DL4Seq - Assignment 3

Otmazgin, Shon
shon711@gmail.com

Rassin, Royi
isroei5700@gmail.com

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1 Report 1

Q: How large were the training and test sets,

A: Train: 1000 examples. 500 positive, 500 negative. Test: 100 examples. 50 positive, 50 negative.

Q: did your network succeed in distinguishing the two languages (it should)?

A: Yes. And it should, LSTM network can learn when sequence of "something" followed by "something" else. In our case b sequence follow c sequence.

Q: how long did it take(both wall-clock time (i.e., number of seconds), and number of iterations)?

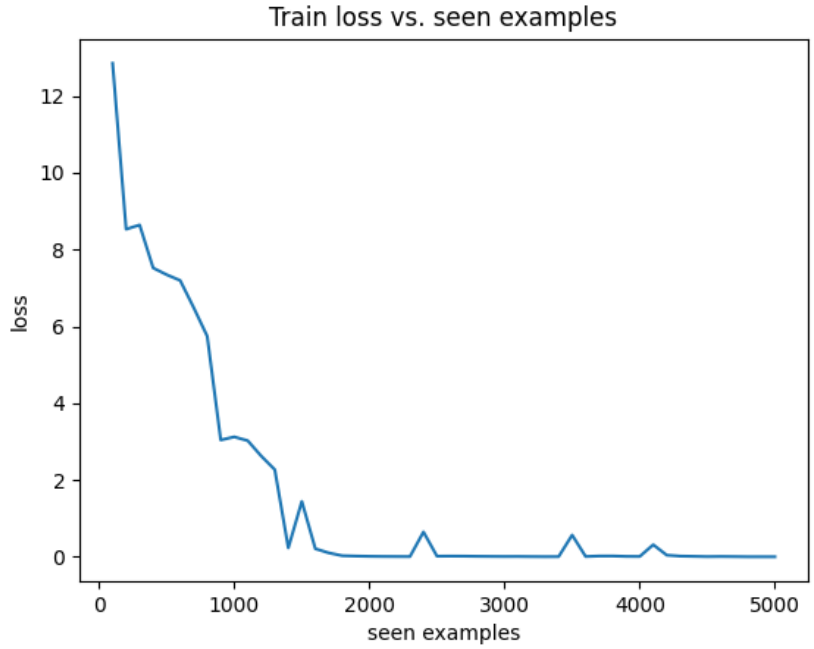
A: We implemented batching in training, in particular we padded each example to the max word length in a batch size of 10 for total 5 epochs. Therefore we had $\frac{1000}{10} * 5 = 500$ iterations. The model learned to distinguish between the two languages after $\sim$ 1500 seen examples which is 150 iteration of batch size of 10 examples. The wall clock after 110 iteration was $\sim$ 39 seconds on GPU.

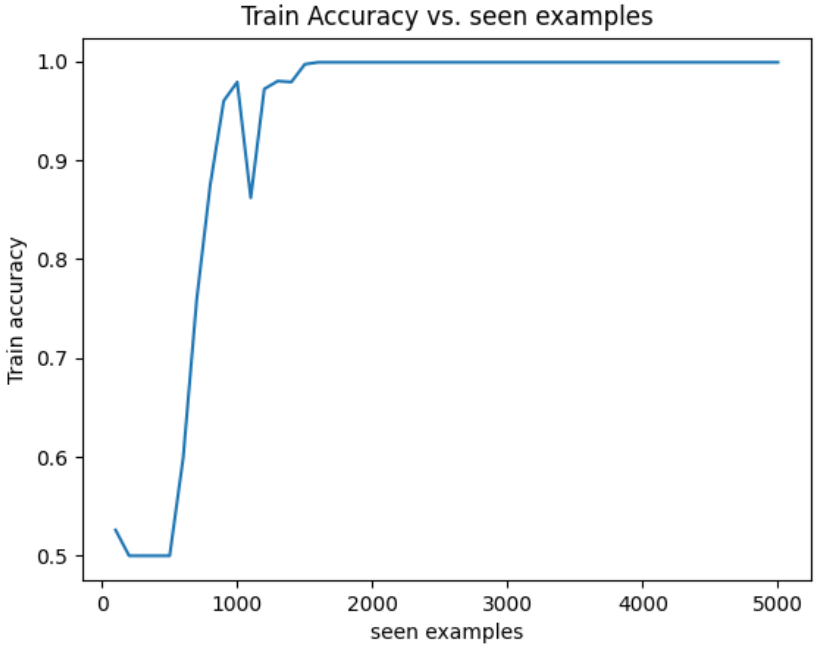
Q: did it succeed only on the train and not on the test?

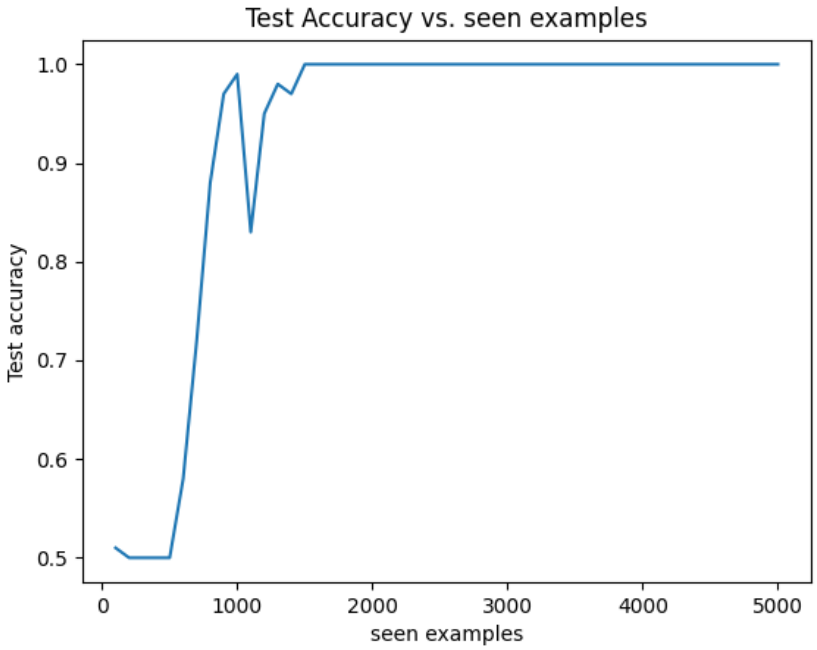
A: No, on both. After each 100 seen examples we measured the model accuracy both on train and test sets. **see below graphs for full details.**

Q: what you did in order to make it work, etc.

A: We implemented 1 layer LSTM(hidden dim = 1024) network followed by MLP with 1 hidden layer(dim=1024) network with dropout(p=0.3) and batch norm. For char embedding we used dim of 300. In addition to Adam optimizer with 0.001 learning rate.


Train loss vs. seen examples
loss
seen examples
0
2
4
6
8
10
12
0
1000
2000
3000
4000
5000


Train Accuracy vs. seen examples
Train accuracy
seen examples
0.5
0.6
0.7
0.8
0.9
1.0
0
1000
2000
3000
4000
5000


Test Accuracy vs. seen examples
Test accuracy
seen examples
1.0
0.9
0.8
0.7
0.6
0.5
0
1000
2000
3000
4000
5000