214 Review 1

U Windsor

January 31, 2017

Given a grammar that contains the following production rule, where A is a nonterminal and a and b are terminals:

$$A \rightarrow aAa | abba \qquad (1)$$

According to Chomsky hierarchy, the grammar is in which level?

Given the following rules of a grammar, where A and B are non-terminals, a and b are terminals, and A is the start symbol:

$$A \rightarrow aB | bB \qquad (2)$$
$$B \rightarrow a | b \qquad (3)$$

write the corresponding regular expression

A tricky question

Given the following grammar, what is the language being recognized?

$$A \rightarrow aB | bB \qquad (4)$$
$$B \rightarrow aB | bB \qquad (5)$$

is there a corresponding regular expression?

is the following true?

-

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- $$(01) * 0 = 0(10)*$$

- Given the regular expression (ab)*. Write the corresponding regular grammar. Note that you will not get any marks if the grammar is not regular.

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- Some incorrect answers

$$A \rightarrow abA | \epsilon$$

$$A \rightarrow BA | \epsilon$$
$$B \rightarrow ab$$

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- for language over the alphabet 0, 1 in which all the strings contain at least two 0's.

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- for quoted string

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- for identifiers in Assignment one

- Write one advantage of NFA over DFA

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Find the shortest string that is not in the language represented by
the regular expression **a*(ab)*b***.

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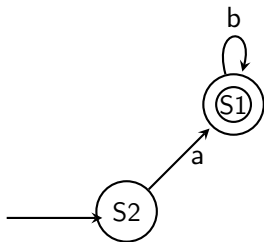
Write a context free grammar for the strings that consist of equal number of **a**'s followed by equal number of **b**'s.

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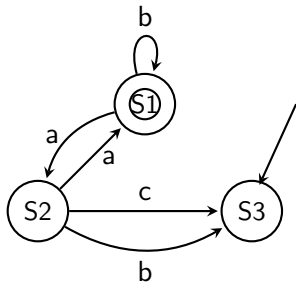
$$A \rightarrow ab$$
$$A \rightarrow aAb$$

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Write the regular expressions you used in A12.java

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Write A12.java.