Assignment 1

Programming Theory

This assignment is worth 1 point in the final exam, and the deadline is 18th of November, 2008.
Details on how to submit the assignment are to be found on the course homepage. Proofs should be presented in the same style as in the compendium. It is not necessary to show the steps involving application of commutativity and associativity.

Assignment 1 (25%) Prove the theorem

\[(p \land (p = q)) = (p \land q)\]

using the axioms and inference rules of Section 1 in the compendium.

Assignment 2 (25%) Prove

\[((p \Rightarrow q) \land (q \Rightarrow r)) \Rightarrow (p \Rightarrow r)\]

using the axioms and inference rules of Section 1 in the compendium.

Assignment 3 (50%) Prove the theorem

\[m_1 \leq m_2 \leq m_3 \Rightarrow \left( x \in b[m_1 : m_2] \lor x \in b[m_2 : m_3] \Rightarrow x \in b[m_1 : m_3] \right)\]

using the axioms, theorems and inference rules of Section 1, 2, 4 and 8 in the compendium.