

Exercises week 6.

1. Apply the step-by-step method to show that **GL** does not prove

(a) $\Box A \rightarrow A$

(b) $\Box(p \wedge \Box q) \vee \Box \neg(p \wedge \Box q)$

(c) $\Box((\Box p \rightarrow p) \rightarrow \neg \Box \Box \perp)$

In the handout concerning the step-by-step method there is a worked out example of this sort of exercises.

2. Give a modal completeness proof of **K4** by means of the step-by-step method. You only have to indicate where changes will appear compared to the handout. So, for example, we should now define the notion of a **K4**-consistent set. (Clearly there are sets that are **K4** consistent but not **GL** consistent.)