

Homework 4

CS 4313 – Spring 2003
Tom Bylander, Instructor

assigned February 5, 2003
due date February 12, 2003

1. Do Exercise 3.3.5.
2. (40 pts.) Provide a dfa, nfa (no more than 5 states), regular expression, and a right-linear grammar for the following language.

$w \in L$ if and only if every substring of consecutive a 's consists of an even number of a 's, and every substring of consecutive b 's consists of an odd number of b 's.

For example, $(aa)^*$, $b(bb)^*$, $(bbbaa)^*$, and $(aaaab)^*$ are subsets of this language. Ensure that a 's appear between any two substrings of b 's.

3. Do Exercise 4.1.6. Hint: Show how symmetric difference can be defined in terms of intersection, union, and complementation.
4. Do Exercise 4.3.4d.
5. (Extra Credit) Do Exercise 4.2.8.