

START OF QUIZ

Student ID:

36304153,Kang,David

Question 1

Topic: Lecture 5

Source: Lecture 5

Describe why CNF is necessary for the CYK algorithm. (1)

Question 2

Topic: Lecture 6

Source: Lecture 6

In class, we mentioned that the Earley and CYK parsers are both cubic complexity, but that in practice, the Earley Parser is typically faster. Why do you think that is? (1)

Question 3

Topic: Lecture 5

Source: Lecture 5

Why do we only care about the "upper triangle"? (1)

Question 4

Topic: Lecture 7

Source: Lecture 7

What are the conditions for completing a parse in SR parsing, and under which conditions might they not be met? (1)

Question 5

Topic: Lecture 7

Source: Lecture 7

What is a projective sentence? Why does this matter for the shift-reduce algorithm? (1)

Question 6

Topic: Lecture 6

Source: Lecture 6

Imagine that we want to take the best of both worlds of the CYK parser and the Earley parser. To take advantage of parallel processing, we create a "meet-in-the-middle" parser that simultaneously starts parsing from the top and the bottom. Describe at least 2 difficulties with this approach. (2)

Question 7

Topic: Lecture 8

Source: Lecture 8

In class, we mentioned that graph-based parsing can handle non-projective parses, but it has cubic time complexity. How would you go about improving the complexity to (mostly) linear time, while still being able to handle non-projective parses? Describe why this solution works. Hint: we talked about a simple solution in class. (2)

Question 8

Topic: Lecture 8

Source: Lecture 8

Imagine that we have a dependency parser that has a very good UAS (90+), but a very bad LAS (50-). Do you think that we could use the output of this parser as input to a neural translation model as is, or do you think that we should first re-train the labeling part of the algorithm to increase LAS? Doing both is probably the best solution, but I'm asking if you think that we could use the output of the existing model, even as we try to improve the quality of the labels. Explain. (2)

Question 9

Topic: Long

Source: Lecture 7

We often think of NLP as a pipeline - first we POS-tag, then we dependency parse, then we ... Imagine a situation where we have a cyclical learning process - first we solve one task, which informs a second, which then informs the next iteration of the first, etc. Let's consider POS-tagging and Dependency parsing as our two tasks. Describe if you think this could be a reasonable approach to iterative ML, and some of the benefits and disadvantages of such a process. Be specific! Now, consider adding constituency parsing into the loop. Where might be the most appropriate location to include it? Provide a justification. (3)

END OF QUIZ