

CFG Rules

Problem 1:

$S \rightarrow aSb$

$S \rightarrow ab \mid \varepsilon$

Problem 2:

$S \rightarrow aabS \mid Saab \mid aSab \mid aaSb$

$S \rightarrow aab \mid baa \mid aba$

Problem 3:

$S \rightarrow aSa \mid bSb$

$S \rightarrow aa \mid bb \mid a \mid b \mid \varepsilon$

Problem 4:

$S \rightarrow aaaT$

$T \rightarrow aaTb \mid \varepsilon$