Minimize $F(a,b,c) = \Sigma m(0,1,3,4,5,7)$

a \ bc	00	01	11	10
0	1	1	1	
1	1	1	1	

K-map we can clearly see opt. possibilities

$F = b' + c$

What about Quine McCluckey?

G0	(0)	000 ✓
G1	(1)	001 ✓
	(4)	100 ✓
G2	(3)	011
	(5)	101 ✓
G3	(7)	111

0,1 Y
0,4 Y
1,3 Y
1,5 Y
4,3 N
4,5 Y
3,7 Y
5,7 Y

G0	(0,1)	00- ✓
	(0,4)	-00 ✓
G1	(1,3)	0-1 ✓
	(1,5)	-01 ✓
	(4,5)	10- ✓
G2	(3,7)	-11 ✓
	(5,7)	1-1 ✓

G0	(0,1,4,5)	-0-
G1	(1,3,5,7)	--1

	0	1	3	4	5	7
0,1,4,5	X	X		X	X	
1,3,5,7		X	X		X	X
	epi			epi		epi

cover = 0,1,4,5 → -0- → b'
1,3,5,7 → --1 → c

$F = b' + c$

	0	1	3	4	5	7
~~0,1,4,5~~	X	X		X	X	
1,3,5,7		X	X		X	X

all minterms covered!

$\boxed{F = b' + c}$

Minimize the follow k-map using Quine McCluskey

a \ bc	00	01	11	10
0	0 1	1 1	3	2 1
1	4	5 1	7 1	6 1

G0	(0)	000 ✓
G1	(1)	001 ✓
	(2)	010 ✓
G3	(5)	101 ✓
	(6)	110 ✓
G4	(7)	111 ✓

G0	(0,1)	00 –
	(0,2)	0 – 0
G1	(1,5)	–01
	(2,6)	–10
G3	(5,7)	1–1
	(6,7)	11–

		0	1	2	5	6	7
P1	0,1	X	X				
P2	0,2	X		X			
P3	1,5		X		X		
P4	2,6			X		X	
P5	5,7				X		X
P6	6,7					X	X

no essentials - how to choose?

$$\text{cover} = (m0)(m1)(m2)(m5)(m6)(m7)$$

$$= (P1+P2)(P1+P3)(P2+P4)(P3+P5)(P4+P6)(P5+P6)$$

$$P1P1 + P1P3 + P1P2 + P2P3$$

$P1$ X X ok

$$P4P5 + P4P6 + P5P6 + P6P6$$

ok X X $P6$

$$= (P1+P2P3)(P2+P4)(P3+P5)(P4P5+P6)$$

$$P1P2 + P1P4 + P2P2P3 + P2P3P4$$

ok ok $P2P3$ X

$$P3P4P5 + P3P6 + P4P5P5 + P5P6$$

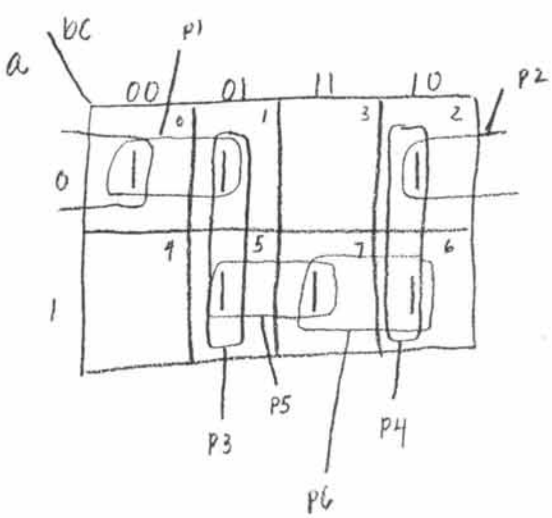
X ok $P4P5$ ok

$$= (P1P2 + P1P4 + P2P3)(P3P6 + P4P5 + P5P6)$$

$$= \underbrace{P1P2P3P6}_{X_{236}} + \underbrace{P1P2P4P5}_{X_{145}} + P1P2P5P6 + P1P3P4P6 + \underbrace{P1P4P4P5}_{P1P4P5} +$$

$$\underbrace{P1P4P5P6}_{X_{145}} + \underbrace{P2P3P3P6}_{P2P3P6} + P2P3P4P5 + \underbrace{P2P3P5P6}_{X_{236}}$$

$$= P1P2P5P6 + P1P3P4P6 + P1P4P5 + P2P3P6 + P2P3P4P5$$



$$P1P4P5 \rightarrow (0,1), (2,6), (5,7)$$

$$\boxed{F = a'b' + bc' + ac}$$

$$P2P3P6 \rightarrow (0,2), (1,5), (6,7)$$

$$\boxed{F = a'c' + b'c + ab}$$