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a: $x_1\ x_2$	b: $x_3\ x_4$	f=bigger ($a > b$)
00	00	0
00	01	0
00	10	0
00	11	0
01	00	1
01	01	0
01	10	0
01	11	0
10	00	1
10	01	1
10	10	0
10	11	0
11	00	1
11	01	1
11	10	1
11	11	0

$$f(x_1, x_2, x_3, x_4) = \bar{x}_1 x_2 \bar{x}_3 \bar{x}_4 \vee x_1 \bar{x}_2 \bar{x}_3 \bar{x}_4 \vee x_1 \bar{x}_2 \bar{x}_3 x_4 \vee x_1 x_2 \bar{x}_3 \bar{x}_4 \vee x_1 x_2 \bar{x}_3 x_4 \vee x_1 x_2 x_3 \bar{x}_4$$

$$\Rightarrow f(x_1, x_2, x_3, x_4) = m_4 \vee m_8 \vee m_9 \vee m_{12} \vee m_{13} \vee m_{14}$$

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We now simplify the function using the Karnaugh diagram.

x_1x_2 \ x_3x_4	00	01	11	10
00				
01	m_4			
11	m_{12}	m_{13}		m_{14}
10	m_8	m_9		

We start the factorization process by forming group of 2^k minterms.

$max_1 = m_{12} \vee m_{13} \vee m_8 \vee m_9 = x_1\overline{x_3}$ (double fact.)

$max_2 = m_{12} \vee m_4 = x_2\overline{x_3}\,\overline{x_4}$ (simple fact)

$max_3 = m_{14} \vee m_{14} = x_1x_2\overline{x_4}$ (simple fact)

We now have the set of maximal monoms:

$M(f) = \{max_1, max_2, max_3\}$

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The central monoms are the maximal monoms which contain at least one minterm circled once. We can see that all maximal monoms have such a minterm, so we have the case

$M(f) = C(f) \Rightarrow$ 1st case of the simplification algorithm

$\Rightarrow$ There is a unique simplified form of f, obtained as the dijunction of all central monoms:

$$f^s(x_1, x_2, x_3, x_4) = max_1 \vee max_2 \vee max_3$$

$$= x_1\overline{x_3} \vee x_2x_3\overline{x_4} \vee x_1x_2\overline{x_4}$$

We now can build the simplified logic circuit using only the basic gates AND, OR, NOT.

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$$f^s(x_1, x_2, x_3, x_4) = x_1 \overline{x_3} \vee x_2 x_3 \overline{x_4} \vee x_1 x_2 \overline{x_4}$$