The Deductive Calculus
Math 609

RULES OF INFERENCE.

Modus Ponens. From φ and $\varphi \to \psi$ infer ψ.

LOGICAL AXIOMS.

If φ is a logical axiom, then $\forall x\, \varphi$ is also a logical axiom.

1. Every tautology is a logical axiom.
2. $\forall x\, \varphi(x) \to \varphi(t)$ where t is substitutible for x in φ.
3. $\forall x(\varphi \to \psi) \to (\forall x\, \varphi \to \forall x \psi)$ for all formulas φ and ψ.
4. $\varphi \to \forall x\, \varphi$ where x does not occur freely in φ.
5. $x \doteq x$.
6. $x \doteq y \to (\alpha \to \alpha')$ where α is atomic and α' is obtained by replacing some occurences of x in α by y.