Analysis of Results of K-means Clustering and Application to the Content of *War in Heaven*

1. Analysis of Clusters

Table 1: Descriptive statistics of sound proportions based on manner of speech for the entire text of *War in Heaven*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Word count | Plosive % | Nasals % | Affricate % | Sibilant % | Fricative % | Liquid % | Semi Vowel % |
| count | 4803 | 4803 | 4803 | 4803 | 4803 | 4803 | 4803 | 4803 |
| mean | 16.84 | 32% | 19% | 2% | 14% | 15% | 12% | 6% |
| min | 1 | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 25% | 8 | 27% | 14% | 0% | 10% | 11% | 7% | 2% |
| 50% | 14 | 32% | 19% | 0% | 14% | 16% | 11% | 5% |
| 75% | 22 | 38% | 24% | 3% | 18% | 20% | 15% | 8% |
| max | 121 | 100% | 80% | 56% | 67% | 67% | 67% | 67% |

The clustering algorithm assigns each group of similar sentences a number from 0-6 (7 clusters). The descriptive statistics can be compared to the average for the whole text above to determine the significant characteristics shared by sentences assigned to the same number.

Cluster 0 – High Liquid Consonants

Table 2: Descriptive statistics of sound proportions based on manner of speech for sentences assigned cluster 0

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | Word count | Plosive % | Nasals % | Affricate % | Sibilant % | Fricative % | Liquid % | Semi Vowel % |
| count | 689 | 689 | 689 | 689 | 689 | 689 | 689 | 689 |
| mean | 15.67 | 31% | 15% | 1% | 13% | 13% | 22% | 4% |
| min | 1 | 0% | 0% | 0% | 0% | 0% | 13% | 0% |
| 25% | 7 | 27% | 11% | 0% | 9% | 10% | 18% | 0% |
| 50% | 13 | 32% | 16% | 0% | 13% | 14% | 20% | 4% |
| 75% | 21 | 35% | 20% | 3% | 17% | 17% | 24% | 7% |
| max | 65 | 67% | 33% | 8% | 50% | 36% | 67% | 25% |

Liquid consonants are the only sound group to occur in every sentence. Every sentence in this group contains at least 13% liquid consonants.

Liquid consonants are the only sound group to appear more than average, accounting for an average of 22% of each sentence. The average proportion of each sentence for the whole text is 12%.

Table 3: Descriptive statistics for liquid consonants in each clustering

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Liquid | Overall | Cluster 0 | Cluster 1 | Cluster 2 | Cluster 3 | Cluster 4 | Cluster 5 | Cluster 6 |
| count | 4803 | 689 | 299 | 1241 | 927 | 625 | 285 | 737 |
| mean | 12% | 22% | 11% | 11% | 9% | 10% | 8% | 9% |
| min | 0% | 13% | 0% | 0% | 0% | 0% | 0% | 0% |
| 25% | 7% | 18% | 7% | 8% | 5% | 7% | 0% | 6% |
| 50% | 11% | 20% | 11% | 11% | 9% | 11% | 7% | 10% |
| 75% | 15% | 24% | 15% | 14% | 12% | 13% | 13% | 12% |
| max | 67% | 67% | 50% | 29% | 25% | 33% | 33% | 29% |

When compared with the proportions of liquid consonants on other clusters, the proportion in cluster 0 is significantly higher.

Table 4: Speech content for sentences in cluster 0

|  |  |  |
| --- | --- | --- |
| Speech in sentence? | Count of Sentences | % |
| Both | 45 | 7% |
| No | 295 | 43% |
| Verse | 2 | 0% |
| Yes | 347 | 50% |
| Total | 689 | 14% |

Cluster 0 is split fairly evenly between speech and non-speech

Cluster 0 contains 14% of the total sentence in the textural

Example: Chapter 2, Sentence 295:

ɪts ə **ɹ**ɪzʌ**l**t ɒv ðə **l**æk ɒv t**ɹ**u: **ɹ**ɪ**l**ɪdʒən ɪn ði:z deɪz ænd ə **ɹ**ɒŋ kjʊə**ɹ**iɒsɪti

Cluster 1 – High Affricate Consonants

Table 5: Descriptive statistics of sound proportions based on manner of speech for sentences assigned cluster 1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Word count | Plosive % | Nasals % | Affricate % | Sibilant % | Fricative % | Liquid % | Semi Vowel % |
| count | 299 | 299 | 299 | 299 | 299 | 299 | 299 | 299 |
| mean | 11.44 | 30% | 18% | 10% | 13% | 13% | 11% | 5% |
| min | 1 | 0% | 0% | 5% | 0% | 0% | 0% | 0% |
| 25% | 6 | 24% | 12% | 7% | 9% | 9% | 7% | 0& |
| 50% | 9 | 30% | 18% | 9% | 13% | 13% | 11% | 4% |
| 75% | 15 | 36% | 23% | 11% | 18% | 18% | 15% | 8% |
| max | 58 | 67% | 57% | 56% | 43% | 33% | 50% | 31% |

Affricate consonants are the only sound group to occur in every sentence in this cluster, all containing at least 5% affricate consonants.

Affricate consonants are the only sound group to appear more than average, accounting for an average of 10% of each sentence. The average proportion of each sentence for the whole text is 2%.

Table 6: Descriptive statistics for Affricate consonants in each clustering

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Affricate | Overall | Cluster 0 | Cluster 1 | Cluster 2 | Cluster 3 | Cluster 4 | Cluster 5 | Cluster 6 |
| count | 4803 | 689 | 299 | 1241 | 927 | 625 | 285 | 737 |
| mean | 2% | 1% | 10% | 2% | 1% | 1% | 1% | 1% |
| min | 0% | 0% | 5% | 0% | 0% | 0% | 0% | 0% |
| 25% | 0% | 0% | 7% | 0% | 0% | 0% | 0% | 0% |
| 50% | 0% | 0% | 9% | 0% | 0% | 0% | 0% | 0% |
| 75% | 3% | 3% | 11% | 3% | 2% | 3% | 0% | 3% |
| max | 56% | 8% | 56% | 10% | 9% | 10% | 12% | 8% |

When compared with the proportions of affricate consonants on other clusters, the proportion in cluster 1 is significantly higher.

Table 7: Speech content for sentences in cluster 1

|  |  |  |
| --- | --- | --- |
| Speech in sentence? | Count of Sentences | % |
| Both | 7 | 2% |
| No | 100 | 33% |
| Verse | 0 | 0% |
| Yes | 192 | 64% |
| Total | 299 | 6% |

Cluster 1 contains more speech that non-speech sentences and makes up only 6% of the total sentences in the text making it the joint smallest group with semi-vowels

Example: Chapter 5, Sentence 1071:

sɜ: **dʒ**aɪlz swɪ**tʃ**t bæk tu: ðə sʌb**dʒ**ɛkt

Cluster 2 – High Fricative Consonants

Table 8: Descriptive statistics of sound proportions based on manner of speech for sentences assigned cluster 2

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | Word count | Plosive % | Nasals % | Affricate % | Sibilant % | Fricative % | Liquid % | Semi Vowel % |
| count | 1241 | 1241 | 1241 | 1241 | 1241 | 1241 | 1241 | 1241 |
| mean | 22.07 | 28% | 18% | 2% | 13% | 23% | 11% | 5% |
| min | 1 | 0% | 0% | 0% | 0% | 13% | 0% | 0% |
| 25% | 13 | 25% | 15% | 0% | 10% | 19% | 8% | 2% |
| 50% | 19 | 29% | 19% | 0% | 13% | 22% | 11% | 5% |
| 75% | 29 | 32% | 21% | 3% | 16% | 26% | 14% | 7% |
| max | 121 | 50% | 35% | 10% | 33% | 67% | 29% | 20% |

Fricative consonants are the only sound group to occur in every sentence in this cluster, all containing at least 13% fricative consonants.

Fricative consonants are the only sound group to appear more than average, accounting for an average of 23% of each sentence. The average proportion of each sentence for the whole text is 15%.

Table 9: Descriptive statistics for Fricative consonants in each cluster

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Fricative | Overall | Cluster 0 | Cluster 1 | Cluster 2 | Cluster 3 | Cluster 4 | Cluster 5 | Cluster 6 |
| count | 4803 | 689 | 299 | 1241 | 927 | 625 | 285 | 737 |
| mean | 15% | 13% | 13% | 23% | 13% | 12% | 11% | 13% |
| min | 0% | 0% | 0% | 13% | 0% | 0% | 0% | 0% |
| 25% | 11% | 10% | 9% | 19% | 10% | 9% | 5% | 10% |
| 50% | 16% | 14% | 13% | 22% | 14% | 12% | 12% | 14% |
| 75% | 20% | 17% | 18% | 26% | 17% | 16% | 17% | 17% |
| max | 67% | 36% | 33% | 67% | 30% | 33% | 38% | 28% |

When compared with the proportions of fricative consonants on other clusters, the proportion in cluster 2 is significantly higher.

Table 10: Speech content for sentences in cluster 2

|  |  |  |
| --- | --- | --- |
| Speech in sentence? | Count of Sentences | % |
| Both | 90 | 7% |
| No | 662 | 53% |
| Verse | 3 | 0% |
| Yes | 486 | 39% |
| Total | 1241 | 26% |

Cluster 2 contains more non-speech sentences than speech sentences. It also has the highest proportion of non-speech sentences meaning the sentences are mostly descriptive text. Cluster 2 contains 26% of the total sentences in the text making it the largest group.

Example: Chapter 10, Sentence 2287:

**h**i: tɜ:nd **ð**ə peɪdʒ ɒ**v** **ð**ə ɹɪpɔ:ts ɪn **ð**ə **f**aɪl bɪ**f**ɔ: **h**ɪm

Cluster 3 – High Plosive Consonants

Table 11: Descriptive statistics of sound proportions based on manner of speech for sentences assigned cluster 3

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | Word count | Plosive % | Nasals % | Affricate % | Sibilant % | Fricative % | Liquid % | Semi Vowel % |
| count | 927 | 927 | 927 | 927 | 927 | 927 | 927 | 927 |
| mean | 15.92 | 45% | 16% | 1% | 11% | 13% | 9% | 5% |
| min | 1 | 33% | 0% | 0% | 0% | 0% | 0% | 0% |
| 25% | 8 | 40% | 12% | 0% | 8% | 10% | 5% | 0% |
| 50% | 13 | 43% | 17% | 0% | 12% | 14% | 9% | 5% |
| 75% | 21 | 48% | 20% | 2% | 15% | 17% | 12% | 8% |
| max | 106 | 100% | 36% | 9% | 33% | 30% | 25% | 17% |

Plosive consonants are the only sound group to occur in every sentence in this cluster, all containing at least 33% plosive consonants.

Plosive consonants are the only sound group to appear more than average, accounting for an average of 45% of each sentence. The average proportion of each sentence for the whole text is 32%.

Table 12: Descriptive statistics for Plosive consonants in each cluster

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Fricative | Overall | Cluster 0 | Cluster 1 | Cluster 2 | Cluster 3 | Cluster 4 | Cluster 5 | Cluster 6 |
| count | 4803 | 689 | 299 | 1241 | 927 | 625 | 285 | 737 |
| mean | 32% | 31% | 30% | 28% | 45% | 29% | 31% | 30% |
| min | 0% | 0% | 0% | 0% | 33% | 0% | 0% | 0% |
| 25% | 27% | 27% | 24% | 25% | 40% | 25% | 24% | 25% |
| 50% | 32% | 32% | 30% | 29% | 43% | 30% | 32% | 30% |
| 75% | 38% | 35% | 36% | 32% | 48% | 34% | 38% | 35% |
| max | 100% | 67% | 67% | 50% | 100% | 50% | 67% | 50% |

When compared with the proportions of plosive consonants on other clusters, the proportion in cluster 3 is significantly higher.

Table 13: Speech content for sentences in cluster 3

|  |  |  |
| --- | --- | --- |
| Speech in sentence? | Count of Sentences | % |
| Both | 45 | 5% |
| No | 324 | 35% |
| Verse | 3 | 0% |
| Yes | 555 | 60% |
| Total | 927 | 19% |

Cluster 3 contains more speech sentences than non-speech sentences. Cluster 3 contains 19% of the total sentences in the text.

Example: Chapter 12, Sentence 3460:

hi: wʊ**d** hæv **t**u: si: ə**b**aʊ**t** **g**ɛ**t**ɪŋ ə dʒɒ**b** **b**ʌ**t** ə **d**eɪ ɔ: **t**u: fɜ:s**t** **k**ʊ**d** **d**u: nəʊ hɑ:m

Cluster 4 – High Sibilant Consonants

Table 14: Descriptive statistics of sound proportions based on manner of speech for sentences assigned cluster 4

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | Word count | Plosive % | Nasals % | Affricate % | Sibilant % | Fricative % | Liquid % | Semi Vowel % |
| count | 625 | 625 | 625 | 625 | 625 | 625 | 625 | 625 |
| mean | 15.05 | 29% | 17% | 1% | 25% | 12% | 10% | 5% |
| min | 1 | 0% | 0% | 0% | 16% | 0% | 0% | 0% |
| 25% | 8 | 25% | 14% | 0% | 21% | 9% | 7% | 1% |
| 50% | 13 | 30% | 18% | 0% | 23% | 12% | 11% | 5% |
| 75% | 19 | 34% | 21% | 3% | 27% | 16% | 13% | 8% |
| max | 82 | 50% | 36% | 10% | 67% | 33% | 33% | 20% |

Sibilant consonants are the only sound group to occur in every sentence in this cluster, all containing at least 16% consonants.

Sibilant consonants are the only sound group to appear more than average, accounting for an average of 25% of each sentence. The average proportion of each sentence for the whole text is 14%.

Table 15: Descriptive statistics for Sibilant consonants in each cluster

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sibilant | Overall | Cluster 0 | Cluster 1 | Cluster 2 | Cluster 3 | Cluster 4 | Cluster 5 | Cluster 6 |
| count | 4803 | 689 | 299 | 1241 | 927 | 625 | 285 | 737 |
| mean | 14% | 13% | 13% | 13% | 11% | 25% | 10% | 12% |
| min | 0% | 0% | 0% | 0% | 0% | 16% | 0% | 0% |
| 25% | 10% | 9% | 9% | 10% | 8% | 21% | 0% | 9% |
| 50% | 14% | 13% | 13% | 13% | 12% | 23% | 10% | 12% |
| 75% | 18% | 17% | 18% | 16% | 15% | 27% | 14% | 16% |
| max | 67% | 50% | 43% | 33% | 33% | 67% | 40% | 31% |

When compared with the proportions of sibilant consonants on other clusters, the proportion in cluster 4 is significantly higher.

Table 16: Speech content for sentences in cluster 4

|  |  |  |
| --- | --- | --- |
| Speech in sentence? | Count of Sentences | % |
| Both | 36 | 6% |
| No | 192 | 31% |
| Verse | 1 | 0% |
| Yes | 396 | 63% |
| Total | 625 | 13% |

Cluster 4 contains more speech sentences than non-speech sentences. Cluster 4 contains 13% of the total sentences in the text.

Example: Chapter 1, Sentence 101:

aɪ dɛə**s**eɪ hi: wɒ**z** pɜ:**s**ɪmən**z** **s**ɛd ɪf hi: **s**ɛd **s**əʊ.

Cluster 5 – High Semi-Vowels Consonants

Table 17: Descriptive statistics of sound proportions based on manner of speech for sentences assigned cluster 5

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | Word count | Plosive % | Nasals % | Affricate % | Sibilant % | Fricative % | Liquid % | Semi Vowel % |
| count | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| mean | 9.87 | 31% | 18% | 1% | 10% | 11% | 8% | 21% |
| min | 1 | 0% | 0% | 0% | 0% | 0% | 0% | 12% |
| 25% | 5 | 24% | 11% | 0% | 0% | 5% | 0% | 16% |
| 50% | 9 | 32% | 18% | 0% | 10% | 12% | 7% | 19% |
| 75% | 13 | 38% | 25% | 0% | 14% | 17% | 13% | 25% |
| max | 47 | 67% | 50% | 12% | 40% | 38% | 33% | 67% |

Semi-vowel consonants are the only sound group to occur in every sentence in this cluster, all containing at least 12% consonants.

Semi-vowel consonants are the only sound group to appear more than average, accounting for an average of 21% of each sentence. The average proportion of each sentence for the whole text is 6%.

Table 18: Descriptive statistics for semi-vowel consonants in each cluster

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Semi-vowels | Overall | Cluster 0 | Cluster 1 | Cluster 2 | Cluster 3 | Cluster 4 | Cluster 5 | Cluster 6 |
| count | 4803 | 689 | 299 | 1241 | 927 | 625 | 285 | 737 |
| mean | 6% | 4% | 5% | 5% | 5% | 5% | 21% | 5% |
| min | 0% | 0% | 0% | 0% | 0% | 0% | 12% | 0% |
| 25% | 2% | 0% | 0% | 2% | 0% | 1% | 16% | 0% |
| 50% | 5% | 4% | 4% | 5% | 5% | 5% | 19% | 5% |
| 75% | 8% | 7% | 8% | 7% | 8% | 8% | 25% | 7% |
| max | 67% | 25% | 31% | 20% | 17% | 20% | 67% | 18% |

When compared with the proportions of semi-vowel consonants in other clusters, the proportion in cluster 5 is significantly higher.

Table 19: Speech content for sentences in cluster 5

|  |  |  |
| --- | --- | --- |
| Speech in sentence? | Count of Sentences | % |
| Both | 0 | 0% |
| No | 24 | 8% |
| Verse | 0 | 0% |
| Yes | 261 | 92% |
| Total | 285 | 6% |

Cluster 5 contains much more speech sentences than non-speech sentences, with the highest proportion of speech out of all the clusters. Cluster 5 contains only 6% of the total sentences in the text.

Example: Chapter 11, Sentence 2841:

**w**ʌn deɪ ɪf **j**u: laɪk aɪ **w**ɪl gɪv **j**u: ðə **w**ɜ:ld

Cluster 6 – High Nasal Consonants

Table 20: Descriptive statistics of sound proportions based on manner of speech for sentences assigned cluster 6

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | Word count | Plosive % | Nasals % | Affricate % | Sibilant % | Fricative % | Liquid % | Semi Vowel % |
| count | 737 | 737 | 737 | 737 | 737 | 737 | 737 | 737 |
| mean | 16.71 | 30% | 30% | 1% | 12% | 13% | 9% | 5% |
| min | 1 | 0% | 20% | 0% | 0% | 0% | 0% | 0% |
| 25% | 9 | 25% | 25% | 0% | 9% | 10% | 6% | 0% |
| 50% | 14 | 30% | 29% | 0% | 12% | 14% | 10% | 5% |
| 75% | 22 | 35% | 33% | 3% | 16% | 17% | 12% | 7% |
| max | 92 | 50% | 80% | 8% | 31% | 28% | 29% | 18% |

Nasal consonants are the only sound group to occur in every sentence in this cluster, all containing at least 20% consonants.

Nasal consonants are the only sound group to appear more than average, accounting for an average of 30% of each sentence. The average proportion of each sentence for the whole text is 19%.

Table 21: Descriptive statistics for nasal consonants in each cluster

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Nasal | Overall | Cluster 0 | Cluster 1 | Cluster 2 | Cluster 3 | Cluster 4 | Cluster 5 | Cluster 6 |
| count | 4803 | 689 | 299 | 1241 | 927 | 625 | 285 | 737 |
| mean | 19% | 15% | 18% | 18% | 16% | 17% | 18% | 30% |
| min | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 20% |
| 25% | 14% | 11% | 12% | 15% | 12% | 14% | 11% | 25% |
| 50% | 19% | 16% | 18% | 19% | 17% | 18% | 18% | 29% |
| 75% | 24% | 20% | 23% | 21% | 20% | 21% | 25% | 33% |
| max | 80% | 33% | 57% | 35% | 36% | 36% | 50% | 80% |

When compared with the proportions of nasal consonants in other clusters, the proportion in cluster 6 is significantly higher.

Table 22: Speech content for sentences in cluster 6

|  |  |  |
| --- | --- | --- |
| Speech in sentence? | Count of Sentences | % |
| Both | 41 | 6% |
| No | 242 | 33% |
| Verse | 0 | 0% |
| Yes | 454 | 62% |
| Total | 737 | 15% |

Cluster 6 contains more speech sentences than non-speech sentences. Cluster 6 contains 15% of the total sentences in the text.

Example: Chapter 7, Sentence 1631:

**n**əʊ **m**i: əgeɪ**n** əʊ səʊl æ**n**d **n**əʊ **m**i: ðaɪ fɹɛ**n**d æ**n**d **m**ɑ:stə

2. Application of cluster categories to the text

The following tables show significant areas in the text for each sound group. A section is defined as significant if there are 3 or more consecutive sentences which have been assigned the same cluster. The line references refer to the text in Appendix 1. The story point provides a brief summary of the plot in that section with page references.

Page references are from the following edition:

Williams, C. *War in Heaven* Michigan: William B. Eerdmans 1991.

Table 23: Areas of significant liquid consonants (cluster 0)

|  |  |  |  |
| --- | --- | --- | --- |
| Chapter | No of Sentences | Line Ref | Story Point |
| 3 | 4 | 471-474 | Mornington laughs with the Archdeacon on his office and the Archdeacon comments on publishing. p32 |
| 6 | 3 | 1310-1312 | Barbara and Lionel comfort Adrian as he sleeps. p77 |
| 7 | 3 | 1532-1534 | The Archdeacon comes out of the bathroom at Cully after finding the Graal. p88 |
| 10 | 3 | 2412-2414 | Mornington describes Gregory’s blasphemy to the Archdeacon and the Duke. The Archdeacon warns that they must not be tempted to become like Gregory. p135 |
| 11 | 3 | 2825-2827 | Gregory finds Barbara, Lionel and Adrian in the grounds of Cully. p156 |
| 11 | 3 | 2901-2903 | Barbara falls ill and starts to scream. p159 |
| 12 | 7 | 3068-3075 | Gregory tries to convince Lionel of delight in the horrible. p168 |
| 15 | 3 | 4173-4175 | The Greek tells Gregory that he must take the Duke’s letter to the Archdeacon. p219-220 |
| 17 | 4 | 4615-4618 | The spirit of Gregory’s victim appears as an apparition over the Graal and descends upon the Archdeacon. p244 |

Table 24: Areas of significant affricate consonants (cluster 1)

|  |  |  |  |
| --- | --- | --- | --- |
| Chapter | No of Sentences | Line Ref | Story Point |
| 7 | 3 | 1366-1368 | Sir Giles grows angry at Mornington about the confidentiality of his proofs. p80 |
| 10 | 3 | 2463-2465 | The Duke and Mornington argue about who the Graal belongs to. p138 |
| 11 | 3 | 2833-2835 | Gregory speaking to Adrian about trains. p156 |

Table 25: Areas of significant fricative consonants (cluster 2)

|  |  |  |  |
| --- | --- | --- | --- |
| Chapter | No of Sentences | Line Ref | Story Point |
| 2 | 12 | 167-178 | A description of Lionel’s reaction to the dead body found beneath his desk that day on the way home from work. He experiences semi-hallucinatory paranoia. p17-18 |
| 6 | 3 | 1259-1261 | Description of the Witches’ Sabbath from Gregory’s point of view while he is in a trance state under the influence of the ointment. p73 |
| 6 | 4 | 1276-1279 | Gregory’s experience of desire in the trance state. His father appears before him as an apparition from his past. p75 |
| 6 | 3 | 1291-1293 | An image of Adrian appears to Gregory while in a trance state. p76 |
| 9 | 3 | 2099-2101 | The Graal falls into the Archdeacon’s hands as he gazes at it and he runs from Gregory’s house. p118-119 |
| 10 | 4 | 2240-2243 | The Inspector, half asleep, thinking about the murder case. His mind drifts to Gregory Persimmons as a kind of premonition. p126 |
| 10 | 11 | 2340-2350 | Steven Persimmons contemplates his helplessness in the face of his father. Kenneth realises that he will be on his own when facing Gregory. p131-132 |
| 10 | 6 | 2429-2431  2434-2436 | The beginning of the Archdeacon’s counter prayer to protect the Graal against destructive forces. The Duke’s ancestral and Kenneth’s memory of Arthurian romance appear to them during the prayer. p135-136 |
| 10 | 3 | 2453-2455 | The Archdeacon feels the will behind creation through the Graal. p137 |
| 11 | 4 | 2589-2592 | Manasseh speaking of his desire or destruction. p144 |
| 11 | 3 | 2790-2792 | Gregory experiences a surge of anger and hate in the presence of Prester John. p154-155 |
| 11 | 4 | 2932-2935 | Gregory speculates on what Barbara is experiencing while she is in a trance state induced by the ointment. p160-161 |
| 11 | 5 | 2943-2952 | Barbara dances while in a trance state. p161-162 |
| 12 | 4 | 3081-3084 | Gregory is driven to anger through his inability to torment Lionel. p168-169 |
| 13 | 3 | 3527-3529 | Prester John makes his final threat to Giles Tumulty. p190 |
| 13 | 3 | 3861-3863 | Prester John warns the Archdeacon of what is ahead. p204 |
| 15 | 6 | 4122-4127 | A description of the Greek’s face charged with black magic during the spell which kills Kenneth. p216-217 |
| 15 | 4 | 4133-4136 | Gregory shrinks in fear at the sight of the Greek’s face. p217-218 |
| 17 | 3 | 4499-4501 | Gregory experiences a sky of serenity as he thinks about the Archdeacon. p236-237 |
| 17 | 5 | 4527-4531 | Gregory contemplates the nature of Prester John. p238 |
| 17 | 3 | 4555-4557 | Darkness gathers around the chemist’s as a spell of concealment is woven around it and the Archdeacon feels his spiritual strength abandon him. p239-240 |
| 17 | 4 | 4571-4574 | The Archdeacon senses the three directions of energy flowing towards the Graal as the ritual magic to marry his soul to that of the murder victim begins. p241 |
| 17 | 5 | 4600-4604 | The Archdeacon senses another being drawn towards him and falls unconscious. p242-243 |
| 17 | 19 | 4625-4643 | Prester John rises from the Graal and breaks the spell. The Archdeacon regains consciousness and rises. p244-246 |
| 18 | 12 | 4747-4758 | Prester John begins the celebration of the Eucharist. p252-253 |
| 18 | 3 | 4767-4769 | A description of the Archdeacon’s experience of the celebration. p254 |
| 18 | 16 | 4775-4790 | The Archdeacon says goodbye to those involved with the Graal quest. He begins to move towards the altar and falls down dead. p254-255 |

Table 26: Areas of significant plosive consonants (cluster 3)

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| Chapter | No of Sentences | Line Ref | Story Point |
| 1 | 3 | 38-40 | Mornington and Lionel realise that the man under the desk is dead and try to get him out. p9 |
| 2 | 3 | 138-140 | Adrian playing with his trains. p15 |
| 2 | 3 | 182-184 | Lionel watching Barbara slowly reading the paper. p18 |
| 2 | 4 | 253-256 | The Archdeacon tells Mornington about his book. p21 |
| 2 | 3 | 274-276 | The Archdeacon talking about his book. p22 |
| 2 | 3 | 313-315 | The Archdeacon talking about Kastra Parvolorum and Indo-European sound change. p24 |
| 3 | 3 | 518-520 | Gregory meets Adrian for the first time. p34-35 |
| 4 | 3 | 848-850 | The Archdeacon decides not to go on holiday after his suspicious meeting with Ludding. p52 |
| 5 | 3 | 1014-1016 | Mornington speaking to Steven Persimmons about the murder. p61 |
| 5 | 4 | 1169-1172 | Gregory leaves the chemists. p68 |
| 7 | 4 | 1484-1487 | Gregory shows his initialled copy of King Lear to the Archdeacon. p86 |
| 7 | 6 | 1545-1555 | Gregory and Giles talk about the Archdeacon and the fact that he found the Graal in Gregory’s bathroom. p89 |
| 7 | 3 | 1637-1639 | Gregory closes the rite where he calls the spirit of Adrian. p93 |
| 8 | 3 | 1720-1722 | The Duke talks to Mornington about publishing anonymously. p97 |
| 8 | 3 | 1796-1798 | Mornington tells the Archdeacon about publishing his book. p101 |
| 9 | 4 | 1971-1974 | The Archdeacon tells the police he doesn’t want them to look for the Graal. p112 |
| 9 | 3 | 1980-1982 | The Archdeacon tries to explain why he doesn’t want the police to find the Graal. p112 |
| 10 | 3 | 2303-2305 | The Duke says the Graal can be stored in his safe. p129 |
| 10 | 3 | 2331-2333 | Steven asks Mornington if Gregory will want him to be fired. p131 |
| 10 | 3 | 2499-2501 | The Graal starts to lose shape in the Archdeacon’s hands. p139 |
| 10 | 3 | 2505-2507 | The Duke tries to understand what is happening to the Graal as it is attacked from afar. p139 |
| 11 | 3 | 2568-2570 | Manasseh tried to convince the others to destroy the Graal. p144 |
| 11 | 3 | 2582-2584 | Manasseh tried to convince the others to destroy the Graal. p144 |
| 11 | 3 | 2683-2685 | Mr Batesby talks about crushing the serpent’s head. p150 |
| 12 | 5 | 3298-3302 | The Archdeacon explains that he does not value the material thing of the Graal and that he does not think of doing anything with it. p178-179 |
| 12 | 3 | 3477-3479 | The Archdeacon says he does not think Manasseh should trust the Graal. p187 |
| 13 | 3 | 3550-3552 | Mr. Batesby becomes more of a ‘guide and guard’ of the church as he speaks with Prester John. p191 |
| 13 | 3 | 3628-3630 | Batesby speaks to the chief constable about Pattison and Prester John steps out of the conversation. p194 |
| 13 | 3 | 3692-3694 | The Duke and Mornington try to talk but all they can think about is the Graal. p197 |
| 13 | 3 | 3713-3715 | Mornington realise that Manasseh did not actually cure Barbara. p198 |
| 13 | 3 | 3748-3750 | The Duke and Mornington talk about how to get the Graal back. p199 |
| 14 | 3 | 3912-3914 | The Inspector asks Mrs. Hippy about the bible. p206 |
| 15 | 3 | 4024-4026 | Gregory announces that he will marry the soul of Pattison to the soul of the Archdeacon. p212 |
| 15 | 3 | 4167-4169 | Gregory doubts that the letter they force the Duke to write to the Archdeacon will work. p219 |
| 16 | 4 | 4214-4217 | The Inspector and the Assistant Commissioner talk about the Graal. p223 |
| 16 | 3 | 4409-4411 | The Assistant Commissioner tries to find the chemists in the fog. p232 |
| 17 | 3 | 4534-4536 | Gregory tells Jessie that they are going to London. p238 |

Table 27: Areas of significant sibilant consonants (cluster 4)

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| Chapter | No of Sentences | Line Ref | Story Point |
| 8 | 4 | 1666-1669 | Mornington walking through the rain to Fardles. p95 |
| 8 | 3 | 1866-1868 | Sir Giles and Gregory talk about the proofs of Giles’ book. p105 |
| 8 | 4 | 1877-1880 | Giles and Mornington argue over the proofs. p106 |
| 9 | 3 | 2083-2085 | The Archdeacon feels compelled to move before the Graal in Gregory’s house. p117-118 |
| 9 | 3 | 2090-2092 | The Archdeacon feels that the destiny of the Graal is being fulfilled as it moves towards him. p118 |
| 11 | 3 | 2647-2649 | Ludding is thrown off by Mrs. Lucksparrow’s talking. p147 |
| 12 | 3 | 3166-3168 | Sir Giles tries to tell Gregory about Prester John. p172 |
| 12 | 3 | 3389-3391 | Gregory speaks to the nurse looking after Barbara. p183 |
| 16 | 3 | 4222-4224 | The Inspector and the Chief Constable think that the Graal has been stolen from a museum. p224 |
| 16 | 3 | 4268-4270 | The Assistant Commissioner suspects Lionel has something to do with the murder. p226 |

Table 28: Areas of significant semi-vowel consonants (cluster 5)

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| --- | --- | --- | --- |
| Chapter | No of Sentences | Line Ref | Story Point |
| 2 | 3 | 362-364 | Gregory tells Stephen what will happen with Giles’ book. p26 |
| 12 | 3 | 3393-3395 | Gregory speaks to the nurse who is looking after Barbara. p183 |
| 12 | 3 | 3497-3499 | Gregory sends Manasseh away once he has the Graal. p188 |

Table 29: Areas of significant nasal consonants (cluster 6)

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| Chapter | No of Sentences | Line Ref | Story Point |
| 2 | 3 | 210-212 | Lionel tries to centre himself by focussing on Adrian’s reality. p19 |
| 2 | 3 | 358-360 | Gregory taunts Stephen by threatening the finances of the publishers. p26 |
| 2 | 3 | 397-399 | Gregory taunts Stephen about his mother and his will. p27 |
| 5 | 3 | 1017-1019 | Stephen talks to Mornington about the body found in the office. p61-62 |
| 6 | 3 | 1271-1273 | Gregory descends into darkness and stillness under the influence of the ointment. p74 |
| 8 | 4 | 1691-1694 | The Duke and Mornington talk about poetry. p96 |
| 8 | 4 | 1814-1817 | Mornington talks about Gregory’s interest in the occult. p102 |
| 10 | 3 | 2290-2292 | The Colonel remembering Mornington’s involvement with the Archdeacon. p129 |
| 11 | 3 | 2752-2754 | The Inspector meets Gregory after the fight with Ludding. p153 |
| 11 | 3 | 2968-2970 | Gregory imposes his mind on Adrian’s mind. p163 |
| 12 | 3 | 3037-3039 | Gregory tells Lionel Adrian can stay with him while Barbara is ill. p167 |
| 12 | 4 | 3089-3092 | Gregory tells Lionel about his doctor. p169 |
| 12 | 3 | 3397-3399 | Gregory distracts the nurse and applies more of the ointment to Barbara. p183-184 |
| 15 | 3 | 3988-3990 | Gregory and Manasseh talk about how they will escape England. p211 |
| 16 | 3 | 4301-4303 | The Assistant Commissioner and the Inspector find the connection with the chemists. p228 |
| 17 | 3 | 4545-4547 | Manasseh tells Gregory that the Archdeacon has come to the chemists. p239 |