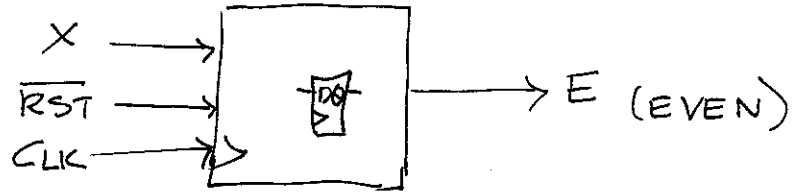
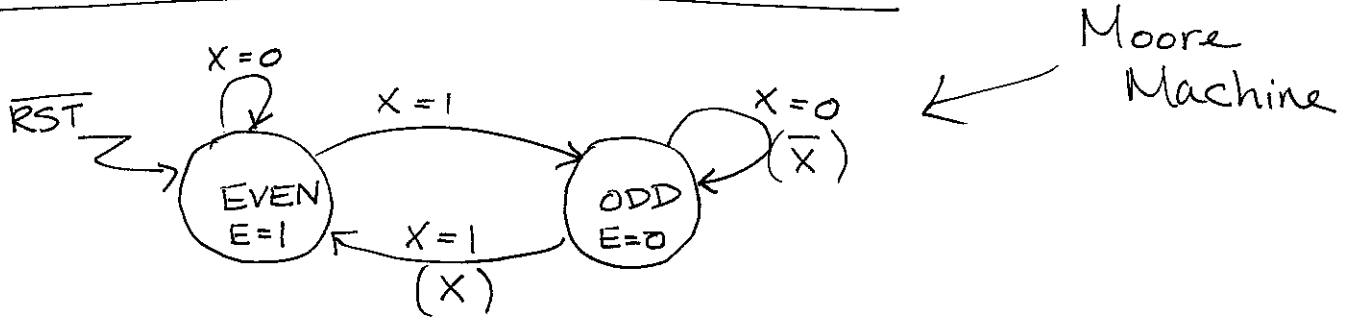


PARITY CHECK

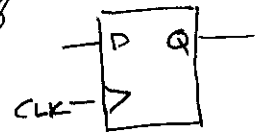


STATE TRANSITION DIAGRAM



SYMBOLIC TRANS. TABLE

Q	CURR STATE	X	NEXT STATE	D
0	EVEN	0	EVEN	0
0	EVEN	1	ODD	1
1	ODD	0	ODD	1
1	EVEN ODD	1	EVEN	0



STATE ENCODING

Q	CURR STATE	E
0	EVEN	1
1	ODD	0

NEXT STATE LOGIC (next state, D , as a func of curr state, Q , and the input, X)

(from symb. transition table)

Q	X	D
0	0	0
0	1	1
1	0	1
1	1	0

$$D = Q \oplus X$$

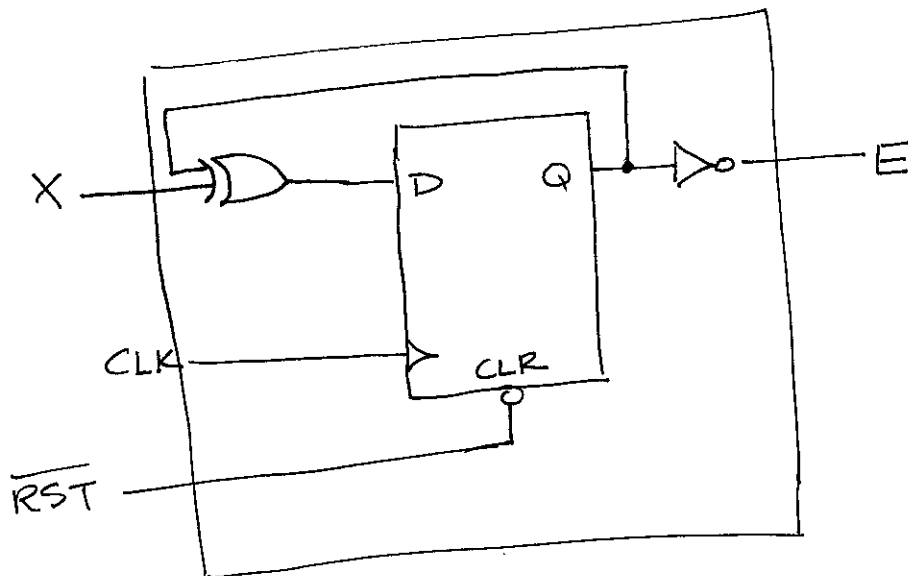
OUTPUT LOGIC

(for a Moore machine: output, E , as a func of curr state, Q)

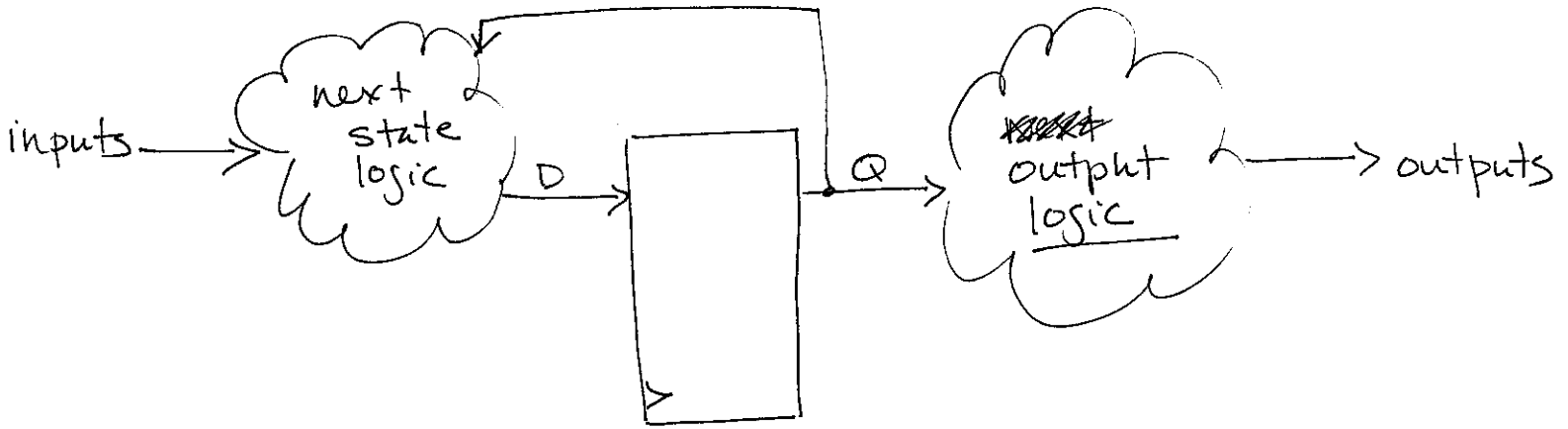
Q	E
0	1
1	0

$$E = \overline{Q}$$

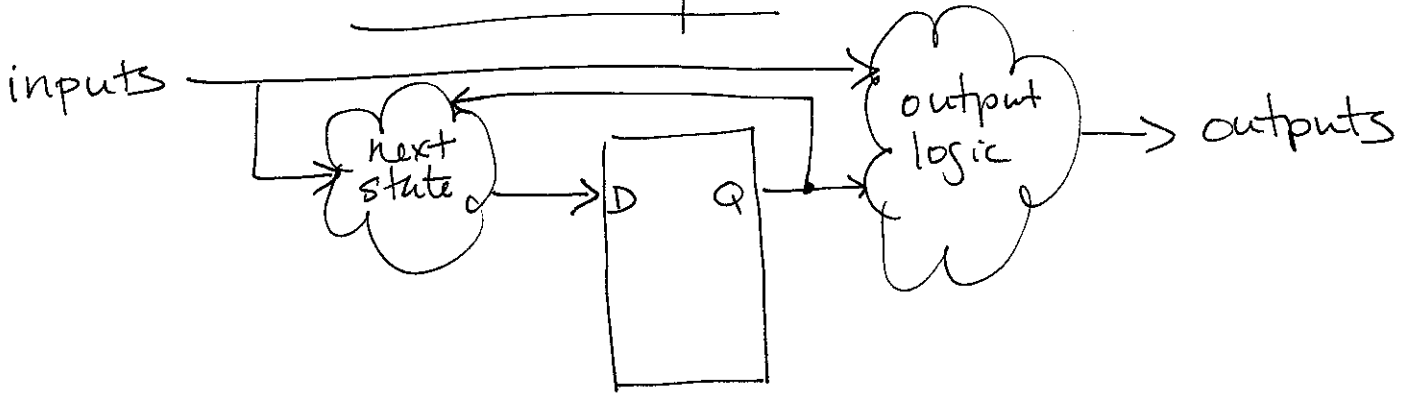
DRAW SCHEMATIC



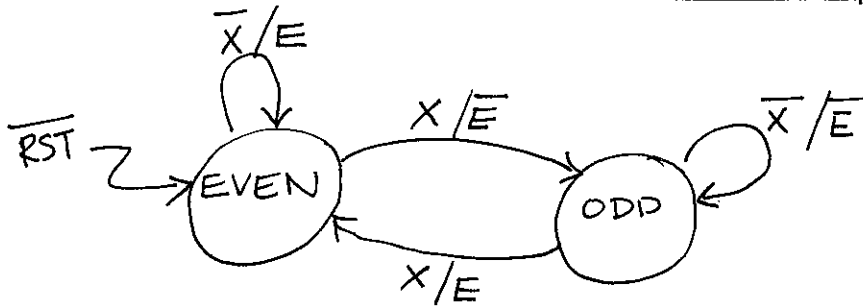
MOORE



MEALY



PARITY CHECK - MEALY



Q	CURR ST.	X	Next St.	E	D
0	EVEN	0	EVEN	0	0
0	"	1	ODD	1	1
1	ODD	0	ODD	0	0
1	"	1	EVEN	1	1

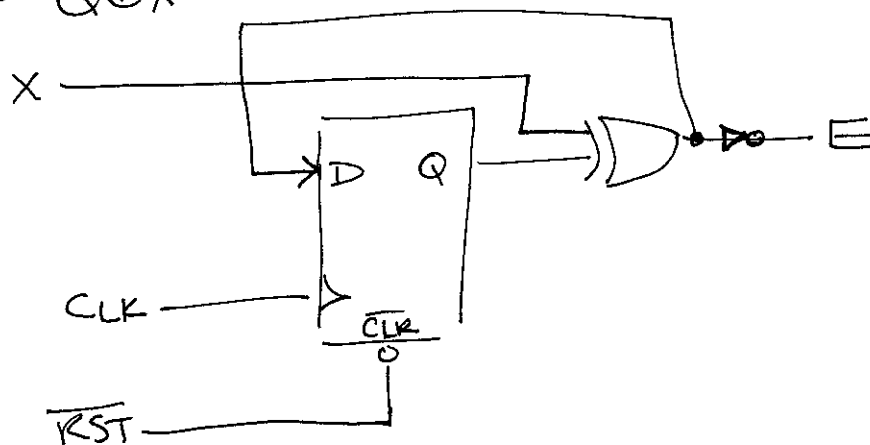
Next state logic: (next as func of curr & input)

$$D = Q \oplus X$$

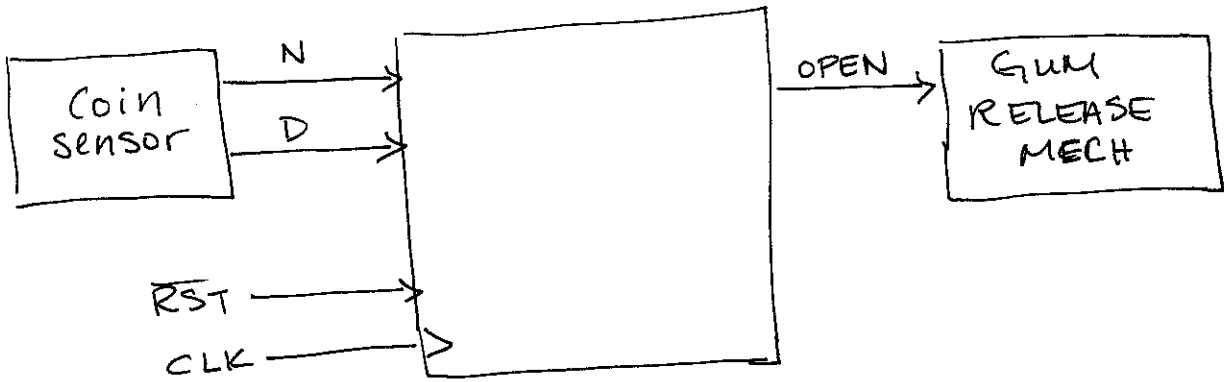
Output logic (output as a func of curr & input)

$$E = Q \cdot X + \bar{Q} \cdot \bar{X}$$

$$= \overline{Q \oplus X}$$



VENDING MACHINE FSM



- release gum only after 15¢ deposited
- no change
- no nickel & dime @ once ($N=1, D=1$)

