COMP0015
Coursework II
Report

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1 Results and Code

The following *test results.txt* file is the outputs of the final test:

test results.txt

```
['draw', 'paint', 'sock', 'paint']
Predicted answer: paint
['duty', 'task', 'task', 'example']
Predicted answer: task
['dour', 'serious', 'serious', 'unpredictable']
Predicted answer: serious
['murder', 'kill', 'befriend', 'kill']
Predicted answer: kill
['picture', 'painting', 'painting', 'chair']
Predicted answer: painting
['vexed', 'annoyed', 'amused', 'annoyed']
Predicted answer: annoyed
['watch', 'see', 'hear', 'see']
Predicted answer: hear
['tidy', 'clean', 'mess', 'clean']
Predicted answer: clean
['juvenile', 'young', 'young', 'complex']
Predicted answer: young
['plausible', 'believable', 'believable', 'problematic']
Predicted answer: believable
['strike', 'beat', 'beat', 'complain']
Predicted answer: beat
['tearful', 'crying', 'frowning', 'crying']
Predicted answer: crying
['lonely', 'alone', 'alone', 'together']
Predicted answer: alone
['ardent', 'keen', 'keen', 'wise']
Predicted answer: keen
['burglar', 'robber', 'robber', 'postman']
Predicted answer: robber
['authentic', 'genuine', 'genuine', 'false']
Predicted answer: false
['trip', 'journey', 'party', 'journey']
Predicted answer: journey
['stroll', 'walk', 'walk', 'destroy']
Predicted answer: walk
['speak', 'talk', 'talk', 'crawl']
Predicted answer: talk
['begin', 'start', 'sit', 'start']
Predicted answer: sit
['voyage', 'journey', 'dog', 'journey']
Predicted answer: dog
['stone', 'rock', 'rock', 'chair']
Predicted answer: rock
['revile', 'hate', 'regard', 'hate']
Predicted answer: regard
['genuine', 'real', 'real', 'interesting']
Predicted answer: real
```

```
['bring', 'fetch', 'fetch', 'develop']
Predicted answer: fetch
['shout', 'yell', 'smell', 'yell']
Predicted answer: smell
['ruin', 'destroy', 'destroy', 'dare']
Predicted answer: destroy
['sanguine', 'optimistic', 'sad', 'optimistic']
Predicted answer: sad
['leap', 'jump', 'sit', 'jump']
Predicted answer: sit
['evade', 'avoid', 'explore', 'avoid']
Predicted answer: avoid
['infringe', 'violate', 'walk', 'violate']
Predicted answer: walk
['charge', 'accusation', 'accusation', 'admission']
Predicted answer: admission
['ruddy', 'wrinkled', 'reddish', 'wrinkled']
Predicted answer: reddish
['threat', 'danger', 'greeting', 'danger']
Predicted answer: danger
['error', 'mistake', 'mistake', 'robber']
Predicted answer: mistake
['toil', 'work', 'jump', 'work']
Predicted answer: work
['serene', 'quiet', 'colorful', 'quiet']
Predicted answer: quiet
['study', 'examine', 'waste', 'examine']
Predicted answer: waste
['road', 'path', 'path', 'tree']
Predicted answer: path
['pitiless', 'cruel', 'humorless', 'cruel']
Predicted answer: cruel

70.0
```

The following part is the code for the final test.

```
1  import synonyms as syn
2
3  # Use the two novels to build semantic descriptors dictionary,
4  # and to predict answers of test.txt. Show the accuracy.
5  novels = ["wp.txt", "swan_final.txt"]
6  novel_sent_lists = syn.get_sentence_lists_from_files(novels)
7  descriptors = syn.build_semantic_descriptors(novel_sent_lists)
8  print(syn.run_similarity_test("test.txt", descriptors))
```

Note: several special characters are existing in the novel Swann's Way by Marcel Proust. By processing these unreadable characters, new file *swan_final.txt* is obtained.

2 Performance and Analysis

As shown in previous results, by building two novels' semantic descriptors dictionary, the final accuracy of our test prediction is 70%. The performance of the programme is quite good and acceptable, as it is greater than 50%.

However, when we observe the 12 wrong prediction cases:

test results.txt

```
['watch', 'see', 'hear', 'see']
Predicted answer: hear
['authentic', 'genuine', 'genuine', 'false']
Predicted answer: false
['begin', 'start', 'sit', 'start']
Predicted answer: sit
['voyage', 'journey', 'dog', 'journey']
Predicted answer: dog
['revile', 'hate', 'regard', 'hate']
Predicted answer: regard
['shout', 'yell', 'smell', 'yell']
Predicted answer: smell
['sanguine', 'optimistic', 'sad', 'optimistic']
Predicted answer: sad
['leap', 'jump', 'sit', 'jump']
Predicted answer: sit
['infringe', 'violate', 'walk', 'violate']
Predicted answer: walk
['charge', 'accusation', 'accusation', 'admission']
Predicted answer: admission
['ruddy', 'wrinkled', 'reddish', 'wrinkled']
Predicted answer: reddish
['study', 'examine', 'waste', 'examine']
Predicted answer: waste
```

The given answer to one question is wrong. Instead, the correct synonym of *ruddy* is *reddish*. Therefore, our prediction is correct.

test results.txt

```
['ruddy', 'wrinkled', 'reddish', 'wrinkled']
Predicted answer: reddish
```

3 Conclusion

Overall, the programme performs very well on the questions in *test.txt* file. Since there is an error in one question, the total correct prediction number is 29.

$$Accuracy = \frac{29}{40} \times 100\% = 72.5\% \tag{3.1}$$

Therefore, the final accuracy should be modified to 72.5%.