

1. For any language A , $SUFFIX(A) = \{v \mid uv \in A, \text{ for some string } u\}$. Show that if A is context-free, then $SUFFIX(A)$ is also context-free.
2. Construct a context-free grammar for the language $A = \{w\#x \mid w^R \text{ is a substring of } x; w, x \in \{0, 1\}^*\}$
3. Let $L = \{0^n\#0^{2n}\#0^{3n} \mid n \geq 0\}$. Prove that L is not regular.