

Automata and formal languages

Exercise 10

Put the following grammars into Chomsky normal form

1.

$$\begin{aligned} S &\rightarrow A1B \\ A &\rightarrow 0A|\lambda \\ B &\rightarrow 0B|1B|\lambda \end{aligned}$$

2.

$$\begin{aligned} S &\rightarrow AB|aaB \\ A &\rightarrow a|Aa \\ B &\rightarrow b \end{aligned}$$

3.

$$\begin{aligned} S &\rightarrow ASB|\lambda \\ A &\rightarrow aAS|a \\ B &\rightarrow SbS|A|bb \end{aligned}$$