

Finite State Machines

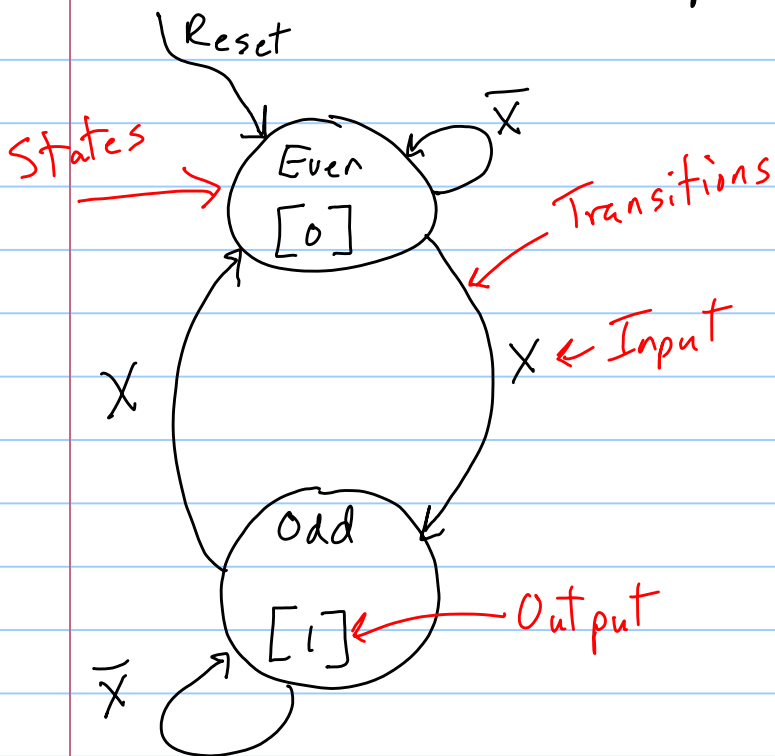
State Graph or State Diagram is the "picture"

State Machine is the circuit implementation

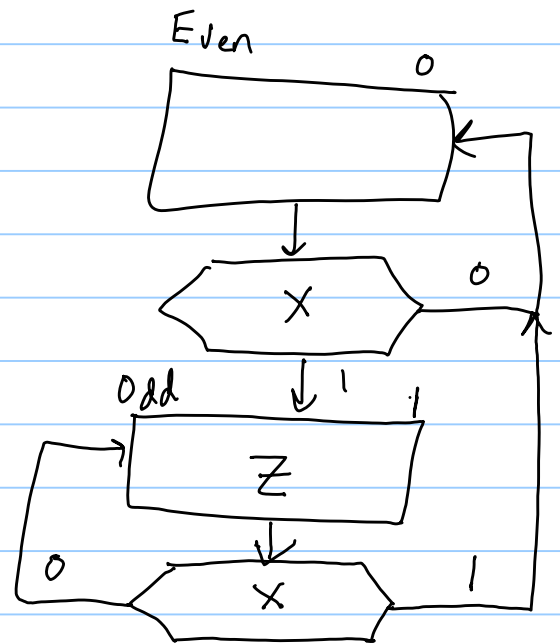
Different ways to draw and nomenclature.

Example: 1-Bit Serial Parity Checker

Have we received an even or odd number of ones as inputs so far?



Finite State Machine (FSM)



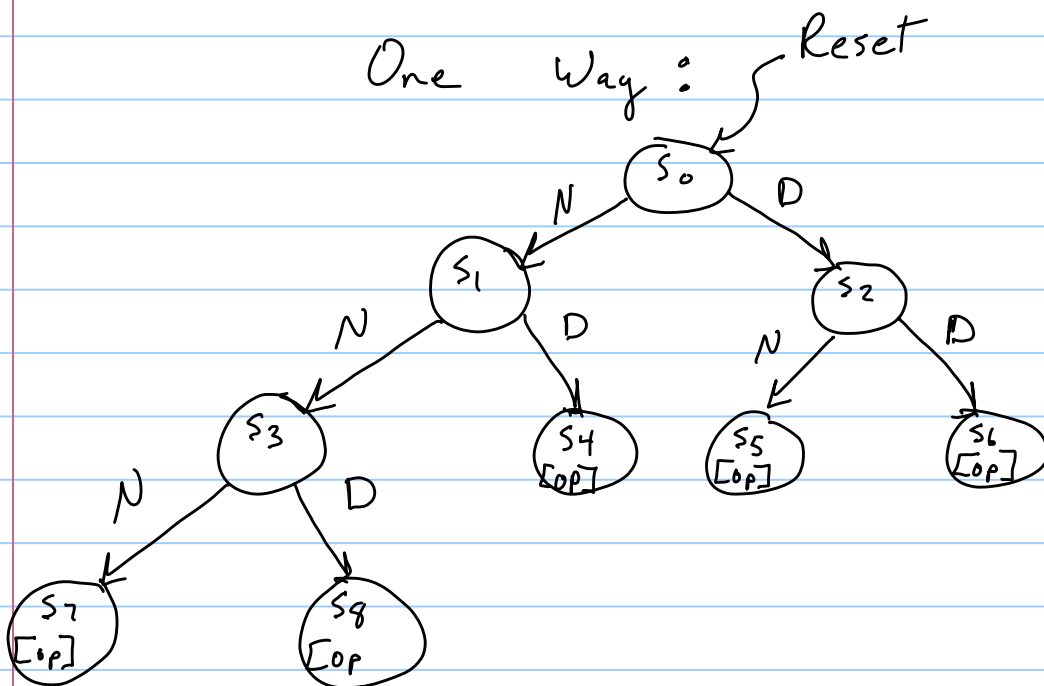
Algorithmic State Machine (ASM)

Moore Machine - The outputs only depend on the present state.
The outputs are synchronous

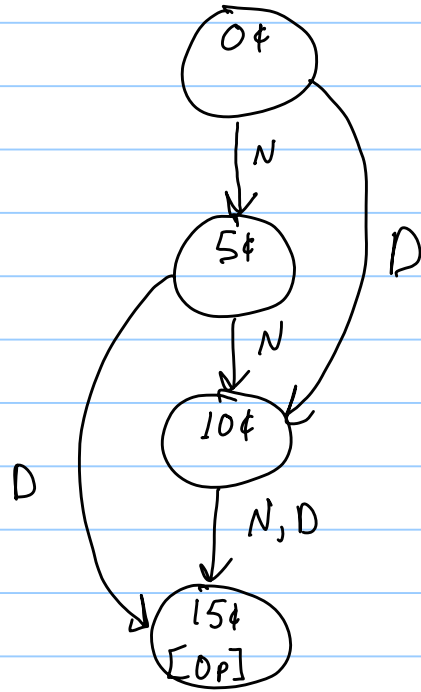
Mealy Machine - Outputs depend on the present state AND the present inputs.
Outputs might be asynchronous, but can be made synchronous if necessary.

Example: Vending Machine

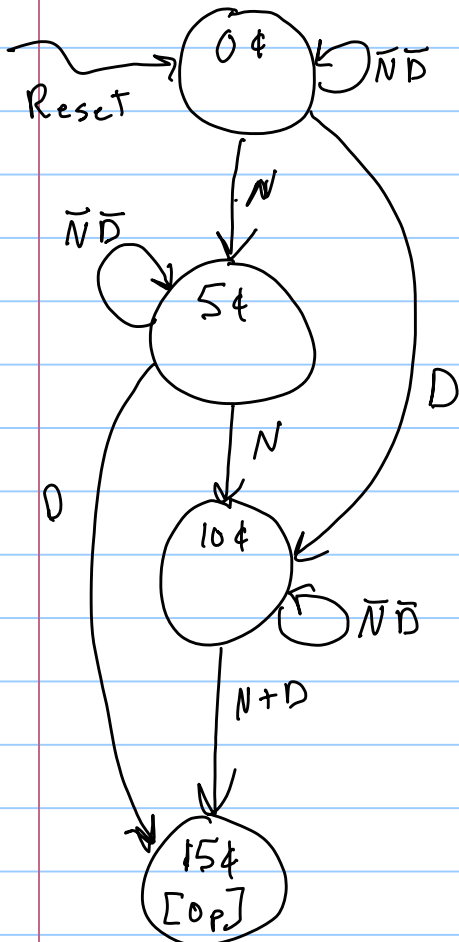
- * Candy costs 15¢
- * Accepts only nickels and dimes
- * Only N or D, not both at same time
- * No change
- * Only works once (have to reset to use again)



Better Way



Moore Machine



Mealy Machine

