

## CSE 576: Quiz Solution

Consider the following Context Free Grammar (CFG) in Chomsky Normal Form (CNF).

$$S \rightarrow AB|BC$$

$$A \rightarrow BA|a$$

$$B \rightarrow CC|b$$

$$C \rightarrow AB|a$$

Using the CKY algorithm show whether the string *baaba* belongs to the language of the above grammar.

**Solution:** The final CYK table is given in the Table 1. Answer is yes. The detailed calculation can be found online.

Ref: <http://web.cs.ucdavis.edu/~rogaway/classes/120/winter12/CYK.pdf>

{S, A, C}				
∅	{S, A, C}			
∅	{B}	{B}		
{S, A}	{B}	{S, C}	{S, A}	
{B}	{A, C}	{A, C}	{B}	{A, C}
b	a	a	b	a