

Philosophy 244: Homework 6 on Modal Predicate Metalogic

(1) Ex. 14.1, except that there's a typo. You're supposed to show that $\{\alpha \mid \Box\Box\alpha \in \Lambda\}$ can be extended to a consistent set with the \forall -property. Hint: Since S contains S4, $\Box\Box\alpha \in \Lambda$ iff $\Box\alpha \in \Lambda$.

(2) Ex. 14.2. S4.3 is S4 plus $\Box(\Box p \supset q) \vee \Box(\Box q \supset p)$. A frame is connected iff whenever two worlds can be seen by one world, at least one of the two can see the other. Hint: By 14.9 it suffices to show that the frame of the canonical model for S4.3+BF is reflexive, transitive, and connected. You can take reflexivity and transitivity for granted; is it connected? (See pp.128-9)

(3) Ex. 14.3.

(4) Explain Prop. 14.9 and its proof in your own words. Explain how it follows from 14.9 and its corollary 14.10 that S5+BF is complete.

MIT OpenCourseWare
<http://ocw.mit.edu>

24.244 Modal Logic
Spring 2015

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.