A Mealy machine is a type of finite state automaton (FSA) that produces output on transitions between states.

Unlike a Moore machine, which produces output for each state-input symbol pair, a Mealy machine only produces output when it changes states.

This means that Mealy machines are more efficient than Moore machines in terms of output generation, as they do not produce unnecessary output for states that do not change.

In the Mealy machine, the output symbol at a given time is a function of the present input as well as the present state of the machine.

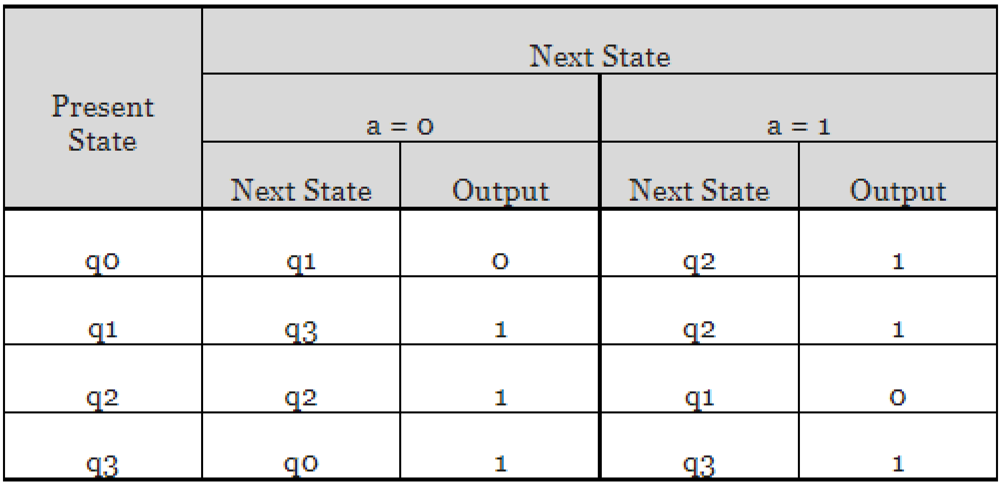
Therefore the transition graph of the Mealy machine cannot be further simplified.

> *Mealy machine is defined as a 6 tuple (Q, Σ, Δ, δ, λ, q0)*
>
> *where,*
>
> - *Q: A finite set of states.*
> - *Σ: A finite set of input symbols.*
> - *δ: A transition function: δ: Q x Σ → Q.*
> - *λ: An output function: λ: δ(Q x Σ) → O.*
> - *q_0: The start state.*
> - *F: A set of accepting states.*
>
> *Reference: Introduction to the Theory of Computation” by Michael*

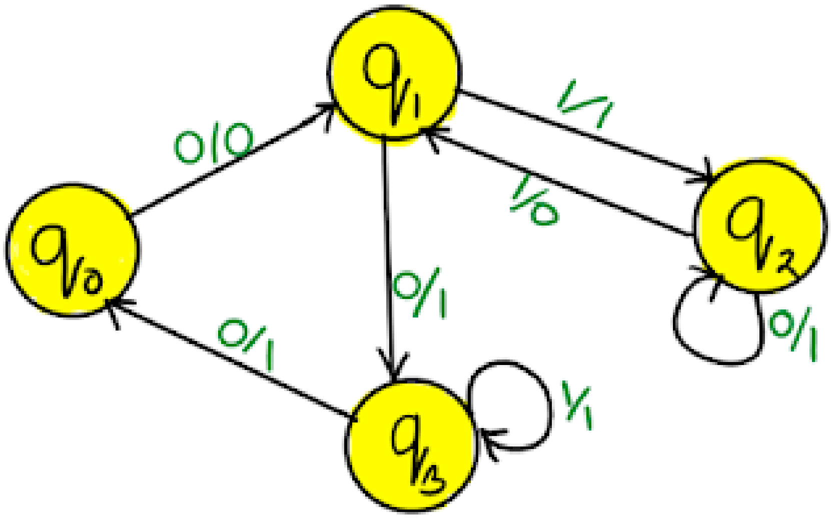
> *Sipser.*

For example,

Mealy machine Transition table



Present State	Next State			
	a = 0		a = 1	
	Next State	Output	Next State	Output
q0	q1	0	q2	1
q1	q3	1	q2	1
q2	q2	1	q1	0
q3	q0	1	q3	1



Mealy machine

Transition Diagram

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