

Chomsky Normal Form

Any CFG for language without empty string can be converted into CFG where every production has replacement string either

- two variables
- or • one terminal

This is called Chomsky Normal Form.

Example

$P \rightarrow A Q | B R | 0 | 1$

$Q \rightarrow P A$

$R \rightarrow P B$

$A \rightarrow 0$

$B \rightarrow 1$

The importance is that if string has length n , a derivation will take precisely $2n-1$ steps. This gives a finite amount of work...

Fact:

There is an algorithm that on input a grammar and a string says whether grammar generates string or not.