4th Homework sheet Proof Theory

- Deadline: 28 November.
- Submit your solutions by handing them to the lecturer at the *beginning of the lecture*.
- Good luck!

In this exercise we work in intuitionistic propositional logic (IPC). Consider the following rule (S):

$$\frac{(\neg\neg p \to p) \to (p \vee \neg p)}{\neg p \vee \neg\neg p}\ \mathsf{S}$$

(a) *(30 points)* Show that S is not derivable by using Kripke models.

(b) *(40 points)* Show that S is admissible by using the sequent calculus *à la* Beth.

(c) *(30 points)* Show that S is derivable from the Visser rules, by using the sequent calculus *à la* Beth.