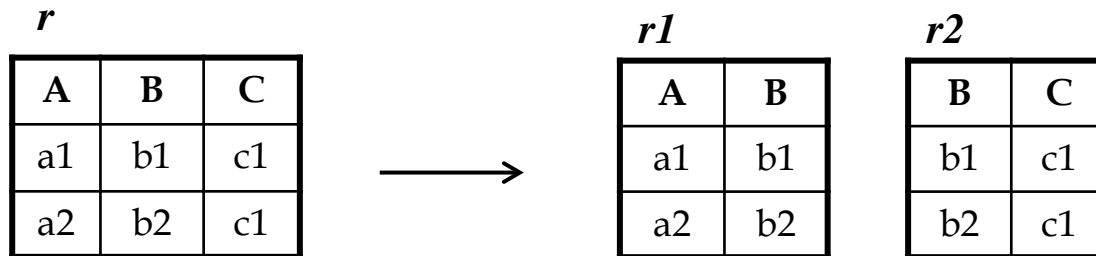


Example

- Consider $R(A, B, C)$ with FDs $F = \{ B \rightarrow C, AC \rightarrow B \}$.
- Decomposition $\{R_1(A, B), R_2(B, C)\}$ is not dependency preserving
 - Non-trivial FDs in $F_{R_1} = \emptyset$
 - Non-trivial FDs in $F_{R_2} = \{B \rightarrow C\}$
 - $AC \rightarrow B$ is not preserved because it is not in $(F_{R_1} \cup F_{R_2})^+$



- Inserting a new tuple $(a1, b2, c1)$ into r will violate $AC \rightarrow B$
- But inserting $(a1, b2)$ into r_1 and $(b2, c1)$ into r_2 does not violate any FDs in F_{R_1} and F_{R_2} respectively
- Need to compute $r_1 \otimes r_2$ to detect violation of $AC \rightarrow B$