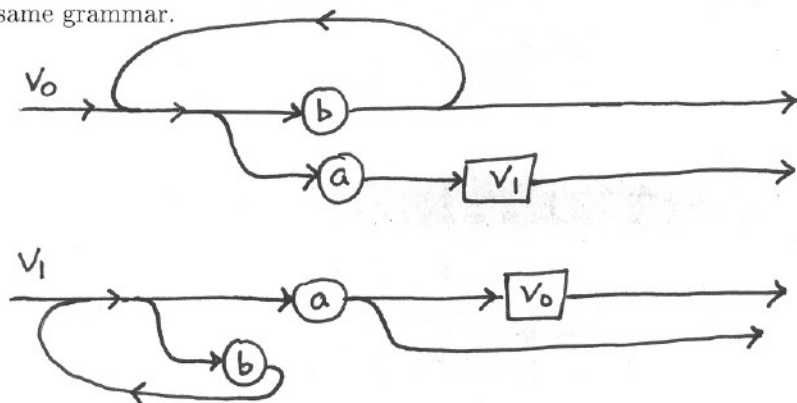


Discrete Structures: Quiz #10

Name: Solution

Consider the following syntax diagram. The symbols a, b are terminal symbols of some grammar, and the symbols v_0, v_1 are nonterminal symbols of the same grammar.



1. Give the BNF representation for the syntax diagrams above. You may provide nonterminal symbols as needed (in addition to v_0, v_1), to use in the BNF productions. You may use several BNF statements if needed.

$$\langle v_0 \rangle ::= b \mid b \langle v_0 \rangle \mid a \langle v_1 \rangle$$

$$\langle v_1 \rangle ::= b \langle v_1 \rangle \mid a \mid a \langle v_0 \rangle$$

2. (Bonus question) Combine the two syntax diagrams above into one master diagram representing v_0 (i.e. a diagram which involves only terminal symbols). Pay careful attention to how the recursion should work.

