Philosophy 134
Spring, 2007
Homework 1

Due: April 11, 2007, in class

1. Complete Case 4 in the argument from mathematical induction for Bivalence in *SI*.

2. Prove that if α and β are semantically equivalent, then $\{\alpha\} \vDash_{SI} \beta$ and $\{\beta\} \vDash_{SI} \alpha$.

3. Prove the following meta-theorem for *SD*: $\{\alpha\} \vdash_{SD} \beta$ if and only if $\vdash_{SD} \alpha \supset \beta$.

4. Suppose you had the rules for *SI*, including Negation Introduction-$\bot$ and Negation Elimination-$\bot$, but not the rule *Falsum* Elimination. Show how *Falsum* Elimination could be added as a derived rule.

5. Using the definitions on page 34 as a guide, re-formulate the axioms of SA using $\sim$ and $\vee$ as primitive operators.