

Logic 1, WS 2007. Homework 1, given Oct 11, due Oct 18

1. Prove by definition that for any propositional formulae $\phi_1, \dots, \phi_n, \psi$:
if the formula $\phi_1 \wedge \dots \wedge \phi_n \Rightarrow \psi$ is valid,
then $\phi_1, \dots, \phi_n \models \psi$.
2. Compute the truth value of the formula $(A \vee B) \Rightarrow C$ and compare the semantic function with the semantic function of the formula $(A \Rightarrow C) \wedge (B \Rightarrow C)$ (which was computed during the lecture).
3. Give equivalent formulae for all logical connectives when one of the operands is \mathbb{F} .
4. (optional) Give a formal proof of the correctness for the resolution inference rule.
5. Find the truth value of $\vee \emptyset$ (the empty disjunction).