(1) Find minimal set of FDs.

A) already in canonical form.

B) Any redundant left-hand side?

- $BN \not\rightarrow M$ test $\{B\}^+ = \{BMD\}$
- So we can remove D; but not N nor D

$\Rightarrow BN \rightarrow M$

- $BM \rightarrow D$ test $\{B\}^+ = \{BMD$
- So we can remove M!

$B \rightarrow D$

So we now have:

$B \rightarrow M$, $BN \rightarrow D$, $B \rightarrow D$

c) Any redundant FDs?

Yes $BN \rightarrow D$ can be generated from

$B \rightarrow D$, $B \rightarrow M$

Why? $\{BN\}^+ = \{BDM\}$.

Minimal Cover

$B \to D$

$B \to M$

Decompose.

$R_1 = BD$ $\quad\quad$ $R_2 = BM$

$B \to D$ $\quad\quad$ $B \to M$.

$R_1$ nor $R_2$ contain a SK. So add a relation with a candidate key

$R_3 = BN$ with NO FD.

We have decomposed the relation into a set of BCNF tables (in this case) that is

- Lossless join and FD preserving!!

$R_1 = BD$ $\quad$ $R_2 = BM$ $\quad$ $R_3 = BN$.

$B \to D$ $\quad$ $B \to M$