

Ambiguosity, deterministic PDA

1. Consider the grammar $S \rightarrow S(S)S \mid \varepsilon$. Is this grammar ambiguous? Is the language generated by this grammar ambiguous?
2. Is the following grammar ambiguous? Is the generated language ambiguous?

$$\begin{aligned} S &\rightarrow AB \\ A &\rightarrow aAb \mid ab \\ B &\rightarrow bbBa \mid bba \end{aligned}$$

3. Is the following grammar ambiguous? Is the generated language ambiguous?

$$\begin{aligned} S &\rightarrow XY \mid B \\ B &\rightarrow abB \mid aaB \mid baB \mid bbB \mid a \mid b \\ X &\rightarrow aXa \mid aXb \mid bXa \mid bXb \mid a \\ Y &\rightarrow aYa \mid aYb \mid bYa \mid bYb \mid bb \end{aligned}$$

4. Is the PDA given in the first problem of Practice problems #8 deterministic?
5. Give deterministic PDA for the languages of problem 2 of Practice problems #8.