**LING 572 – HW6**

**Q2**

Table 1: Beam search

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| beam\_size | topN | topK | Test accuracy | Running time |
| 0 | 1 | 1 | 0.964004917734199 | 1 min 51 sec |
| 1 | 3 | 5 | 0.965196405804141 | 4 min 38 sec |
| 2 | 5 | 10 | 0.965196405804141 | 11 min 45 sec |
| 3 | 10 | 100 | 0.965196405804141 | 50 min |

**Q3**

The test run from running beamsearch\_maxent.sh produced good accuracy at beam\_size=0, topN=1 and topK=1. The performance improved marginally when beam\_size, topN and topK values were increased to 1, 3 and 5 respectively. However, the time taken to achieve the slight performance improvement also increased by about 3 folds.

From then on, increasing beam\_size, topN or topK values did not yield any further performance improvement and in addition we paid the penalty of incurring significantly longer running time.

The experiment suggested that the Max Entropy model is capable of producing optimal feature weight for each feature function. Given the Max Entropy modeling and training, optimum performance can be achieved quickly during testing phase with minimal processing parameters.

*End of HW6 – Joint submission by*

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