In-class Exercise 4

(PAR 8)

- Use recursive consensus method to find the complete sum of
  - F(w, x, y, z) = wx + x'y + xyz

$$= [x_1' + f(1, x_2, \ldots, x_n)] \bullet [x_1 + f(0, x_2, \ldots, x_n)]$$

- Given the following constraint matrix, use row and column dominance to determine the minimum cover

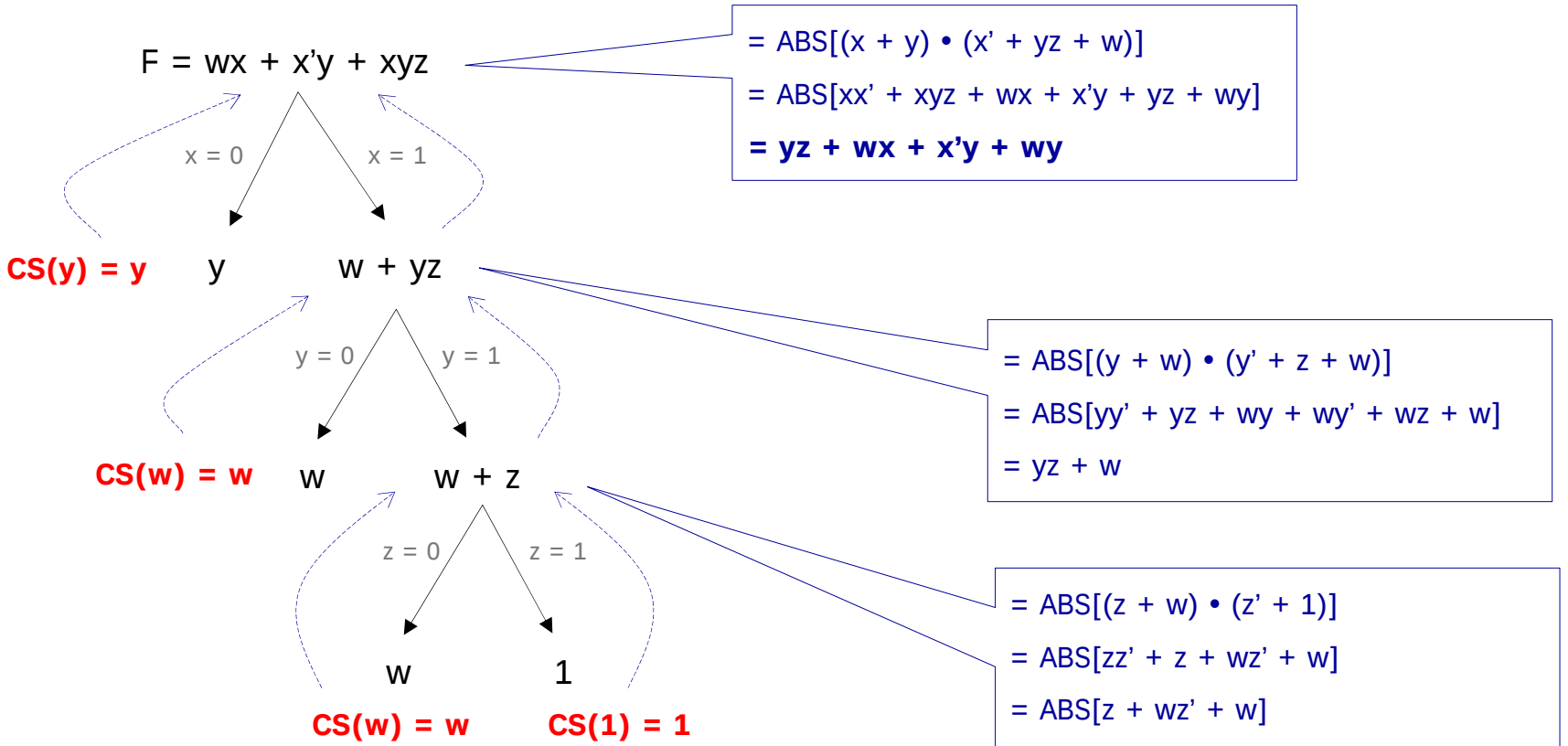
	P1	P2	P3	P4
M1	1	1	1	0
M2	1	1	0	0
M3	0	1	1	0
M4	0	1	0	1
M5	0	0	0	1

In-class Exercise 4

(PAR 8)

- Use recursive consensus method to find the complete sum of
  - F(w, x, y, z) = wx + x'y + xyz

$= [x_1' + f(1, x_2, \ldots, x_n)] \bullet [x_1 + f(0, x_2, \ldots, x_n)]$



= ABS[(x + y) • (x' + yz + w)]

= ABS[xx' + xyz + wx + x'y + yz + wy]

= yz + wx + x'y + wy

= ABS[(y + w) • (y' + z + w)]

= ABS[yy' + yz + wy + wy' + wz + w]

= yz + w

= ABS[(z + w) • (z' + 1)]

= ABS[zz' + z + wz' + w]

= ABS[z + wz' + w]

= z + w

In-class Exercise 4

(PAR 8)

- Alternative - use iterated consensus to find the complete sum
  - F(w, x, y, z) = wx + x'y + xyz

$F(w,x,y,z) = wx + x'y + xyz$

$wx + x'y \rightarrow wy$

$wx + xyz \rightarrow$ NO

$x'y + xyz \rightarrow yz$

$F(w,x,y,z) = wx + x'y + xyz + wy + yz$

skip pair done above

$wx + wy \rightarrow$ NO

$wx + yz \rightarrow$ NO

$x'y + wy \rightarrow$ NO

$x'y + yz \rightarrow$ NO

$xyz + wy \rightarrow$ NO

$xyz + yz \rightarrow$ NO

$wy + yz \rightarrow$ NO

$F(w,x,y,z) = wx + x'y + xyz + wy + yz$

Remove any term contained in another term

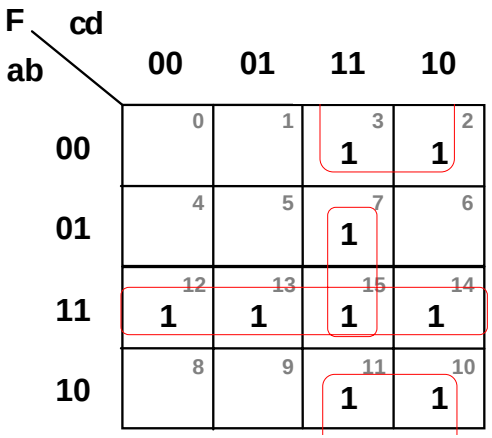
xyz in yz, remove xyz

$F(w,x,y,z) = wx + x'y + wy + yz$

In-class Exercise 4

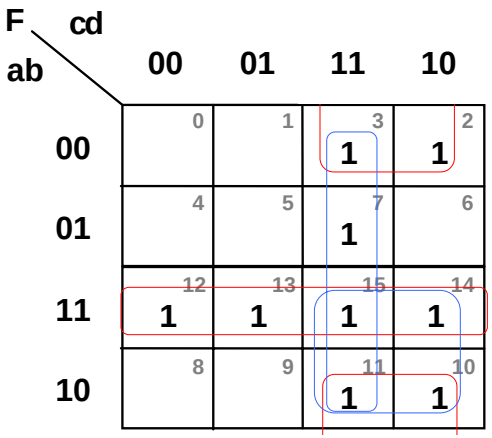
(PAR 8)

- We can also look at the k-map to verify



F(w, x, y, z) = wx + x'y + xyz

Not a complete sum



F(w, x, y, z) = wx + x'y + yz + wy

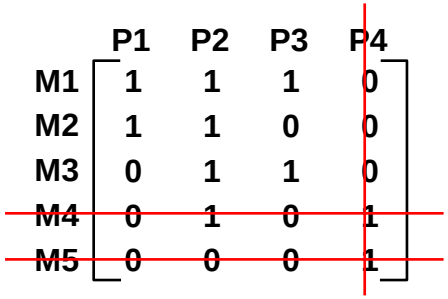
Complete sum

In-class Exercise 8 - Solution

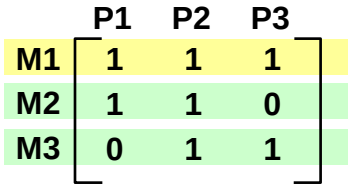
(PAR 10)

- Given the following constraint matrix, use row and column dominance to determine the minimum cover

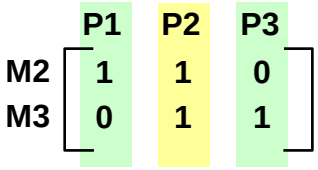
	P1	P2	P3	P4
M1	1	1	1	0
M2	1	1	0	0
M3	0	1	1	0
M4	0	1	0	1
M5	0	0	0	1



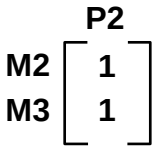
P4 is essential (only one to cover M5, as a bonus it also covers M4)
Remove P4, M5, M4



M1 dominates M2
M1 dominates M3
Remove M1



P2 dominates P1
P2 dominates P3
Remove P1, P3



Min Cover = P2 + P4