START OF QUIZ
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Question 1

Topic: Lecture 2
Source: Lecture 2

Do you think that FSTs can work with reduplicative morphology? Explain. (1)

Question 2

What is the motivation behind BPE (ie, what is it maximizing / minimizing)? (1)

Question 3

What is the role of the partition function $(Z(x))$ in CRFs? Why is it necessary? (1)

Question 4

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

Question 5

If we were to try to use an HMM for segmentation, describe what the transition and emission probabilities would be. (1)

Question 6

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 7

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 8

Vowel harmony is a process by which vowels in affixes must match some of the properties of the vowels in the root. For example, in Turkish, "houses" is "evler", while "schools" is "okullar", where the plural suffix must have a front or back vowel, matching the root ("ev" and "okul"). Given the ML models you've seen so far, give a specific example of a model that you think can learn this process, and explain why it's well suited to the task. (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