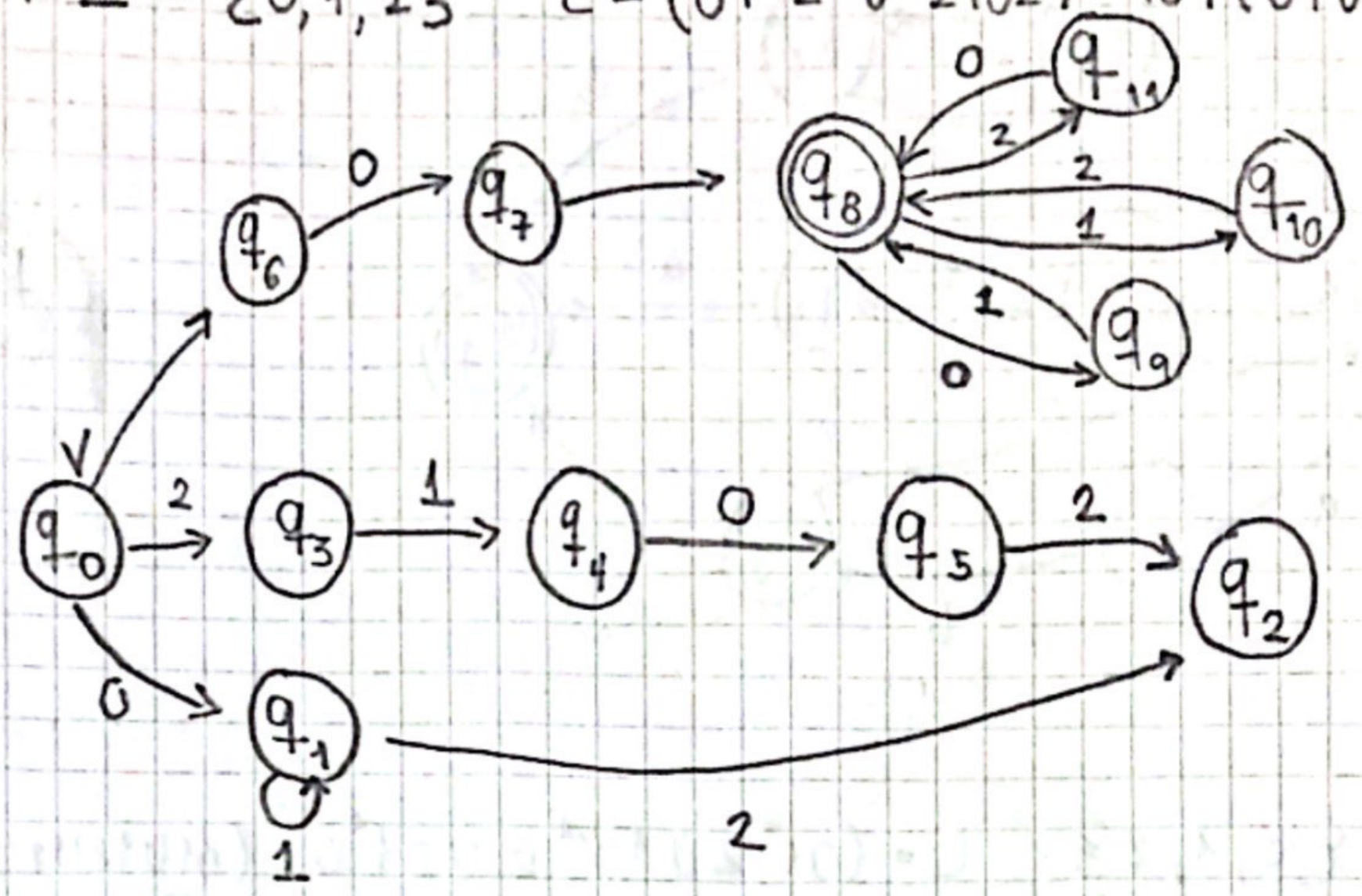
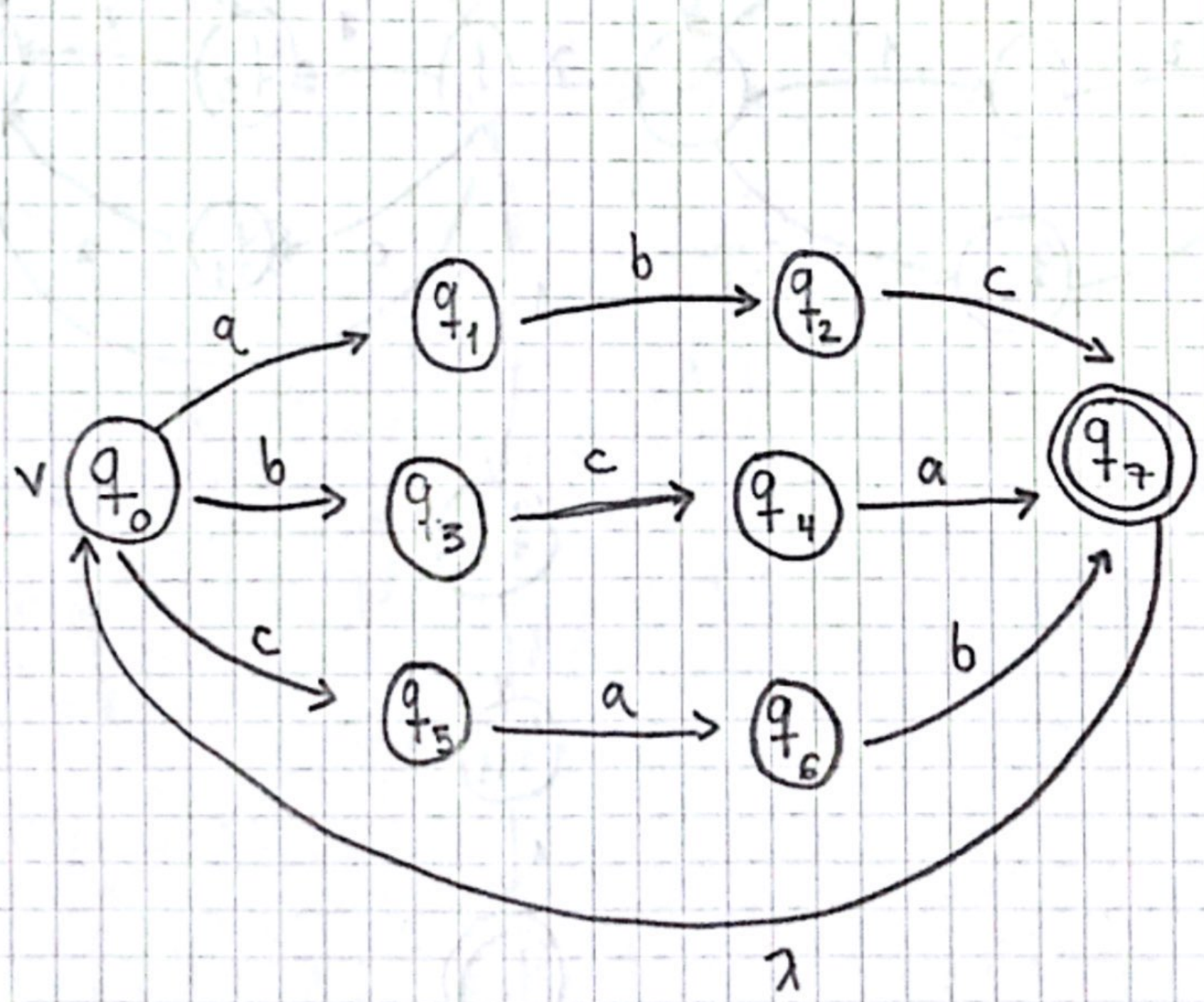
Workshop 1

Juan David Pérez Pérez - 2021202004 7

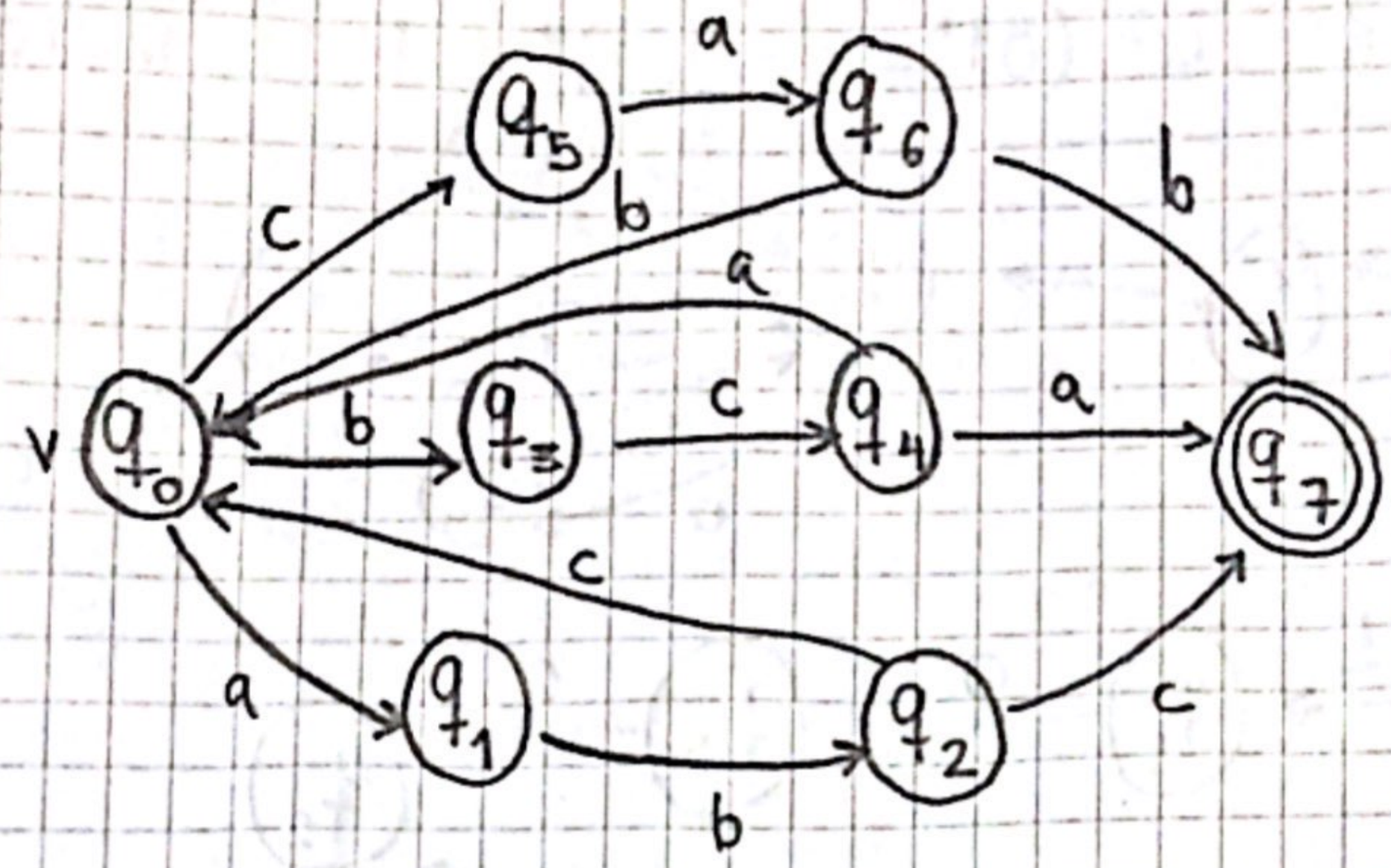
1) ↑) $\Sigma = \{0, 1, 2\}$ $L = (01^*2 \cup 2102)^* 101(01 \cup 12 \cup 20)^*$



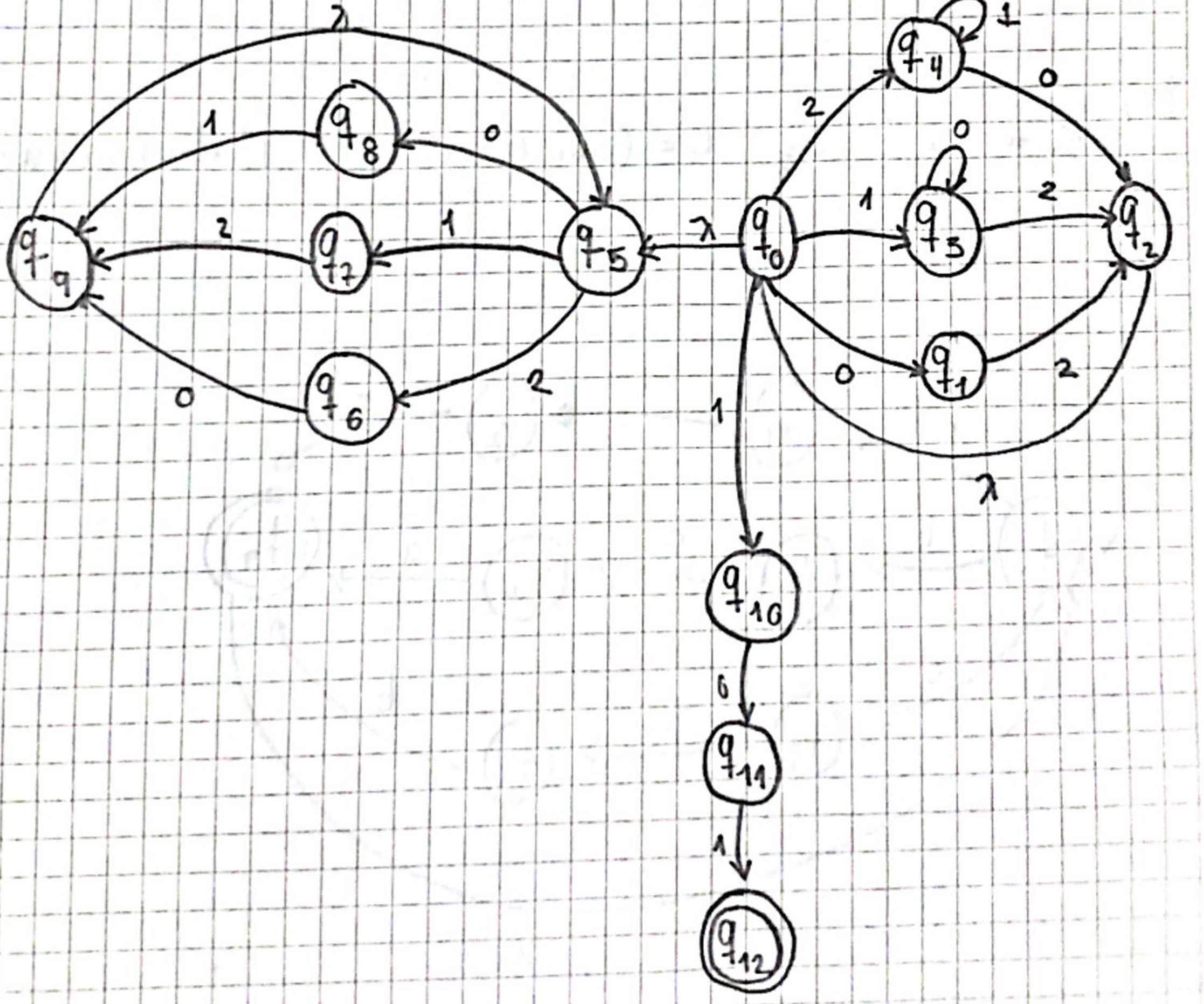
↑↑) $\Sigma = \{a, b, c\}$ $L = (abc \cup bca \cup cab)(abc \cup bca \cup cab)^*$



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



↑V) $\Sigma = \{0, 1, 2\}$ $L = (01^*2 \cup 10^*2 \cup 21^*0)^* (01 \cup 12 \cup 20)^* 101$



2) ↑) regular expression = $(0^+10^+1^*)^*$

generative grammar =

$$G\begin{cases} S \to aA \mid bA \mid bB \mid cB \\ A \to CB \mid cD \\ B \to aA \mid aD \\ D \to aE \\ E \to bE \mid cE \mid \lambda \end{cases}$$

↑↑) regular expression = $((a \cup b)C(\lambda \cup a \cup ac) \cup (b \cup c)a(\lambda \cup c \cup ca))((acb \cup c)^*) \cup \lambda)$

generative grammar=

$$G\begin{cases} S \to aA \mid bA \mid bB \mid cB \\ A \to CB \mid cD \\ B \to aA \mid aD \\ D \to aE \\ E \to bE \mid cE \mid \lambda \end{cases}$$

3) ↑)

$$G\begin{cases} S \to aAd \\ A \to aAd \mid bBc \\ B \to bBc \mid \pi \end{cases}$$

↑↑)

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

↑↑↑)

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

↑V)

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

4) ↑) $w_1 = abab$

S

↓

a B

↓

bab

↑↑) $w_2 = babacc$

S

B a C

bab

C c

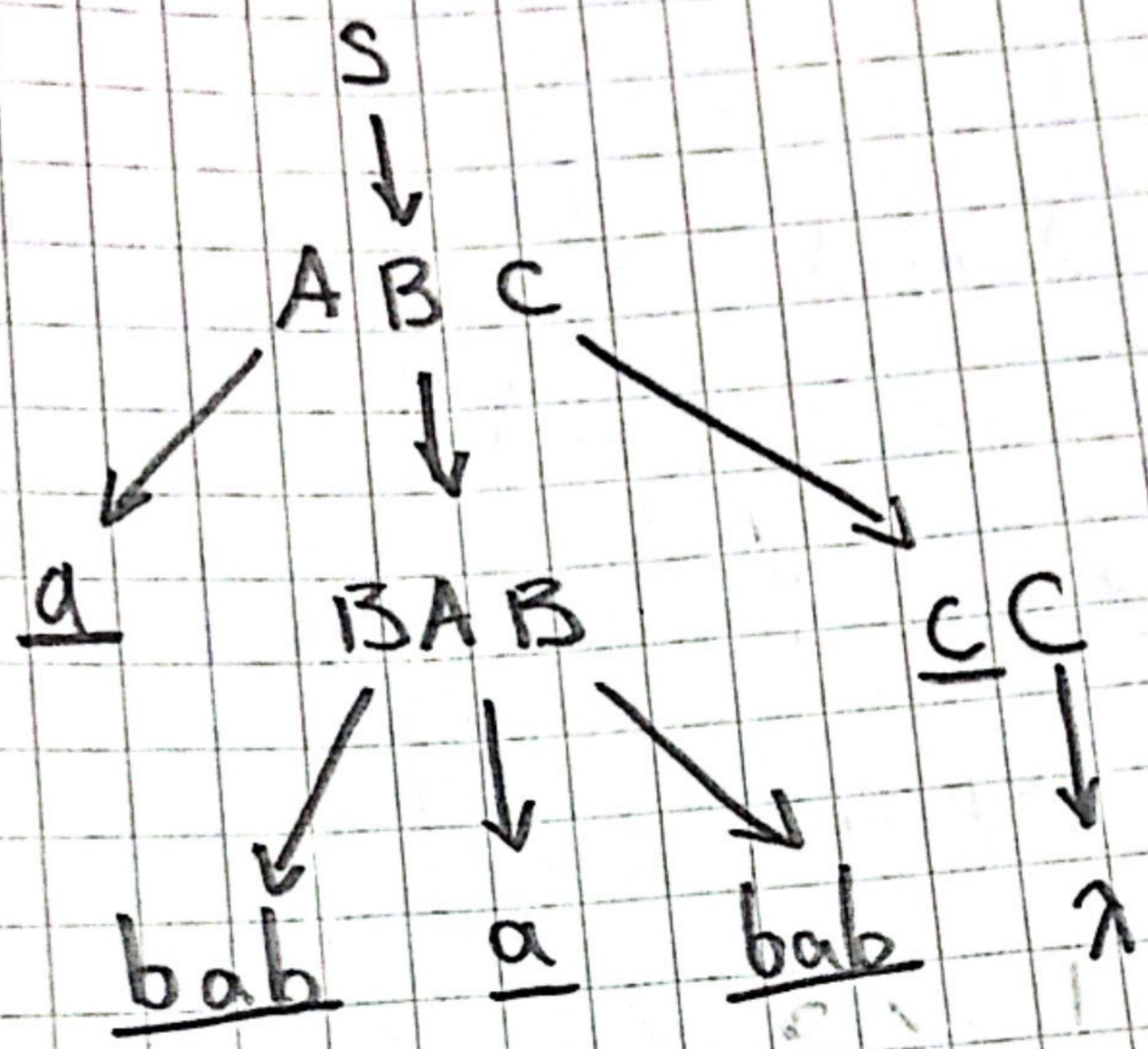
↓

C c

↓

λ

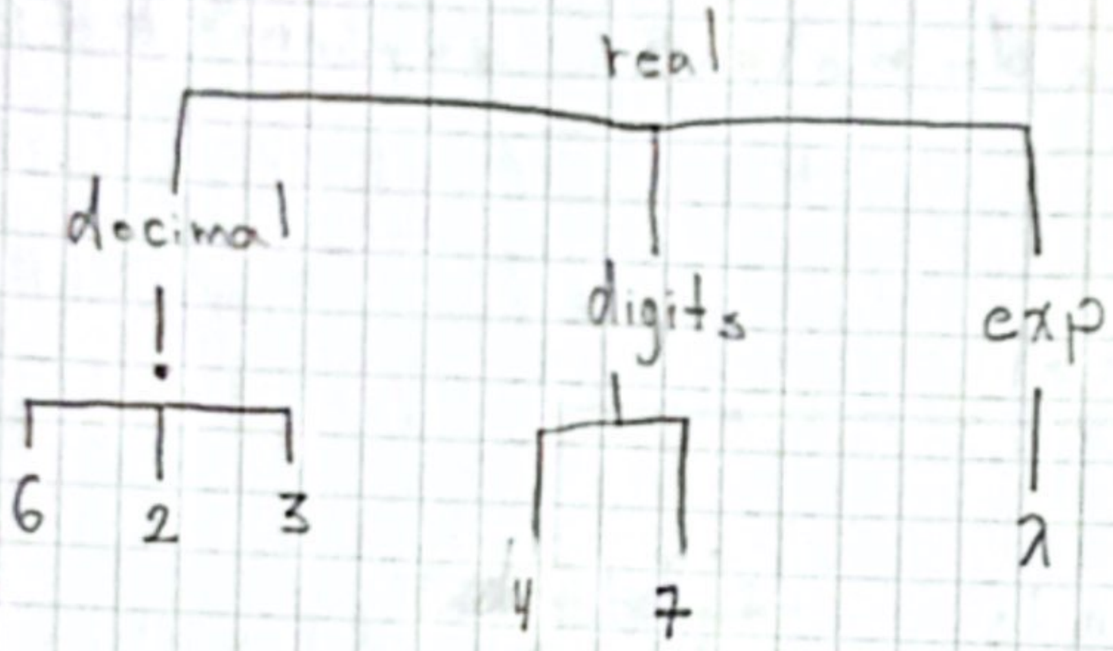
↑↑↑) $W_3 = abababababc$



5)

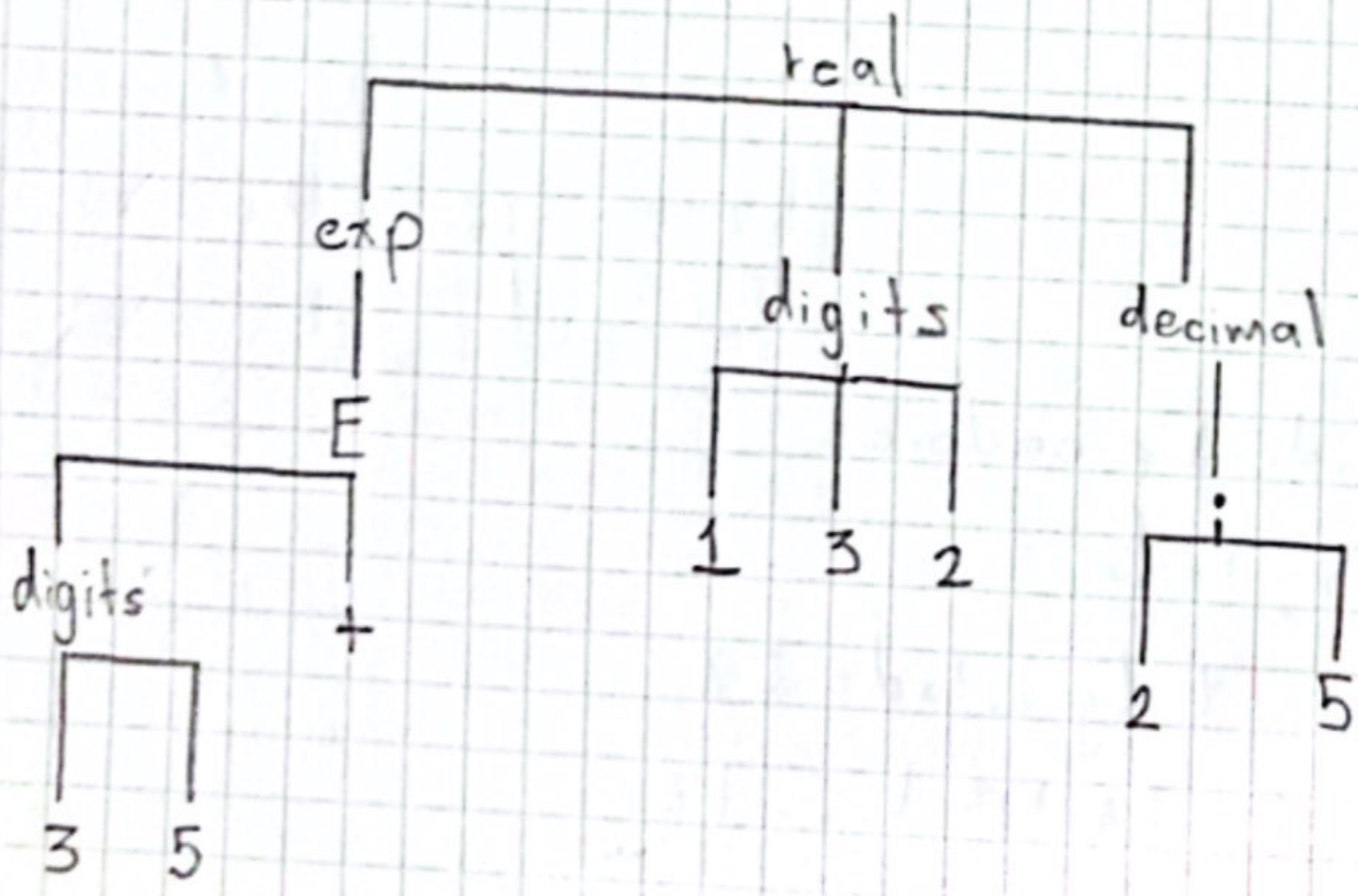
real → digits, decimal, exp
digits → digit, digits | digit
decimal → .digit | λ
exp → E (sign, digit) | λ
sign → + | - | λ
digit → 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

i) $w_1 = 47,236$



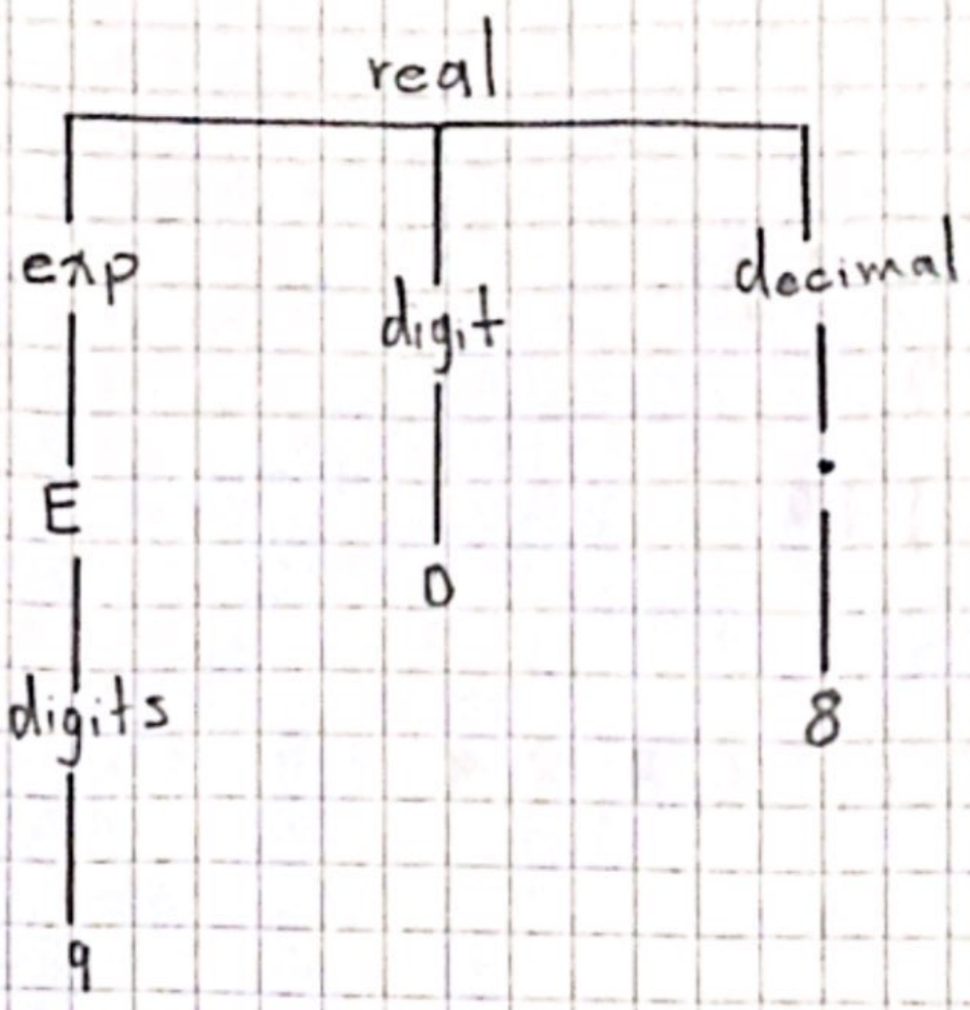
Parte entera = 47 parte decimal = .236 exponente = expresión vacia

↑↑) $W_2 = 321.25 E + 35$



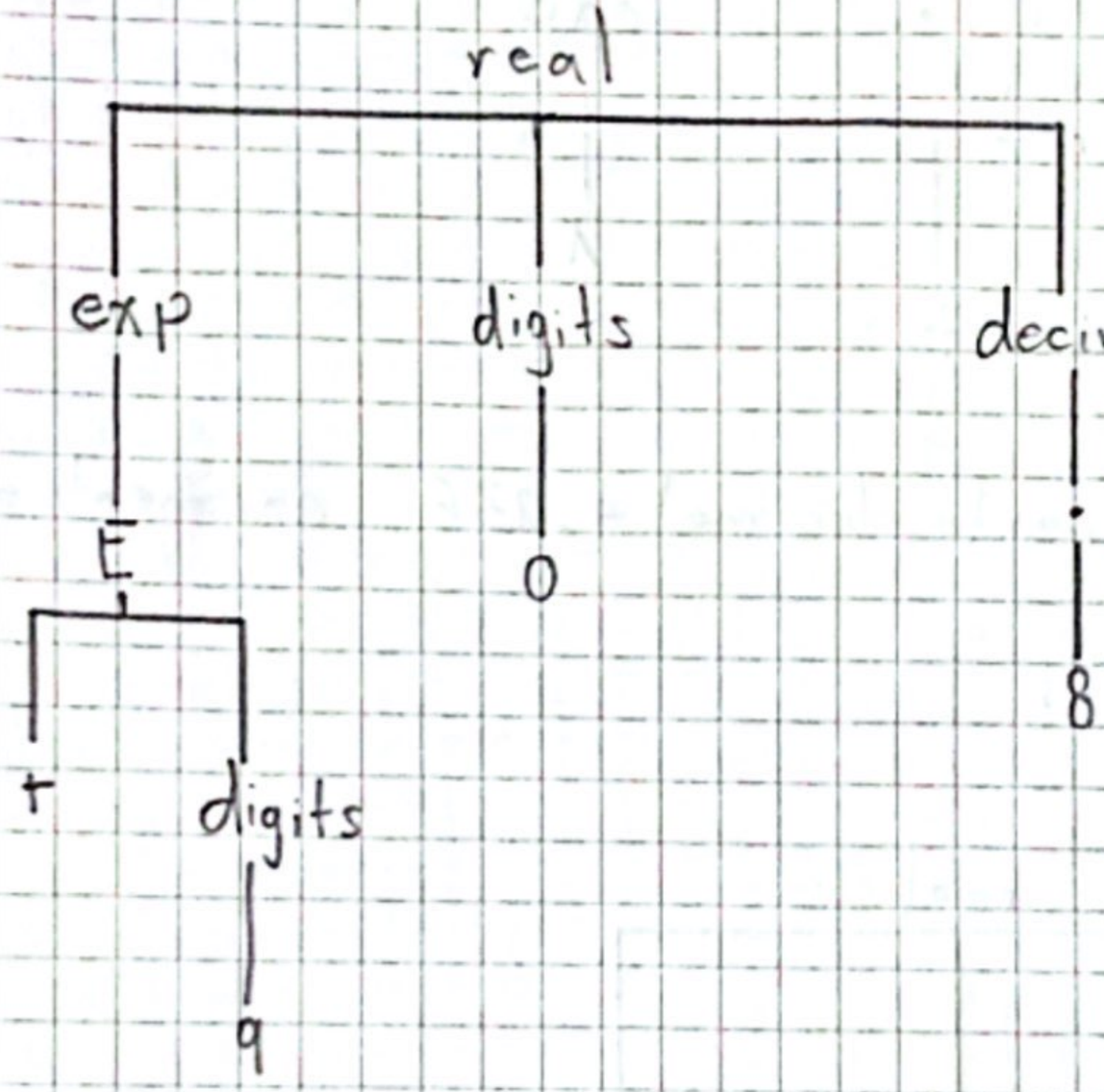
parte entera 321, parte decimal .25 y un exponente E+35

111) $W_5 = 0,8E9$



parte entera = 0 parte decimal = .8 exponente = E9

↑v) $W_4 = 0,8E+9$



6) Gramatica para identificadores

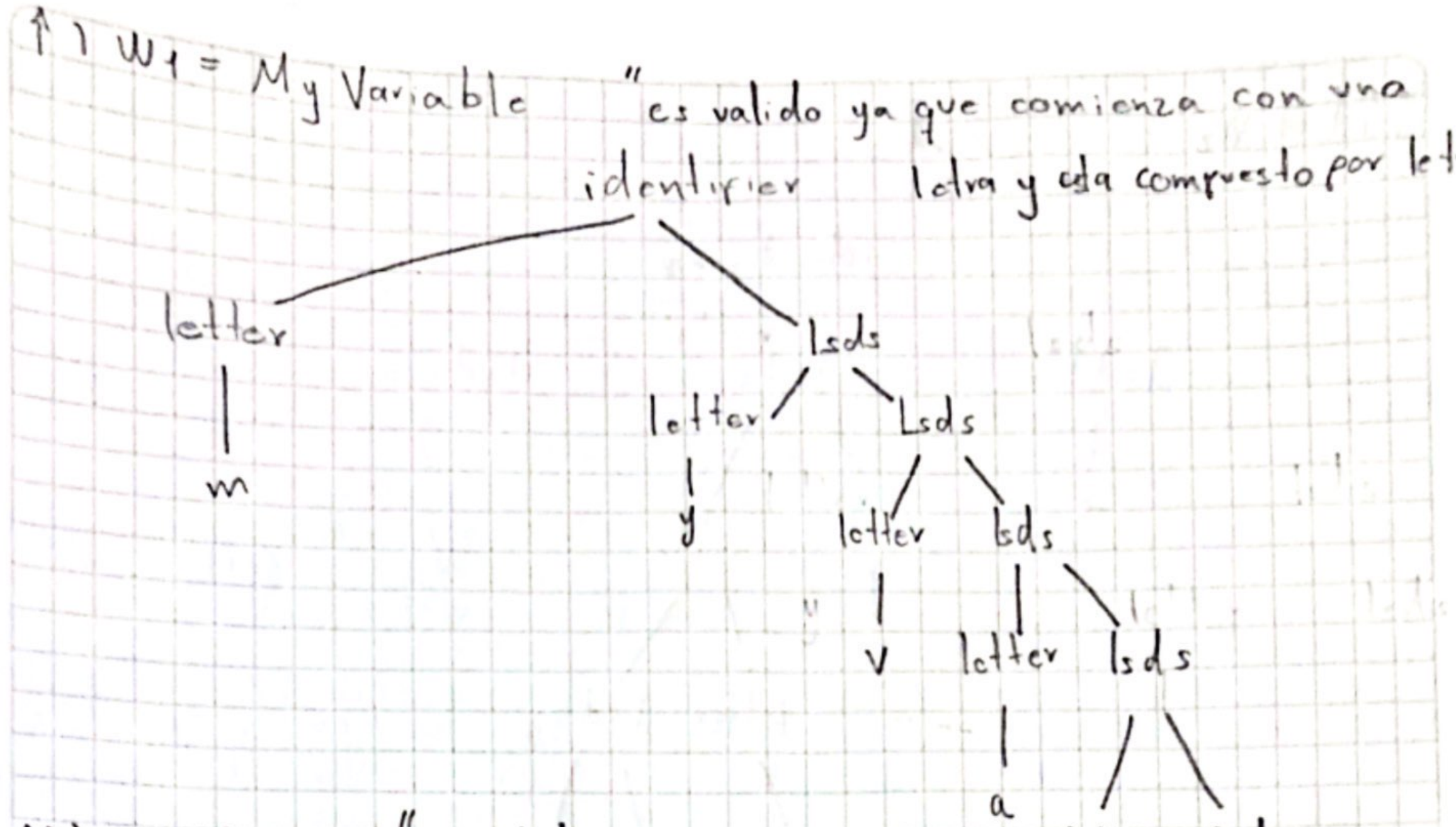
identifier → letter, lsds

lsds → letter, lsds | digit, lsds | λ

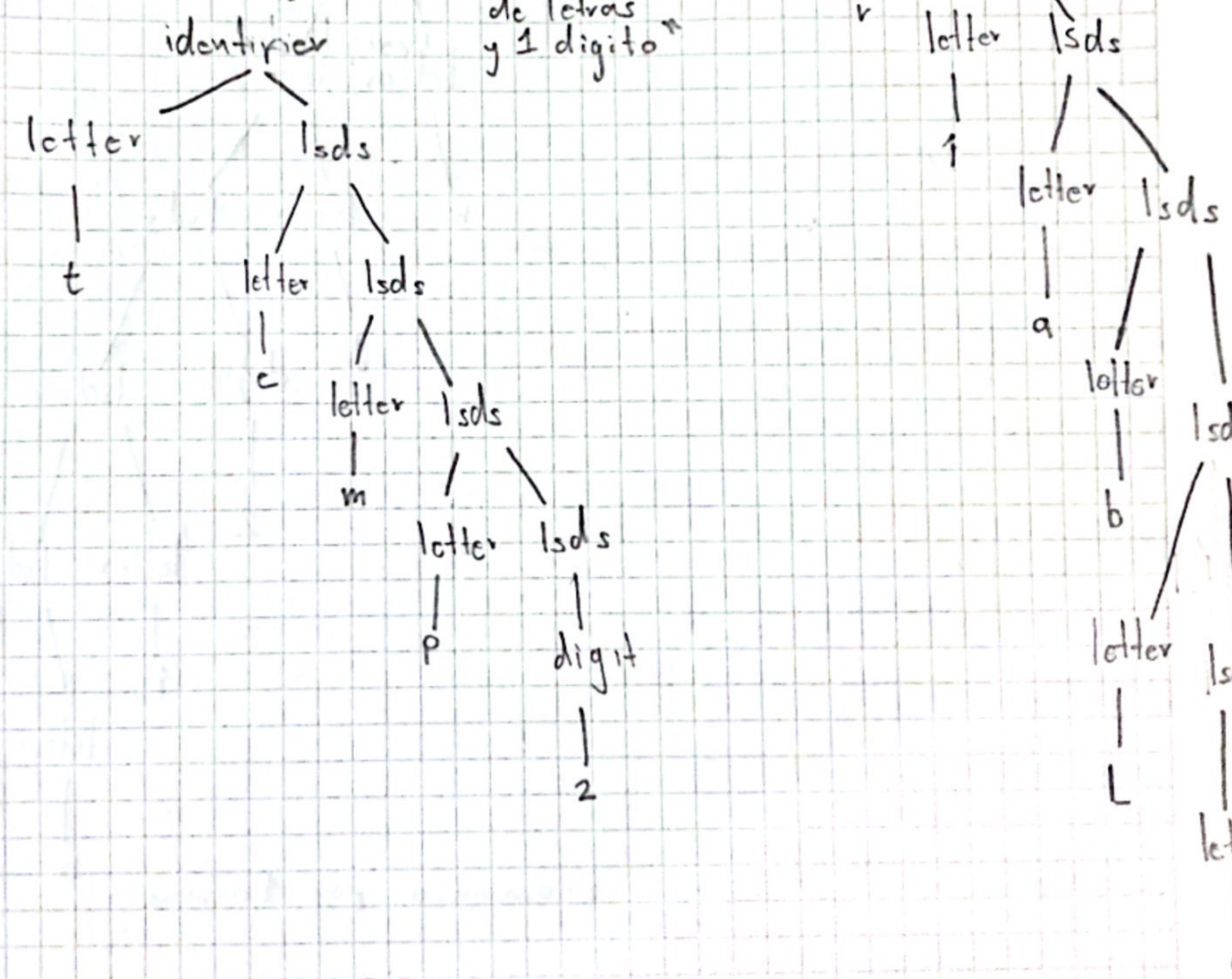
letter → a | b | ... | z | A | B | ... | z

digit, → 0, 1, ..., 9

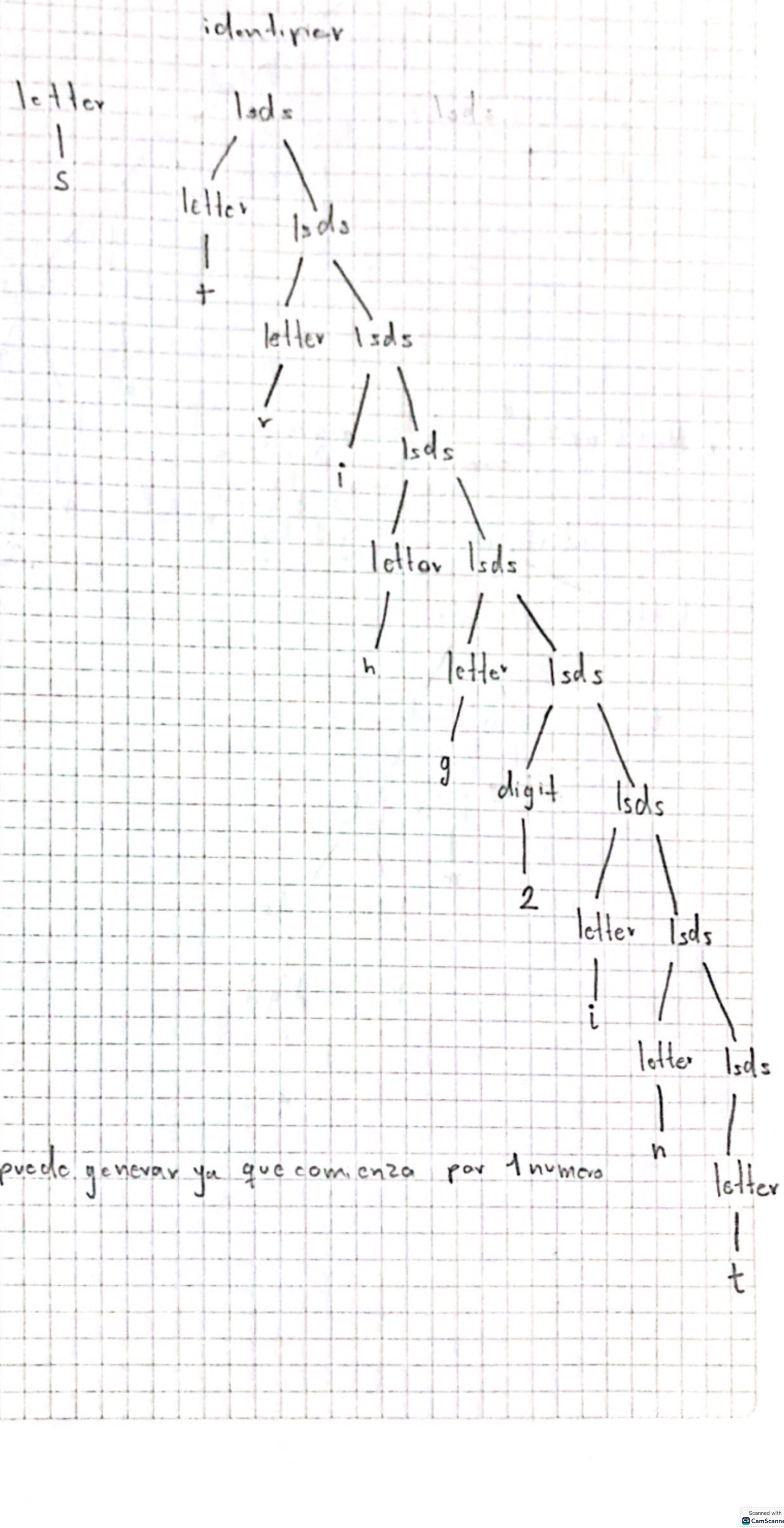
↑) W_1 = MyVariable "es valido ya que comienza con una letra y esta compuesto por letras"



↑↑) W_2 = temp2 "es valido ya que comienza con una letra y esta compuesto de letras y 1 digito"



↑↑↑) W_3 = string 2 int



↑V) No se puede generar ya que comienza por 1 numero