CMPE 350 - Summer 2014
PS#1

30.06.14

Chapter 1

1.6 Give state diagrams of DFAs recognizing the following languages. In all parts the alphabet is $\{0, 1\}$.

a) $\{w|w$ begins with a 1 and ends with a $0\}$

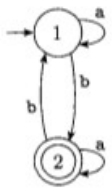
f) $\{w|w$ doesn't contain the substring $110\}$

1.7 Give state diagrams of NFAs with the specified number of states recognizing each of the following languages. In all parts the alphabet is $\{0, 1\}$.

e) The language $0^*1^*0^*$ with three states.

1.21 Use the procedure described in Lemma 1.60 to convert the following finite automata to regular expressions.

a)



1.31 For any string $w_1 w_2 \dots w_n$ the reverse of w, written w^R, is the string w in reverse order, $w_n \dots w_2 w_1$. For any language A, let $A^R = \{w^R | w \in A\}$. Show that if A is regular, so is A^R.

1.36 Let $B_n = \{a^k|$ where k is a multiple of $n\}$. Show that for each $n > 1$, the language B_n, is regular.

- Say that string x is a prefix of string y if a string z exists where $xz = y$. Let A be a regular language and let $L_A = \{x|x$ is a prefix of some string in $A\}$. Prove that L_A is regular.