

9/23 (월) 21:00 DFA

~~DFA~~

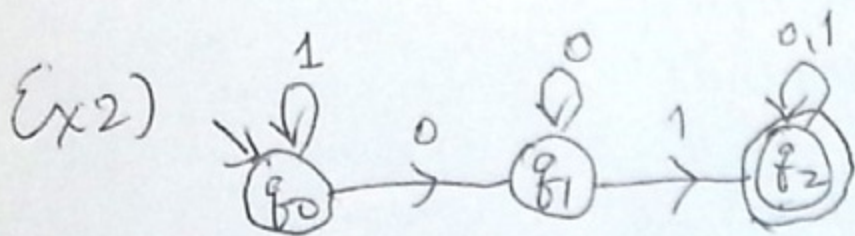
Dead state in DFA = $(Q, \Sigma, \delta, q_0, \bar{F})$

자주: $\delta: Q \times \Sigma \rightarrow Q$ 전체 함수 (total fn)
 (2) 그림이 간단하다.

다들: Error detection이 느리다.

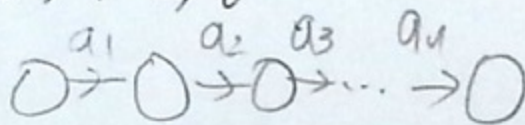
DFA with partial state transition fn

$$\delta: Q \times \Sigma \rightarrow Q$$

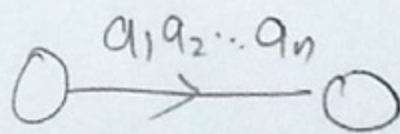


state transition fn δ 의 정의역의 확장

$$\delta: Q \times \Sigma \rightarrow Q$$



$$\hat{\delta}: Q \times \Sigma^* \rightarrow Q \quad (\Sigma \subset \Sigma^*)$$

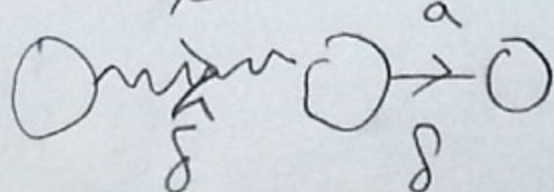


Meth 1 recursion

$$\hat{\delta}(q, \epsilon) \triangleq_B q \quad |\epsilon| = 0$$

$$\hat{\delta}(q, xa) \triangleq_R \hat{\delta}(\hat{\delta}(q, x), a) \quad \begin{matrix} |xa| > 0 \\ \geq 1 \end{matrix} \rightarrow \begin{matrix} x \in \Sigma^* \\ a \in \Sigma \end{matrix}$$

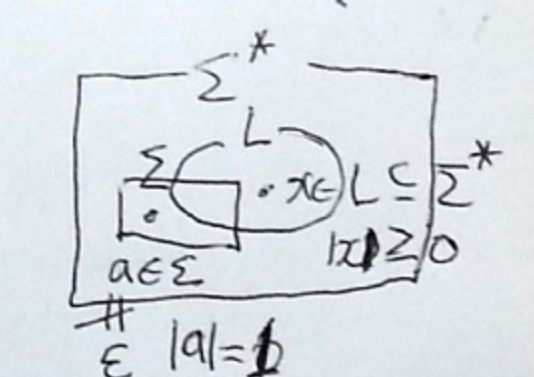
$$\triangleq_R \hat{\delta}(\hat{\delta}(q, x), a) \quad \begin{matrix} |xa| \geq 1 \\ \text{or } > 0 \end{matrix}$$



$$\delta \subseteq \hat{\delta}$$

1번
 20번 이상

1번
 20번 이상
 $\delta(q, ax)$



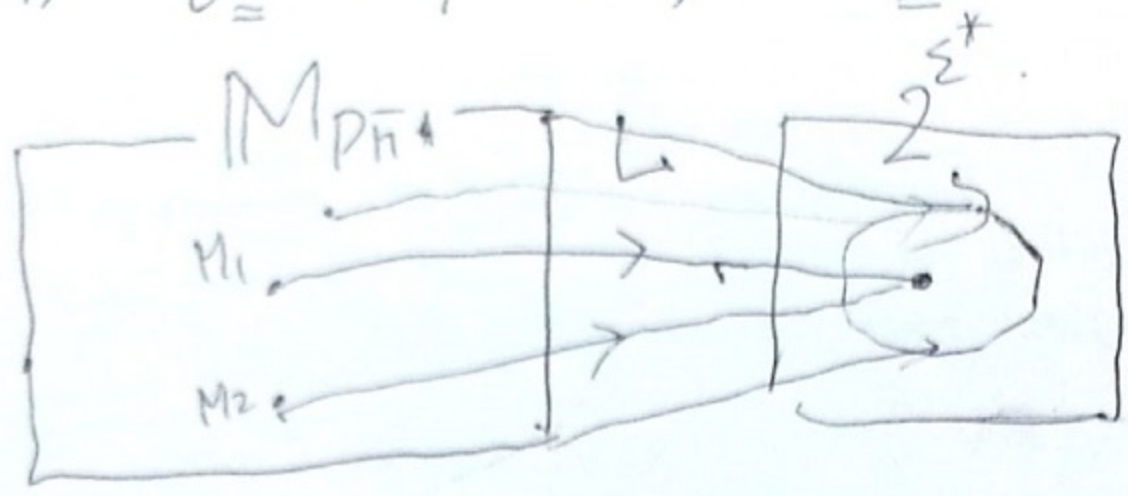
$\epsilon \notin \Sigma$
 ~~Σ^*~~
 $\epsilon \in \Sigma^*$
 $\Sigma^* = \Sigma^+ \cup \{\epsilon\}$
 where $\Sigma^+ = \bigcup_{i \in \mathbb{N}_1} \Sigma^i$
 $\Sigma^+ = \bigcup_{i \in \mathbb{N}_0} \Sigma^i$
 where $\Sigma^0 = \{\epsilon\}$
 $\therefore \epsilon \notin \Sigma^+$
 $\Sigma^* = \Sigma^+ \cup \{\epsilon\}$
 $\Sigma^+ = \Sigma^* \setminus \{\epsilon\}$

Def Let $M(Q, \Sigma, \delta, q_0, F)$. Define the Language (of) the DFA M , denote $L(M)$, accepted by defined by

$$L: M_{DFA} \rightarrow 2^{\Sigma^*}$$

$$L(M) = \{x \in \Sigma^* \mid \hat{\delta}(q_0, x) \in F\}$$

연습 project # 1
 하트 모양이 그려져 있다.



Def. Equivalent of DFA's: $M_1 \cong M_2$ if $L(M_1) = L(M_2)$

Def Class of languages regular language (Type 3) — FA