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5. RNN Decoding

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5. RNN Decoding

Decoding



Video

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Transcripts

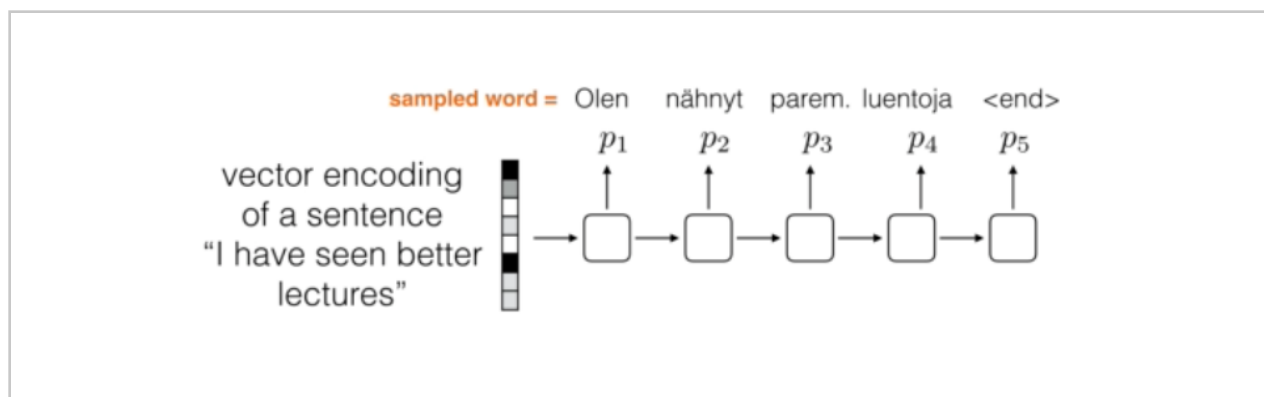
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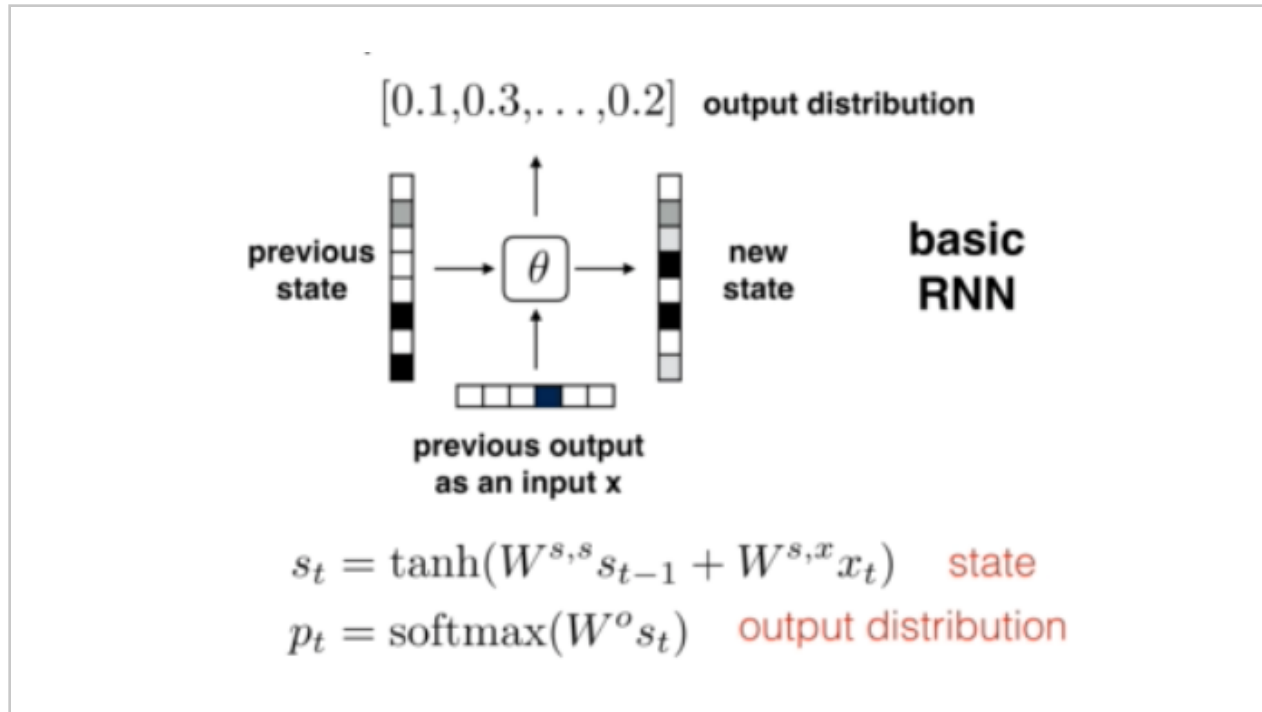
Decoding with RNN

0/1 point (graded)

Now, we would like to decode a feature vector with RNN's. The picture below illustrates how a vector encoding of the English sentence "I have seen better lectures" is translated into a sentence of a foreign language.



Unlike in encoding, at each step, an output distribution p_t is produced in a decoding RNN.



Now, which of the following is true about decoding RNN's?
(Choose all those apply.)

☒ In the translating example above, the output probability distribution p_t is fed as an input to the next step

☐ The probability distribution p_t is the same at each step, just like how parameters are shared between steps

☐ In the first image, the foreign word "Olen" in the above picture is a "sampled" result from a distribution the RNN produced. ✓

✗

Solution:

As shown in the figure, it is the previous output x_t but not the output probability distribution p_t is fed into the next step. The probability distribution is different at each step as it propagated from the beginning state. With the probability distribution at each step, the output word is then sampled from the distribution.

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You have used 2 of 2 attempts

i Answers are displayed within the problem

Predictions

1/1 point (graded)

Suppose we are building an RNN model to translate images into sentences, as described in the lecture. Which of the following is only done in generating the predictions of sentences from a trained RNN given the **test** images but **not** in the training process?

☒ Feeding the sampled output as part of the input to the next time step☐ Calculating what percentage of words the RNN correctly generated☐ Feeding in the hidden state as input each time step

Solution:

All of the above are done during training except using the sampled output as input. In training, you use the true words specified as input for the next time step. However, in testing you want to predict the sentence on your own, so you use the sampled output at one time step as the input for the next step.

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RNN as Turing machine

1

Do RNN's have the capability of Turing machines?



RNN training - loss function

1

In terms of training an RNN, what would be the loss function that is used?

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