

Preparation Activity PAo8 – Properties of CFLs

1. Consider the following grammar G:

$S \rightarrow abAB$

$A \rightarrow bAa \mid \varepsilon$

$B \rightarrow BAa \mid A \mid \varepsilon$

- a) Transform the grammar G into CNF (Chomsky Normal Form) showing the steps needed;
- b) Using the grammar in CNF, show a syntax tree for the string “abba”.
- c) Using the Cocke-Younger-Kasami (CYK) algorithm, show how to test if the string “abba” belongs to the language of the grammar in CNF;