

$$S \rightarrow OS1$$

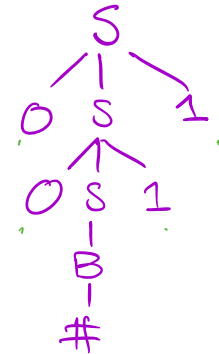
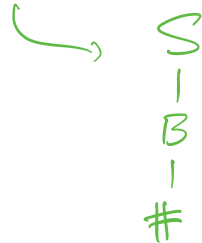
$$S \rightarrow B$$

$$B \rightarrow \#$$

$$S \Rightarrow OS1 \Rightarrow OOS11 \Rightarrow OOB11 \Rightarrow OO\#11$$

$$S \Rightarrow OS1 \Rightarrow OBI \Rightarrow O\#1.$$

$$S \Rightarrow B \Rightarrow \#.$$



Def (CFG, formal). A Context-Free Grammar is a 4-tuple

$$(V, \Sigma, R, S)$$

V is a finite set of variables

Σ is a finite set of terminals

R is a finite set of rules, each of which maps one variable to a string of variables and/or terminals

S is a start variable.

CFG brief form:

$$\begin{aligned} & \text{start} \rightarrow S \rightarrow A \\ & \quad \quad \quad A \rightarrow OA0 \mid 1A1 \mid \varepsilon \end{aligned}$$

R, Σ