Types of [[Finite State Machines]]

Moore Machines

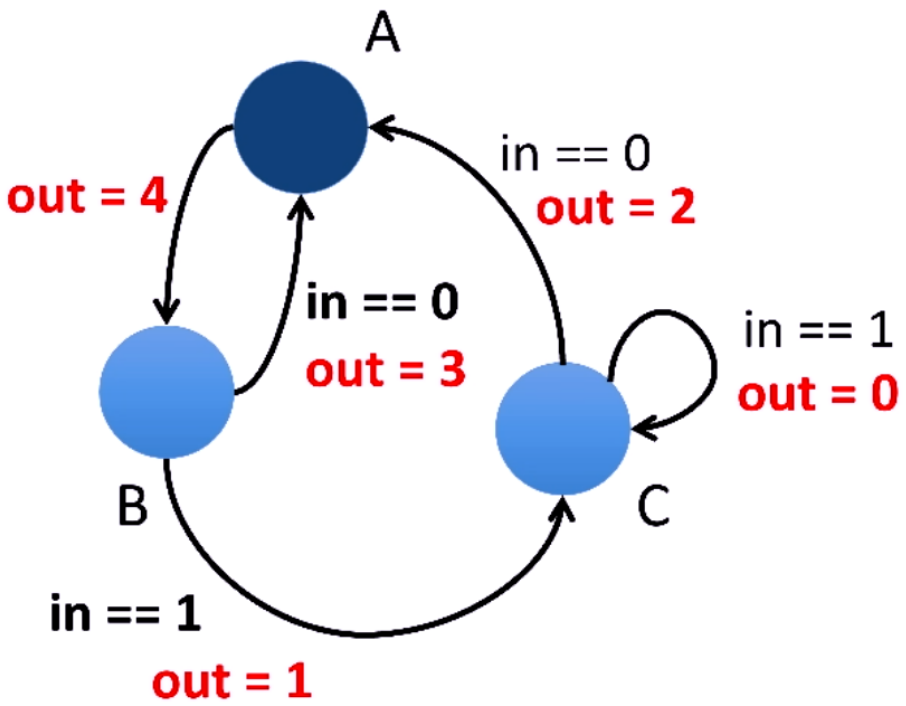
- next state = function of present state and input
- output = function of present state

Mealy Machines

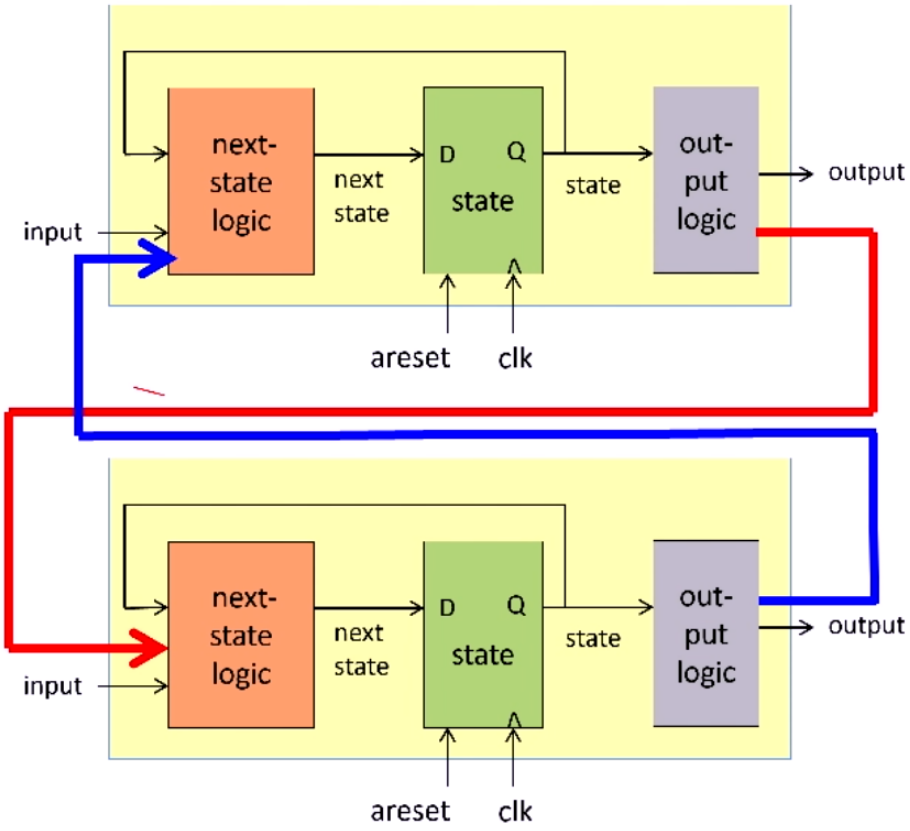
- next state = function of present state and input
- output = function of present state **and input**

- mealy machines have different outputs for the same state
  - output written outside of state circle
  - next to state transition
  - value of input affect timing diagram

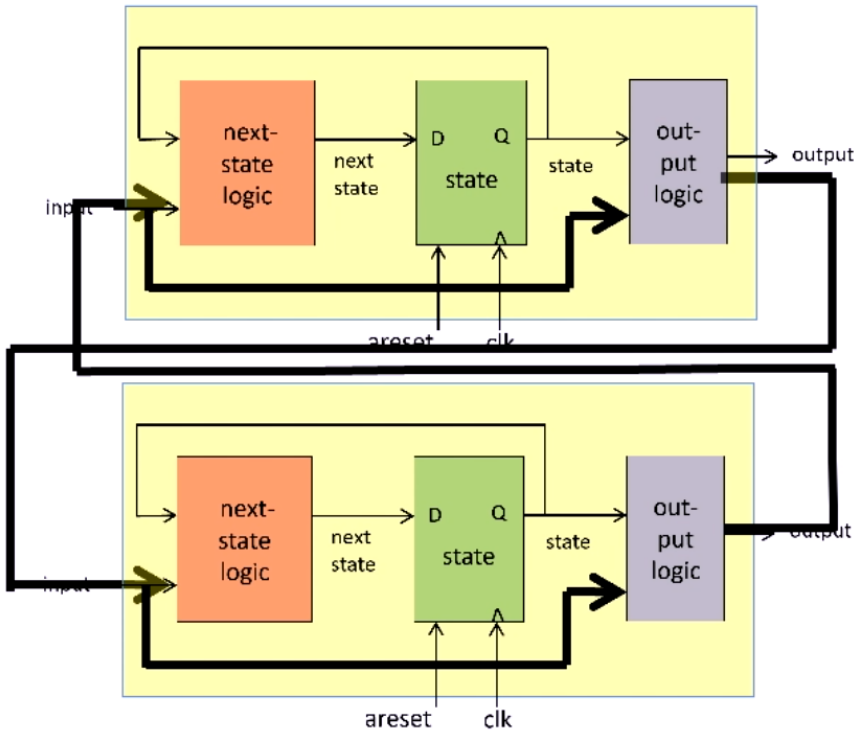
state	in	output
A	0	4
A	1	4
B	0	3
B	1	1
C	0	2
C	1	0



- machine combinations
  - multiple moore machines cause no problems



    - moore with mealy machine cause no problems
    - two mealy machine may cause problems
      - one needs to avoid combinational loops


next-
state
logic
next
state
D
Q
state
state
out-
put
logic
output
areset
clk
next-
state
logic
next
state
D
Q
state
state
out-
put
logic
areset
clk

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