

Homework Assignment #6
Due: November 10, 4:00 p.m.

1. Let L be the set of binary strings that are not palindromes.
(Formally, $L = \{x \in \{0, 1\}^* : x^R \neq x\}$.)
 - (a) Give a context-free grammar for L . (Specify the set of variables, the set of terminals, the starting symbol, and the set of rules for your grammar.)

You do not need to prove your grammar is correct. However, you should give, for each variable in your grammar, a precise description in English of all strings that can be generated from that variable.
 - (b) Give a parse tree (using your grammar) for the string 0011000.

2. Prove that every string generated by the following grammar has more a 's than b 's.

$$S \rightarrow a \mid aSb \mid SbS$$

(Here, S is the only variable and the terminals are a and b .)