START OF QUIZ
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Question 1

Topic: Lecture 1
Source: Lecture 1

Knowing what you know about parsing, describe how derivation could be considered syntax, instead of morphology. In other words, how might we parse derivations? (1)

Question 2

Topic: Lecture 2
Source: Lecture 2

Umlaut is a morpho-phonological process that moves a vowel forward in the mouth under certain morphological processes (for example, Hund+PL -> Hünde in German). What might the re-write rule for this example look like? (1)

Question 3

Topic: Lecture 4
Source: Lecture 4

Do you think that we could do Chinese Word Segmentation in a bottom-up way like we do with BPE? Why might this work (or not)? (1)

Question 4

Topic: Lecture 3
Source: Lecture 3

In class, we saw that the entropy of a fair coin toss is 1 (bit), but that was because we were using a binary logarithm. Similarly, the entropy of an 8-sided fair die is 1, if we use an octal logarithm. What is the entropy of an 8-sided die using a binary logarithm? Either show your work or explain the relation. (1)

Question 5

Topic: Lecture 4
Source: Lecture 4

What kind of tasks are CRFs appropriate for (2 requirements)? Don't list tasks, but rather the general class of tasks. (1)

Question 6

Topic: Lecture 1
Source: Lecture 1

Suppletion is a process by which morphological patterns (called paradigms) merge to form a mixed paradigm. For example, the past tense of "to go" comes from an older verb, "wendan - to turn". Describe how syncretic paradigms might impact a machine learning model, and how we can learn to model them accurately. (2)

Question 7

Topic: Lecture 3
Source: Lecture 3

For a language like Archi, which has extremely productive inflection (a verb can theoretically appear in over 1.5 million different forms), do you think that a larger or smaller BPE vocabulary size would be more beneficial? Explain your assumptions about the morphological structure of the language when making your assessment. (2)

Question 8

Topic: Lecture 2
Source: Lecture 2

As a thought experiment, how might we build a calculator using an FST? Imagine that the FST reads input on one side of the tape, and generates operations (that are carried out by an algorithm) on the output side. (2)

Question 9

Topic: Long
Source: Lecture 1

In English (and other stress-timed languages, such as German, Russian, Arabic, Greek, Hindi, Thai, etc.), stress tends to be strongest on the root of the word, and is softer along affixes (and in English, on periphrastic necessities like auxiliary verbs - try it!). What implications might this have on an ASR system, do you think they are a significant issue, and can you envision any way of moderating them with morphological knowledge? (3)

END OF QUIZ