

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

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

Question 2

Topic: Lecture 6

Source: Lecture 6

Why doesn't Earley require CNF? (1)

Question 3

Topic: Lecture 7

Source: Lecture 7

Why do we create a dummy variable for the root of the sentence? (1)

Question 4

Topic: Lecture 5

Source: Lecture 5

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

Question 5

Topic: Lecture 8

Source: Lecture 8

Why do we need both the state of the buffer and stack as features to SR parsers (ie, what is each contributing)? (1)

Question 6

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 7

Topic: Lecture 8

Source: Lecture 8

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

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 8

Let's say you have a friend who is developing a constructed language (conlang) for the epic fantasy novel she is writing, but the only language she knows is English, and she is just doing a word-for-word translation of English into this constructed language. She has no real knowledge of syntax, and has only ever thought that "some words come after other words" (she's thinking like a language model). How would you use treebanks and dependency parsers to demonstrate to her that there is a whole "hidden" structure that language must follow, and how would you help her develop a realistic grammar for her conlang? Do you think it would make more sense to build the grammar for a "modified English", and then do word-for-word translation, or to translate the words from English, and then build the grammar in the conlang? (3)

END OF QUIZ