CS 173, Fall 18 Examlet 9, Part B

Name:_____

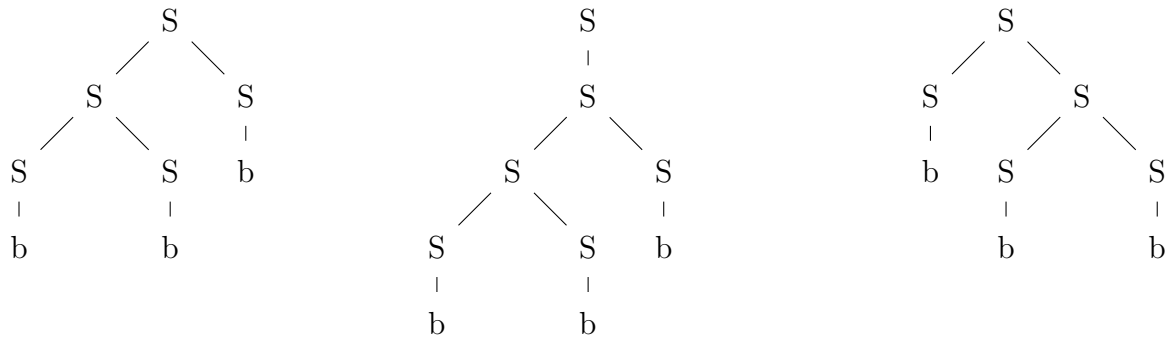
NetID:_____ **Lecture: B**

Discussion: Friday 11 12 1 2 3 4

1. (8 points) Here is a grammar with start symbol S and terminal symbol b. Draw three parse trees for the string `bbb` that match this grammar.

$$S \rightarrow S\ S \mid S \mid b$$

Solution:



2. (4 points) Check the (single) box that best characterizes each item.

Number of bit strings of length k.

2^k ☑ $2^k - 1$ ☐ 2^{k-1} ☐ k ☐

The chromatic number of a full 3-ary tree

1 ☐ 2 ☐ ≤ 2 ☑

3 ☐ ≤ 3 ☐ can't tell ☐

Name:_____

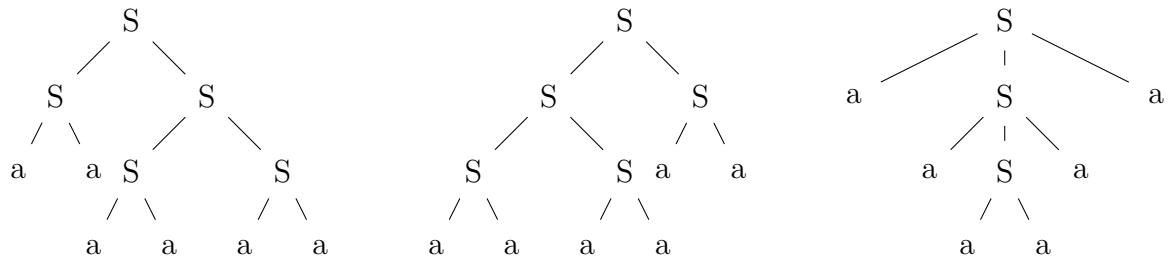
NetID:_____ **Lecture: B**

Discussion: Friday 11 12 1 2 3 4

1. (8 points) Here is a grammar with start symbol S and terminal symbol a. Draw three parse trees for the string `aaaaaa` that match this grammar.

$$S \rightarrow S\ S \mid a\ S\ a \mid a\ a$$

Solution:



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Number of bit strings of length k.

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