

$$(4a) \quad KB = \{(A \vee B) \rightarrow C, A\}$$

$$(A \vee B) \rightarrow C \Rightarrow \neg(A \vee B) \vee C$$

$$\neg(A \vee B) \Rightarrow \neg A \wedge \neg B$$

$$(\neg A \wedge \neg B) \vee C \Rightarrow (\neg A \vee C) \wedge (\neg B \vee C)$$

$(\neg A \vee C) \wedge (\neg B \vee C)$ is in CNF

$$\neg A \vee C \Rightarrow A \rightarrow C$$

$$\frac{A, \quad A \rightarrow C}{C}$$

46 $KB = \{A \vee B, B \rightarrow C, (A \vee C) \rightarrow D\}$

$B \rightarrow C \Rightarrow \neg B \vee C$ is in CNF

$(A \vee C) \rightarrow D \Rightarrow \neg(A \vee C) \vee D \Rightarrow (\neg A \wedge \neg C) \vee D$

$(\neg A \vee D) \wedge (\neg C \vee D)$ is in CNF

$$\begin{array}{r} A \vee B, \neg A \vee D \\ \hline B \vee D \end{array} \quad \downarrow$$
$$\begin{array}{r} \neg B \vee C, B \vee D \\ \hline C \vee D \end{array} \quad \downarrow$$
$$\begin{array}{r} \neg C \vee D, C \vee D \\ \hline D \end{array}$$