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 3
Source: Lecture 3

Why is recursion essential in CFGs for modeling natural language? Give a simple example involving a noun phrase or verb phrase. (1)

Question 2

Topic: Lecture 1
Source: Lecture 5

Write the parenthetic parse of the following sentence: "I never got to bat in the major leagues." (1)

Question 3

Topic: Lecture 2
Source: Lecture 2

If you had a cascaded pipeline of constituency and dependency parsers, which would you run first? What are the risks of getting it backwards? (1)

Question 4

Topic: Lecture 1
Source: Lecture 5

Up to this point, we've largely ignored function words, but they are extremely influential in parsing. Give 2 reasons why. (1)

Question 5

Topic: Lecture 3
Source: Lecture 3

Explain why the following rule: “with -> IN” is not valid in a CFG. (1)

Question 6

Topic: Lecture 2
Source: Lecture 2

Imagine that you're working with a copy-editor to tighten the prose of prospective novels. How might you use parsers to identify places where you can "trim the fat" without being too aggressive? (2)

Question 7

Topic: Lecture 4
Source: Lecture 4

Given the following parse trees, calulate the PARSEVAL score. GOLD: (S (NP (DT The) (NN professor)) (VP (VBD discussed) (NP (DT the) (NN student) (PP (IN of) (NP (DT the) (NN colleague) (PP (IN from) (NP (NN France))))))))

SYSTEM: (S (NP (DT The) (NN professor)) (VP (VBD discussed) (NP (DT the) (NN student) (PP (IN of) (NP (DT the) (NN colleague))) (PP (IN from) (NP (NN France))))))

Also briefly describe whether any errors are "syntacto-semantic" errors (ie, an error that requires real-world knowledge to arrive at the correct parse). (2)

Question 8

Topic: Lecture 4
Source: Lecture 4

We've looked at grammars as being constraints that can identify parses, but we could theoretically use them to infer features, instead. Imagine we encountered a new noun in a language with grammatical gender. How might we use a feature-based parser to infer the gender of the noun, and use that information to expand our grammar? (2)

Question 9

Topic: Long
Source: Lecture 4

Imagine you're building a tool to help second language learners of language X. You have a grammar of their first language (L1), a grammar of the language they are trying to learn (X), and a parallel corpus of L1-X sentences. How might you use this data to learn a new grammar that translates the syntax of L1 into the syntax of X, for the purpose of creating educational tools that will help the language learner associate features of X with their L1? (For example, a French-English grammar might have something like NP -> NN JJ : NP -> JJ NN). (3)

END OF QUIZ