Due date: Feb. 4

Read the slides in http://www.cs.colostate.edu/whitley/CS301/L3.pdf. Consider integers written in base 3 with no leading 0s. Let \( L \) be the set of such strings which represent even numbers.

1. Construct a DFA that accepts \( L \).
2. Construct a left-linear grammar for \( L \).
3. Write a regular expression for \( L \).
4. Write a regular expression for \( L' \).
5. Write a grammar for the language (over \( \Sigma = \{a, b\} \)) consisting of strings not containing the pattern “abba”.
6. Write a grammar for the language (over \( \Sigma = \{a, b\} \)) consisting of palindromes with the same number of a’s as b’s.