CS360 Fall 1999

Ming Li

Assignment 2, Due Date: Oct. 22, 1999

1. Do Problem 3.21, page 94, of the textbook (using expression automata when necessary).

2. True of false? Give a formal proof to your answer in each case. Let $\Sigma = \{0, 1\}$.

   (a) $\{0^n 1^{2n} : n \geq 1\}$ is regular.

   (b) Every subset of a regular language is regular.

   (c) Every regular language has a regular proper subset.

   (d) Every non-empty regular language has a regular proper subset.

   (e) If C is a finite set of regular languages, then so is $\cup C$.

   (f) If C is an infinite set of regular languages, then so is $\cup C$.

   (g) $\{xyx^R : x, y \in \Sigma^*\}$ is regular.

   (h) $\{0^i 1^j : i < j\}$ is not regular.

3. Do Problem 6.17(a)-(i), pages 193,194, of the textbook.

4. Design PDAs (draw diagrams) for Problem 6.17(a)-(d), page 193, of the textbook.

5. Do Problem 7.9, page 233, of the textbook.