**NLP - Exercise 4**

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**Part 1:**

Word Pairs we used and the distances we got:

1. girl - boy: 0.93271995

2. man - woman: 0.8860338

3. playing - games: 0.7456378

4. dancing - love: 0.67933095

5. fast - slow: 0.87440497

6. sweet - sugar: 0.67736775

7. smoke - haze: 0.5486138

8. food - hungry: 0.58667403

9. east - west: 0.95427144

10. door - open: 0.655653

From the results above, we can see that opposite words have got the highest values for similarity. However, words with strong relation between them like “food” and “hungry” have got small similarity between them. This leads us to understand that similarity between two words is measured by replacing the two given words in the sentences they appeared and see how many times the new sentences\ subsentences appeared. Since replacing opposite words gives a meaningful and sensible sentence in most of the times, they get the highest values of similarity. After replacing the opposite words, we will probably get a totally different meaning for the sentence, but the sentence would still be sensible. On the other hand, pairs with words related to each other get a smaller value for similarity but it is still a good value like the one for “door” and “open”.

**Part 2:**