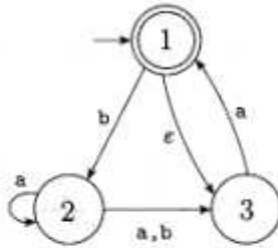


Assignment 3

1. Design a context-free (or regular) grammar to describe the language recognized by the following NFA.



Give a derivation and parsing tree for string *aababa*.

2. Use the grammar rules given in Question 2.1 (page 154), give parsing trees for the following strings
 - (1) $(a + a) \times (a \times a)$
 - (2) $((a) \times a) + a$
3. Question 2.4 (c) and (e) on page 155.
4. Convert the following CFG to an equivalent CFG in Chomsky normal form, given the process given in Theorem 2.9.

$$S \rightarrow \epsilon, S \rightarrow 0S1S, S \rightarrow 1S0S$$

5. Question 2.14 on page 156.
 6. Question 2.5 on page 155 (for question 2.4 (b) only).
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