START OF QUIZ
Student ID:
72119878,Wang,Yuanao

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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 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 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 6
Source: Lecture 6

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

Question 4

Topic: Lecture 7
Source: Lecture 7

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

Question 5

Topic: Lecture 5
Source: Lecture 5

Describe the difference between top-down and bottom-up parsing, including one advantage to each. (1)

Question 6

In class, we always assumed one best parse. How does the CYK algorithm change if we end up with multiple parses (ie, what extra information needs to be tracked)? How does it change the complexity? (2)

Question 7

A deque is a data structure that mimics the operations of both a stack and a queue (ie, items can be added or removed to either end). Do you think this data structure would be sufficient to replace the stack and buffer from SR parsing? Justify your answer. (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 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