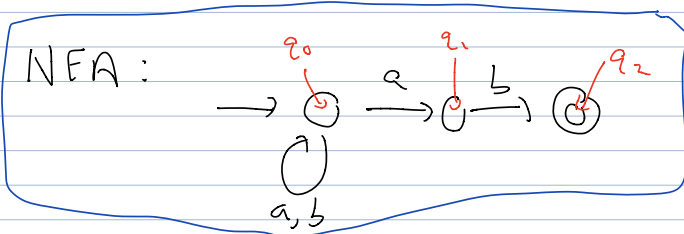


Sept 27, 2019

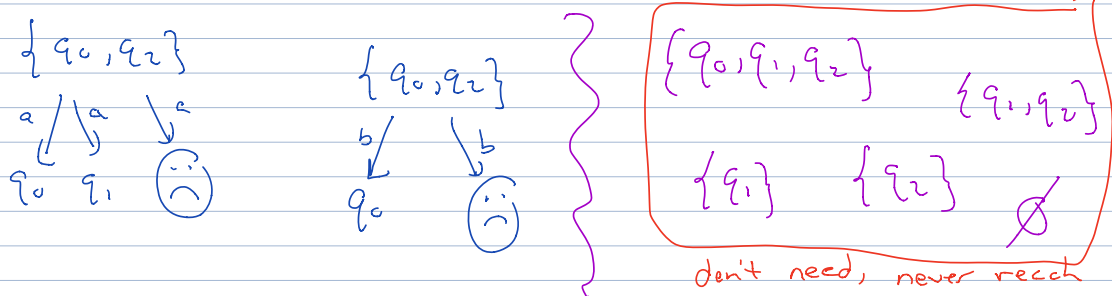
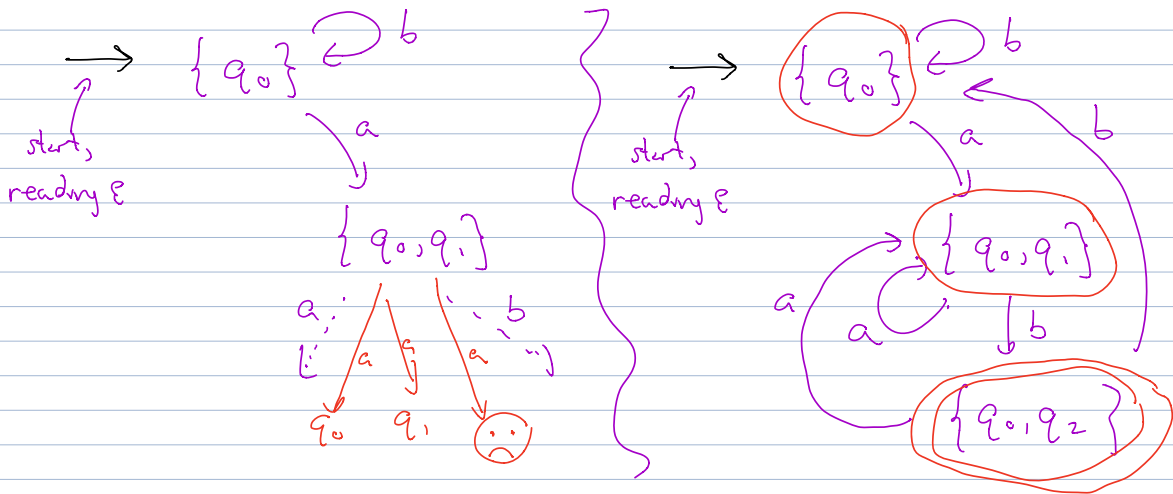
Today: NFA \rightarrow DFA Examples
Myhill-Nerode Examples

$$\Sigma = \{a, b\}, \quad L = \{ \text{strings over } \Sigma \text{ that end in "ab"} \}$$

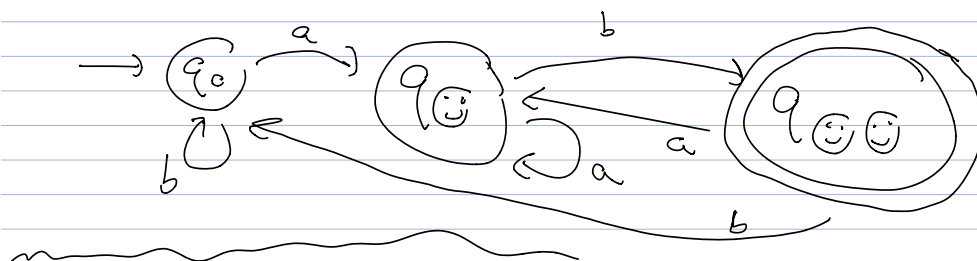
$$= \left\{ \sigma_1 \dots \sigma_n \mid \begin{array}{l} \sigma_1, \dots, \sigma_n \in \Sigma, \quad n \geq 2 \\ \sigma_{n-1} = a, \quad \sigma_n = b \end{array} \right\}$$



DFA: States = all subsets of $\{q_0, q_1, q_2\}$

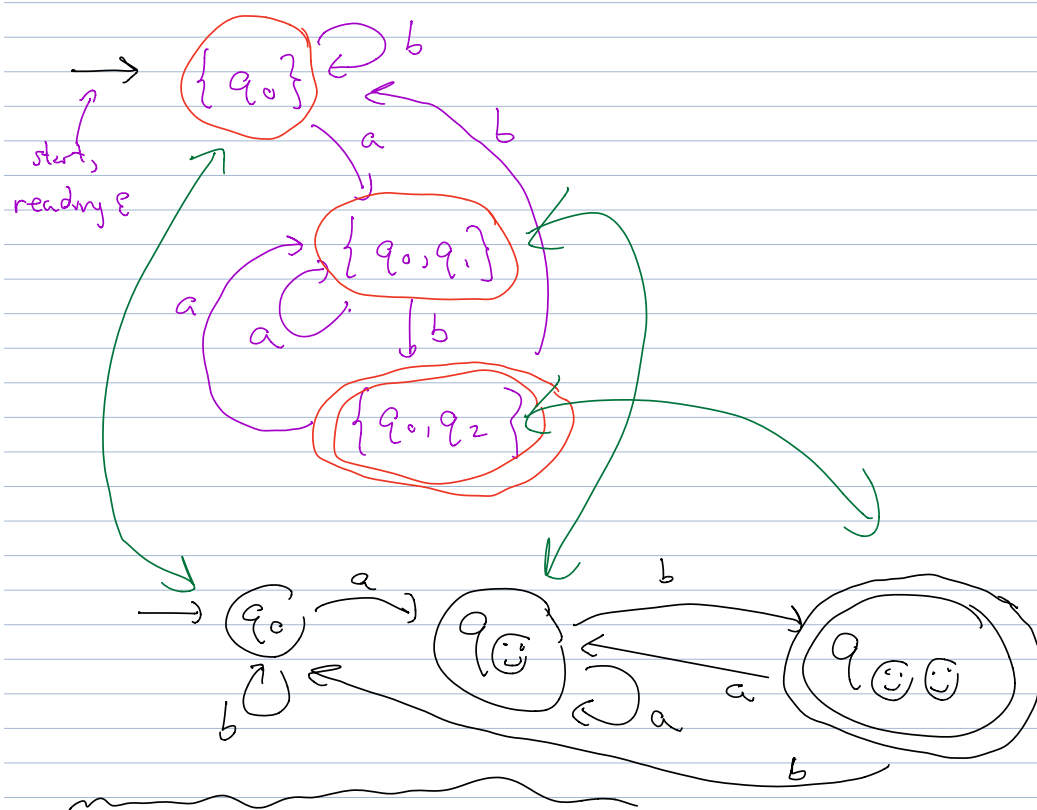


$L = \{\text{strings ending in } a, b\}$ $s = aabbabaaabbbbebbn \dots$ }

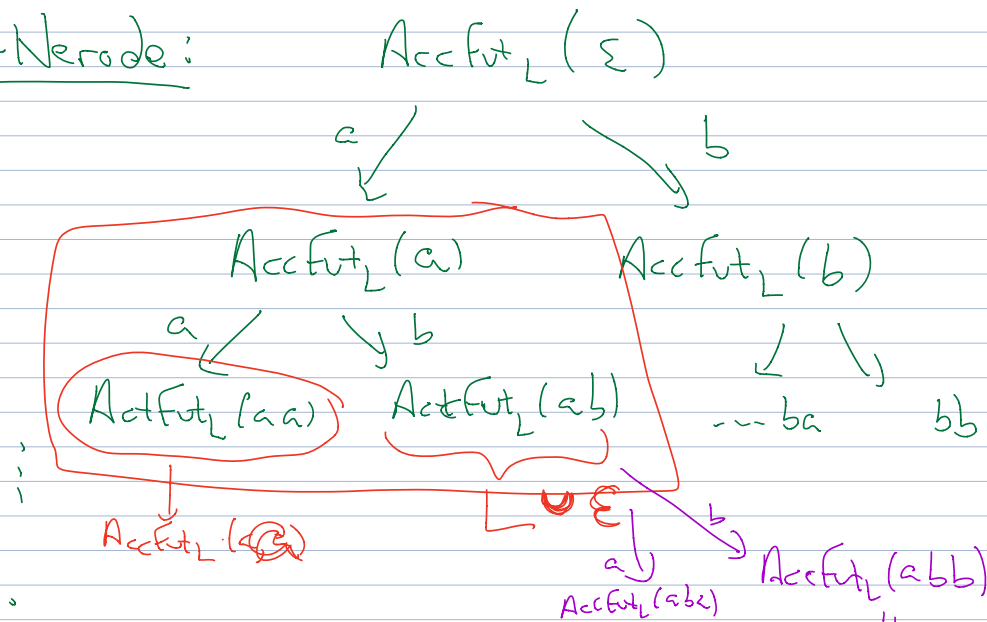


$Acc_{L}(\epsilon) = L$

$Acc_{L}(b) = \{bs \in L \mid s \in \Sigma^*\} = L, \quad Acc_{L}(abb) = L$



Myhill-Nerode:

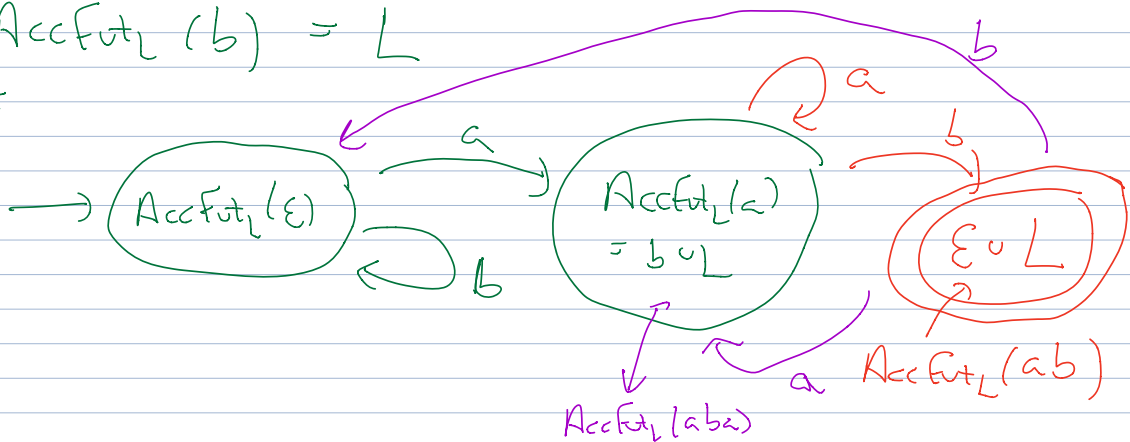


$$\text{AccFut}_L(\epsilon) = \{ s \mid \epsilon s \in L \} = L \quad \overset{L}{=} \text{AccFut}_L(\epsilon)$$

$$\text{AccFut}_L(a) = \{ s \mid as \in L \} = b \cup L \quad (\text{in})$$

$$\text{AccFut}_L(b) = L$$

=



Claim: $\epsilon \in \text{AccFut}_L(s') \iff s' \in L$

$$\text{AccFut}_L(\epsilon) = L$$

$$\begin{array}{l}
 \text{Accept} \\
 \text{DIV_BY_4}
 \end{array}
 (1) = \left\{ 2, 6, \begin{array}{l} \text{anything 2} \\ \text{digits or} \\ \text{more div by 4} \end{array} \right\} \\
 \text{Accept} \quad _ _ _ (3) = \left\{ 2, 6, \quad _ _ \quad \right\} \\
 _ _ _ (2547) = \left\{ _ _ _ _ _ \quad _ _ \quad \right\}
 \end{array}
 \left. \vphantom{\begin{array}{l} (1) \\ (3) \\ (2547) \end{array}} \right\} \text{ Same}$$