



## Moore To Mealy Conversion

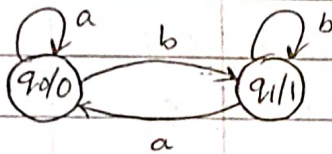
In moore machine the output is associated with every state, and in the mealy machine, the output is given along the edge with input symbol.

The equivalence of the Moore machine and Mealy machine means both the machines generate the same output string for same input string.

Method for conversion of Moore Machine to Mealy machine

$$\lambda'(q, a) = \lambda(\delta(q, a))$$

Example:



Q	a	b	$\lambda$
q <sub>0</sub>	q <sub>0</sub>	q <sub>1</sub>	0
q <sub>1</sub>	q <sub>0</sub>	q <sub>1</sub>	1

Using this function generate a transition table :-

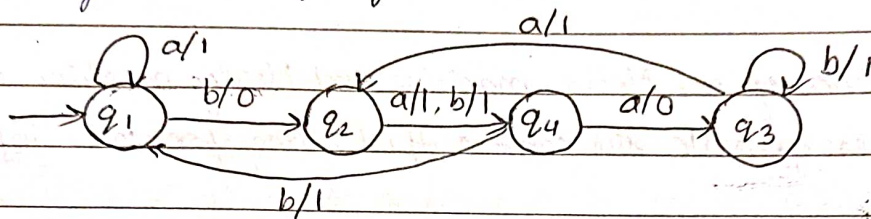
Q	Input a		Input b	
	State	Output	State	Output
q <sub>0</sub>	q <sub>1</sub>	0	q <sub>0</sub>	0
q <sub>1</sub>	q <sub>1</sub>	0	q <sub>2</sub>	1
q <sub>2</sub>	q <sub>1</sub>	0	q <sub>0</sub>	0



## Mealy machine to Moore Machine

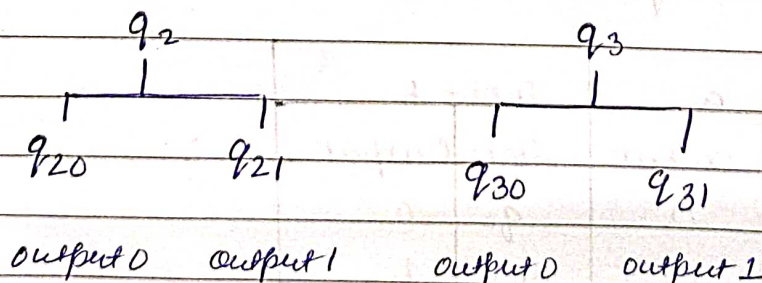
Mealy machine to moore machine, we will create a separate state for every new output symbol and according to incoming, and outgoing edges are distributed.

Example



Present State	Next State			
	a		b	
	State	O/P	State	O/P
→ q <sub>1</sub>	q <sub>1</sub>	1	q <sub>2</sub>	0
q <sub>2</sub>	q <sub>4</sub>	1	q <sub>4</sub>	1
q <sub>3</sub>	q <sub>2</sub>	1	q <sub>3</sub>	1
q <sub>4</sub>	q <sub>3</sub>	0	q <sub>1</sub>	1

If state is giving different output then split it





State	a	b	Output
$q_0$			
$q_1$	$q_1, 1$	$q_{20}, 0$	1
$q_{20}$	$q_4, 1$	$q_4, 1$	0
$q_{21}$	$q_4, 1$	$q_4, 1$	1
$q_{30}$	$q_{21}, 1$	$q_{31}, 1$	0
$q_{31}$	$q_{21}, 1$	$q_{31}, 1$	1
$q_4$	$q_{30}, 0$	$q_1, 1$	1

↑                      ↑  
 remove these outputs

