Assignment 3: Phrase Structure Rules and Automata

1. Problem 4a and g from Chapter 2 of the textbook (page 60).

2. Problem 11 from Chapter 2 of the textbook (page 63-64).

3. Consider a language where sentences look as follows: the sentence consists of a verb phrase followed by a noun phrase. A verb phrase consists of any number of PPs and AdvPs in any order followed by an NP followed by a Verb followed by any number of PPs and AdvPs in any order. PPs consists of an NP followed by a P and NPs consists of a noun followed by any number of PPs followed by a D. Assume that AdvPs lack internal structure i.e. they just consist of an adverb.

   a. Provide the phrase structure rules for this language.

   b. Provide an automata characterization for NPs and Ss in this language.

   c. Assuming an English vocabulary, construct a 10-15 word sentence in this language.