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## Week 11 Quiz

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### Q1

10.0/10.0 points (graded)

The higher the probability of the test corpus the more perplex is the language model.

☐ True

☒ False ✓

Submit

You have used 1 of 1 attempt

### Q2

10.0/10.0 points (graded)

In calculating the probability of a word, a trigram model looks at the three previous words.

☐ True

☒ False ✓

Submit

You have used 1 of 1 attempt

### Q3

10.0/10.0 points (graded)

Check all that apply:

☒ With tools like Siri and Alexa Echo, using natural language is becoming increasingly common ✓

☐ Learning from text is a low hanging fruit because human language is so simple

☒ Language is difficult to model in AI ✓



Submit

You have used 1 of 1 attempt

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Answers are displayed within the problem

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## Q4

10.0/10.0 points (graded)

There has been significant progress in machine translation over the last decade, because statistical models were trained to learn how to translate from a very large dataset of good quality translations.

☒ Yes ✓

☐ No

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You have used 1 of 1 attempt

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## Q5

10.0/10.0 points (graded)

Text classification uses m-estimate of the probabilities:  $p(w_k|c_j) = \frac{n_k+1}{n_j+|\text{Vocabulary}|}$ .

The use of m-estimate is a smoothing technique.

☒ Yes ✓

☐ No

Submit

You have used 1 of 1 attempt

## Q6

10.0/10.0 points (graded)

The idea behind bigram models is to look only one word in the past. That is, approximate the probability  $P(w_k|w_1 \cdots w_{k-1})$  with  $P(w_k|w_{k-1})$

☒ True ✓

☐ False

Submit

You have used 1 of 1 attempt

## Q7

10.0/10.0 points (graded)

Check all that apply:

☒ A language model is a probability distribution over sequences of words ✓

☒ Smoothing is a modification of the probability of words to avoid probabilities of zero ✓

- ☒ Perplexity assesses how confused is the language model when applied on a new corpus. If the model is confused, the perplexity will be high. ✓



Submit

You have used 1 of 1 attempt

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**i** Answers are displayed within the problem

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## Q8

10.0/10.0 points (graded)

Below are the steps in deriving the language model probabilities using trigrams. Please put them in order:

a. Make Markov independence assumptions

$$p(w_i | w_1, w_2 \dots w_{i-2}, w_{i-1}) = p(w_i | w_{i-2}, w_{i-1})$$

2

✓ Answer: 2

b. Smooth the estimates

3

✓ Answer: 3

c. Expand  $p(w_1, w_2 \dots w_n)$  using the chain rule

1

✓ Answer: 1

Submit

You have used 1 of 2 attempts

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**i** Answers are displayed within the problem

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## Q9

10.0/10.0 points (graded)

According to this week's suggested reading "AI's Language Problem" (Check all that apply):

☒ What makes text different from images is that unlike images, two words can have same meaning but look completely different ✓

☐ It is easy to give machines human skills like creativity and abstraction

☒ A problem with applying advanced machine learning methods to text is that a same word can have different meanings in different contexts ✓

☒ Deep learning shows great promise to generalize from vision and games to understanding text ✓



Submit

You have used 1 of 2 attempts

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 Answers are displayed within the problem

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## Q10

10.0/10.0 points (graded)

According to this week's suggested reading "AI's Language Problem" (Check all that apply):

☐ Advanced deep learning systems not only excel in recognizing images and playing games, they are intelligible, that is we understand well how they come up with their answers

☒ The ultimate AI system would not only be able to provide answers, it would also be able to communicate with human language ✓

☒ The ultimate AI system would not only be able to provide an answers, it would also be able to provide explanations ✓




Submit

You have used 1 of 1 attempt

 Answers are displayed within the problem

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 English ▼

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