

Tutorial: Normal Forms and Normalisation

1. Consider $R = \{A, B, C, D, E\}$ with $\Sigma = \{\{A\} \rightarrow \{A, B, C\}, \{A, B\} \rightarrow \{A\}, \{B, C\} \rightarrow \{A, D\}, \{B\} \rightarrow \{A, B\}, \{C\} \rightarrow \{D\}\}$
 - (a) What preliminary work is needed to study the normalisation of R with Σ ?
 - (b) Is R with Σ in 3NF?
 - (c) Is R with Σ in BCNF?
 - (d) Decompose R with Σ into a BCNF decomposition using the algorithm from the lecture.
 - (e) Is the results lossless?
 - (f) Is the results dependency preserving?
 - (g) Synthesise R with Σ into a 3NF decomposition using the algorithm from the lecture.
 - (h) Is the results lossless?
 - (i) Is the results dependency preserving?
 - (j) Is the results in BCNF?