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Question-Answers

What do you conclude from comparing vectors generated by yourself and the pretrained model?

The output generated by myself and pretrained model are quite similar for the above 2 examples. As it can be seen, "shampoo" and "conditioner" quite similar for hair. Also "hair" and "dandruff" both are associated with the scalp.

Which of the Word2Vec models seems to encode semantic similarities between words better?

Both the models are working well on the above examples but in general pretrained word2vec model will be better because it is trained on more data. If we try to use the example of king, man and woman to get answer as queen, the model trained on the particular data gives "Word not found error". So Google-News-300 word2vec is better as it will handle new words in Test Data.

What do you conclude from comparing performances for the models trained using the two different feature types (TF-IDF and your trained Word2Vec features)?

On the basis of the accuracy score, it can be concluded that models with TF-IDF embeddings are equivalent or better than those with pretrained Word2Vec. As it can be seen that accuracy for Perceptron with TFIDF is 62.4% almost comparable to 63.4% with Pretrained Embeddings. While accuracy for SVC with TFIDF is 71.2 compared to 65.9% with Pretrained Embeddings where the difference is considerable.

What do you conclude by comparing accuracy values you obtain with those obtained in the “’Simple Models” section?

The accuracies of Multilayer Perceptron for part a and b are 67.11% and 56.43% respectively. The accuracy for MLP of part-a is more than accuracy of Perceptron and SVC models with pretrained word embeddings. On the other hand, model trained as of part-b is not doing better comapred to Simple Models. The statistics lead us to model of part 4-a as best so far.

What do you conclude by comparing accuracy values you obtain with those obtained with feedforward neural network model?

The accuracy for RNN model is 64.075% which is better than the feedforward network of part 4-b but not that good compared to part 4-a. So compared to simple RNN, simple MLP is better.

What do you conclude by comparing accuracy values you obtain by GRU, LSTM, and simple RNN?

The accuracy for simple RNN, GRU and LSTM are 64.075%, 66.483% and 66.5% respectively. On the basis of the accuracy, it can be said that LSTM is quite better than RNN and almost equivalent to GRU.

Model Name	Accuracy(%)
Perceptron with TF-IDF Embeddings	62.4
SVC with TF-IDF Embeddings	71.26
Perceptron with pretrained Embeddings	63.4
SVC with pretrained Embeddings	65.9
Feedforward Network for Q-4a	67.1166
Feedforward Network for Q-4b	56.43
RNN model	64.075
GRU model	66.48
LSTM	66.5