

Philosophy 134
Spring, 2005
Homework 7

Due: June 1, 2005, in class

1. Explain why the semantics for *S5I* without possible worlds yields the same consequence relations as the semantics in which accessibility is a universal relation.
2. Using the semantics without possible worlds, prove the following in *S5I*:
 $\models_{S5I} \diamond(P \wedge \Box Q) \equiv (\diamond P \wedge \Box Q)$.
3. Using the semantics with possible worlds and without the accessibility relation, show that the following is a semantical entailment in *S5I*: $\{\diamond\Box\diamond P\} \models_{S5I} \diamond P$.
4. Show that *S4.3I* contains *S4.2I* by showing that if the accessibility relation is reflexive, transitive, and connected, then it is reflexive, transitive, and convergent.
5. Explain why in *PLI* if a sentence is satisfied by at least one variable assignment, it is satisfied by all variable assignments.