

$$F_1 = (AB)(BC)' = (AB)(B' + C') = ABC'$$

$$F_2 = (B' + C')(AD) = ABC'D$$

$$P = ABC' + BC' + ABC'D$$

$$P = ABC'(D + D') + BC'(A + A')(D + D') + ABC'D$$

$$P = ABC'D + ABC'D' + ABC'D + ABC'D' + A'BC'D + A'BC'D' + ABC'D$$

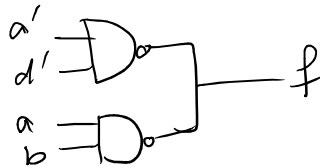
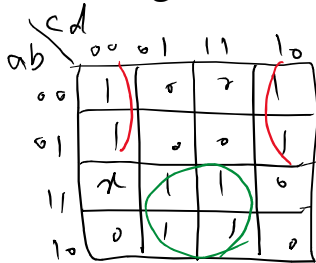
$$P = ABC'D + ABC'D' + A'BC'D + A'BC'D' = \sum(13, 12, 5, 4)$$

A	B	C	f_1	f_2	f_1	f_2
0	0	0	0	1	1	0
0	0	1	1	0	0	1
0	1	0	1	1	1	1
0	1	1	1	1	1	1
1	0	0	1	0	0	1
1	0	1	0	1	1	0
1	1	0	1	1	1	1
1	1	1	1	1	1	1

$$\begin{cases} f_1(A, B, C) = AB'C' + B + A'B'C \\ f_2(A, B, C) = A'B'C' + B + AB'C \\ f_3(A, B, C) = A'C' + AC + BC' + A'B \\ f_4(A, B, C) = AC' + AB + BC' + A'C \end{cases}$$

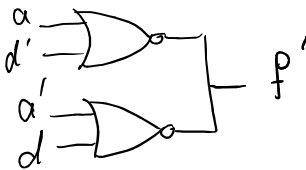
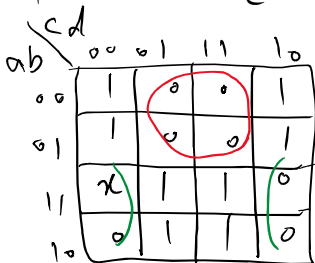
$$\Rightarrow \begin{cases} f_1 = f_3 \\ f_2 = f_4 \end{cases}$$

۳- برای ساختار Wired-AND ابتدا باید ساختار NAND-AND را پیاده سازی کنیم. در اینصورت باید یکهای تابع مکمل را ترکیب کنیم.



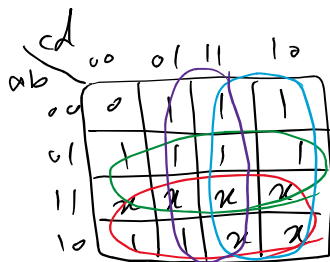
$$f' = a'd' + ad \text{ کنیم.}$$

برای ساختار Wired-OR ابتدا باید ساختار NOR-OR را پیاده سازی کنیم. در اینصورت باید صفرهای تابع مکمل را ترکیب کنیم.

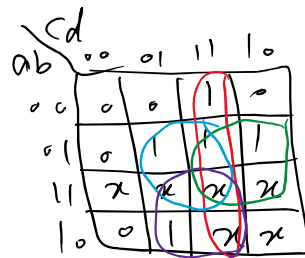


$$f' = (a+d')(a'+d)$$

a	b	c	d	f_1	f_r
0	0	0	0	0	0
0	0	0	1	1	0
0	0	1	0	1	0
0	0	1	1	1	1
0	1	0	0	1	0
0	1	0	1	1	1
0	1	1	0	1	1
0	1	1	1	1	1
1	0	0	0	1	0
1	0	0	1	1	1

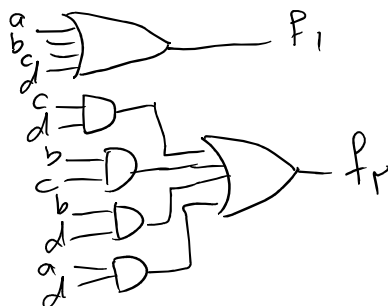


$$f_1 = a + b + c + d$$

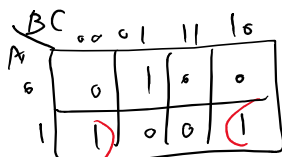


$$f_r = cd + bc + bd + ad$$

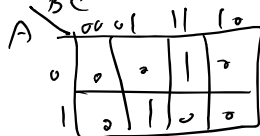
گیت مشترک ندارد.



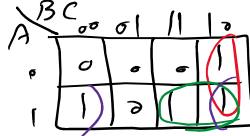
$$F_1(A,B,C) = \sum(1,4,6), F_2(A,B,C) = \sum(3,5), F_3(A,B,C) = \sum(2,4,6,7)$$



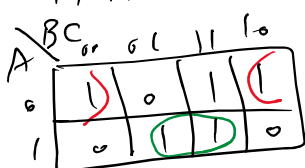
$$F_1 = A'B'C + AC'$$



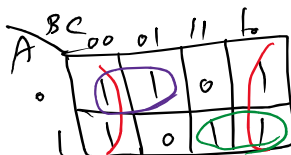
$$F_2 = A'BC + AB'C$$



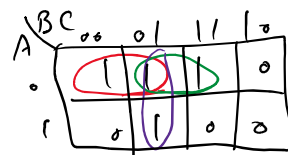
$$F_3 = BC' + AB + AC'$$



$$F_1' = AC' + AC + A'B$$



$$F_2' = C' + AB + A'B'$$



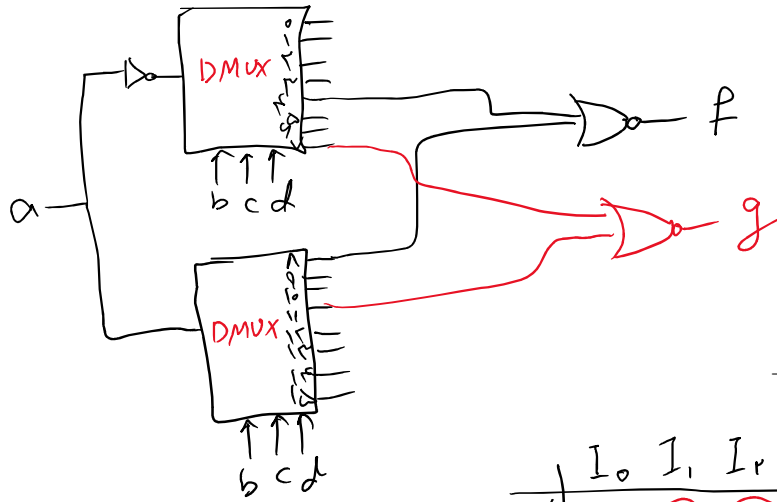
$$F_3' = A'B' + A'C + BC$$

A	B	C	f_1	f_r	f_r'
0	0	1	1	-	-
1	-	0	1	-	1
0	1	1	1	1	-
1	0	1	1	1	1
1	1	-	-	-	1
-	1	0	1	-	-
			+	+	+

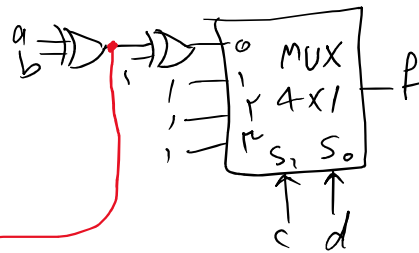
a	b	c	d	f	g
0	0	1	1	1	0
0	1	0	0	0	0
0	1	0	1	1	0
0	1	1	0	1	0
0	1	1	1	1	1
1	0	0	0	0	0
1	0	0	1	1	0
1	0	1	0	1	0
1	0	1	1	1	1
1	1	0	0	1	0

$$f = \sum(3, 5, 6, 7, 9, 10, 11, 12) + d(1, 13, 14, 15) - 6$$

$$g = \sum(7, 11) + d(1, 13, 14, 15)$$



	I_0	I_1	I_2	I_3
$a'b'$	0	1	2	3
$a'b$	4	5	6	7
ab	8	9	10	11
ab'	12	13	14	15
$f(a \oplus b)$	1	1	1	1



	I_0	I_1	I_2	I_3
$a'b'$	0	1	2	3
$a'b$	4	5	6	7
ab	8	9	10	11
ab'	12	13	14	15
g	0	0	0	$a \oplus b$



پ- ظرفیت حافظه برابر است با: $2^4 \times 2$ زیرا هیچیک از خروجی ها برابر صفر یا یک برابر ورودی نیست.