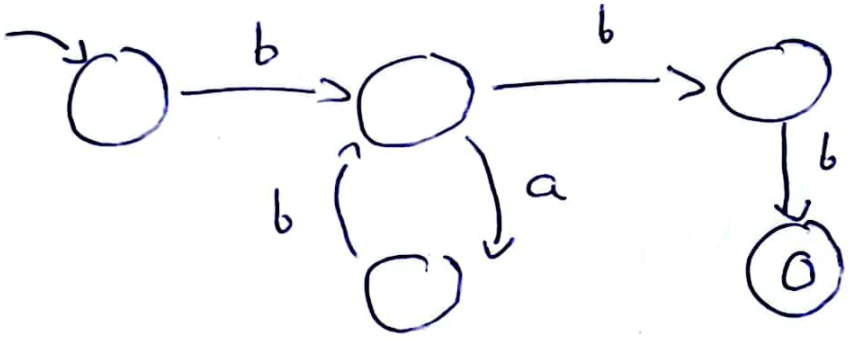
# Tutorial 5

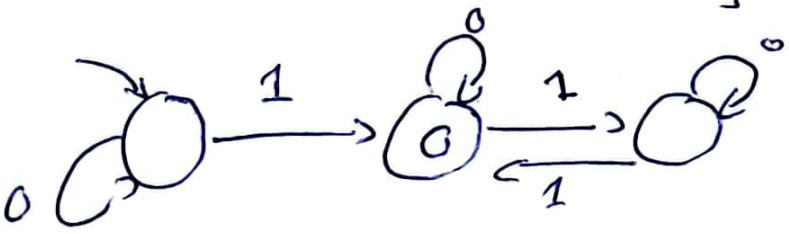
Q1) For each of the following language, Construct a FA that accepts the language:

a) $L[a^*(b^+a^+)^*b^*] = L[(a+b)^*]$

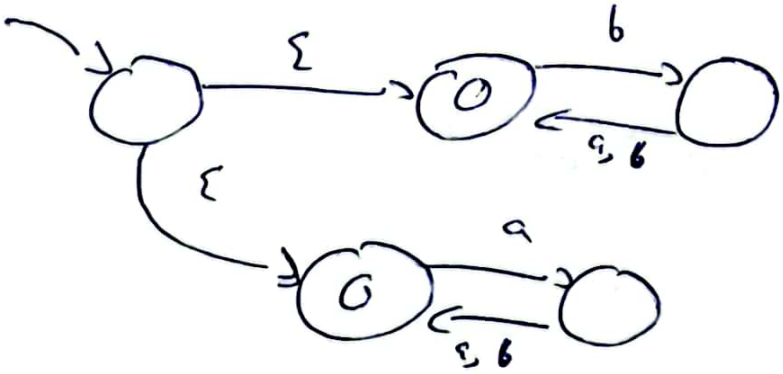

b) $L[b(ab)^*bb]$




c) $L = \{w \in \{0,1\}^* \mid w$ contains odd numbers of 1's$\}$




d) $L[(\underbrace{ba+bb}_{b(a+b)})^* + (\underbrace{ab+aa}_{a(b+a)})^*]$

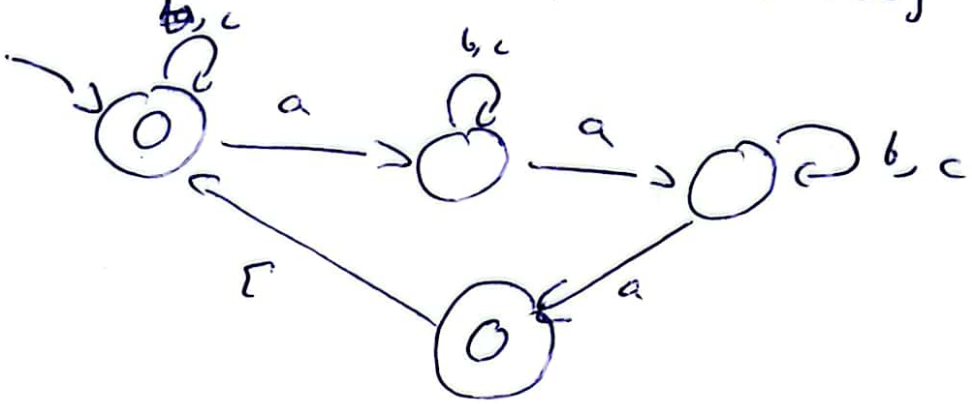


e) $L = \{ w \in \{a,b\}^* \mid aa \text{ is a substring of } w \text{ but } aab \text{ is not} \}$

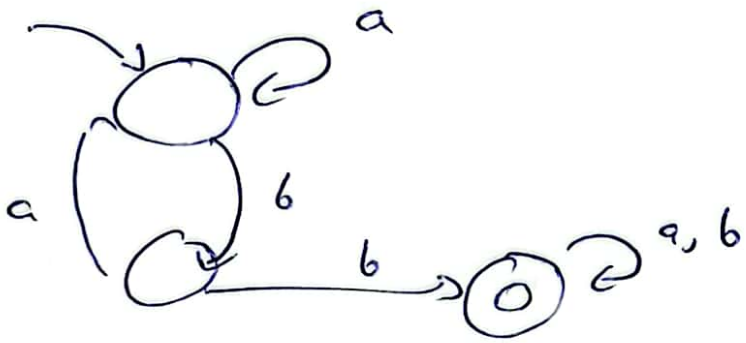

Additional Question ← is

→ no no we can have aba → no (aa)

f) $L = \{ w \in \{a,b,c\}^* \mid$ the number of a's in w is multiple of three$\}$




Q2) Consider the following DFA, M:



a) give a minimum RE.

$a^*(baa^*)^* bb (a+b)^*$ → this works but not the minimal.

$(a+b)^* bb (a+b)^*$ → minimal

b) RG:

$S \rightarrow aS \mid bA \mid \varepsilon$
$A \rightarrow aS \mid bB \mid b$
$B \rightarrow aB \mid bB \mid \varepsilon$