

MATEMATIKA III.

2004-11-05

$$* f(x, y) = [(x \vee \bar{y}) \wedge \bar{y}] \wedge [(x \wedge y) \vee \bar{x}]$$

 $\wedge \cdot$
 $\vee +$

 přínik dvojice
 proměnných
 ↓
 hodnota f

$$B^2 \quad x \quad y \quad [(x \vee \bar{y}) \wedge \bar{y}] \quad \wedge \quad [(x \wedge y) \vee \bar{x}]$$

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

① ② ↑ ① ②

$$DNF = \bigvee_k (m_k \wedge e_k)$$

$$KNF = \bigwedge_k (\bar{m}_k \vee e_k)$$

$$DNF = (\bar{x} \wedge \bar{y} \wedge 1) \vee (\bar{x} \wedge \bar{y} \wedge 0) \vee (x \wedge \bar{y} \wedge 0) \vee (x \wedge \bar{y} \wedge 0) = \bar{x} \wedge \bar{y}$$

$$KNF = (x \vee y \vee 1) \wedge (x \vee \bar{y} \vee 0) \wedge (\bar{x} \vee y \vee 0) \wedge (\bar{x} \vee \bar{y} \vee 0) =$$

$$= (x \vee \bar{y}) \wedge (\bar{x} \vee y) \wedge (\bar{x} \vee \bar{y})$$

$$\alpha \vee \beta = 1$$

$$\alpha \wedge \beta = 0$$

$$\bar{\alpha} = \beta$$

$$\bar{\beta} = \alpha$$

x	y	v	∧
0	0	0	0
0	1	1	0
1	0	1	0
1	1	1	1

$$* f(x, y) = [\alpha \wedge (x \vee \bar{y})] \vee [\beta \wedge (\bar{x} \vee y)] \vee (\bar{x} \wedge \bar{y})$$

 2 proměnné
 4 možnosti } 2^4 možností
 (16)

$$B^4 \quad x \quad y \quad [\alpha \wedge (x \vee \bar{y})] \quad \vee \quad [\beta \wedge (\bar{x} \vee y)] \quad \vee \quad (\bar{x} \wedge \bar{y})$$

0	0	α	α	0	0	1	β	β	1	1	1	1	0
0	1	α	α	0	0	0	β	β	1	1	1	β	β
1	0	α	α	0	0	0	β	β	1	1	1	β	β
1	1	α	α	1	1	1	β	β	0	0	0	β	β

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DNF:

$$\bar{x}\bar{y} \vee \bar{x}y\beta \vee x\bar{y}\alpha \vee xy$$

KNF:

$$(x \vee \bar{y} \vee \beta) \wedge (\bar{x} \vee y \vee \alpha)$$

*

x	y	g	h
0	0	0	1
0	1	0	1
0	0	1	1
0	1	1	1
1	0	0	0
1	1	0	0
1	0	1	0
1	1	1	0
0	0	0	0
0	1	0	0
1	0	1	1
1	1	1	1

DNF: $\bar{x}\bar{y} \vee \bar{x}y \vee xy\beta = DNF_{fgh}$

KNF: $(\bar{x} \vee y) \wedge (\bar{x} \vee \bar{y} \vee \beta) = KNF_{fgh}$

x	y	$\bar{x} \vee y$	$\bar{x} \vee \bar{y}$	$\bar{x} \vee \bar{y} \vee \beta$	KNF
0	0	1	1	1	1
0	1	1	1	1	1
0	0	1	1	1	1
0	1	1	1	1	1
1	0	0	1	1	0
1	1	0	0	0	0
1	0	0	1	1	0
1	1	0	0	0	0
0	0	1	1	1	1
0	1	1	1	1	1
1	0	0	1	1	0
1	1	0	0	0	0

g hru' ←
boolevsky

h hru' ←
boolevsky

	$\bar{x}_1 \bar{x}_2 x_3$	$\bar{x}_1 \bar{x}_2 \bar{x}_3$	$\bar{x}_1 x_2 \bar{x}_3$	$\bar{x}_1 x_2 x_3$	$x_1 \bar{x}_2 \bar{x}_3$	$x_1 \bar{x}_2 x_3$	$x_1 x_2 \bar{x}_3$	$x_1 x_2 x_3$
00-	X	X						
0-0	X		X					
-01		X		X				
-10			X		X			
1-1				X		X		
11-					X		X	

000	00-
001	0-0
010	-01
101	-10
110	1-1
111	11-

$f^* = \bar{x}_1 \bar{x}_2 \vee \bar{x}_2 \bar{x}_3 \vee x_1 x_3$

$f^* = \bar{x}_1 \bar{x}_3 \vee \bar{x}_2 x_3 \vee x_1 x_2$