

**From syllogism to common sense . . .**

## Exercise Sheet 6: Intuitionistic Logic

To be discussed on 22 December 2011

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1. Show that the following formulas, which are validities in classical propositional logic, are not validities in intuitionistic logic. To show that  $\alpha$  is not a validity, find an Upwards Closed Valuation  $M_x$  such that  $M_x \not\models \alpha$ , and use the rules for  $\models$  on Page 28 “Non-Validities in IPC” of the slides.

a)  $\neg\neg p \rightarrow p$

b)  $p \rightarrow (q \rightarrow p)$

c)  $((p \rightarrow q) \rightarrow p) \rightarrow p$

d)\*  $(\neg p \rightarrow q) \rightarrow (\neg q \rightarrow p)$