# 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

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

Why doesn't Earley require CNF? (1)

# Question 3

Topic: Lecture 5
Source: Lecture 5

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

# Question 4

Topic: Lecture 8
Source: Lecture 8

When learning CLE, why can't we just take the maximal score out of (or into) each node? (1)

# Question 5

How does the parser decide which element will be the head of an arc, and which the dependent? (1)

# Question 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 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 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 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