

Parity Checker

Moore

PS Q	NS		Z
	X=0	X=1	
0	0	1	0
1	1	0	1

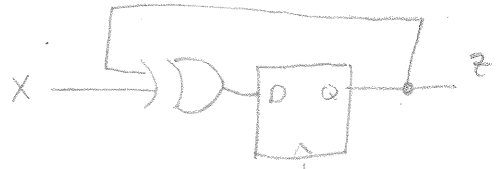
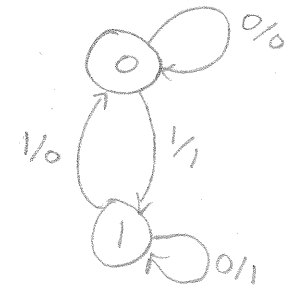
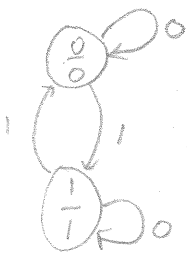
Mealy

PS Q	NS		Z	
	X=0	X=1	X=0	X=1
0	0	1	0	1
1	1	0	1	0

Note Q^+ is same for each (in this case)

		X
Q	0	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

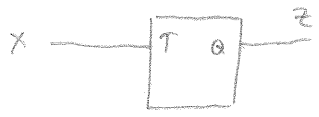
mealy can respond immediately to changes in input

Note T-FF implementation:

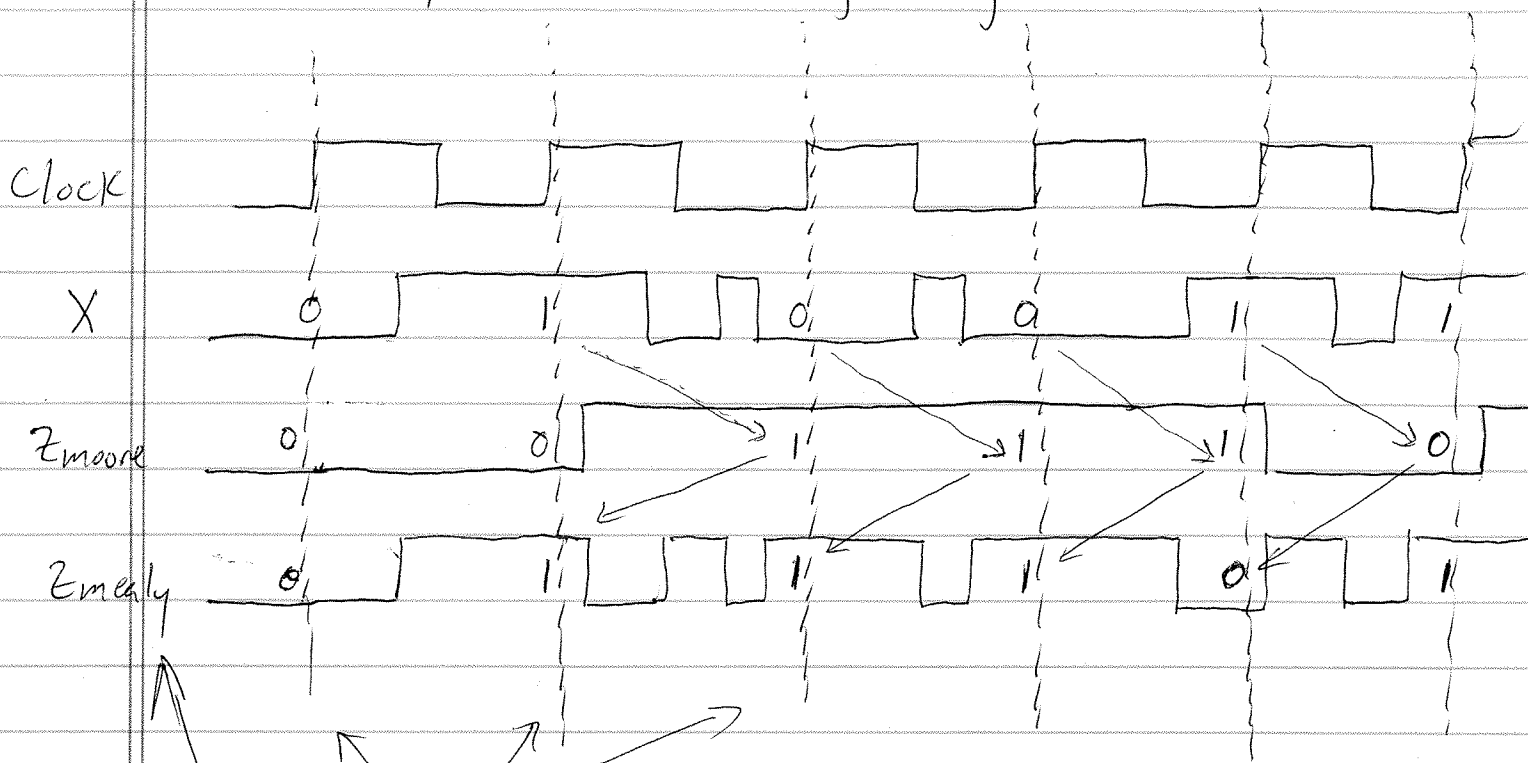
$T = X$

		X
Q	0	1
	1	1

T



Parity checker timing diagram



what is important is the values at the clock edges. Note Z_{moore} is delayed one cycle

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