

# In-class Exercise 9

(PAR 13)

- Given  $F$  and  $R$ , compute the blocking matrix and the covering matrix with respect to  $c = 010$

$$F = \begin{bmatrix} 0 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 2 & 0 \end{bmatrix} \qquad R = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 0 & 2 \end{bmatrix}$$

- Provide all valid column covers of  $B$ . Which column cover is "best"?

$$B = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & 0 \end{bmatrix}$$

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- Given F and R, compute the blocking matrix and the covering matrix with respect to  $c = 010$

$$\begin{array}{r} \mathbf{F} = \\ \mathbf{R} = \end{array} \begin{array}{ccc} 0 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 2 & 0 \end{array} \quad \begin{array}{r} \\ \\ \end{array} \begin{array}{ccc} 1 & 1 & 1 \\ 0 & 0 & 2 \end{array}$$

$$\mathbf{B} = \begin{array}{ccc} 1 & 0 & 1 \\ 0 & 1 & 0 \end{array}$$

$$\mathbf{C} = \begin{array}{ccc} 0 & 0 & 0 \\ 1 & 1 & 1 \\ 0 & 0 & 1 \\ 1 & 1 & 0 \end{array}$$

- Provide all valid column covers of B. Which column cover is “best”?

$$\mathbf{B} = \begin{array}{ccc} 1 & 1 & 1 \\ 1 & 1 & 0 \end{array}$$

$$\mathbf{L} = \{1\}, \{2\}, \{1,2\}, \{1,3\}, \{2,3\}, \{1, 2, 3\}$$

Either {1} or {2} is “best” because it yields the largest expanded cube