

START OF QUIZ

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I agree that all answers provided are in my own words, and that I will not discuss the contents of this quiz with any of my fellow students until after the exam period has completed for everyone. Furthermore, any response that used generative AI tools has been rephrased into my own interpretation, and has been appropriately cited.

Signature: _____

Question 1

Topic: Lecture 7

Source: Lecture 7

When we update the stack after an arc, we return the head of the operation. Why? (1)

Question 2

Topic: Lecture 6

Source: Lecture 6

Briefly describe the role of the scanner, predictor, and completer in the Earley Parser. (1)

Question 3

Topic: Lecture 8

Source: Lecture 8

Why do we evaluate UAS and LAS separately? (1)

Question 4

Topic: Lecture 5

Source: Lecture 5

Which operation dominates the complexity of CYK? Why? (1)

Question 5

Topic: Lecture 5

Source: Lecture 5

How do we obtain the probabilities for a PCFG? (1)

Question 6

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 7

Topic: Lecture 7

Source: Lecture 7

In class, we discussed PCFGs as a way of modeling syntactic ambiguity. Do you think something like PSR would benefit dependency parsing in a similar way? Briefly explain. (2)

Question 8

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 9

Topic: Long

Source: Lecture 6

Often, modern NLP tools work not with words, but with subword units. What modifications would we need to make to the Earley parser in order to work with subword units (for example: "agreement" might get split into "agree" and "-ment"). Where would they need to occur in the parser, and how do you think it might benefit and harm the algorithm? Do you think this would be easier to handle with CYK? (3)

END OF QUIZ