

# 1 Results

## 1. Viterbi Algorithm:

- (a) Q : What speed up do you get with Viterbi compared to the standard structured perceptron?

A : Viterbi is much more faster than standard structured perceptron. The run time of Viterbi is only 1.01 seconds while standard structured perceptron spends 23 seconds.

- (b) Accuracy of Viterbi

The accuracy I got from Viterbi is 0.001 lower than the standard structured perceptron. I think that is because the dictionary sort in random with the same seed that it is not a list.

## 2. Beam Search Algorithm

	size=3	size = 4	size = 5
F1 Score	0.7753	0.75835	0.76651
Run time	0.95	1.25	1.5

	Run Time	F1 score
Standard	23.45	0.74885
Viterbi	1.01	0.74721
Beam(size=3)	0.95	0.7753

- (a) Q : Does beam search affect your accuracy?

A : Yes, beam search does affect my accuracy but only a little bit.

- (b) Q : What is the effect of beam size on speed and accuracy compared to the standard structured perceptron and Viterbi?

A : The larger the beam size is, the more time it takes to train the data, and it also shows higher accuracy with a larger beam size. Beam search is much more faster than standard structured perceptron, and also a little bit faster than Viterbi because it skips some computing to accelerate.