

Huiswerkgaven week 1.

Give derivations in **GL** of the following formulae.

1. $\Diamond A \rightarrow \Diamond(A \wedge \Box \neg A)$
2. $\Box(\Box^3 \perp \rightarrow \Box \perp) \leftrightarrow \Box^2 \perp (= \Box \Box \perp)$
3. $\Diamond(A \vee B) \leftrightarrow \Diamond A \vee \Diamond B$
4. $\Diamond \Diamond \top \rightarrow \Diamond(\Box p \rightarrow p)$

Which of the above formulae are also derivable in weaker systems like **K** or **K4**?

What do the formulae say in terms of provability?