

Problem Set 11
Introduction to Modal Logic
Institute for Logic, Language and Computation
Universiteit van Amsterdam

Due December 7, 2005

1. (Exercis 34) Prove that $\vdash_{\mathbf{GL}} \Box\phi \rightarrow \Box\Box\phi$. *Note: you must prove this syntactically, i.e., provide a derivation. (Hint from the notes: use the substitution $p \wedge \Box p$ for p in the Lob axiom)*
2. Find fixed points for $\Box\neg p$ and $\Box(p \rightarrow q)$ and $\Box p \rightarrow q$ and prove that they are fixed points.