

CS 341, Fall 2012
Solutions for Quiz 2, Day Section

1. We are given the following CFG in Chomsky normal form:

$$\begin{aligned} S &\rightarrow a \mid TT \\ U &\rightarrow TU \mid b \\ T &\rightarrow a \mid UT \mid TU \end{aligned}$$

Below is the filled-in table to determine if the CFG generates string *bbaab*.

	1	2	3	4	5
1	<i>U</i>	—	<i>T</i>	<i>S</i>	<i>S, T, U</i>
2		<i>U</i>	<i>T</i>	<i>S</i>	<i>S, T, U</i>
3			<i>S, T</i>	<i>S</i>	<i>S, T, U</i>
4				<i>S, T</i>	<i>T, U</i>
5					<i>U</i>
	<i>b</i>	<i>b</i>	<i>a</i>	<i>a</i>	<i>b</i>

The answer is YES since *S* is in the upper-right corner.