

A **Moore machine** is a six-tuple $M_o = (Q, \Sigma, \Pi, \delta, \lambda, q_0)$ where

Q is a set of states

Σ is a set of input symbols

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

Π is a set of **output** symbols,

$\lambda: Q \rightarrow \Pi$ is a **output** function from **state** to **output symbol**., and

$q_0 \in Q$ is a **start state**.

Q, Σ, δ and q_0 are same as DFA but no final states(F)

Assume input string is $x = a_1 a_2 \dots a_n \in \Sigma^* (n \geq 0)$ and

$1 \leq \forall i \leq n: \delta(q_{i-1}, a_i) = q_i$. Then

Output string of Moore machine M_o for input string x is

$\Lambda(M_o, x) = \lambda(q_0) \lambda(q_1) \dots \lambda(q_n) \in \Pi^*$.

$|\Lambda(M_o, x)| = |x| + 1$.

A **Mealy machine** is a six-tuple $M_e = (Q, \Sigma, \Pi, \delta, \lambda, q_0)$ where

Q is a set of states,

Σ is a set of input symbols,

Π is a set of **output** symbols,

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

$\lambda: Q \times \Sigma \rightarrow \Pi$ is a **output** function

from **state transition** to **output** symbols, and

$q_0 \in Q$ is a **start** state.

(Q, Σ, Π, δ and q_0 are same as Moore machine)

Assume input string is $x = a_1 a_2 \dots a_n \in \Sigma^*$ ($n \geq 0$) and

$1 \leq \forall i \leq n: \delta(q_{i-1}, a_i) = q_i$. Then

Output string of Mealy machine M_e for input string $x = a_1 a_2 \dots a_n \in \Sigma^*$.

$\Lambda(M_e, x) = \lambda(q_0, a_1) \lambda(q_1, a_2) \dots \lambda(q_{n-1}, a_n) \in \Pi^*$.

$|\Lambda(M_e, x)| = |x|$.

*What are the elements of the output vocabulary Π ?
program segments or functions, ,,
한글 모아쓰기 automata*

FA is type 3 but Moore and Mealey machines are type 0(TM).