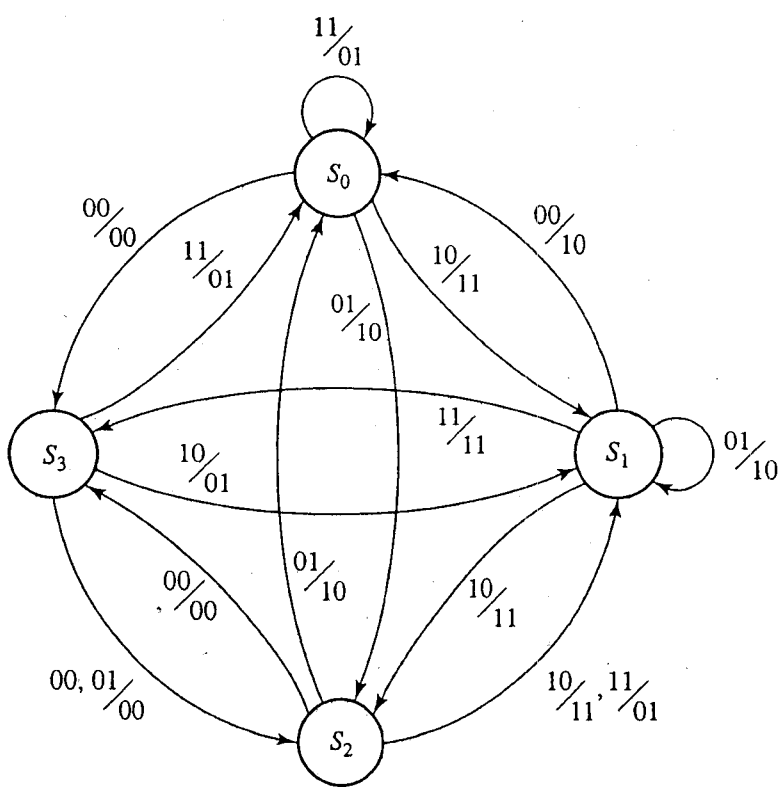


TABLE 13-4
A State Table with
Multiple Inputs
and Outputs

Present State	Next State				Present Output (Z_1Z_2)			
	$X_1X_2 = 00$	01	10	11	$X_1X_2 = 00$	01	10	11
S_0	S_3	S_2	S_1	S_0	00	10	11	01
S_1	S_0	S_1	S_2	S_3	10	10	11	11
S_2	S_3	S_0	S_1	S_1	00	10	11	01
S_3	S_2	S_2	S_1	S_0	00	00	01	01

FIGURE 13-15
State Graph for
Table 13-4



Input		Current State		Next State			Output						
		S_n	Q_1^n	Q_0^n	S_{n+1}	Q_1^{n+1}	Q_0^{n+1}	Z_1	Z_2	S_1	R_1	S_0	R_0
0	0	S_0	0	0	S_3	1	1	0	0	1	0	1	0
0	0	S_1	0	1	S_0	0	0	1	0	0	-	0	1
0	0	S_2	1	0	S_3	1	1	0	0	-	0	1	0
0	0	S_3	1	1	S_2	1	0	0	0	-	0	0	1
0	1	S_0	0	0	S_2	1		1	0	1	0		
0	1	S_1	0	1	S_1	0		1	0	0	-		
0	1	S_2	1	0	S_0	0		1	0	0	1		
0	1	S_3	1	1	S_2	1		0	0	-	0		
1	0	S_0	0	0	S_1	0		1	1	0	-		
1	0	S_1	0	1	S_2	1		1	1	1	0		
1	0	S_2	1	0	S_1	0		1	1	0	1		
1	0	S_3	1	1	S_1	0		0	1	0	1		
1	1	S_0	0	0	S_0	0		0	1	0	-		
1	1	S_1	0	1	S_3	1		1	1	1	0		
1	1	S_2	1	0	S_1	0		0	1	0	1		
1	1	S_3	1	1	S_0	0		0	1	0	1		

	Q_0		S_1	
x_1	1	0	-	-
	0	1	0	0
	0	1	0	0
	1	0	-	0
	Q_1			

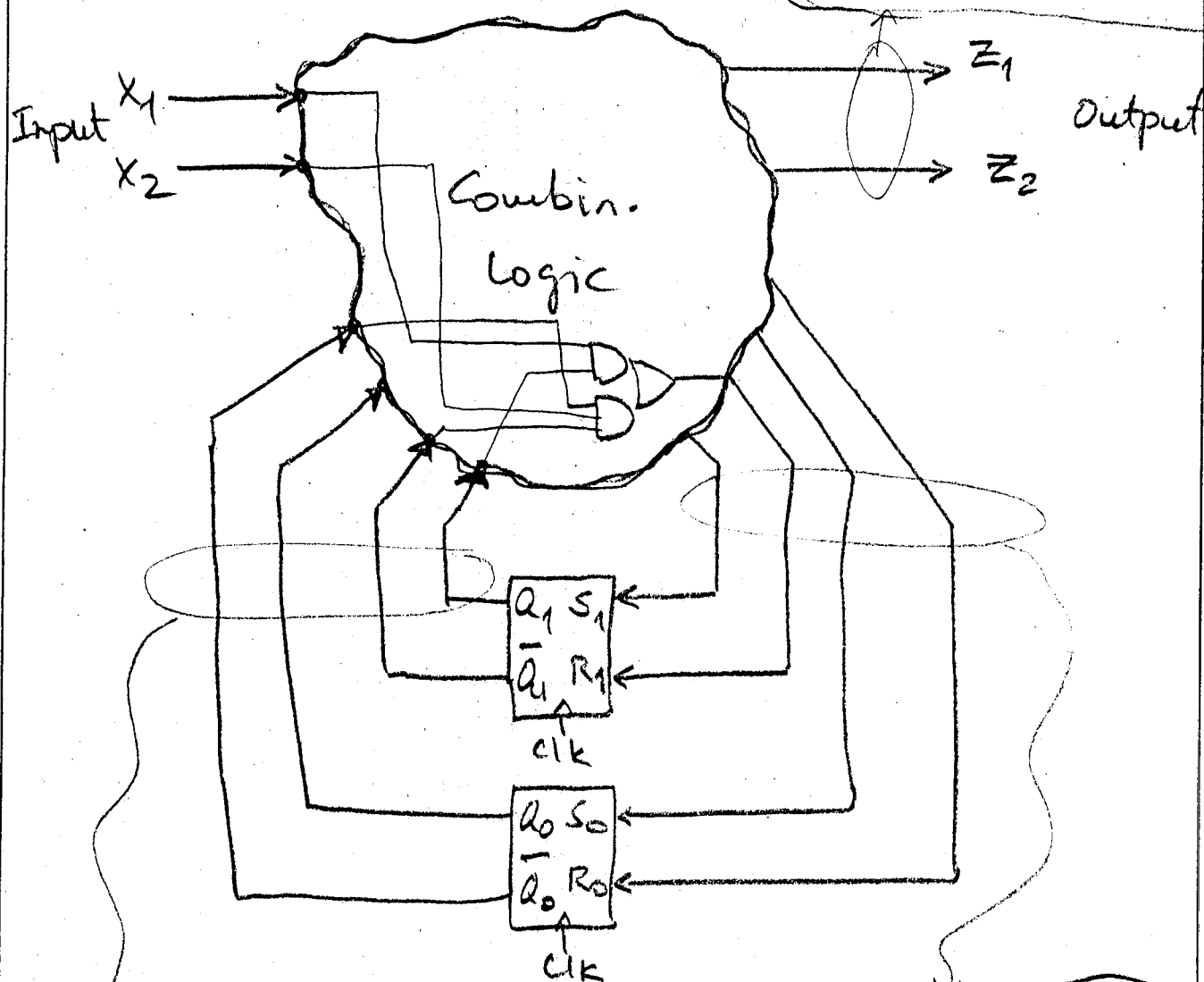
	Q_0		R_1	
	0	-	0	0
	-	0	1	1
	-	0	1	1
	0	-	0	1
	Q_1			

	Q_0		Z_1	
	0	1	0	0
	1	1	0	1
	0	1	0	0
	1	1	0	1
	Q_1		x_2	

$$R_1 = x_1 Q_1 + x_2 Q_1 \bar{Q}_0$$

$$Z_1 = \bar{Q}_1 Q_0 + x_1 \bar{x}_2 \bar{Q}_0 + \bar{x}_1 x_2 \bar{Q}_0$$

Output is a function of $X_1, \dots, X_n$



This is the Current State Sn

This sets the
Next State S_{n+1}
after the
clock

