

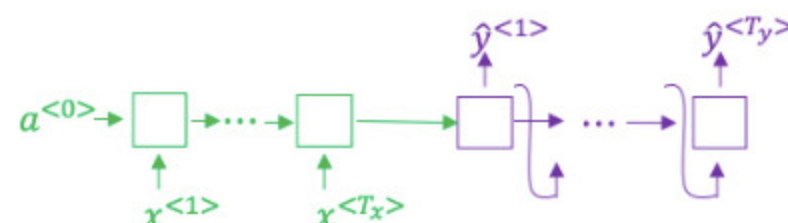
✔ Congratulations! You passed!

Next Item

✔

1. Consider using this encoder-decoder model for machine translation.

1 / 1 points



This model is a "conditional language model" in the sense that the encoder portion (shown in green) is modeling the probability of the input sentence  $x$ .

- True
- False

Correct

✔

2. In beam search, if you increase the beam width  $B$ , which of the following would you expect to be true? Check all that apply.

1 / 1 points

Beam search will run more slowly.

Correct

Beam search will use up more memory.

Correct

Beam search will generally find better solutions (i.e. do a better job maximizing  $P(y \mid x)$ )

Correct

Beam search will converge after fewer steps.

Un-selected is correct

✔

3. In machine translation, if we carry out beam search without using sentence normalization, the algorithm will tend to output overly short translations.

1 / 1 points

True

Correct

False

✔

4. Suppose you are building a speech recognition system, which uses an RNN model to map from audio clip  $x$  to a text transcript  $y$ . Your algorithm uses beam search to try to find the value of  $y$  that maximizes  $P(y \mid x)$ .

1 / 1 points

On a dev set example, given an input audio clip, your algorithm outputs the transcript  $\hat{y} =$  "I'm building an A Eye system in Silly con Valley.", whereas a human gives a much superior transcript  $y^* =$  "I'm building an AI system in Silicon Valley."

According to your model,

$$P(\hat{y} \mid x) = 1.09 \cdot 10^{-7}$$

$$P(y^* \mid x) = 7.21 \cdot 10^{-8}$$

Would you expect increasing the beam width  $B$  to help correct this example?

No, because  $P(y^* \mid x) \leq P(\hat{y} \mid x)$  indicates the error should be attributed to the RNN rather than to the search algorithm.

Correct

No, because  $P(y^* \mid x) \leq P(\hat{y} \mid x)$  indicates the error should be attributed to the search algorithm rather than to the RNN.

Yes, because  $P(y^* \mid x) \leq P(\hat{y} \mid x)$  indicates the error should be attributed to the RNN rather than to the search algorithm.

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✔

5. Continuing the example from Q4, suppose you work on your algorithm for a few more weeks, and now find that for the vast majority of examples on which your algorithm makes a mistake,  $P(y^* \mid x) > P(\hat{y} \mid x)$ . This suggests you should focus your attention on improving the search algorithm.

1 / 1 points

True.

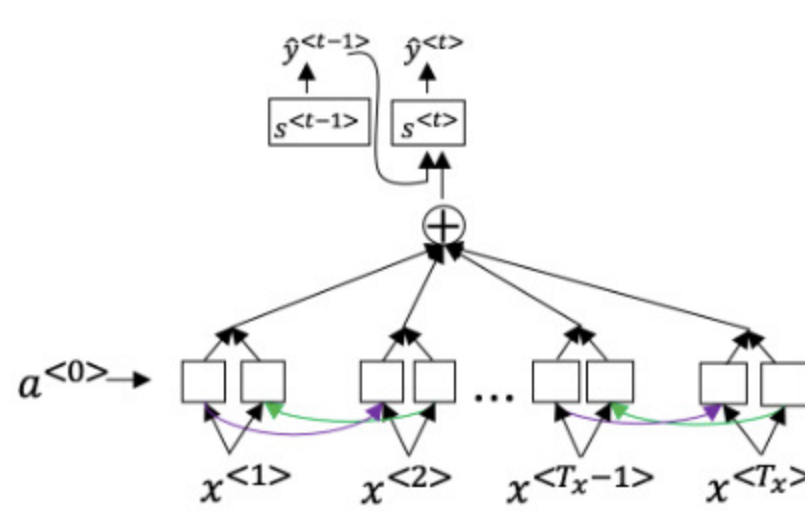
Correct

False.

✔

6. Consider the attention model for machine translation.

1 / 1 points



Further, here is the formula for  $\alpha^{<t, t'>}$ .

$$\alpha^{<t, t'>} = \frac{\exp(e^{<t, t'>})}{\sum_{t'=1}^{T_x} \exp(e^{<t, t'>})}$$

Which of the following statements about  $\alpha^{<t, t'>}$  are true? Check all that apply.

We expect  $\alpha^{<t, t'>}$  to be generally larger for values of  $a^{<t>}$  that are highly relevant to the value the network should output for  $y^{<t'>}$ . (Note the indices in the superscripts.)

Correct

We expect  $\alpha^{<t, t'>}$  to be generally larger for values of  $a^{<t'>}$  that are highly relevant to the value the network should output for  $y^{<t'>}$ . (Note the indices in the superscripts.)

Un-selected is correct

$\sum_{t'} \alpha^{<t, t'>} = 1$  (Note the summation is over  $t$ .)

Un-selected is correct

$\sum_{t'} \alpha^{<t, t'>} = 1$  (Note the summation is over  $t'$ .)

Correct

✔

7. The network learns where to "pay attention" by learning the values  $e^{<t, t'>}$ , which are computed using a small neural network:

1 / 1 points

We can't replace  $s^{<t-1>}$  with  $s^{<t>}$  as an input to this neural network. This is because  $s^{<t>}$  depends on  $\alpha^{<t, t'>}$  which in turn depends on  $e^{<t, t'>}$ ; so at the time we need to evaluate this network, we haven't computed  $s^{<t>}$  yet.

True

Correct

False

✔

8. Compared to the encoder-decoder model shown in Question 1 of this quiz (which does not use an attention mechanism), we expect the attention model to have the greatest advantage when:

1 / 1 points

The input sequence length  $T_x$  is large.

Correct

The input sequence length  $T_x$  is small.

✔

9. Under the CTC model, identical repeated characters not separated by the "blank" character  $\_$  are collapsed. Under the CTC model, what does the following string collapse to?

1 / 1 points

`\_c\_oo\_o\_kk\_b\_ooooo\_oo\_kkk`

cokbok

cookbook

Correct

cook book

coookboooooookkk

✔

10. In trigger word detection,  $x^{<t>}$  is:

1 / 1 points

Features of the audio (such as spectrogram features) at time  $t$ .

Correct

The  $t$ -th input word, represented as either a one-hot vector or a word embedding.

Whether the trigger word is being said at time  $t$ .

Whether someone has just finished saying the trigger word at time  $t$ .