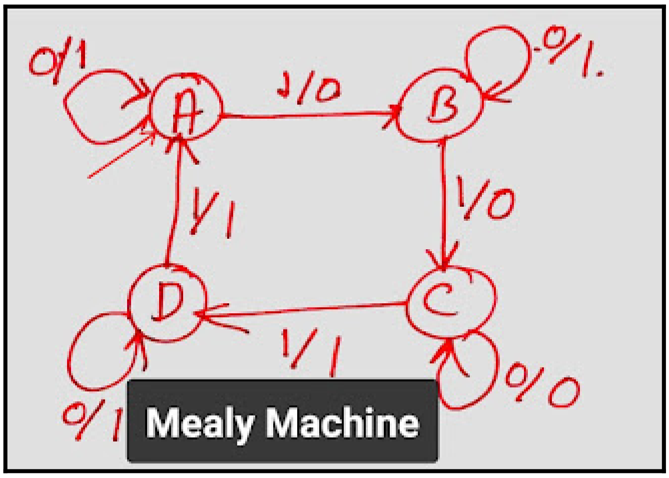
Mealy machine has 6 tuples: (Q, q0, ∑, O, δ, λ’)

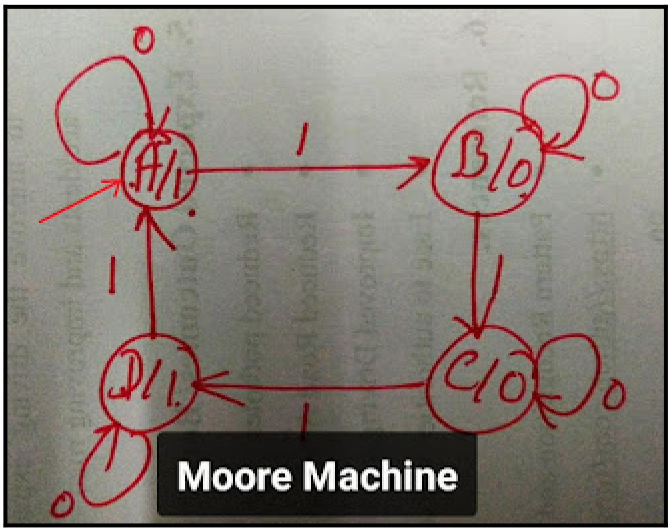
1. Q : Finite set of states
   - In diagram below Q = {A,B,C,D}
2. q0 : Initial state/ Starting state
   - In diagram below A is initial state
3. ∑ : Input alphabet
   - In diagram below input alphabets are {0,1}
4. O : Output alphabet
   - In diagram below output alphabets are {0,1}
5. δ is transition function which maps Q×∑ → Q
6. ‘λ’ is the output function which maps Q×∑→ O



Moore machine has 6 tuples: (Q, q0, ∑, O, δ, λ’)

1. Q : Finite set of states
   - In diagram below Q = {A,B,C,D}

2. q0 : Initial state/ Starting state
   - In diagram below A is initial state
3. ∑ : Input alphabet
   - In diagram below input alphabets are {0,1}
4. O : Output alphabet
   - In diagram below output alphabets are {0,1}
5. δ is transition function which maps Q×∑ → Q
6. ‘λ’ is the output function which maps Q → O



## Mealy machine vs Moore machine

| Mealy machine | Moore machine |
|---|---|
| Output depends on present state as well as present input. | Output depends on the present state. |

| | |
|---|---|
| If input changes, output also changes | If input changes, output does not changes. |
| Compare to Moore less number of states are required. Because states do not depends on output. | Compare to Mealy more number of states are required. Because states depends on number of output. |
| Difficult to develop. Difficulty due to input affects output. | Easy to develop. |
| Output is placed on transition arrow. | Output is placed with state. |

Reference:

- Introduction to the Theory of Computation” by Michael Sipser.

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