

MATEMATIKA III.

2004-11-19

AUTOMAT:

A	σ		θ	
	0	1	0	1
1	5	6	1	0
2	1	5	1	1
3	4	6	1	0
4	3	2	1	1
5	1	4	1	1
6	2	5	1	0

Rozdělení podle výstupů lze:

$$\{1; 5; 6\} \quad \{2; 4; 5\}$$

$21 \ 21 \ 22 \quad 13 \ 13 \ 11$

$$\{1; 3\} \quad \{6\} \quad (3)$$

$(1) \quad (2)$

A	σ		θ	
	0	1	0	1
1	3	6	1	0
2	3	3	1	0
3	1	3	1	1

A	σ		θ	
	0	1	0	1
1	6	4	0	1
2	3	7	0	1
3	1	4	1	0
4	6	5	1	0
5	6	7	0	1
6	5	7	1	0
7	3	2	1	0

$$\{1; 2; 5\} \quad \{3; 4; 6; 7\}$$

$22 \ 22 \ 22 \quad 12 \ 21 \ 12 \ 21$

$$23 \ 21 \ 23 \quad \{3; 6\} \quad \{4; 7\}$$

2. strana nekognitivního rozdělení

A	σ		θ	
	0	1	0	1
1	2	3	0	1
2	1	3	1	0
3	2	1	1	0

A	σ		θ	
	0	1	0	1
1	2	5	1	0
2	3	6	0	0
3	1	6	1	0
4	2	5	0	0
5	6	1	1	0
6	3	2	0	0

$$\{1; 3; 5\} \quad \{2; 4; 6\}$$

$21 \ 12 \ 21 \quad 12 \ 21 \ 12 \quad \text{ne-natur}$

$$(1) \{1; 5\} \quad \{3\} (2)$$

$31 \ 31 \ 13 \quad 23 \ 31 \ 23$

$$(3) \{2; 6\} \quad \{4\} (4)$$

A	σ		θ	
	0	1	1	0
1	3	1	1	0
2				
3				
4				

- Realizujte konečný automat pomocí klopového obvodu s prodlevací.

A	\bar{y}		y	
	0	1	0	1
1	5	6	0	1
2	1	3	0	1
3	7	6	1	1
4	5	3	1	1
5	1	2	1	1
6	7	5	0	1
7	3	2	0	1

① REDUKCE:

$$\{1, 2, 6, 7\} \{3, 4, 5\}$$

21 12 12 21

$$\{1, 7\} \{2, 6\} \{3, 5\} \{4\}$$

32 32 13 13

00 01 10 11

A	0	1	0	1
1	3	2	0	1
2	1	3	0	1
3	1	2	1	1
4	3	3	1	1

② BOOLEOVSKÁ TABULKA pro zredukovaný automat:

A	x_1	x_2	y	x_1'	x_2'	y'
1	0	0	0	1	0	0
	0	0	1	0	1	1
2	0	1	0	0	0	0
	0	1	1	1	0	1
3	1	0	0	0	0	1
	1	0	1	0	1	1
4	1	1	0	1	0	1
	1	1	1	1	0	1

③ DNF pro x_1' , x_2' , y'

$$DNF_{x_1'} = \bar{x}_1 \bar{x}_2 \bar{y} \vee \bar{x}_1 x_2 y \vee x_1 x_2 \bar{y} \vee x_1 x_2 y$$

$$DNF_{x_2'} = \bar{x}_1 \bar{x}_2 y \vee x_1 \bar{x}_2 y$$

$$DNF_{y'} = \bar{x}_1 \bar{x}_2 y \vee \bar{x}_1 x_2 y \vee x_1 \bar{x}_2 \bar{y} \vee x_1 \bar{x}_2 y \vee x_1 x_2 \bar{y} \vee x_1 x_2 y$$

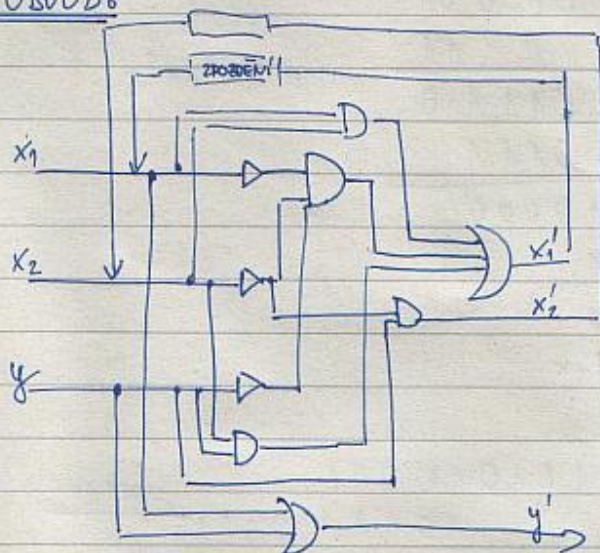
④ ZJEDNODUŠENÍ FORM DNF:

$$\begin{array}{l} 000 \\ 011 \\ 110 \\ 111 \end{array} \begin{array}{l} 000 \\ -11- \\ 11- \\ 111 \end{array} \left. \begin{array}{l} \rightarrow DNF_{x_1'}^* = \bar{x}_1 \bar{x}_2 \bar{y} \vee x_2 y \vee x_1 x_2 \\ DNF_{x_2'}^* = \bar{x}_2 y \\ DNF_{y'}^* = x_1 \vee y \end{array} \right\}$$

$$\left[\begin{array}{l} 001 \\ 101 \end{array} \right] -01$$

$$\begin{array}{l} 001 \\ 100 \\ 011 \\ 101 \\ 110 \\ 111 \end{array} \begin{array}{l} 0-1 \\ -01 \\ 10- \\ 1-0 \\ -11 \\ 1-1 \end{array} \begin{array}{l} 1-- \\ -1- \\ 1-1 \\ 11- \end{array}$$

(5) OBVOD:



$$f = 1 + x + x^4 + x^5$$

$$g = x + x^2 + x^4 + x^5 + x^6$$

$$f + g = 1 + x^2 + x^6$$

PÍTÁNÍ

$$(0; 1; 4; 5) + (1; 2; 4; 5; 6) = (0; 2; 6) \quad 1 + x^2 + x^6$$

$$f = 1 + x^2$$

$$g = 1 + x + x^3$$

$$f \cdot g = (1 + x^2)(1 + x + x^3) = 1 + x + x^2 + x^2 + x^3 + x^5$$

$$= 1 + x + x^2 + x^3 + x^5$$

$$(0; 2)(0; 1; 3) = (0; 1; 3; 2; 3; 5)$$

NÁSOBENÍ

$$f = 1 + x^2 + x^3$$

$$g = 1 + x^2$$

$$\rightarrow 1011$$

$$\rightarrow \begin{array}{r} 101 \\ 1110 \end{array}$$

$$1110$$

$$101$$

$$010$$

zbytek x

 \rightarrow jednotky každé mocniny jsou

$$\frac{11}{1+x}$$

$$(1+x)(1+x^2) + x$$

$$(01)(02) = 0, 2, 1; 3$$

$$\begin{array}{r} 1 \\ 023 \\ 1x^2x^3 \end{array}$$

DĚLENÍ

• $f = 1 + x^2 + x^3 + x^5 + x^8$
 $g = x + x^2 + x^3$

$$\begin{array}{r}
 101101001 \\
 \underline{0111} \\
 01110 \\
 \underline{0111} \\
 10110000 \\
 \underline{0111} \\
 1100 \\
 \text{zbo } 1+x
 \end{array}$$

$$\begin{array}{r}
 100011 \\
 \hline
 1+x^4+x^5
 \end{array}$$

• $f = x + x^3 + x^5 + x^8 + x^9$
 $g = 1 + x^2 + x^3 + x^5$

$$\begin{array}{r}
 0101010011 \\
 \underline{10111} \\
 00100 \\
 10111 \\
 000110
 \end{array}$$

$$\begin{array}{r}
 01101 \\
 \hline
 \end{array}$$