

Deduction Systems

Tutorial 3

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Exercise 3.1. One of the optimization techniques in tableaux procedures is absorption. What is the goal of applying this technique? Apply absorption to the TBox $\mathcal{T} = \{A \sqsubseteq B, B \equiv C \sqcap D, C \sqcap A \sqsubseteq E, D \sqcap E \sqsubseteq A\}$.

Exercise 3.2. Markus wants to apply the tableau algorithm for checking the satisfiability of the concept $B \sqcap \exists r^-.A$ w.r.t. the TBox $\{A \sqsubseteq \exists r^-.A \sqcap \exists r.B, \top \sqsubseteq \leq 1 r\}$. He arrives at the situation depicted below and concludes that no further rules are applicable, since v_2 is blocked by v_1 . What is Markus' error? Continue the algorithm until its termination. (You don't have to illustrate all intermediate steps, just provide the final state.)

