Example of Computing a Minimal Cover

Let R = R(A, B, C, D, E, G, H)
F = {1. CD → AB,
2. C → D,
3. D → EH,
4. AE → C,
5. A → C,
6. B → D}.

The process of computing a minimal cover of F is as follows:

(1) Break down the right hand side of each fd's.
After performing step (1) in the algorithm, we get
F′ = {
1. CD → A,
2. CD → B,
3. C → D,
4. D → E,
5. D → H,
6. AE → C,
7. A → C,
8. B → D
}.

(2) Eliminate redundancy in the left hand side by eliminating redundant attributes:
The fd 1.CD → A is replaced by C → A.
This is because C → D a (F′) + , hence C → CD a (F′) + ;
from C → CD a (F′) + and CD → A a F′, by transitivity, we hav e C → A a (F′) +
and hence CD → A should be replaced by C → A.

Similarly for fd 2. : CD → B is replaced by C → B,

Similarly for fd 6. : AE → C is replaced by A → C.

F′ = {1. C → A, 2. C → B, 3. C → D, 4. D → E, 5. D → H, 6. A → C, 7. B → D}
after step (2).

(3) Remove redundant fd's. The fd C → D is eliminated because it can be derived from C → B and B → D and hence it is redundant.

The F′ now becomes **{1. C → A, 2. C → B, 3. D → E, 4. D → H, 5. A → C, 6. B → D}**, which is the only minimal cover of F.