

CSE 350 Theory of Computation: Honors

HW 5

Due: March 26, 2008

1. Consider the language $(0^*1^*)^*(1^*10 \cup 100)$

- give an example of two strings that are in the language and two strings that are not
- following the steps of the proof of lemma 1.55, write a NFA that recognizes this languages (after writing the result, if you get more than 6 states, you can try to simplify the NFA to get an equivalent one that uses only 6 states);
- transform this NFA into a DFA following the steps of theorem 1.39 (after writing the result, if you get more than 4 states, you can try to simplify the DFA to get an equivalent one that uses only 4 states);
- transform this DFA into a regular expression following the steps of lemma 1.60;
- do you get the same regular expression you started from? (if you answer 'no', please give a very brief explanation why this happened).

Please show some intermediate steps in your solution.

2. Solve problem 1.32, page 88, of the book.

All references are to the 2nd edition of the book. If you have the 1st edition, please contact the TA.