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Lecture: Part of Speech Tagging

Lecture Notes (Optional)

Practice Quiz

Practice Quiz: Part of Speech Tagging

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Assignment: Part of Speech Tagging

Part of Speech Tagging

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1. The Transition matrix A defined in lecture allows you to:

1 / 1 point

- ☒ Compute the probability of going from a part of speech tag to another part of speech tag.
- ☐ Compute the probability of going from a word to another word.
- ☐ Compute the probability of going from a word to a part of speech tag.
- ☐ Compute the probability of going from a part of speech tag to a word.

Correct

Correct.

2. The Emission matrix B defined in lecture allows you to:

1 / 1 point

- ☐ Compute the probability of going from a word to a part of speech tag.
- ☒ Compute the probability of going from a part of speech tag to a word.
- ☐ Compute the probability of going from a part of speech tag to another part of speech tag.
- ☐ Compute the probability of going from a word to another word.

Correct

Correct.

3. The column sum of the emission matrix has to be equal to 1.

1 / 1 point

- ☐ True.
- ☒ False.

Correct

It is the row sum that has to be 1.

4. The row sum of the transition matrix has to be 1.

1 / 1 point

- ☒ True
- ☐ False, it has to be the column sum.

Correct

Correct.

5. Why is smoothing usually applied? Select all that apply.

0.25 / 1 point

- ☐ Applying smoothing, for the majority of cases, allows us to decrease the probabilities in the transition and emission matrices and this allows us to have non zero probabilities.
- ☒ Applying smoothing, for the majority of cases, allows us to increase the probabilities in the transition and emission matrices and this allows us to have non zero probabilities.
- ☒ This should not be selected
Incorrect. In general, you are decreasing every entry's number by a little bit so that the 0 probabilities will be non zero. This is assuming there are more non zero entries which is usually the case.
- ☐ Applying smoothing, for the minority of cases, allows us to increase the probabilities in the transition and emission matrices and this allows us to have non zero probabilities.
- ☐ Applying smoothing is a bad idea and we should not use it.

6. Given the following D matrix, what would be the sequence of tags for the words on the right?

1 / 1 point

w_1

w_2

w_3

w_4

w_5

t_1

0

1

3

2

3

t_2

0

2

4

1

3

t_3

0

2

4

1

4

t_4

0

4

4

3

1

$D =$

t_1

0

1

3

2

3

t_2

0

2

4

1

3

t_3

0

2

4

1

4

t_4

0

4

4

3

1

$s = \operatorname{argmax}_i c_{i,K} = 1$

<s> w1 w2 w3 w4 w5

☐ t_1, t_3, t_1, t_2, t_1

☐ t_3, t_4, t_2, t_3, t_1

☒ t_2, t_3, t_1, t_3, t_1

☐ t_3, t_4, t_2, t_2, t_1

Correct

Correct

7. Previously, we have been multiplying the raw probabilities, but in reality we take the log of those probabilities. Why might that be the case?

1 / 1 point

☒ We take the log probabilities because probabilities are bounded between 0 and 1 and as a result, the numbers could be too small and will go towards 0.

☐ The log probabilities should not be used because they introduce noise to our original computed scores.

☐ The log probabilities help us with the inference as they bound the numbers between -1 and 1.

☐ Because the log probabilities force the numbers to be between 0 and 1 and hence, we want to take a probability.

Correct

Correct.

8. Which of the following are useful for applications for parts of speech tagging?

0.75 / 1 point

☒ Speech recognition

Correct

Correct.

☒ Named Entity Recognition

Correct

Correct.

☐ Coreference Resolution

☐ Sentiment Analysis

You didn't select all the correct answers