

1. DFA $\delta_{DFA}: Q \times \Sigma \rightarrow Q$

2. $\delta_{\text{NFA}}: Q \times \Sigma \rightarrow Q \cup \{\emptyset\}$

3. $\delta_{NFA}: Q \times \Sigma \rightarrow 2^Q$

4. $\delta_{\epsilon\text{-NFA}}: Q \times (\Sigma \cup \{\epsilon\}) \rightarrow 2^Q$

5. $\delta_{\text{FA}}: Q \times \Sigma^* \rightarrow 2^Q$

$M = (Q, \Sigma, \delta, q_0, F)$ is DFA.

$R_M \subseteq \Sigma^* \times \Sigma^*$

$x R_M y$, if $\delta^*(q_0, x) = \delta^*(q_0, y)$



R_M is equivalent

↔ partition

- ① state $q \in Q$
- ② $\delta^*(q_0, x) = q$

$[x]_{R_M} = \{x' \in \Sigma^* \mid \dots\}$

↕
 $q \in Q$

DFA

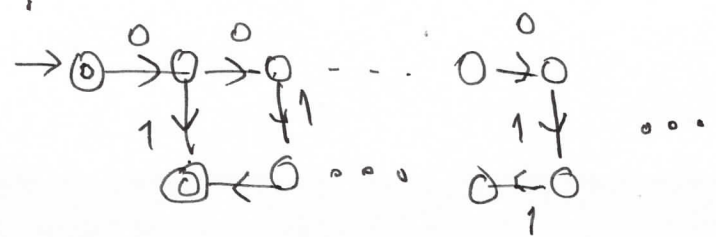
Dead state

$\delta'_{NFA}: 2^Q \times \Sigma \rightarrow 2^Q$

$\delta_{DFA} = \epsilon^*(\delta_{NFA})$
 $\delta_{DFA}: \delta_{\epsilon\text{-NFA}} \circ \epsilon^*$
 $(= \epsilon^*(\delta_{\epsilon\text{-NFA}}))$

Integer ... infinite

$$L = \{0^n 1^n \mid n \geq 0\}$$



Regular expression (정규식) — $0^n 1^n$

Finite Automata — 기계, 컴퓨터 프로그래밍.