CC3301 - Arquitectura de Computadores
Auxiliar 1

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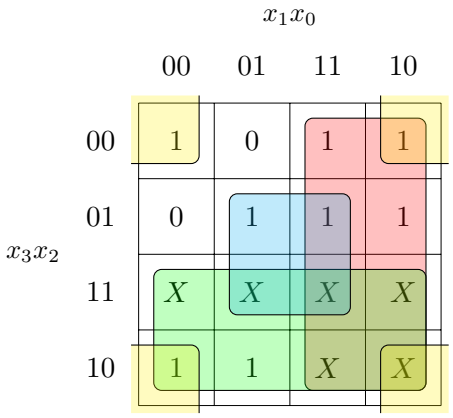
1. Conversor BCD a Display de 7 Segmentos

1.1. Tabla de Verdad

n	$x3$	$x2$	$x1$	$x0$	a	b	c	d	e	f	g
0	0	0	0	0	1	1	1	1	1	1	0
1	0	0	0	1	0	1	1	0	0	0	0
2	0	0	1	0	1	1	0	1	1	0	1
3	0	0	1	1	1	1	1	1	0	0	1
4	0	1	0	0	0	1	1	0	0	1	1
5	0	1	0	1	1	0	1	1	0	1	1
6	0	1	1	0	0	0	1	1	1	1	1
7	0	1	1	1	1	1	1	0	0	0	0
8	1	0	0	0	1	1	1	1	1	1	1
9	1	0	0	1	1	1	1	1	0	1	1
-	1	0	1	0	X	X	X	X	X	X	X
-	1	0	1	1	X	X	X	X	X	X	X
-	1	1	0	0	X	X	X	X	X	X	X
-	1	1	0	1	X	X	X	X	X	X	X
-	1	1	1	0	X	X	X	X	X	X	X
-	1	1	1	1	X	X	X	X	X	X	X

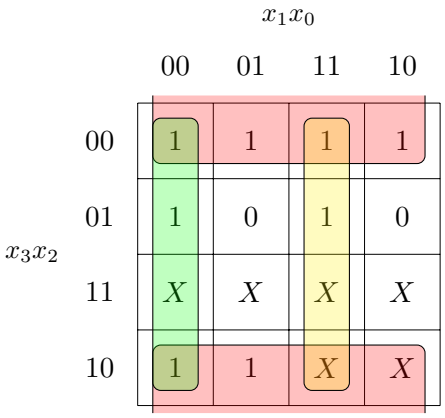
1.2. Mapas de Karnaugh

Segmento a



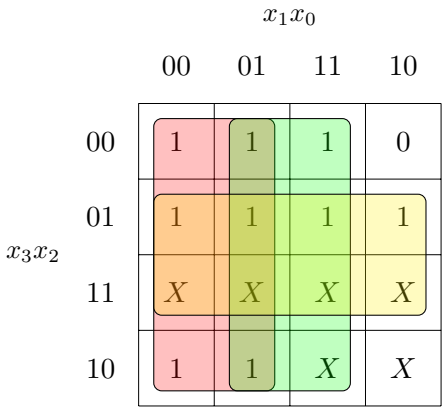
$$f_a = x_3 \vee x_1 \vee x_2x_0 \vee \neg x_2\neg x_0$$

Segmento b



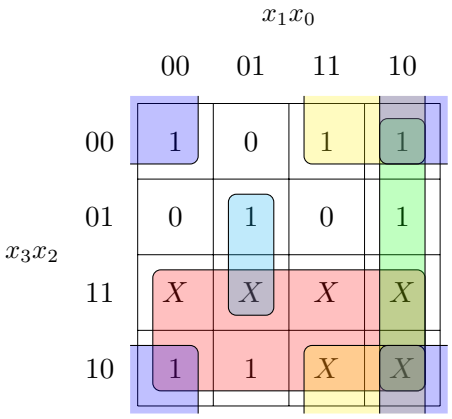
$$f_b = \neg x_2 \vee \neg x_1\neg x_0 \vee x_1x_0$$

Segmento c



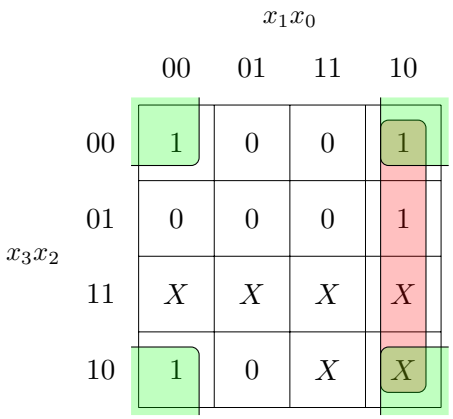
$$f_c = \neg x_1 \vee x_0 \vee x_2$$

Segmento d



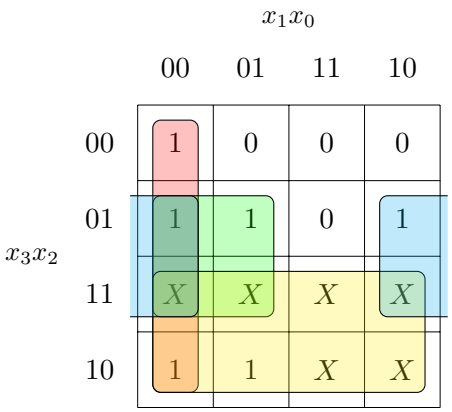
$$f_d = x_3 \vee x_1\neg x_0 \vee \neg x_2x_1 \vee \neg x_2\neg x_0 \vee x_2\neg x_1x_0$$

Segmento e



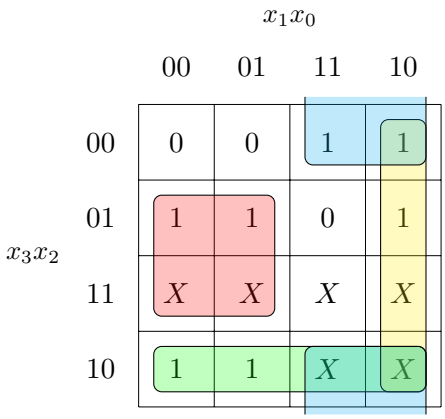
$$f_e = \neg x_2 \neg x_0 \vee x_1 \neg x_0$$

Segmento f



$$f_f = x_2 \neg x_1 \vee \neg x_1 \neg x_0 \vee x_3 \vee x_2 \neg x_0$$

Segmento g

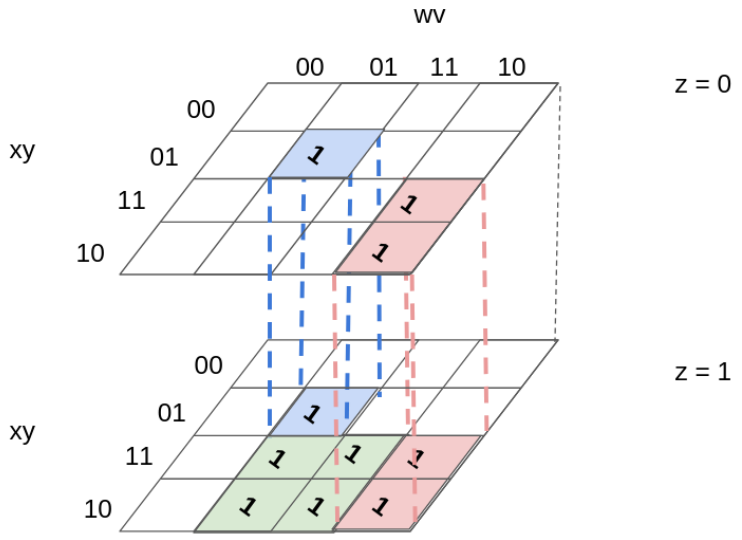


$$f_g = x_2 \neg x_1 \vee x_3 \neg x_2 \vee x_1 \neg x_0 \vee \neg x_2 x_1$$

En el archivo `P1.circ` encontrará la solución realizada en *Logisim* para esta pregunta.

2. Mapas de Karnaugh

xy/zwv	000	001	011	010	110	111	101	100
00	0	0	0	0	0	0	0	0
01	0	1	0	0	0	0	1	0
11	0	0	0	1	1	1	1	0
10	0	0	0	1	1	1	1	0



$$f = \underline{xw\neg v} \vee \underline{xzv} \vee \underline{\neg xy\neg wv}$$

3. P2.B control 1 año 2005 (Propuesto)

xy \ zw	00	01	11	10
00	1	1	1	1
01	0	1	0	0
11	1	1	0	0
10	1	1	1	1

$$f = \underline{(x \vee \neg y \vee w)} \wedge \underline{(\neg y \vee \neg z)}$$