

Parity Checker

State Table

Moore ← Output only a function of Present State (P.S.) Only

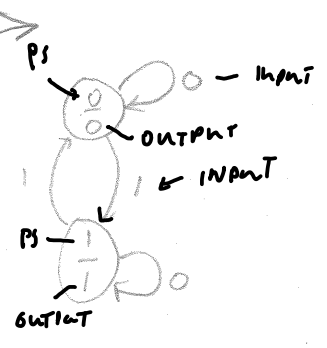
Mealy ← Output = fct (P.S. + Present Input)

	PS	NS		z
	Q	X=0	X=1	
Even → 0 ←	0	0	1	0 ← Even
odd → 1 ←	1	1	0	1 ← odd

State Table

	PS	NS		z	
	Q	X=0	X=1	X=0	X=1
	0	0	1	0	1
	1	1	0	1	0

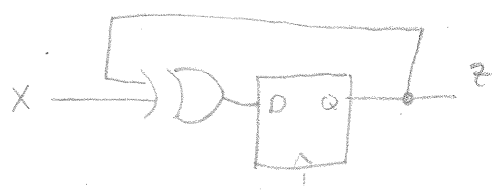
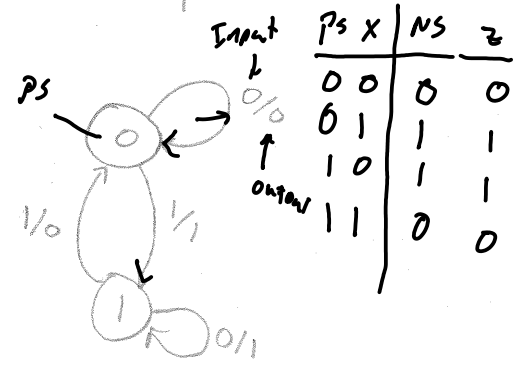
State Graph (Diagram)



Note Q^+ is same for each

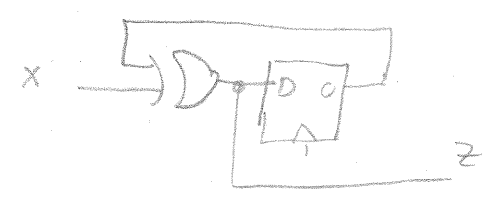
		X	
Q		0	1
0	0	1	
1	1	0	

$Q^+ = Q \oplus X$



$Q^+ = D = Q \oplus X$

$z = Q$



$Q^+ = D = Q \oplus X$

$z = Q \oplus X$

X = 0001001000110
 z = 00001110000100

X = 0001001000110
 z = 0001110000100

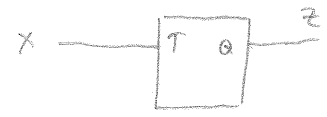
Moore output is delayed one cycle

mealy can respond immediately to changes in input

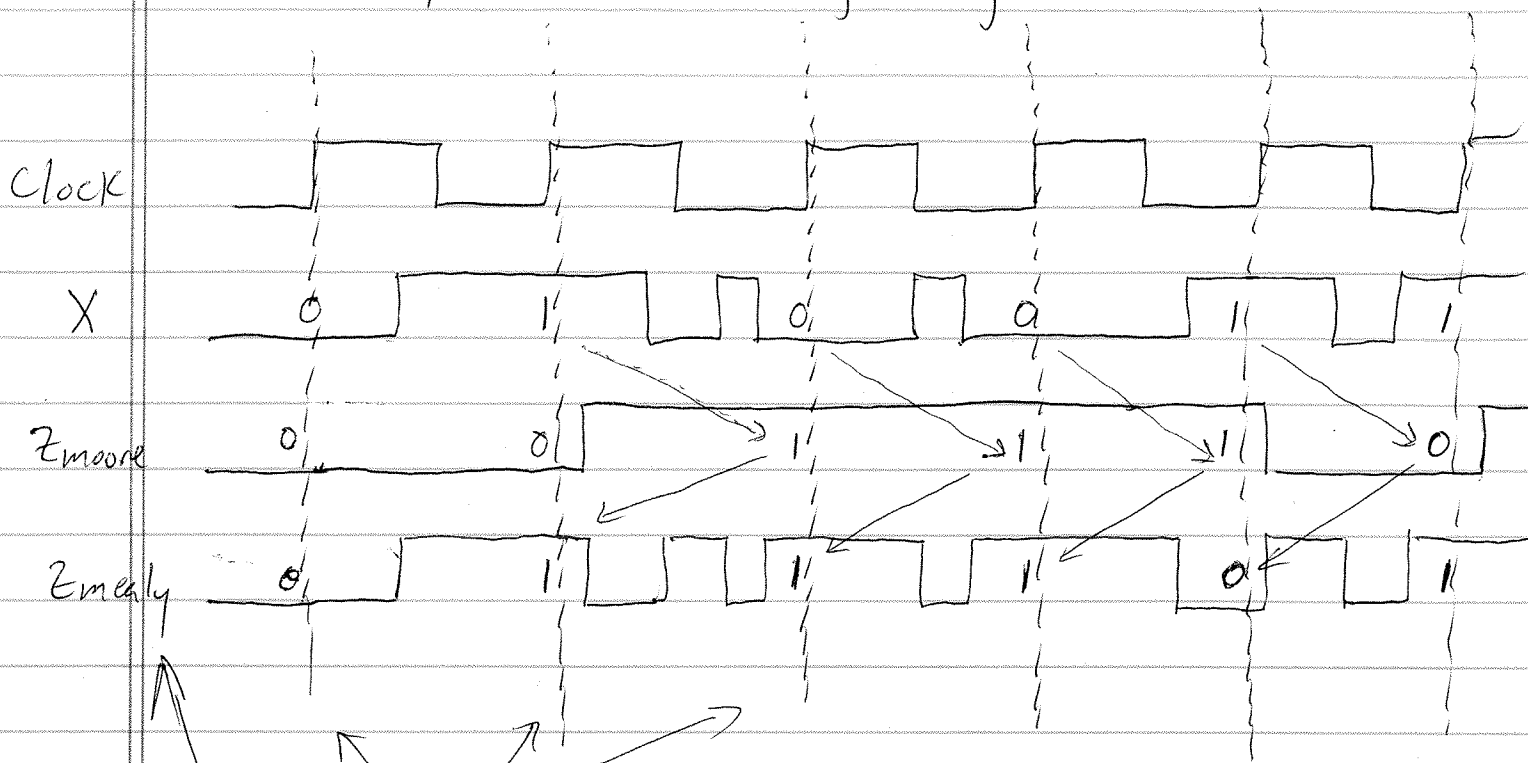
Note T-FF implementation:

$T = X$

		X	
Q		0	1
0	0	1	
1	1	0	



Parity checker timing diagram



what is important is the values at the clock edges. Note Zmoore is delayed one cycle

Note: in this particular case, the Mealy output is an exclusive-or of the state (given by Zmoore) and the current input