BU CLA MA 531: Computability and Logic

Fall 1995

Problem Set 12 (due Friday 95.12.08)

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1. Complete the proof of Glivenko's theorem, namely, *for every propositional wff* φ *and set of propositional wff's* Γ, *we have* $\Gamma \vdash^C \varphi \iff \neg\neg\Gamma \vdash^I \neg\neg\varphi$. (The notation $\neg\neg\Gamma$ means $\{ \neg\neg\psi \mid \psi \in \Gamma \}$.) The implication from right to left is easy (done in class), the opposite implication proceeds by induction on the length of derivations.

2. Show that the system of natural deduction is consistent. Using the Normalization Theorem (Handout 4), it suffices to show that no normal derivation can have for conclusion $\perp$.

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