

START OF QUIZ

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Question 1

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 2

Topic: Lecture 2

Source: Lecture 2

In class, I was very careful to only have deletion and substitution in our rewrite rules. What implications might insertion have on rewrites? (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

Describe, with an example (not used in class) the difference between surface and canonical segmentation. (1)

Question 5

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 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 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 8

Topic: Lecture 1

Source: Lecture 1

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 2

In class, we mostly discussed using FSTs for *inflectional* morphology. What are some difficulties that derivational morphology presents, and how do you think that FSTs could still handle derivational morphology? Give some examples, along with some PseudoFoma that demonstrates this handling. (3)

END OF QUIZ