When the argument *only_count==True i.e.* when we are calculating the number of parse trees for a sentence without actually computing all the possible parse trees for it (let's call this the 'only_count' approach), we get the same results (*results/results_with_onlyCount.txt*) as we get when all the parse trees are computed (*results/results_with_treeComputation.txt*).

Expected Runtime (on ATIS test sentences)

CKY parser with tree computation: 25.82 secs

CKY parser without computing all the parse trees : 24.32 secs

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The difference in runtime for the two approaches is not that significant on the ATIS test dataset, which contains only 98 sentences. However, the runtime difference would become more apparent with the increase in the size of the test dataset.

Other Remarks:

I tried to implement a conversion module '*cfg_conversion_module.py*' for converting a CFG grammar into Chomsky Normal Form. However, the final grammar generated at *'results/generated_cnf_grammar.cfg'* doesn't return correct results yet with the CKY parser. So, I didn't include it in the main.py pipeline.