LING 572 Homework 6

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Question 2

Results for beam search on the full data set:

beam_size	topN	topK	Test accuracy	Running time
0	1	1	0.964005	1:22.963
1	3	5	0.965204	2:00.621
2	5	10	0.965181	2:54.129
3	10	100	0.965196	5:55.032

Question 3

From these results we conclude that beam search with the proper parameters does improve accuracy, but at the expense of increased runtime. Furthermore, setting the parameters too high significantly increases runtime but even slightly decreases accuracy.[1] This comports with the intuitive analysis that beyond a certain point expanding the search space merely increases the number of hypotheses the tagger must test, even when they are vanishingly likely to be correct.

[1] This variation is probably not significant, and is likely attributable to accumulation of floating-point errors in different computation sequences.