Group Homework 9

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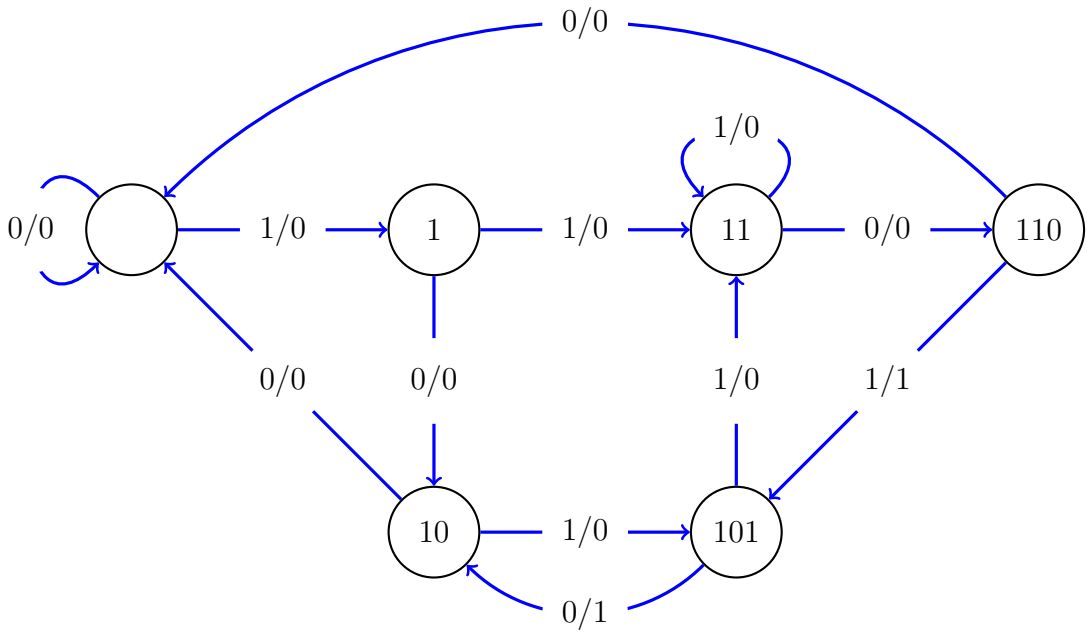
1. Minimal State Diagram with output of 1 when sequences 1010 or 1101 are detected; overlapping allowed.



2. Minimal State Table

	$X = 0$	$X = 1$
P	NS,z	NS,z
A	A,0	B,0
B	EH,0	C,0
C	D,0	C,0
D	A,0	FG,1
EH	A,0	FG,0
FG	EH,1	C,0

3. Transition Table

		$X=0$	$X=1$	$X=0$			$X=1$		
P	abc	NS,z	NS,z	Ja Ka	Jb Kb	Jc Kc	Ja Ka	Jb Kb	Jc Kc
A	000	000,0	001,0	0X	0X	0X	0X	0X	1X
B	001	100,0	010,0	1X	0X	X1	0X	1X	X1
C	010	011,0	010,0	0X	X1	1X	0X	X0	0X
D	011	000,0	101,1	0X	X1	X1	1X	X1	X0
EH	100	000,0	101,0	X1	0X	0X	X0	0X	X1
FG	101	100,1	010,0	X0	0X	X1	X1	1X	X1
	110	xxx,x	xxx,x	XX	XX	XX	XX	XX	XX
	111	xxx,x	xxx,x	XX	XX	XX	XX	XX	XX

4. Solving

ab \ cx	00	01	11	10
00	0	0	0	0
01	0	0	1	0
11	-	-	-	-
10	0	0	0	1

z = bcx + acx'

Ja = bcx + b'cx'

ab \ cx	00	01	11	10
00	0	0	0	1
01	0	0	1	0
11	-	-	-	-
10	-	-	-	-

Ka = c'x' + cx

ab \ cx	00	01	11	10
00	-	-	-	-
01	-	-	-	-
11	-	-	-	-
10	1	0	1	0

Jb = cx

ab \ cx	00	01	11	10
00	0	0	1	0
01	-	-	-	-
11	-	-	-	-
10	0	0	1	0

Kb = x + c

ab \ cx	00	01	11	10
00	-	-	-	-
01	0	1	1	1
11	-	-	-	-
10	-	-	-	-

Jc = b'x + bx'

ab \ cx	00	01	11	10
00	0	1	-	-
01	1	0	-	-
11	-	-	-	-
10	0	-	-	-

Kc = b' + x'

ab \ cx	00	01	11	10
00	-	-	1	1
01	-	-	0	1
11	-	-	-	-
10	-	1	1	1