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 5
Source: Lecture 5

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

Question 2

Topic: Lecture 6
Source: Lecture 6

In the best case, Earley can be quadratic (instead of cubic). What (very restricted) cases would this apply? (1)

Question 3

Topic: Lecture 6
Source: Lecture 6

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

Question 4

Topic: Lecture 5
Source: Lecture 5

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

Question 5

Topic: Lecture 7
Source: Lecture 7

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

Question 6

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

In class, we discussed creating a feature vector as input to a classification model. What benefits (or disadvantages) might we see by replacing binary features with word embeddings, instead? (2)

Question 8

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 9

Topic: Long
Source: Lecture 7

Imagine we have a very small treebank, and a large amount of unannotated data. How might we leverage this to iteratively train a reasonable-quality parser? What potential problems do you think we might encounter along the way? How might we try to solve these problems? (3)

END OF QUIZ