92586 Computational Linguistics

Lesson 19a. Bidirectional RNN

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End of Chapter 8 of Lane et al. (2019)

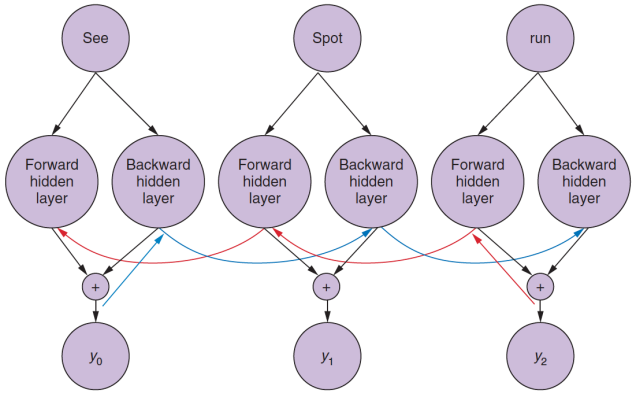
Left and right context

Not only the previous context is important to understand the *current* token

They wanted to pet the dog whose fur was brown.

- Descriptions and relevant information often come later (not earlier)
- A standard RNN neglects information from the *future*

Bidirectional recurrent neural network



- We *arrange* 2 RNNs:
  - one takes the input as usual
  - the other takes the backward input
  - $\bigoplus$ means concatenation

BiRNN zoom into results

Accuracies after 2 epochs

units	**Acc**	**Acc**$_{val}$
50	0.8156	0.7662
40	0.8244	0.7540
30	0.8259	0.7874
20	0.8072	0.8076
10	0.8007	0.8016
5	0.7973	0.8006
1	0.7070	0.7822

* remember we had used 50 units last time for the RNN

References

Lane, H., C. Howard, and H. Hapkem
2019. *Natural Language Processing in Action*. Shelter Island, NY: Manning Publication Co.