


1. Corpus: "In every place of great resort the monster was the fashion. They sang of it in the cafes, ridiculed it in the papers, and represented it on the stage." (Jules Verne, Twenty Thousand Leagues under the Sea)

1 / 1 point

In the context of our corpus, what is the probability of word "papers" following the phrase "it in the".

- ☐ $P(\text{papers}|\text{it in the}) = 0$
- ☐ $P(\text{papers}|\text{it in the}) = 1$
- ☐ $P(\text{papers}|\text{it in the}) = 2/3$
- ☒ $P(\text{papers}|\text{it in the}) = 1/2$

 **Correct**
Correct


2. Given these conditional probabilities

1 / 1 point

$P(\text{Mary})=0.1$; $P(\text{likes})=0.2$; $P(\text{cats})=0.3$. $P(\text{Mary}|\text{likes})=0.2$; $P(\text{likes}|\text{Mary})=0.3$; $P(\text{cats}|\text{likes})=0.1$;
 $P(\text{likes}|\text{cats})=0.4$

Approximate the probability of the following sentence with bigrams: "Mary likes cats"

- ☐ $P(\text{Mary likes cats}) = 0$
- ☐ $P(\text{Mary likes cats}) = 0.008$
- ☐ $P(\text{Mary likes cats}) = 1$
- ☒ $P(\text{Mary likes cats}) = 0.003$

 **Correct**
Correct.

3. Given these conditional probabilities

1 / 1 point

$P(\text{Mary})=0.1$; $P(\text{likes})=0.2$; $P(\text{cats})=0.3$

$P(\text{Mary}|\text{<s>})=0.2$; $P(\text{</s>}|\text{cats})=0.6$

$P(\text{likes}|\text{Mary})=0.3$; $P(\text{cats}|\text{likes})=0.1$

Approximate the probability of the following sentence with bigrams: "<s> Mary likes cats </s>"

- ☐ $P(\text{<s> Mary likes cats </s>}) = 1$
- ☐ $P(\text{<s> Mary likes cats </s>}) = 0$
- ☐ $P(\text{<s> Mary likes cats </s>}) = 0.003$

- ☐ $P(<s> \text{ Mary likes cats } </s>) = 1$
- ☐ $P(<s> \text{ Mary likes cats } </s>) = 0$
- ☐ $P(<s> \text{ Mary likes cats } </s>) = 0.003$
- ☒ $P(<s> \text{ Mary likes cats } </s>) = 0.0036$

✓ Correct

4. Given the logarithm of these conditional probabilities:

1 / 1 point

$$\log(P(\text{Mary}|<s>)) = -2; \quad \log(P(</s>|\text{cats})) = -1$$

$$\log(P(\text{likes}|\text{Mary})) = -10; \quad \log(P(\text{cats}|\text{likes})) = -100$$

Approximate the log probability of the following sentence with bigrams : "<s> Mary likes cats </s>"

- ☐ $\log(P(<s> \text{ Mary likes cats } </s>)) = -112$
- ☐ $\log(P(<s> \text{ Mary likes cats } </s>)) = 2000$
- ☒ $\log(P(<s> \text{ Mary likes cats } </s>)) = -113$
- ☐ $\log(P(<s> \text{ Mary likes cats } </s>)) = 113$

✓ Correct
Correct

5. Given the logarithm of these conditional probabilities:

1 / 1 point

$$\log(P(\text{Mary}|<s>)) = -2; \quad \log(P(</s>|\text{cats})) = -1$$

$$\log(P(\text{likes}|\text{Mary})) = -10; \quad \log(P(\text{cats}|\text{likes})) = -100$$

Assuming our test set is $W = "<s> \text{ Mary likes cats } </s>"$, what is the model's perplexity.

- ☐ $\log PP(W) = -113$
- ☐ $\log PP(W) = (-1/5) * (-113)$
- ☒ $\log PP(W) = (-1/4) * (-113)$
- ☐ $\log PP(W) = (-1/5) * 113$

✓ Correct
Correct.

6. Given the training corpus and minimum word frequency=2, how would the vocabulary for corpus preprocessed with <UNK> look like?

1 / 1 point

“<s> I am happy I am learning </s> <s> I am happy I can study </s>”

- ☐ V = {I,am,happy,learning,can,study}
- ☐ V = {I,am,happy,I,am}
- ☐ V = {I,am,happy,learning,can,study,<UNK>}
- ☒ V = {I,am,happy}

✓ Correct
Correct

7. Corpus: “I am happy I am learning”

1 / 1 point

In the context of our corpus, what is the estimated probability of word “can” following the word “I” using the bigram model and add-k-smoothing where k=3.

- ☐ $P(\text{can}|\text{I}) = 0$
- ☐ $P(\text{can}|\text{I}) = 1$
- ☒ $P(\text{can}|\text{I}) = 3/(2+3*4)$
- ☐ $P(\text{can}|\text{I}) = 3/(3*4)$

✓ Correct
Correct.

8. Which of the following are applications of n-gram language models?

1 / 1 point

✓ Speech recognitions

✓ Correct
Correct

✓ Auto-complete

✓ Correct
Correct

✓ Auto-correct

✓ Correct

8. Which of the following are applications of n-gram language models?

1 / 1 point

☒ Speech recognitions

✓ Correct
Correct

☒ Auto-complete

✓ Correct
Correct

☒ Auto-correct

✓ Correct
Correct

☒ Augmentative communication

✓ Correct
Correct

☐ Sentiment Analysis

9. The higher the perplexity score the more our corpus will make sense.

1 / 1 point

☒ False

☐ True

✓ Correct
Correct.

10. The perplexity score increases as we increase the number of <UNK> tokens.

1 / 1 point

☐ True.

☒ False.

✓ Correct
Correct!