dfa examples

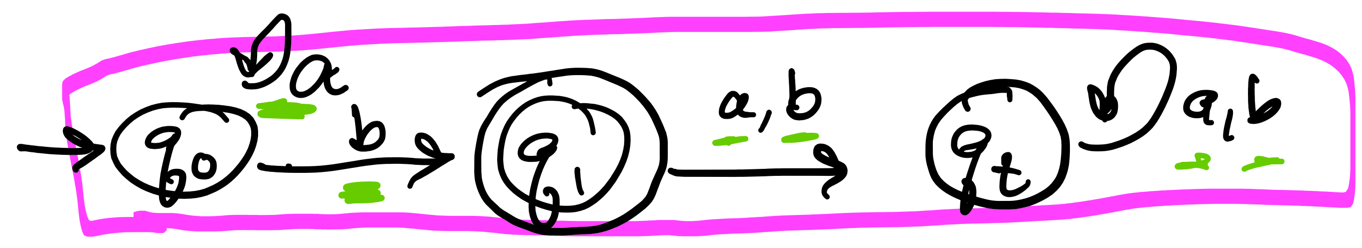
Tuesday, September 10, 2024 11:59 AM

ex. $L_1 = \{a^n b : n \geq 0\}$ create dfa, M_1, $\ni L(M) = L_1$

$\Sigma = \{a, b\}$.

$L_1 = \{b, ab, aab, aaab, \dots\}$

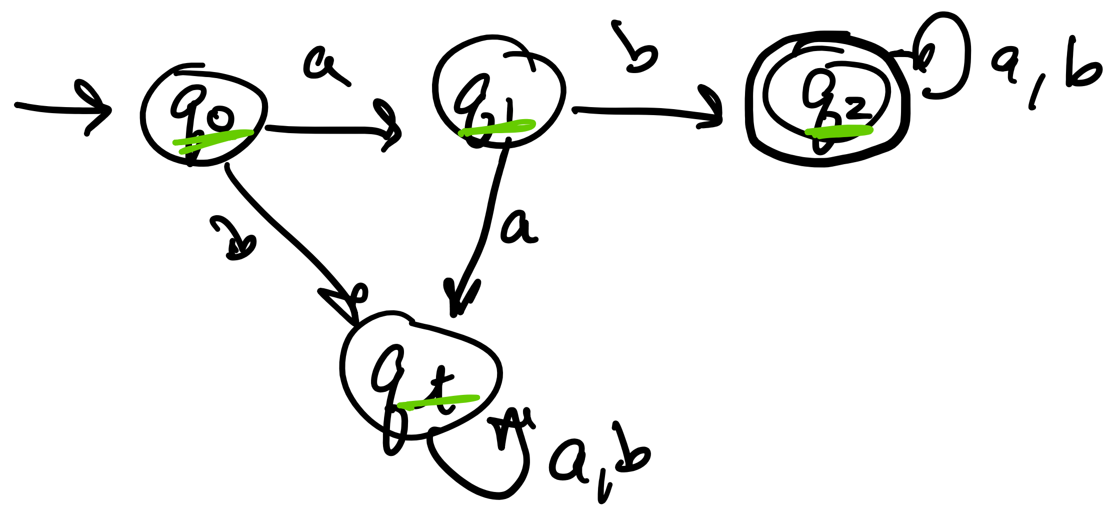
M_1:



$\rightarrow M_1 = (\{q_0, q_1, q_t\}, \{a, b\}, \delta, q_0, \{q_1\})$

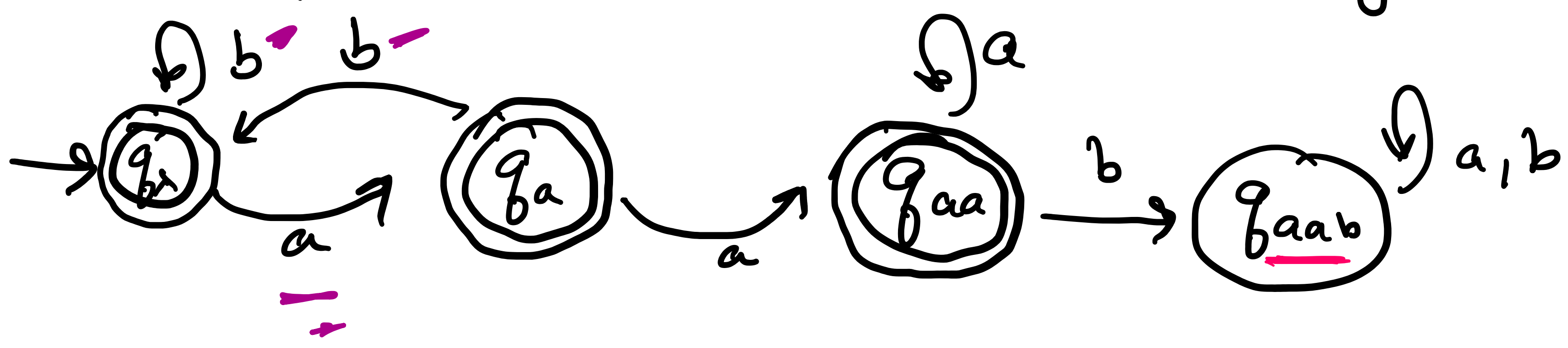
ex. Find a dfa That recognizes set of all strings on $\Sigma = \{a, b\}$ starting w/ prefix 'ab'.

$L = \{ab, aba, abb, ababababaaab, \dots\}$



$M = (\dots)$

ex/ Find a dfa that accepts all strings on $\Sigma = \{a, b\}$ except those containing substring 'aab'

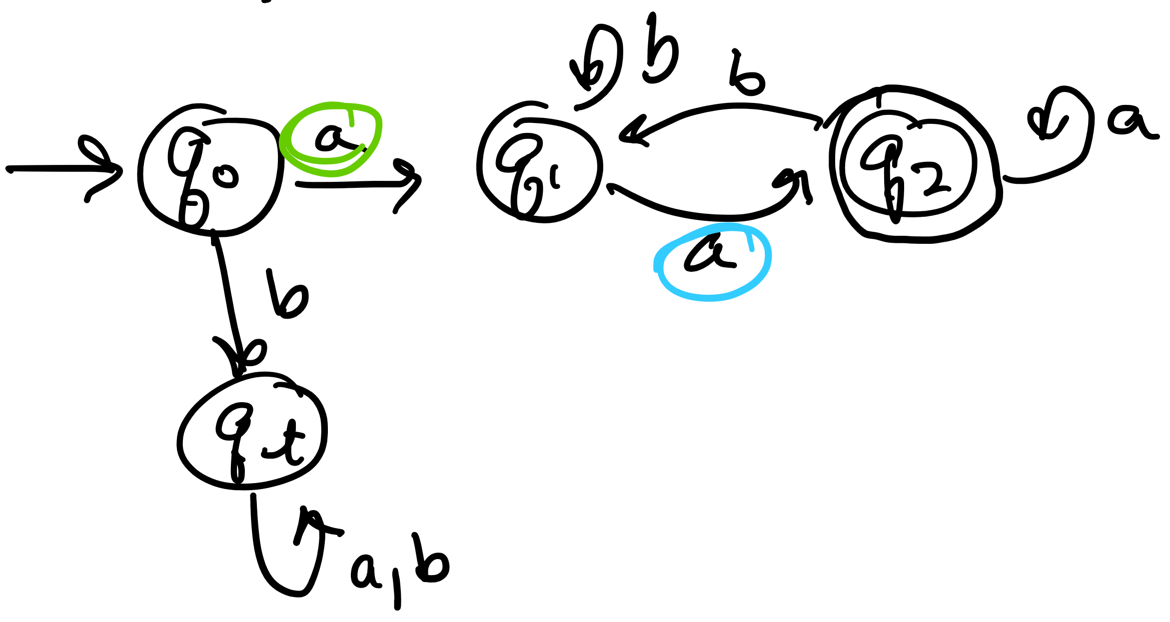


$M = (\{q_\lambda, q_a, q_{aa}, q_{aab}\}, \{a, b\}, \delta, q_\lambda, \{q_\lambda, q_a, q_{aa}\})$

a language L is regular iff $\exists$ some dfa, M, $\ni L(M) = L$.

ex/ show that language $L = \{awa : w \in \{a, b\}^*\}$ is regular.

$L = \{aa, aba, aaaaaba, abbbbbba, \dots\}$



If a language L is regular then so are $L^2, L^3, \dots$

nfa $\equiv$ dfa

$\hookrightarrow$ $M = (Q, \Sigma, \delta, q_i, F)$

$\delta : Q \times (\Sigma \cup \{\lambda\}) \rightarrow 2^Q$