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

*Q is a set of **states***

*T is a set of **input symbols***

$\delta: Q \times T \rightarrow Q$

*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 $x = a_1a_2 \ldots a_n \in T^*(n \geq 0)$ 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*

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

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

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

*Q is a set of **states**,*

*T is a set of **input symbols**,*

*Π is a set of **output symbols**,*

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

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

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

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

Assume input string is $x = a_1 a_2 \ldots a_n \in T^* (n \geq 0)$ 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 $x = a_1\, a_2 \ldots a_n \in T^*$.*

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

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

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), if Π is a set of program segments.