Homework #10, Problem #7.4.3 (b)

This problem asks you to determine whether a particular string, \( baaab \), is in \( L(G) \) for a particular grammar \( G \). In other words, do the productions in \( G \), starting with \( S \), produce \( baaab \)? The only clean, straightforward way to do this, for a grammar that is complicated, is to apply the CYK algorithm.

I’m not going to detail each step here because the algorithm is specified in the book, and everyone appeared to understand it, even if they made minor mistakes in applying it. If you are confused about some of the details, however, please do not hesitate to e-mail us. We’d be happy to explain the steps via e-mail or go over this answer in person.

Because \( S \) appears in the top left cell, \( baaab \in L(G) \). Don’t forget the punchline! (Note: if you forgot the punchline, please do not deliver it in person to the course staff!)