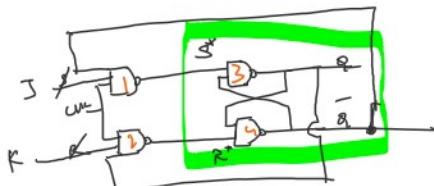


JK flip-flop



$$\begin{aligned} \text{Case 1: } & \text{Imaginary roots} \\ & \text{Discriminant } D = b^2 - 4ac < 0 \\ & \text{Solutions: } x = \frac{-b \pm \sqrt{-D}}{2a} = \frac{-b \pm i\sqrt{D}}{2a} \end{aligned}$$

J K		Q Q̄		Simpl	
J K		memory		Simpl	
0	X X	0	1	Q, Q̄	Q, Q̄
1	0 0	memory		Q, Q̄	Q, Q̄
1	0 1	0	1	0	1
1	1 0	1	0		
1	1 1	inverted		inverted	

$$J=1 \quad \text{in } A_{\text{sum}}^{\text{out}} \quad q=0$$

$$G_1: \begin{matrix} J=1 \\ \underline{u}=1 \\ \bar{\theta}_1=1 \end{matrix}$$

$$\overline{1 \cdot 1 \cdot 1} = 0 = s^* \quad g_2 =$$

$$G_2 = \begin{matrix} k=1 \\ m=1 \\ q=0 \end{matrix}$$

J₂₁ (ii) Assume
K = 1

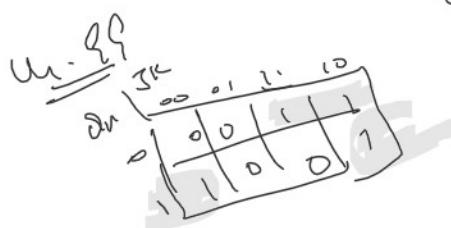
$$\varrho = 1$$

$$\begin{aligned} G_1 &\Rightarrow J=1 \\ &\quad \text{and } =1 \\ &\quad \bar{G}_1 = 0 \\ G_2 &= \quad k=1 \\ &\quad \text{and } =1 \\ &\quad \bar{G}_2 = \end{aligned}$$

$$\overline{1 \cdot D} = 1 \quad \Rightarrow \begin{cases} R^k = 1 \\ R^{k+1} = 0 \end{cases}$$

Fugue Table-

α_m	I	K	B_{m+1}
0	X X		Q_m
1	0 0		Q_n
1	0 1		0
1	1 0		1
1	1 1		Q_n



Mr. Tabb

$$Q_{n-k} = Q_{n-k-1} \bar{q}_n]$$

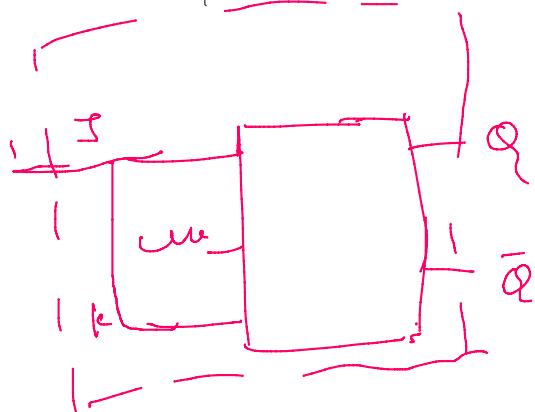
Excitation Table

Q_n	Q_{n+1}	J	K
0	0	0	X
0	1	1	X
1	0	X	1
1	1	X	0

T flip-flop

T. Toggle

modification of Tlc if



$$\begin{array}{ll} T=0 & J=K=0 \\ T=1 & J=L=1 \end{array}$$

Truth Table

C	T	Q_{n+1}	Q_n
0	X	Q _n	(new)
1	0	Q _n	(old)
1	1	Q _n	(toggle)

Ex-table

Q_n	Q_{n+1}	T
0	0	0
0	1	1
1	0	1
1	1	0

in-table

Q_n	T	Q_{n+1}
0	0	0
0	1	1
1	0	1
1	1	0

in-eq $\bar{Q}_n T \Rightarrow Q_n \bar{T}$