Logic II — Richard Zach

Phil 379 L01 — Winter 2016

Problem Set #6

This assignment is due on **Friday**, **April 8**, **at 4 pm**. You can turn it in in class or in the dropbox labelled "Logic II (379 L01)—Richard Zach" in the Philosophy Department. The dropbox is cleared at 4 pm daily.

1. Problem 10.8. Please explain what your Turing machine does.
2. Problem 11.1.
3. Prove that $T(M, w)$ entails $\overline{n} < \overline{m}$ if $n < m$.
4. How would you show that the decision problem is unsolvable, but by appealing to the 3-Halting Problem of Problem 11.1 instead of the Halting Problem?
5. Problem 11.4: Prove case (3) of Lemma 11.9. Please do this in at least as much detail as case (1).

Remember: this is not a test. You are allowed—indeed, encouraged—to work together, and to ask questions on the website and in office hours.