COMP 181
Models of Languages and Computation
Fall 2005
Homework 8
Due Tuesday, November 22, 2005

1. Problem 4.1.1, parts (a) and (b), from the text, page 191.

2. Problem 4.2.2, parts (c) and (d), from the text, page 200. Be sure to give some informal explanation of how your machines work, and show a trace of their computations on the inputs a (for part c) and aa (for part d).

EXTRA CREDIT: Design a (one tape) Turing machine to add two binary numbers. Choose appropriate input and output format for the Turing machine. Find a Turing machine simulator on the web and simulate your Turing machine on a few examples to verify correctness. Note that the definition of Turing machine used for web simulators often differs somewhat from that in the text. It's OK to use an alternate version of Turing machines suitable for web simulations. In fact if you can find on the web a Turing machine that adds two numbers it's OK to use it for this problem. If you want to use a two dimensional Turing machine for this problem it's OK too.