

		y		
		0	1	
x	0			x=0
	1			x=1
		y=0	y=1	

x	y	
0	0	x'y'
0	1	x'y
1	0	xy'
1	1	xy

		y'	y	
		0	1	
x'	0	x'y'	x'y	
x	1	xy'	xy	

		0	1	
0		m0	m1	x=0
1		m2	m3	x=1
		y=0	y=1	

		y'	y	
		0	1	
x'	0	x'		
x	1			

		y'	y	
		0	1	
x'	0			
x	1	x		

$$x'y' + x'y = x'(y'+y) = x'$$

		y'	y	
		0	1	
x'	0	y'		
x	1			

		y'	y	
		0	1	
x'	0		y	
x	1			

		0	1	
0		1		
1				

$$f(x,y) = x$$

		0	1	
0		1		
1		1		

$$f(x,y) = x'y' + xy' = y'$$

		y=0	y=1		
		00	01	11	
x=0	0	x'y'z'	x'y'z	x'yz	x'yz'

x	y	z		
0	0	0	x'y'z'	m0
0	0	1	x'y'z	m1
0	1	0	x'yz'	m2
0	1	1	x'yz	m3
1	0	0	xy'z'	m4
1	0	1	xy'z	m5

x=1	1	xy'z'	xy'z	xyz	xyz'
		z=0		z=1	

1	1	0	xyz'	m6
1	1	1	xyz	m7

		y=0		y=1		
		00	01	11	10	
x=0	0					
x=1	1	x				
		z=0		z=1		z=0

		y=0		y=1		
		00	01	11	10	
x=0	0	x'y'z'	x'y'z	x'yz	x'yz'	
x=1	1	xy'z'	xy'z	xyz	xyz'	
		z=0		z=1		z=0

x	y	z	f(x,y,z) = z
0	0	0	
0	0	1	1
0	1	0	
0	1	1	1
1	0	0	
1	0	1	1
1	1	0	
1	1	1	1

$$x'y'z' + x'yz' + xy'z' + xyz' = z'(x'y' + x'y + xy' + xy) = z'(x'(y' + y) + x(y' + y))$$

		y=0		y=1		
		00	01	11	10	
x=0	0	x'y'z'	x'y'z	x'yz	x'yz'	
x=1	1	xy'z'	xy'z	xyz	xyz'	
		z=0		z=1		z=0

z'

		y=0		y=1		
		00	01	11	10	
x=0	0	x'y'z'	x'y'z	x'yz	x'yz'	
x=1	1	xy'z'	xy'z	xyz	xyz'	
		z=0		z=1		z=0

y=0 y'

		y	
		0	1
x	0	m0	m1
	1	m2	m3

		y=0		y=1	
		00	01	11	10
x=0	0	x'y'z'	x'y'z	x'yz	x'yz'
x=1	1	xy'z'	xy'z	xyz	xyz'
		z=0	z=1		z=0

		y=0		y=1	
		00	01	11	10
x=0	0	m0	m1	m3	m2
x=1	1	m4	m5	m7	m6
		z=0	z=1		z=0

		0	1
		f=xy	
x	0		
	1		1

		0	1
		x+y	
x	0		1
	1	1	1

		0	1
		x	
x	0		1
	1	1	1

		0	1
		y	
x	0		1
	1	1	1

		y=0		y=1	
		00	01	11	10
x=0	0			1	1
x=1	1	1	1		
		z=0	z=1		z=0

		y=0		y=1	
		00	01	11	10
x=0	0			1	1
x=1	1	1	1		
		z=0	z=1		z=0

xy'z+ xyz+ x'yz+ x'yz'

		y=0		y=1	
		00	01	11	10
x=0	0			1	1
x=1	1	1	1		
		z=0	z=1		z=0

xy'

		y=0		y=1	
		00	01	11	10
x=0	0			1	1
x=1	1	1	1		
		z=0	z=1	z=0	

one cell --> 3 variables
 2 adj squares --> 2 variables
 4 adj squares --> 1 variable
 one
 one

		00	01	11	10
0				1	
1	1		1	1	

$yz+xz'$

		00	01	11	10
0				1	
1	1		1	1	

yz

		00	01	11	10
0				1	
1	1		1	1	

xy

		00	01	11	10
0				1	
1	1	1		1	1

xz'

$F(x,y,z) = \text{Sigma}(0,2,4,5,6) \quad F=z'+xy'$

		00	01	11	10
0	1				1
1	1	1			1

z'

	00	01	11	10
0	1			1
1	1	1		1

xy'

	00	01	11	10
0	1			1
1	1	1		1

$xy'z$

$f=z'+xy'z$

$F=A'C + A'B + AB'C + BC$

$F=C+A'B$

	00	01	11	10
0		1	1	
1				

A'C

	00	01	11	10
0		1	1	1
1		1	1	

	00	01	11	10
0			1	1
1				

A'B

	00	01	11	10
0		1	1	1
1		1	1	

C

	00	01	11	10
0				
1		1		

AB'C

	00	01	11	10
0		1	1	1
1		1	1	

A'B

	00	01	11	10
0			1	
1			1	

BC

	yz				
	00	01	11	10	
wx	00	m0	m1	m3	m2
	01	m4	m5	m7	m6
	11	m12	m13	m15	m14
	10	m8	m9	m11	m10

	yz				
	00	01	11	10	
wx	00	w'x'y'z'	w'x'y'z	w'x'yz	w'x'yz'
	01	w'xy'z'	w'xy'z	w'xyz	w'xyz'
	11	wxy'z'	wxy'z	wxyz	wxyz'
	10	wx'y'z'	wx'y'z	wx'yz	wx'yz'

	00	01	11	10
00				
01				
11				
10				

w

	00	01	11	10
00				
01				
11				
10				

y

	00	01	11	10
00				

	00	01	11	10
00				

z

01				
11				
10				

x

01				
11				
10				

	00	01	11	10
00				
01				
11				
10				

y'z'

	00	01	11	10
00				
01				
11				
10				

yz

	00	01	11	10
00				
01				
11				
10				

w'x'

	00	01	11	10
00				
01				
11				
10				

x'z'

	00	01	11	10
00				
01				
11				
10				

w'y'

	00	01	11	10
00				
01				
11				
10				

w'z'

	00	01	11	10
00				
01				
11				
10				

xz

	00	01	11	10
00				
01				
11				
10				

w'z'

$$F(w,x,y,z) = \text{Sum}(0,1,2,4,5,6,8,9,12,13,14) = y'+w'z'+xz'$$

	00	01	11	10
00	1	1		1
01	1	1		1
11	1	1		1
10	1	1		

	00	01	11	10
00	1	1		1
01	1	1		1
11	1	1		1
10	1	1		

y'

	00	01	11	10
00	1	1		1
01	1	1		1
11	1	1		1
10	1	1		

w'z'

	00	01	11	10
00	1	1		1
01	1	1		1
11	1	1		1
10	1	1		

xz'

		y	
		0	1
0			
1			

		00	01	11	10
0		x'y'z'	x'y'z	x'yz	x'yz'
1		xy'z'	xy'z	xyz	xyz'

		00	01	11	10
0		m0	m1	m3	m2
1		m4	m5		m6

		00	01	11	10
0		1			
1		1			

y'z'

		00	01	11	10
0					
1					

$$x'yz + xyz = yz(x' + x) = yz$$

		00	01	11	10
0					
1					

x'z

		00	01	11	10
0					
1					

x=0
x=1

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
0		x'y'z'	x'y'z		
1		xy'z'	xy'z		

y=0 y'

x=0
x=1

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
0		x'y'			
1		xy'			

$$x'y'z' + x'y'z = x'y'(z+z') = x'y'$$

x=0
x=1

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
0		y'			
1		y'			

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
x=0	0		1	1	
x=1	1		1	1	

z

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
x=0	0				
x=1	1	1	1	1	1

x'

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
x=0	0	1	1	1	1
x=1	1				

x'

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
x=0	0		1	1	
x=1	1		1	1	

z

x=0
x=1

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
x=0	0	1			1
x=1	1	1			1

z'

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
x=0	0		1	1	
x=1	1				

x'z

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
x=0	0			1	1
x=1	1	1	1		

x'y+xy'

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
x=0	0			1	1
x=1	1				

x'y

		yz=00	yz=01	yz=11	yz=10
		00	01	11	10
x=0	0				
x=1	1	1	1		

xy'

$$F(x,y,z) = \text{Sum}(3,4,6,7)$$

		yz=00	yz=01	yz=11	yz=10	
		00	01	11	10	
x=0	0			1		yz+xz'
x=1	1	1		1	1	

		yz=00	yz=01	yz=11	yz=10	
		00	01	11	10	
x=0	0			1		yz
x=1	1	1		1	1	

		yz=00	yz=01	yz=11	yz=10	
		00	01	11	10	
x=0	0			1		xy
x=1	1	1		1	1	

		yz=00	yz=01	yz=11	yz=10	
		00	01	11	10	
x=0	0			1		xz'
x=1	1	1		1	1	

$$F(x,y,z) = \text{Sum}(0,2,4,5,6) = z' + xy'$$

		yz=00	yz=01	yz=11	yz=10	
		00	01	11	10	
x=0	0	1			1	z'
x=1	1	1	1		1	

		yz=00	yz=01	yz=11	yz=10	
		00	01	11	10	
x=0	0	1			1	xy'
x=1	1	1	1		1	

		yz=00	yz=01	yz=11	yz=10	
		00	01	11	10	
x=0	0	1			1	xy'
x=1	1	1	1		1	

$$F = A'C + A'B + AB'C + BC = C + A'B$$

	00	01	11	10	
0		1	1		A'C
1					

	00	01	11	10	
0		1	1	1	
1		1	1		

	00	01	11	10	
0			1	1	A'B
1					

	00	01	11	10	
0		1	1	1	C
1		1	1		

	00	01	11	10	
0					AB'C
1		1			

	00	01	11	10	
0		1	1	1	A'B
1		1	1		

	00	01	11	10	
0			1		BC
1			1		

		yz			
	00	01	11	10	
wx	00	m0	m1	m3	m2
	01	m4	m5	m7	m6
	11	m12	m13	m15	m14
	10	m8	m9	m11	m10

		yz			
	00	01	11	10	
wx	00	w'x'y'z'	w'x'y'z	w'x'yz	w'x'yz'
	01	w'xy'z'	w'xy'z	w'xyz	w'xyz'
	11	wxy'z'	wxy'z	wxyz	wxyz'
	10	wx'y'z'	wx'y'z	wx'yz	wx'yz'

$$F(w,x,y,z) = \text{Sum}(0,1,2,4,5,6,8,9,12,13,14) = y' + w'z' + xz'$$

	00	01	11	10	
00	1	1		1	
01	1	1		1	
11	1	1		1	
10	1	1			

	00	01	11	10	
00	1	1		1	y'
01	1	1		1	
11	1	1		1	
10	1	1			

	00	01	11	10	
00	1	1		1	w'z'
01	1	1		1	
11	1	1		1	
10	1	1			

	00	01	11	10	
00	1	1		1	xz'
01	1	1		1	
11	1	1		1	
10	1	1			