

CS277 – Relational Database Systems

Homework 6 (Due on Nov 24 2003)

- Show a chase sequence for the following tableau and dependencies $\Sigma = \{ AB \rightarrow C, \infty[AB,AC] \}$. (You must repeatedly apply a chase step until no more dependencies in Σ can be applied.)

<u>A</u>	<u>B</u>	<u>C</u>
w	x	y
w	u	v
w	x	z

- Let $R(A,B,C,D)$ be a relation schema and let $\Sigma = \{ AB \rightarrow C, D \rightarrow B \}$. Give an example of two queries Q_1 and Q_2 where $Q_1 =_{\Sigma} Q_2$ but $Q_1 \neq Q_2$. In your answer, instead of simply stating two queries Q_1 and Q_2 , show why $Q_1 =_{\Sigma} Q_2$ and why $Q_1 \neq Q_2$.
- Let Σ and Σ' be non-empty sets of FDs and JDs over R , and let (T, t) be a tableau query over R . Show the following
 - If $\Sigma \equiv \Sigma'$, then $\text{chase}(T, t, \Sigma)$ and $\text{chase}(T, t, \Sigma')$ coincide (i.e., there is one chase sequence of (T, t) with Σ and one chase sequence of (T, t) with Σ' for which $\text{chase}(T, t, \Sigma) = \text{chase}(T, t, \Sigma')$).