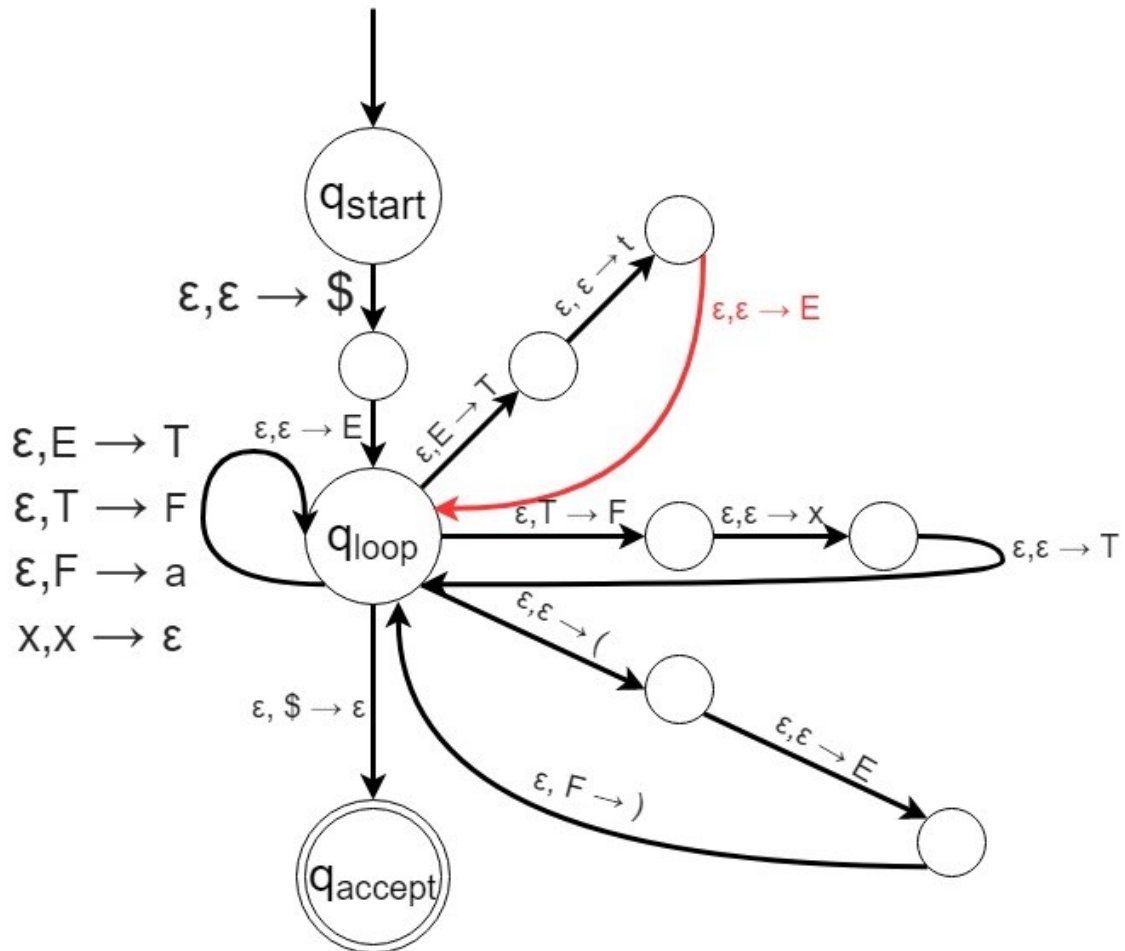


Practice

1. Convert the CFG an equivalent PDA

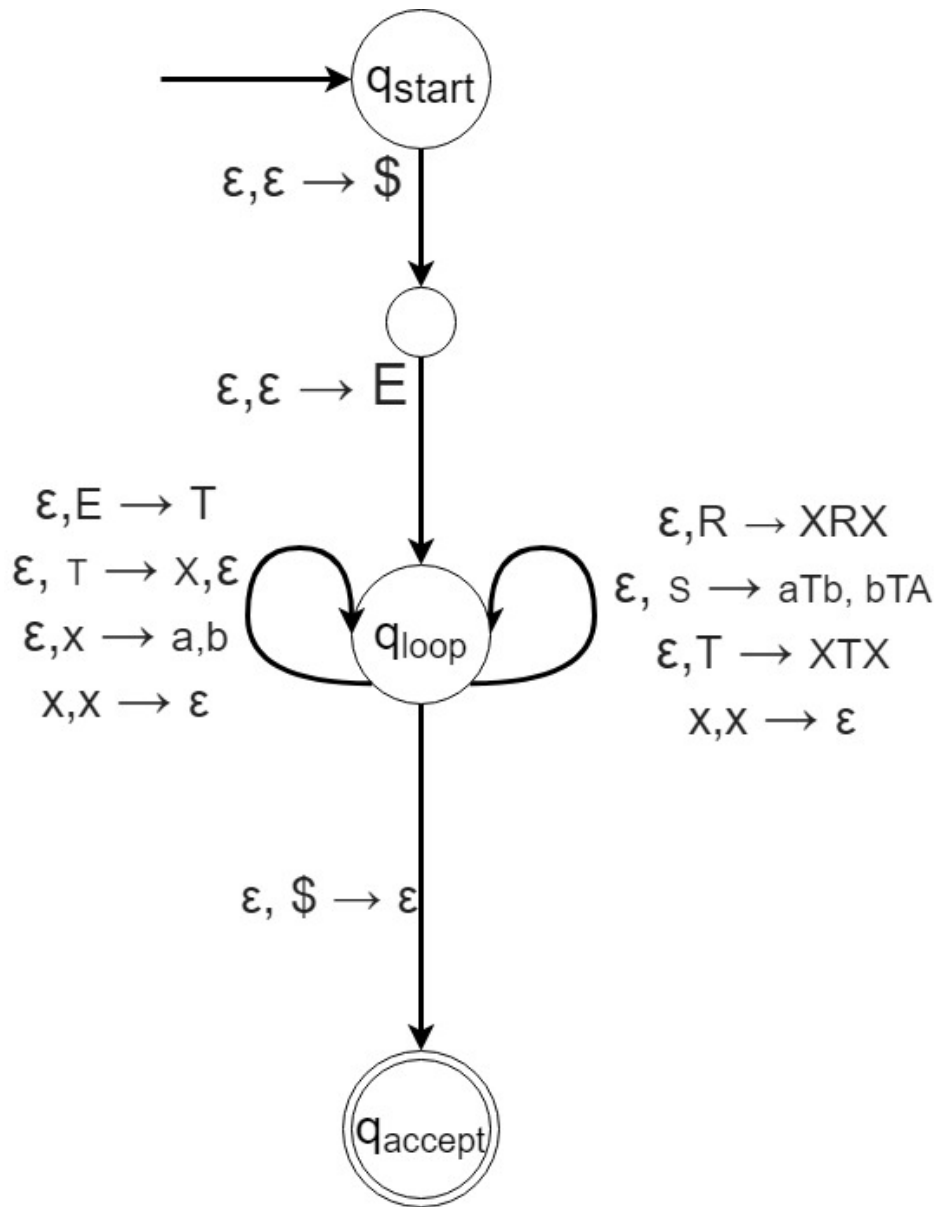
Solution:

Basically turning the CFG into a stack-based PDA.



Convert the CFG G given in Exercise 2.3 to an equivalent PDA, using the procedure given in Theorem 2.20.

Solution:



Convert the following CFG into an equivalent CFG in Chomsky normal form, using the procedure given in Theorem 2.9.

$$\begin{aligned} A &\rightarrow BAB \mid B \mid \epsilon \\ B &\rightarrow 00 \mid \epsilon \end{aligned}$$

Solution:

$$\begin{array}{lcl}
 A & \rightarrow & BAB \mid B \mid \epsilon \\
 B & \rightarrow & 00 \mid \epsilon
 \end{array}$$

Goes through B and adds stages to A

And removed ϵ

$$\begin{array}{lcl}
 A & \rightarrow & BAB \mid BB \mid 00 \mid AB \mid BA \mid \\
 B & \rightarrow & 00
 \end{array}$$

Added C

$$\begin{array}{lcl}
 A & \rightarrow & BC \mid BB \mid 00 \mid C \mid BA \mid \\
 B & \rightarrow & 00 \\
 C & \rightarrow & AB
 \end{array}$$

Added D

$$\begin{array}{lcl}
 A & \rightarrow & BC \mid BB \mid DD \mid C \mid BA \mid \\
 B & \rightarrow & DD \\
 C & \rightarrow & AB \\
 D & \rightarrow & 0
 \end{array}$$