

# Worksheet 7: Non-Context-Free Languages

Computer Science 311  
Computational Structures

**Exercise 1** Let  $A = \{s \in \{a, b, c\}^* \mid s \text{ contains the same number of } a\text{'s, } b\text{'s, and } c\text{'s}\}$ . Use the context-free pumping lemma to show that  $A$  is not context-free.

**Exercise 2** Let  $B = \{1^n \mid n \text{ is a power of two}\}$ . Use the context-free pumping lemma to show that  $B$  is not context-free.