

Exercises SW09

Task

The task is to write a one paper report regarding the Lab9. In the first lab we were introduced to the code for a neural dependency parser introduced by the paper “*A Fast and Accurate Dependency Parser using Neural Networks*” by Danqi Chen and Christopher Manning. The started to create dependency graphs using neural networks to define the three operations **shift**, **left arc** and **right arc**.

Assignments

No, you can not change the number of classes to adapt regarding the number of classes as these are the classes of the algorithm to make the shift, left or right arc operations. Therefor it calculates the probabilities of all of these three actions. The action with the highest probability will then be choosen. I tried the following number of neurons in the hidden unit with the following results:

Id	Number of Units	Dev UAS	Test UAS
1	10	79.11	79.22
2	100	87.53	88.01
3	200	88.56	89.06
4	500	89.57	89.87

I was surprised how less the performance dropped with only 10 neurons in the hidden unit. With 100 neurons, the performance was event quite good with a UAS of 88%.

Because of the decrease in neurons, the hidden state can save less information about the model and the action it should predict. Therefore the model has worse performance. But with an increase of the neurons, no more increase of preformance could be measured.