## Pontifícia Universidade Católica de Minas Gerais

# Disciplina: Arquitetura de Computadores I

# Mapa de Veitch

m	mintermo	а	b	С	S
0	(~a&~b&~c)	0	0	0	0
1	(~a&~b& c)	0	0	1	0
2	(~a& b&~c)	0	1	0	0
3	(~a& b& c)	0	1	1	1
4	( a&~b&~c)	1	0	0	1
5	( a&~b& c)	1	0	1	0
6	( a& b&~c)	1	1	0	1
7	( a& b& c)	1	1	1	1

SoP (3,4,6,7)

a \ bc		~b				b		
	000		001		011		010	
~a		~a & ~b & ~c		~a & ~b & c		~a & b & c		~a & b & ~c
	100		101		111		110	
a 		a & ~b & ~c		a & ~b & c		a&b&c		a & b & ~c
		0		0				
a 		a & ~b & ~c ~c		a & ~b & c		a & b & c		a & b &

SoP  $(3,4,6,7) = \sum m (3,4,5,7) = (-a \& b \& c) | (a \& -b \& -c) | (a \& b \& -c) | (a \& b \& c)$ 

a \ bc			~b						b			
0	000	0	0	001	0	1	011	1	3	010	0	2
1	100	1	4	101	0	5	111	1	7	110	1	6
		~C		נ		С					~C	

SoP 
$$(3,4,6,7) = (b \& c) | (a \& ~c)$$

O grupo (a & b) é redundante (e será desprezado).

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# Mapa de Karnaugh

m	MAXTERMO	а	b	С	S
0	A  B  C	0	0	0	0
1	A   B   ~C	0	0	1	0
2	A   ~B   C	0	1	0	0
3	A   ~B   ~C	0	1	1	1
4	~A  B  C	1	0	0	1
5	~A   B   ~C	1	0	1	0
6	~A   ~B   C	1	1	0	1
7	~A   ~B   ~C	1	1	1	1

PoS (0,1,2,5)

A \ BC		В				~B		
	000		001		011		010	
Α		A   B   C		A   B   ~C		A   ~B   ~C c		A   ~B   C
	100		101		111		110	
~A		~A   B  C		~A   B   ~C		~A   ~B   ~C		~A   ~B   C
		С		~C				С

PoS  $(0,1,2,5) = \prod M (0,1,2,5) = (A|B|C) & (A|B|\sim C) & (A|\sim B|C) & (\sim A|B|\sim C)$ 

A\BC			В						~B			
Α	000	0	0	001	0	1	011	1	3	010	0	2
~A	100	1	4	101	0	5	111	1	7	110	1	6
		С				~C					С	

PoS  $(0,1,2,5) = (A \mid C) & (B \mid \sim C)$ 

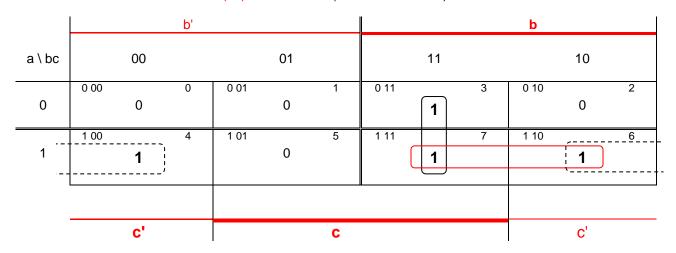
O grupo ( A | B ) é redundante (e será desprezado).

# Mapa de Veitch-Karnaugh para 3 variáveis

m	mintermo	а	b	С	s
0	a'.b'.c'	0	0	0	0
1	a'.b'.c	0	0	1	0
2	a'.b.c'	0	1	0	0
3	a'.b .c	0	1	1	1
4	a .b'.c'	1	0	0	1
5	a .b'.c	1	0	1	0
6	a .b .c'	1	1	0	1
7	a .b .c	1	1	1	1

SoP (3,4,6,7) = bc + ab + ac'

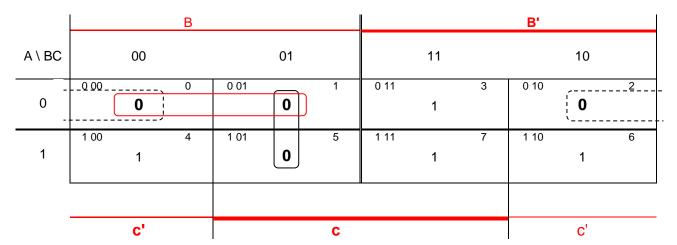
## (ab) é redundante (e será descartado)



PoS(0,1,2,5) = (B+C').(A+C) = BA+BC+C'A+C'C = BA+BC+C'A+0 = BA+BC+C'A

PoS(0,1,2,5) = (B+C').(A+B).(A+C) = (BA+BB+C'A+C'B).(A+C) = (B+C'A).(A+C) = BA+BC+C'A

(A+B) é redundante (e será descartado)



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Mapa de Veitch-Karnaugh para 4 variáveis

m	mintermo	а	b	С	d	S
0	a'.b'.c'.d'	0	0	0	0	1
1	a'.b'.c'.d	0	0	0	1	0
2	a'.b'.c .d'	0	0	1	0	0
3	a'.b' .c .d	0	0	1	1	1
4	a'.b .c'.d'	0	1	0	0	1
5	a'.b .c'.d	0	1	0	1	0
6	a'.b .c.d'	0	1	1	0	1
7	a'.b .c.d	0	1	1	1	1
8	a .b'.c'.d'	1	0	0	0	1
9	a .b'.c'.d	1	0	0	1	0
10	a .b'.c .d'	1	0	1	0	0
11	a .b' .c .d	1	0	1	1	1
12	a .b .c'.d'	1	1	0	0	0
13	a .b .c'.d	1	1	0	1	0
14	a .b .c.d'	1	1	1	0	1
15	a .b .c.d	1	1	1	1	1

SoP (0,3,4,6,7,8,11,14,15)

PoS (1,2,5,9,10,12,13)

			C'							
	ab\cd		00	0	1		11	10	0	
	00	00 00	0	00 01	1	00 11	3	00 10	2	b'
a'	01	01 00	4	01 01	5	01 11	7	01 10	6	b
а	11	11 00	12	11 01	13	11 11	15	11 10	14	
	10	10 00	8	10 01	9	10 11	11	10 10	10	b'
			d'		d			d	•	

SoP (0,3,4,6,7,8,11,14,15) SoP = bc+cd+a'bd'+b'c'd'

		c'			С	
	ab\cd	00	01	11	10	
	00	00 00 0	00 01 1	00 11 3	00 10 2	b'
a'	01 -	1 )	01 01 5	01 11 7	01 10 6	b
a	11	11 00 12 0	11 01 13	11 11 15 <b>1</b> 5	11 10 14 14	
	10	10 00 8	10 01 9	10 11 11	10 10 10	b'
	_	: :				•
		d'	d		d'	

PoS (1,2,5,9,10,12,13) = (C+D').(B+C'+D).(A'+B'+C)

			С								C'			
	AB\CD		00			01			11			10		
	00	00 00	1	0	00 01	0	1	00 11	1	3	00 10	0	2	В
Α	01	01 00	1	4	01 01	0	5	01 11	1	7	01 10	1	6	B'
Α'	11	11 00	0	12	11 01	0	13	11 11	1	15	11 10	1 <b>1</b>	4	
	10	10 00	1	8	10 01	0	9	10 11	1	11	10 10	0	0	В
												,		
			D			_	D'					D		