

(a) Truth Table

x_4	x_3	x_2	x_1	$f(x)$
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	1
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	1
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

(b) Ordered binary vector

0
0
0
1
0
0
0
0
1
0
0
0
0
1
1
1
1
1
1

(c) Boolean Expression

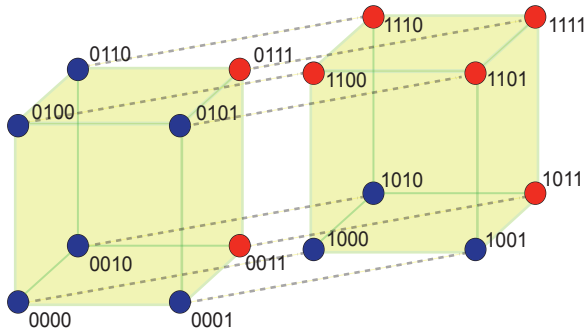
Full Disjunctive Normal Form (DNF)

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

Factorized form

$$f(x) = x_1 x_2 + x_3 x_4$$

(d) Boolean Hypercube



Vertex labeling convention

x_4	\bar{x}_3	x_2	x_1
1	0	1	1