CS3311 Homework 10   Due date: Wednesday, November 15, 2017, by class time, 1:05pm
Submission: Typed, pdf on Canvas (scanned submissions are not allowed)

1. *(70+15+15 points)* Consider the grammar G from Example 4.5.2:

$$S \to AT \,|\, AB \qquad T \to XB \qquad X \to AT \,|\, AB \qquad A \to a \qquad B \to b$$

(a) Give the upper diagonal matrix produced by the CYK algorithm when run with G and the input string $abbb$. **Show all your work.**

(b) Is $abbb \in L(G)$? Why? Provide the reason based on the upper diagonal matrix you constructed.

(c) Is $ab \in L(G)$? Why? Provide the reason based on the upper diagonal matrix you constructed.