

CS 331 Programming Languages, Spring 2009  
**Quiz 2 Solutions**

Quiz 2 was given in class on Friday, January 30, 2009.

1. [5 pts] Write a grammar for the language consisting of the following strings:

*ab*  
*abb*  
*abbb*  
*abbbb*  
*abbbbb*

And so on; that is, "a" followed by one or more copies of "b". You may use any of the conventions we have discussed (BNF, EBNF, etc.).

Here is a BNF grammar. The start symbol is <sentence>.

$$\begin{aligned} \langle \text{sentence} \rangle &\rightarrow a \langle \text{B} \rangle \\ \langle \text{B} \rangle &\rightarrow b \mid b \langle \text{B} \rangle \end{aligned}$$

We can shorten this a bit using EBNF.

$$\langle \text{sentence} \rangle \rightarrow ab\{b\}$$