

Assignment #5

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CSCE 433: Formal Languages and Automata

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Question 1.

- Eliminate the starting symbol from the right hand side

- Eliminate ϵ rules

$$S \rightarrow AB \mid aB \mid B$$

$$A \rightarrow aab$$

$$B \rightarrow bbA \mid bb$$

- Eliminate unity rules

$$S \rightarrow AB \mid aB \mid bbA \mid bb$$

$$A \rightarrow aab$$

$$B \rightarrow bbA \mid bb$$

- Eliminate rules with more than 2 symbols in the right hand side

$$S \rightarrow AB \mid aB \mid bY \mid bb$$

$$A \rightarrow aZ$$

$$B \rightarrow bY \mid bb$$

$$Y \rightarrow bA$$

$$Z \rightarrow ab$$

- Create unity rules for terminals

$$S \rightarrow AB \mid XB \mid VY \mid VV$$

$$A \rightarrow XZ$$

$$B \rightarrow VY \mid VV$$

$$Y \rightarrow VA$$

$$Z \rightarrow VX$$

$$V \rightarrow b$$

$$X \rightarrow a$$

Question 2.

Question 3.

Question 4.

Question 5.

Question 6.