

CS250 Lab 8 – Normal Forms of Context-Free Grammars

Objectives: In this lab you will learn how to

- transform CFGs to a normal form

CFGs can be transformed into an equivalent grammar with a simpler format. The Chomsky Normal Form (CNF) is a CFG with no λ -productions, no unit-productions, and additional restrictions that limit the number of variables and terminals in productions.

JFLAP will assist in the conversion to CNF and your text explains the transformation algorithm on pp156-173.

Download the ex8.1 file.

Assignment 1:

Open ex8.1 in the grammar editor. Under the Convert menu select Transform Grammar. Using the algorithms described in your text, use the Do Step instructions to convert the grammar to CNF. (Use Proceed button to move to the next steps as appropriate).

Briefly describe in your own words how you:

1. remove λ -productions
2. remove unit-productions
3. remove useless productions
4. convert a grammar to CNF

Assignment 2:

Another important normal form is Greibach Normal Form (GNF). JFLAP won't help you here, alas. Read about GNF in your text.

Briefly describe in your own words what restrictions are imposed on CFGs which are in GNF.

Submit your files in goucherLearn for grading.