Logical derivations using sequent calculi: Lab1

October 15, 2006

- Give derivations of the following sequences, indicating clearly which rules you have used:

(1) $\vdash \neg\neg A \to A$
(2) $\vdash \neg\neg(\neg\neg A \to A)$
(3) $\vdash A \vee B \to (A \to C) \to (B \to C) \to C$
(4) $\vdash A \to B \to (A \wedge B)$
(5) $\vdash A \to A \vee B$
(6) $\forall x \forall y A(x, y) \vdash \forall y \forall x A(x, y)$
(7) $\exists x(A(x) \to B) \vdash (\forall x A(x) \to (B))$
(8) $\neg\exists x A(x) \vdash \forall x \neg A(a)$
(9) $(\exists x(A(x) \vee B(x))) \vdash (\exists x A(x) \vee \exists x(B(x)))$
(10) $\forall x(A(x) \to B) \vdash (\forall x A(x) \to B)$