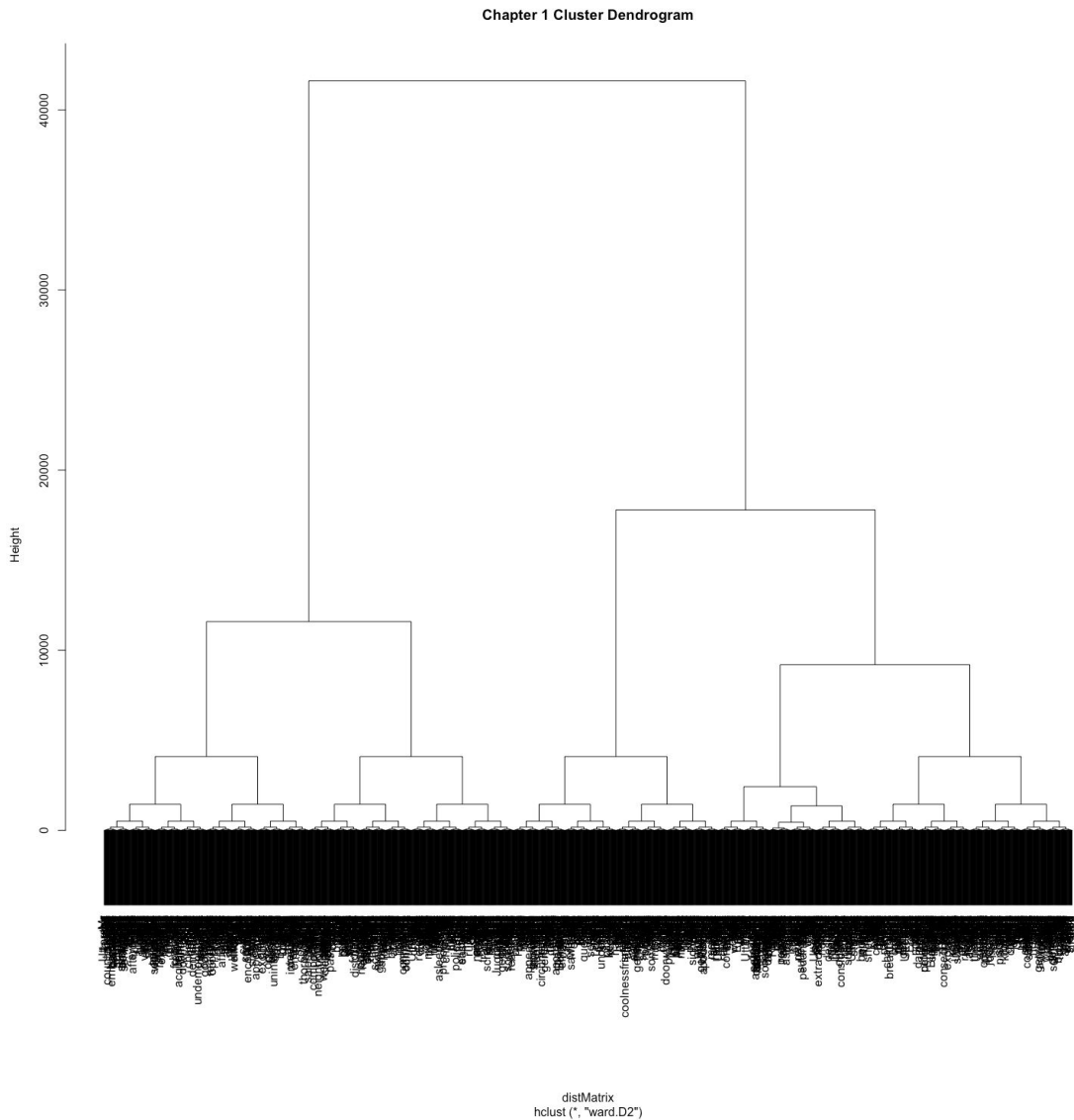


Project 3

Dendrograms

Chapter 1:

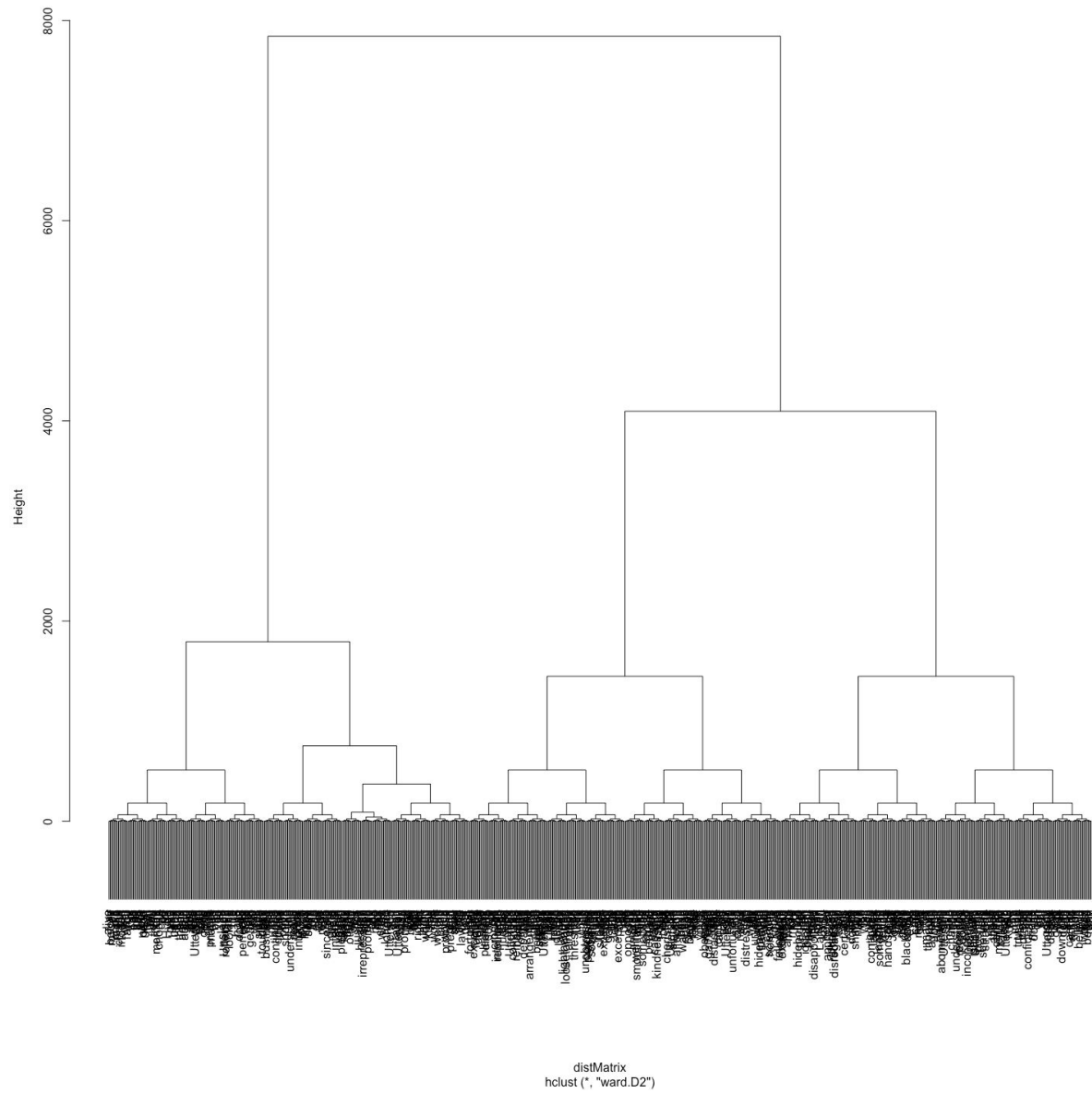


Chapter 2:

[illegible]

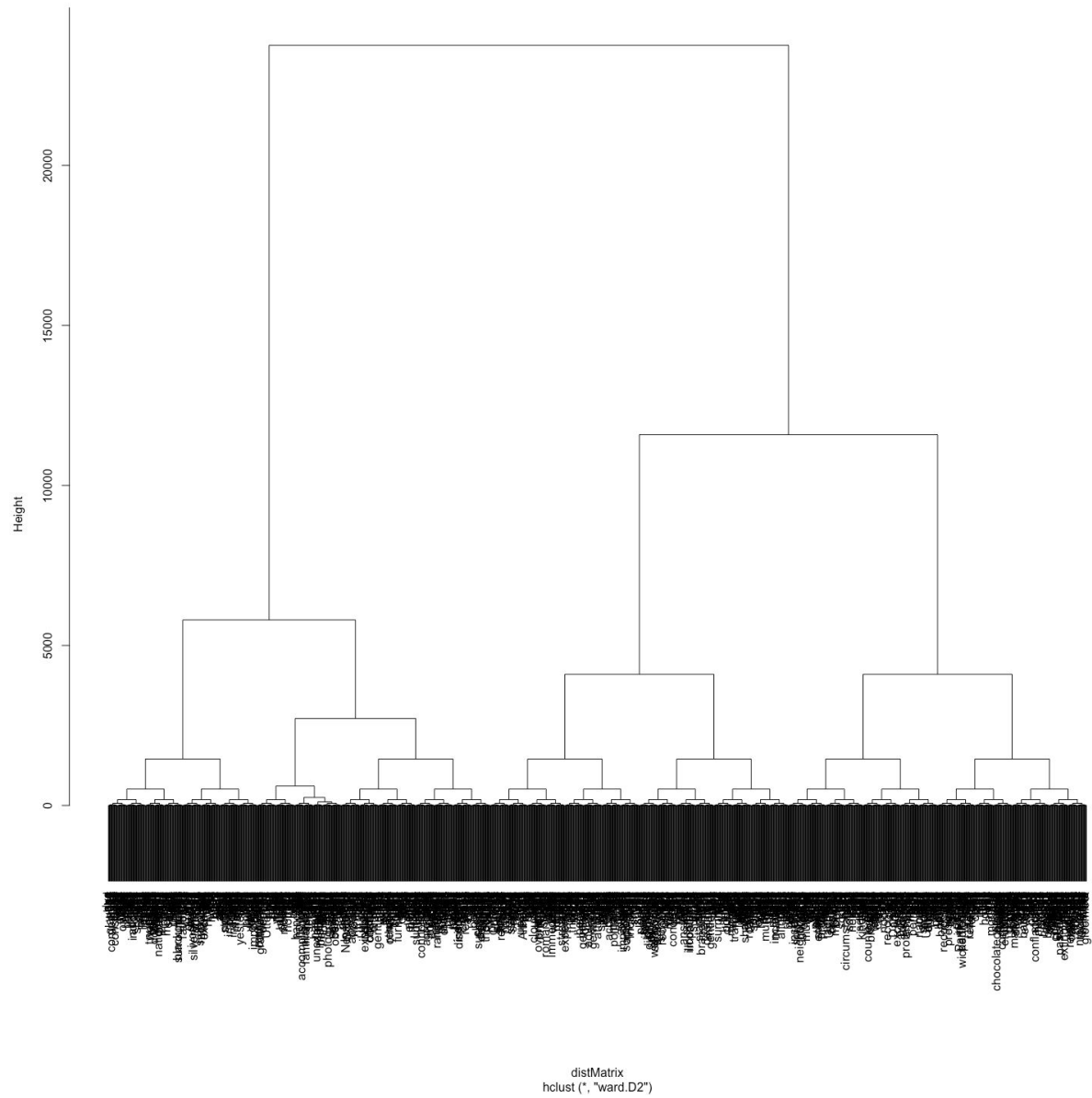
## Chapter 3:

## Chapter 3 Cluster Dendrogram



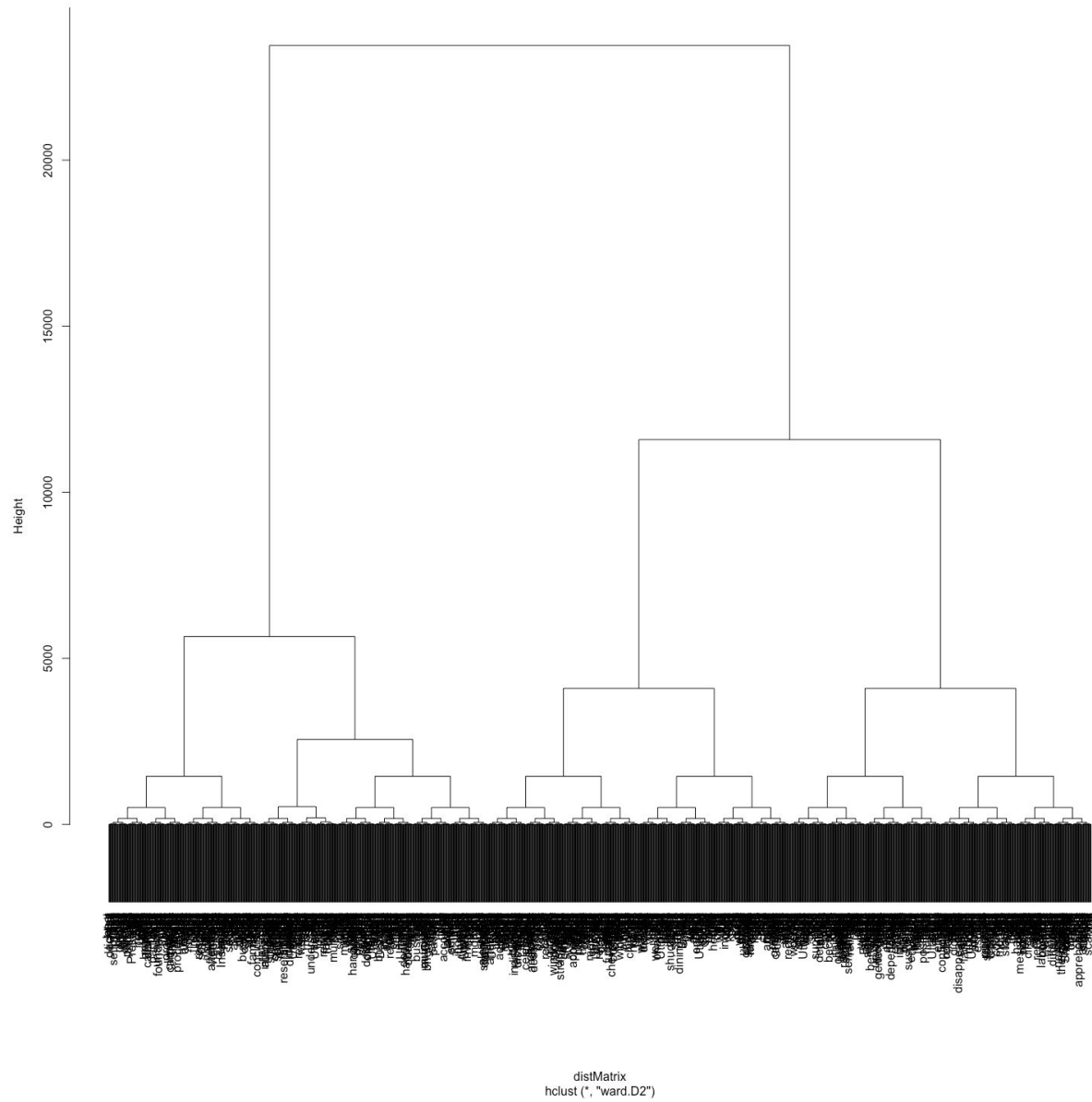
## Chapter 4:

## Chapter 4 Cluster Dendrogram

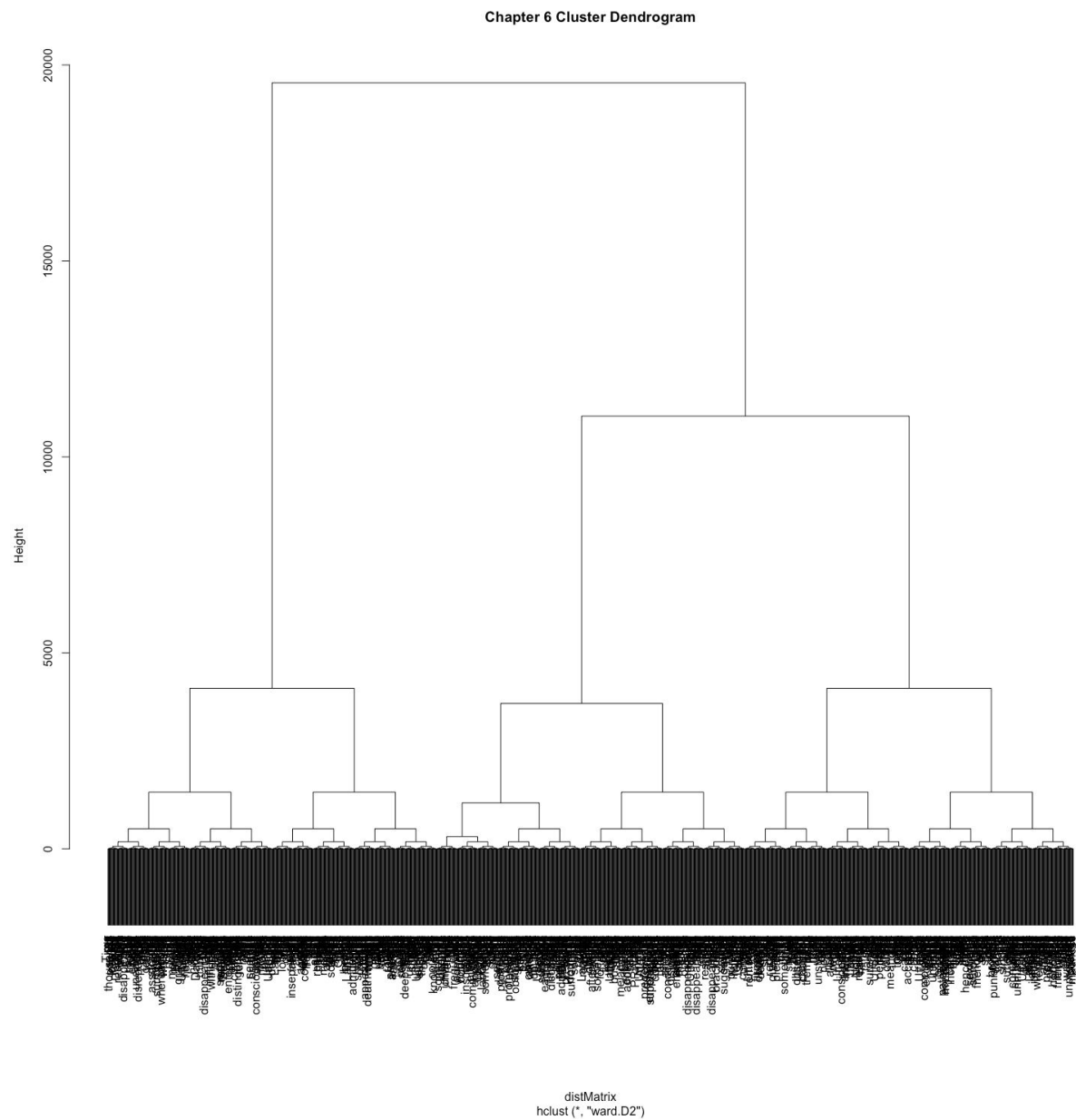


## Chapter 5:

## Chapter 5 Cluster Dendrogram

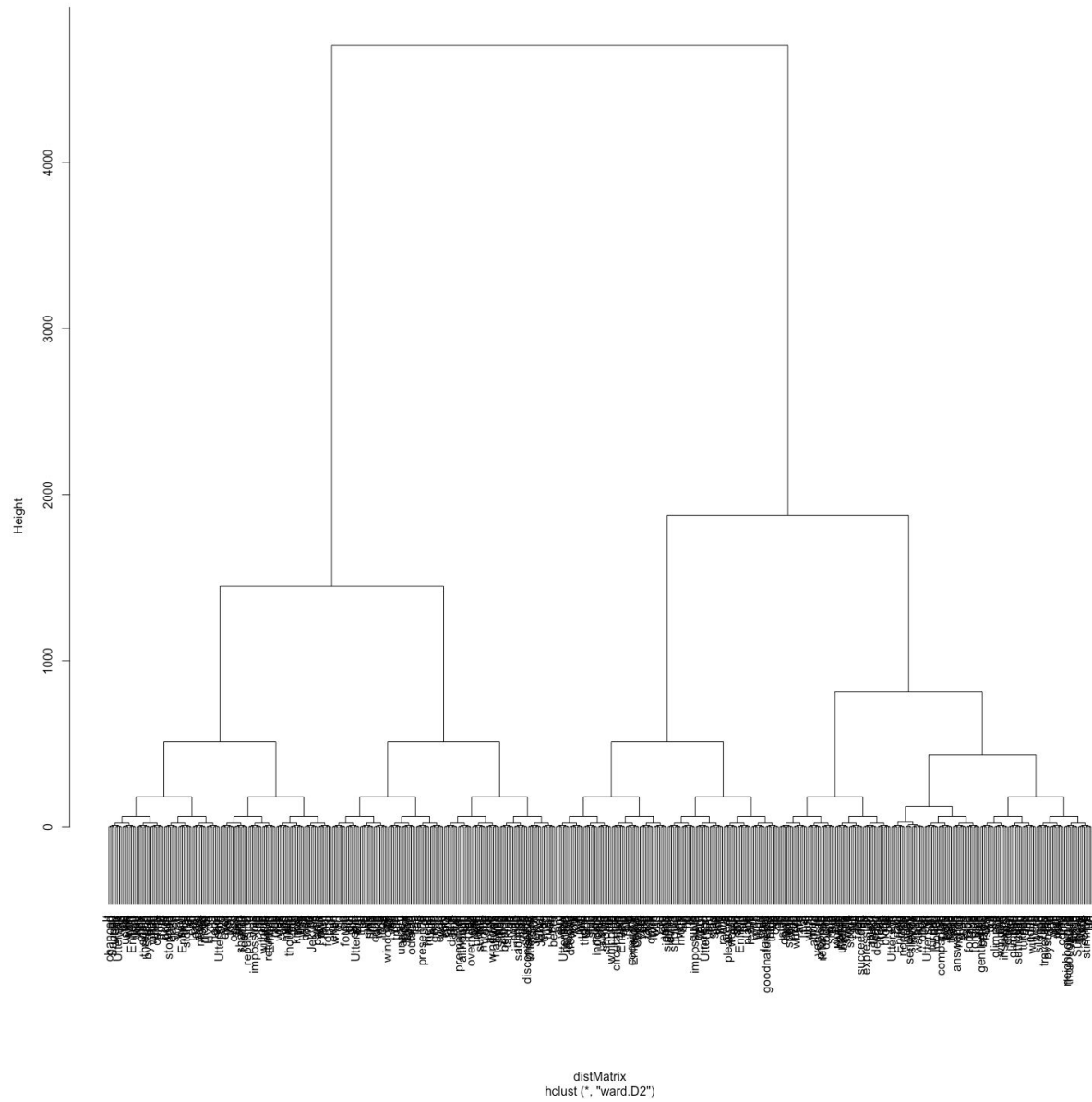


## Chapter 6:



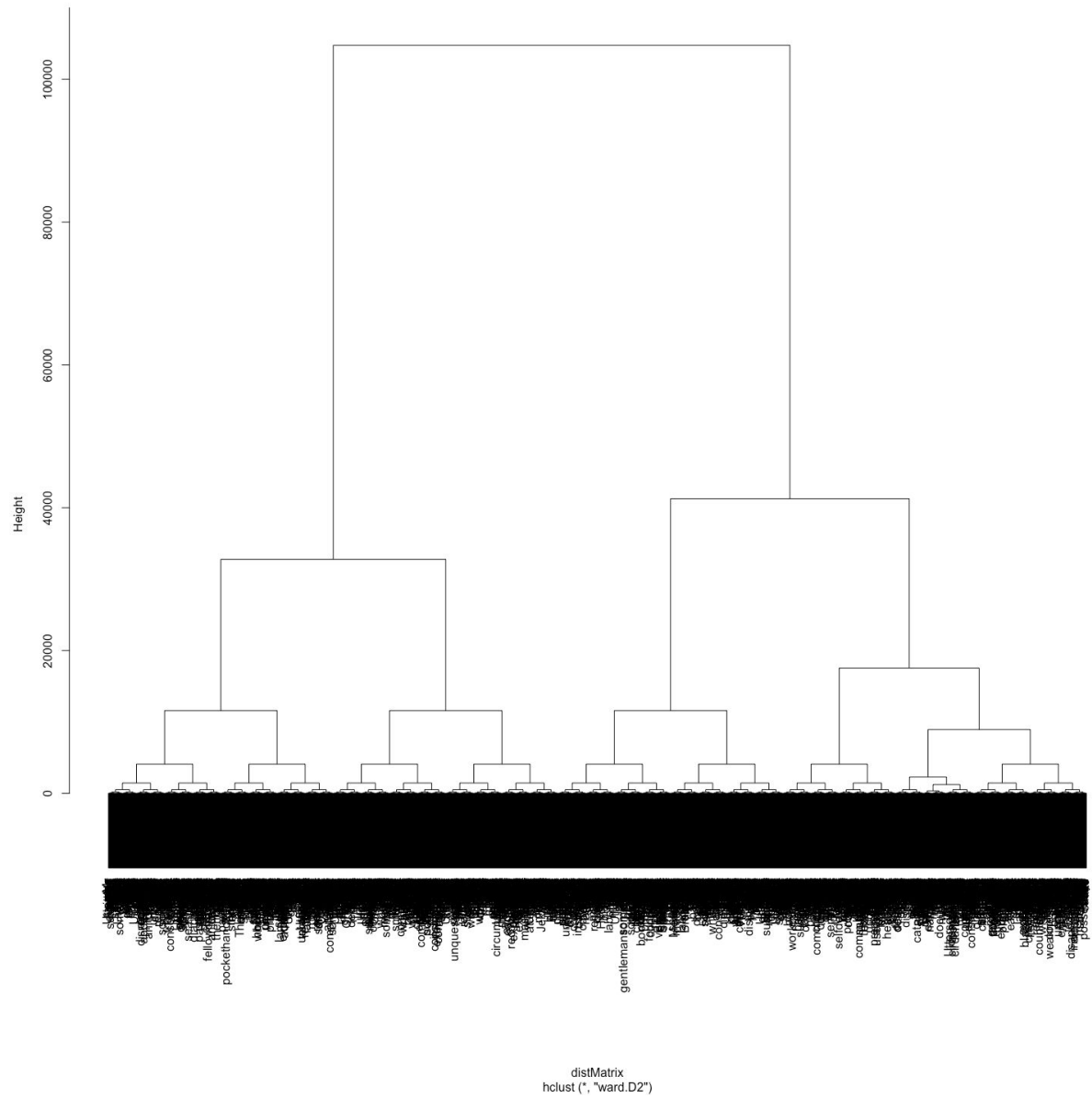
Chapter 7:

Chapter 7 Cluster Dendrogram



Chapter 8:

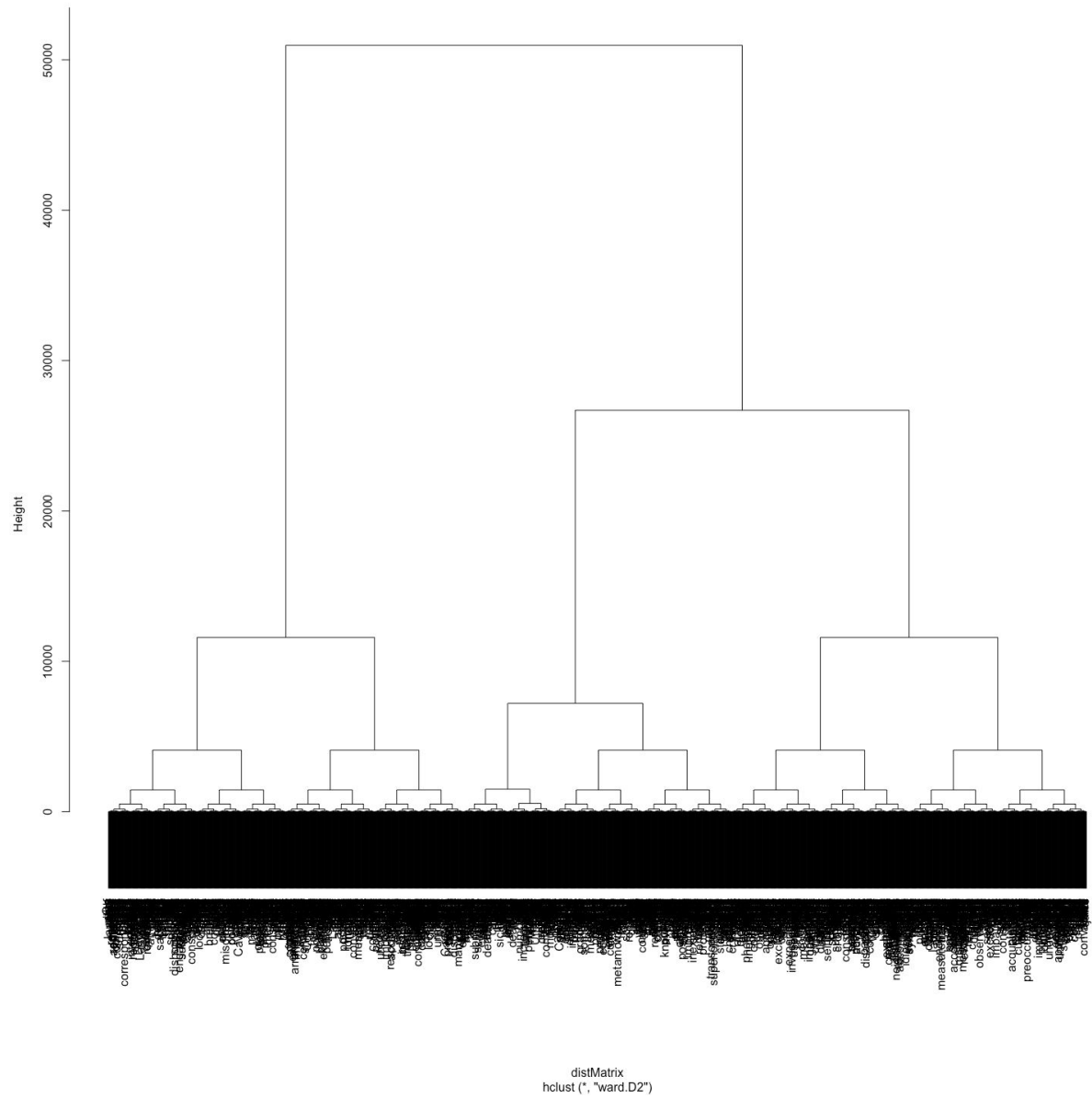
## Chapter 8 Cluster Dendrogram



## Chapter 9:



## Chapter 9 Cluster Dendrogram



## Chapter 10:

## Chapter 1:



A word cloud for Chapter 2. The words are arranged in a vertical, somewhat rectangular shape. The most prominent words are 'man', 'said', 'one', 'like', 'enfield', 'way', 'utter', 'son', 'name', 'well', 'make', 'long', 'lives', 'even', 'want', 'see', 'last', 'sir', 'ask', 'saw', 'know', and 'back'. The colors are primarily yellow, green, and blue.

## Chapter 2:



A word cloud for Chapter 3. The words are arranged in a vertical, somewhat rectangular shape. The most prominent words are 'hyde', 'lawyer', 'thought', 'said', 'face', 'see', 'jeekyll', 'city', 'time', 'great', 'fear', 'figure', 'air', 'little', 'set', 'old', 'began', 'side', 'like', 'still', and 'long'. The colors are primarily yellow, green, and blue.

## Chapter 3:



A word cloud for Chapter 4. The words are arranged in a vertical, somewhat rectangular shape. The most prominent words are 'said', 'good', 'one', 'man', 'doctor', 'know', 'jeekyll', 'lawyer', 'hyde', 'promise', 'great', 'well', 'can', 'make', 'never', 'ask', 'upon', 'liked', and 'pedant'. The colors are primarily yellow, green, and blue.

## Chapter 4:



A word cloud for Chapter 5 featuring the words: moment, upon, said, utter, son, maid, one, like, sir, lay, old, cab. The words are arranged in a vertical cluster with varying colors and sizes.

Chapter 5:



A word cloud for Chapter 6 featuring the words: know, business, last, clerk, one, lawyer, said, returned, well, jekyll, like, sir, quest, note, door, hand, letter, might, doctor, sure, replied. The words are arranged in a vertical cluster with varying colors and sizes.

Chapter 6:



A word cloud for Chapter 7 featuring the words: another, death, friends, hyde, now, upon, mind, one, friend, dead, doctor, old, poole, air, day, lanyon, sir, face, said, jekyll, life, door, man, must, can, hand, yet, great, came, seemed, name, house. The words are arranged in a vertical cluster with varying colors and sizes.

Chapter 7:





cabinet, I once more prepared and drank the cup, once more suffered the pangs of dissolution, and came to myself once more with the character, the stature and the face of Henry Jekyll. "

6. "The next thing was to get the money; and where do you think he carried us but to that place with the door?—whipped out a key, went in, and presently came back with the matter of ten pounds in gold and a cheque for the balance on Coutts's, drawn payable to bearer and signed with a name that I can't mention, though it's one of the points of my story, but it was a name at least very well known and often printed. "
7. "It was in vain I looked about me; in vain I saw the decent furniture and tall proportions of my room in the square; in vain that I recognised the pattern of the bed curtains and the design of the mahogany frame; something still kept insisting that I was not where I was, that I had not wakened where I seemed to be, but in the little room in Soho where I was accustomed to sleep in the body of Edward Hyde. "
8. "An act of cruelty to a child aroused against me the anger of a passer-by, whom I recognised the other day in the person of your kinsman; the doctor and the child's family joined him; there were moments when I feared for my life; and at last, in order to pacify their too just resentment, Edward Hyde had to bring them to the door, and pay them in a cheque drawn in the name of Henry Jekyll. "
9. "It was the first time that the lawyer had been received in that part of his friend's quarters; and he eyed the dingy, windowless structure with curiosity, and gazed round with a distasteful sense of strangeness as he crossed the theatre, once crowded with eager students and now lying gaunt and silent, the tables laden with chemical apparatus, the floor strewn with crates and littered with packing straw, and the light falling dimly through the foggy cupola. "
10. "A cry followed; he reeled, staggered, clutched at the table and held on, staring with injected eyes, gasping with open mouth; and as I looked there came, I thought, a change—he seemed to swell—his face became suddenly black and the features seemed to melt and alter—and the next moment, I had sprung to my feet and leaped back against the wall, my arms raised to shield me from that prodigy, my mind submerged in terror. "

### **Longest Word, Longest Sentence, and Shortest Sentence By Chapter**

*(Note that the instructions state "Prior to removing the punctuation, find the longest word and longest sentence in each chapter. Print a table of the length of the shortest and longest sentences in each chapter." As such, we did not remove punctuation for this step and words such as "Mr." are treated as sentence boundaries.)*

	Longest Word	Longest Sentence	Shortest Sentence
Chapter 1	"Coolness—frightened" (19 characters)	"The next thing was to get the money; and where do you think he carried us but to	"Mr." (1 word)

		that place with the door?—whipped out a key, went in, and presently came back with the matter of ten pounds in gold and a cheque for the balance on Coutts's, drawn payable to bearer and signed with a name that I can't mention, though it's one of the points of my story, but it was a name at least very well known and often printed. "	
Chapter 2	"Unimpressible" (16 characters)	"Hyde was pale and dwarfish, he gave an impression of deformity without any nameable malformation, he had a displeasing smile, he had borne himself to the lawyer with a sort of murderous mixture of timidity and boldness, and he spoke with a husky, whispering and somewhat broken voice; all these were points against him, but not all of these together could explain the hitherto unknown disgust, loathing and fear with which Mr. "	"Lanyon. " (1 word)
Chapter 3	"Irrepressible" (13 characters)	"I believe you fully; I would trust you before any man alive,	"Hyde." (1 word)



		ay, before myself, if I could make the choice; but indeed it isn't what you fancy; it is not as bad as that; and just to put your good heart at rest, I will tell you one thing: the moment I choose, I can be rid of Mr. "(61 words)	
Chapter 4	"chocolate-coloured"(18 characters)	"As the cab drew up before the address indicated, the fog lifted a little and showed him a dingy street, a gin palace, a low French eating house, a shop for the retail of penny numbers and twopenny salads, many ragged children huddled in the doorways, and many women of many different nationalities passing out, key in hand, to have a morning glass; and the next moment the fog settled down again upon that part, as brown as umber, and cut him off from his blackguardly surroundings. " (88 words)	"Mr." (1 word)
Chapter 5	"Disappearance" (14 characters)	"It was the first time that the lawyer had been received in that part of his friend's quarters; and he eyed the dingy,	"Why?" (1 word)

		<p>windowless structure with curiosity, and gazed round with a distasteful sense of strangeness as he crossed the theatre, once crowded with eager students and now lying gaunt and silent, the tables laden with chemical apparatus, the floor strewn with crates and littered with packing straw, and the light falling dimly through the foggy cupola. " (78 words)</p>	
Chapter 6	<p>"Disappearance" (14 characters)</p>	<p>"He went to call indeed; but he was perhaps relieved to be denied admittance; perhaps, in his heart, he preferred to speak with Poole upon the doorstep and surrounded by the air and sounds of the open city, rather than to be admitted into that house of voluntary bondage, and to sit and speak with its inscrutable recluse. " (59 words)</p>	<p>"Hyde." (1 word)</p>
Chapter 7	<p>Good-naturedly (15 characters)</p>	<p>"But the words were hardly uttered, before the smile was struck out of his face and succeeded by an expression of such abject terror and despair, as froze the very blood of the two</p>	<p>"Jekyll's! " (1 word)</p>

		gentlemen below. " (37 words)	
Chapter 8	"Pocket-handkerchie f" (19 characters))	"There lay the cabinet before their eyes in the quiet lamplight, a good fire glowing and chattering on the hearth, the kettle singing its thin strain, a drawer or two open, papers neatly set forth on the business table, and nearer the fire, the things laid out for tea; the quietest room, you would have said, and, but for the glazed presses full of chemicals, the most commonplace that night in London." (74 words)	"Mr."
Chapter 9	"Superiors—behold" (17 characters)	"This person (who had thus, from the first moment of his entrance, struck in me what I can only describe as a disgusting curiosity) was dressed in a fashion that would have made an ordinary person laughable; his clothes, that is to say, although they were of rich and sober fabric, were enormously too large for him in every measurement—the trousers hanging on his legs and rolled up to keep them from	"Jekyll?" (1 word)

		the ground, the waist of the coat below his haunches, and the collar sprawling wide upon his shoulders. " (91 words)	
Chapter 10	"Re-administered" (16 characters)	"It was on the moral side, and in my own person, that I learned to recognise the thorough and primitive duality of man; I saw that, of the two natures that contended in the field of my consciousness, even if I could rightly be said to be either, it was only because I was radically both; and from an early date, even before the course of my scientific discoveries had begun to suggest the most naked possibility of such a miracle, I had learned to dwell with pleasure, as a beloved daydream, on the thought of the separation of these elements. " (102 words)	"Jekyll? " (1 word)

### Bigrams for all words whose length is greater than 6 characters in Chapter 1

"friendly meetings"  
 "something eminently"  
 "approved tolerance"  
 "sometimes wondering"  
 "spirits involved"  
 "extremity inclined"

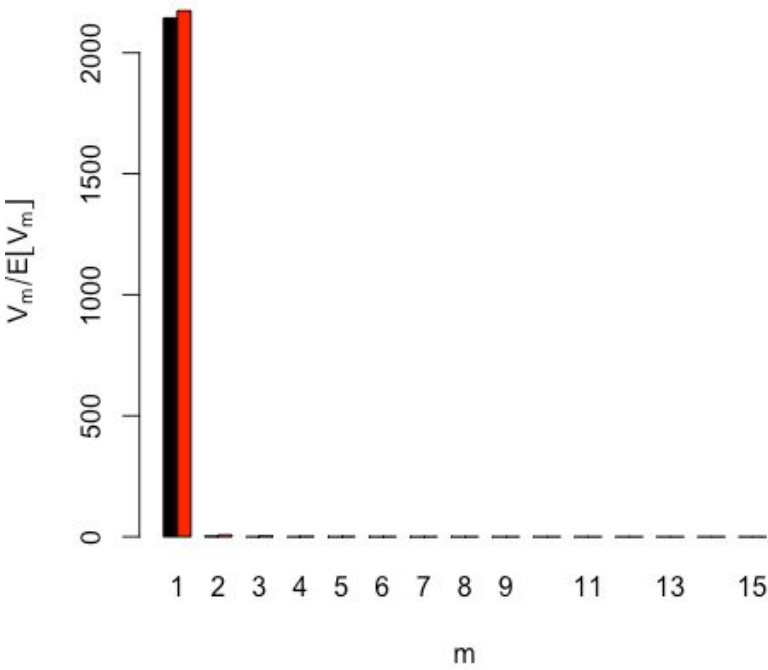
"reputable acquaintance"  
"Richard Enfield"  
"distant kinsman"  
"excursions counted"  
"smiling saleswomen"  
"freshly painted"  
"painted shutters"  
"wellpolished brasses"  
"general cleanliness"  
"literally nothing"  
"another naturally"  
"frightened according"  
"curious circumstance"  
"sneering coolnessfrightened"  
"thatbut carrying"  
"naturally helpless"  
"proprieties celebrated"  
"putting questions"  
"windows looking"  
"generally smoking"  
"returned Enfield"  
"appearance something"  
"something displeasing"  
"displeasing something"  
"something downright"  
"downright detestable"  
"deformed somewhere"  
"deformity although"  
"couldnt specify"  
"extraordinary looking"  
"Enfield surprised"  
"presently resumed"

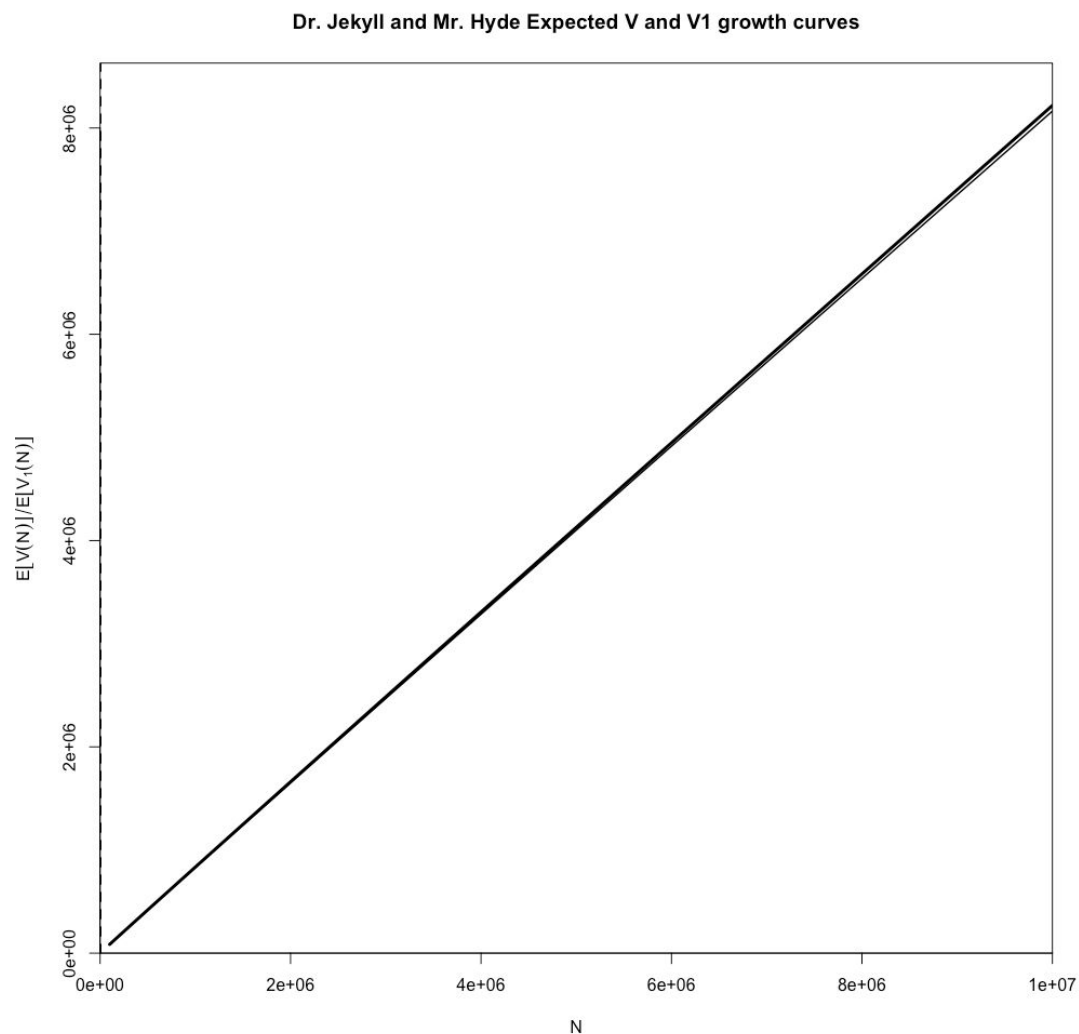
### **Trigrams for all words whose length is greater than 6 characters in Chapter 1**

"freshly painted shutters"  
"appearance something displeasing"  
"something displeasing something"  
"displeasing something downright"  
"something downright detestable"

**Analysis word frequency using functions from package zipfR.**

Word Frequency: Dr. Jekyll and Mr. Hyde





**Nouns and verbs (five or more characters in length) from Chapter 1 (two per line):**

Word: about, POS tag: VERB, Word: accent, POS tag: NOUN  
 Word: accept, POS tag: NOUN, Word: accident, POS tag: NOUN  
 Word: according, POS tag: NOUN, Word: acquaintance, POS tag: NOUN  
 Word: address, POS tag: NOUN, Word: adventure, POS tag: NOUN  
 Word: affirmative, POS tag: NOUN, Word: after, POS tag: NOUN  
 Word: alone, POS tag: NOUN, Word: along, POS tag: VERB  
 Word: apothecary, POS tag: NOUN, Word: appearance, POS tag: NOUN  
 Word: aptness, POS tag: NOUN, Word: aside, POS tag: NOUN  
 Word: asking, POS tag: NOUN, Word: avoid, POS tag: NOUN  
 Word: bagpipe, POS tag: NOUN, Word: balance, POS tag: NOUN  
 Word: banks, POS tag: NOUN, Word: bargain, POS tag: NOUN  
 Word: bearer, POS tag: NOUN, Word: being, POS tag: NOUN

Word: believe, POS tag: NOUN, Word: better, POS tag: NOUN  
Word: black, POS tag: NOUN, Word: blackmail, POS tag: NOUN  
Word: bland, POS tag: NOUN, Word: blind, POS tag: NOUN  
Word: block, POS tag: NOUN, Word: blood, POS tag: NOUN  
Word: brother, POS tag: NOUN, Word: building, POS tag: NOUN  
Word: business, POS tag: NOUN, Word: capital, POS tag: NOUN  
Word: carrying, POS tag: NOUN, Word: cellar, POS tag: NOUN  
Word: chambers, POS tag: NOUN, Word: change, POS tag: NOUN  
Word: character, POS tag: NOUN, Word: cheque, POS tag: NOUN  
Word: chief, POS tag: NOUN, Word: child, POS tag: NOUN  
Word: children, POS tag: NOUN, Word: chimney, POS tag: NOUN  
Word: choose, POS tag: VERB, Word: circle, POS tag: NOUN  
Word: circumstance, POS tag: NOUN, Word: clean, POS tag: NOUN  
Word: cleanliness, POS tag: NOUN, Word: close, POS tag: NOUN  
Word: collared, POS tag: NOUN, Word: colour, POS tag: NOUN  
Word: coming, POS tag: NOUN, Word: common, POS tag: NOUN  
Word: companion, POS tag: NOUN, Word: consequence, POS tag: NOUN  
Word: consideration, POS tag: NOUN, Word: contrast, POS tag: NOUN  
Word: corner, POS tag: NOUN, Word: correct, POS tag: NOUN  
Word: countenance, POS tag: VERB, Word: court, POS tag: NOUN  
Word: crack, POS tag: NOUN, Word: credit, POS tag: NOUN  
Word: cross, POS tag: NOUN, Word: deformity, POS tag: NOUN  
Word: delicacy, POS tag: NOUN, Word: demeanour, POS tag: NOUN  
Word: desire, POS tag: NOUN, Word: devil, POS tag: NOUN  
Word: discourse, POS tag: NOUN, Word: doctor, POS tag: NOUN  
Word: doing, POS tag: NOUN, Word: doors, POS tag: NOUN  
Word: drawer, POS tag: NOUN, Word: drive, POS tag: NOUN  
Word: drove, POS tag: NOUN, Word: edinburgh, POS tag: NOUN  
Word: eight, POS tag: NOUN, Word: emotional, POS tag: NOUN  
Word: empty, POS tag: NOUN, Word: enjoy, POS tag: NOUN  
Word: entry, POS tag: NOUN, Word: exact, POS tag: NOUN  
Word: extremity, POS tag: NOUN, Word: family, POS tag: NOUN  
Word: father, POS tag: NOUN, Word: feature, POS tag: NOUN  
Word: feeling, POS tag: NOUN, Word: fellow, POS tag: NOUN  
Word: figure, POS tag: NOUN, Word: first, POS tag: NOUN  
Word: floor, POS tag: NOUN, Word: florid, POS tag: NOUN  
Word: folks, POS tag: NOUN, Word: forest, POS tag: NOUN  
Word: former, POS tag: NOUN, Word: fortune, POS tag: NOUN  
Word: forward, POS tag: NOUN, Word: found, POS tag: NOUN  
Word: friend, POS tag: NOUN, Word: friendly, POS tag: NOUN  
Word: friends, POS tag: NOUN, Word: friendship, POS tag: NOUN  
Word: gable, POS tag: NOUN, Word: garden, POS tag: NOUN  
Word: general, POS tag: NOUN, Word: generation, POS tag: NOUN



Word: gentleman, POS tag: NOUN, Word: grains, POS tag: NOUN  
Word: great, POS tag: NOUN, Word: greatest, POS tag: NOUN  
Word: ground, POS tag: NOUN, Word: group, POS tag: NOUN  
Word: growth, POS tag: NOUN, Word: hands, POS tag: NOUN  
Word: happen, POS tag: NOUN, Word: heart, POS tag: NOUN  
Word: heels, POS tag: VERB, Word: house, POS tag: NOUN  
Word: human, POS tag: NOUN, Word: incline, POS tag: NOUN  
Word: inexact, POS tag: NOUN, Word: influence, POS tag: NOUN  
Word: jewel, POS tag: NOUN, Word: judgment, POS tag: NOUN  
Word: keeping, POS tag: NOUN, Word: killing, POS tag: NOUN  
Word: knife, POS tag: NOUN, Word: knocker, POS tag: NOUN  
Word: lamps, POS tag: NOUN, Word: lawyer, POS tag: NOUN  
Word: laying, POS tag: NOUN, Word: least, POS tag: NOUN  
Word: lesson, POS tag: NOUN, Word: liberty, POS tag: NOUN  
Word: little, POS tag: NOUN, Word: lives, POS tag: NOUN  
Word: london, POS tag: NOUN, Word: lower, POS tag: NOUN  
Word: marks, POS tag: NOUN, Word: matter, POS tag: NOUN  
Word: memory, POS tag: NOUN, Word: middle, POS tag: NOUN  
Word: might, POS tag: NOUN, Word: mischief, POS tag: NOUN  
Word: modest, POS tag: NOUN, Word: moment, POS tag: NOUN  
Word: money, POS tag: NOUN, Word: morning, POS tag: NOUN  
Word: natural, POS tag: NOUN, Word: negligence, POS tag: NOUN  
Word: night, POS tag: NOUN, Word: nothing, POS tag: NOUN  
Word: object, POS tag: NOUN, Word: opportunity, POS tag: NOUN  
Word: other, POS tag: NOUN, Word: others, POS tag: NOUN  
Word: painted, POS tag: NOUN, Word: particular, POS tag: NOUN  
Word: party, POS tag: NOUN, Word: passage, POS tag: NOUN  
Word: passenger, POS tag: NOUN, Word: payable, POS tag: NOUN  
Word: people, POS tag: NOUN, Word: person, POS tag: NOUN  
Word: pitching, POS tag: NOUN, Word: place, POS tag: NOUN  
Word: pleasure, POS tag: NOUN, Word: point, POS tag: NOUN  
Word: pointing, POS tag: NOUN, Word: policeman, POS tag: NOUN  
Word: pressure, POS tag: NOUN, Word: printed, POS tag: NOUN  
Word: prisoner, POS tag: NOUN, Word: procession, POS tag: NOUN  
Word: putting, POS tag: NOUN, Word: quarter, POS tag: NOUN  
Word: queer, POS tag: NOUN, Word: question, POS tag: NOUN  
Word: quiet, POS tag: NOUN, Word: quite, POS tag: NOUN  
Word: random, POS tag: NOUN, Word: reason, POS tag: NOUN  
Word: recess, POS tag: NOUN, Word: refer, POS tag: NOUN  
Word: relief, POS tag: NOUN, Word: repair, POS tag: NOUN  
Word: resistance, POS tag: NOUN, Word: richard, POS tag: NOUN  
Word: rugged, POS tag: NOUN, Word: running, POS tag: NOUN  
Word: satan, POS tag: NOUN, Word: scandal, POS tag: NOUN

Word: scene, POS tag: NOUN, Word: screaming, POS tag: NOUN  
Word: sentiment, POS tag: NOUN, Word: shade, POS tag: NOUN  
Word: shake, POS tag: NOUN, Word: shone, POS tag: NOUN  
Word: should, POS tag: NOUN, Word: sight, POS tag: NOUN  
Word: signature, POS tag: NOUN, Word: silence, POS tag: NOUN  
Word: silent, POS tag: NOUN, Word: similar, POS tag: NOUN  
Word: sinister, POS tag: NOUN, Word: slight, POS tag: NOUN  
Word: small, POS tag: NOUN, Word: smile, POS tag: NOUN  
Word: smoking, POS tag: NOUN, Word: sordid, POS tag: NOUN  
Word: spirits, POS tag: NOUN, Word: spoke, POS tag: NOUN  
Word: square, POS tag: NOUN, Word: start, POS tag: NOUN  
Word: starting, POS tag: NOUN, Word: state, POS tag: NOUN  
Word: steps, POS tag: NOUN, Word: stick, POS tag: NOUN  
Word: stiff, POS tag: NOUN, Word: still, POS tag: NOUN  
Word: stink, POS tag: NOUN, Word: stone, POS tag: NOUN  
Word: store, POS tag: NOUN, Word: story, POS tag: NOUN  
Word: strange, POS tag: NOUN, Word: street, POS tag: NOUN  
Word: strong, POS tag: NOUN, Word: style, POS tag: NOUN  
Word: subject, POS tag: NOUN, Word: sunday, POS tag: NOUN  
Word: suppose, POS tag: VERB, Word: surplus, POS tag: NOUN  
Word: sweat, POS tag: NOUN, Word: taste, POS tag: NOUN  
Word: theatre, POS tag: NOUN, Word: there, POS tag: NOUN  
Word: theres, POS tag: NOUN, Word: thing, POS tag: NOUN  
Word: think, POS tag: NOUN, Word: though, POS tag: NOUN  
Word: thought, POS tag: NOUN, Word: three, POS tag: NOUN  
Word: through, POS tag: VERB, Word: thrust, POS tag: NOUN  
Word: together, POS tag: VERB, Word: tolerance, POS tag: NOUN  
Word: tongue, POS tag: NOUN, Word: touch, POS tag: NOUN  
Word: trade, POS tag: NOUN, Word: under, POS tag: NOUN  
Word: united, POS tag: NOUN, Word: upper, POS tag: NOUN  
Word: usual, POS tag: NOUN, Word: voice, POS tag: NOUN, Word: weight, POS tag: NOUN  
Word: white, POS tag: NOUN, Word: whole, POS tag: NOUN  
Word: window, POS tag: NOUN, Word: windows, POS tag: NOUN  
Word: winter, POS tag: NOUN, Word: women, POS tag: NOUN  
Word: words, POS tag: NOUN, Word: world, POS tag: NOUN  
Word: wrong, POS tag: NOUN, Word: years, POS tag: NOUN  
Word: young, POS tag: NOUN, Word: youth, POS tag: NOUN

**Use three functions from the stringi, corpuSTools, quanteda, and tidytext packages**

quanteda

- 1) `ngrams <- quanteda::tokens_ngrams(tokens, n = n, concatenator = " ")`  
This function tokenized chapter 1 by finding each of the bigrams and trigrams. This function yielded the most interesting trigram, “freshly painted shutters.”
- 2) `chapter1Tokens <- quanteda::tokens(corpus(chapter1Clean), removePunct = TRUE, removeNumbers = TRUE)`  
This function performed tokenization on chapter 1, also removing punctuation and numbers.
- 3) `quanteda::corpus(chapter1Clean)`  
This function instantiates the `quanteda` class. This enables a number of `quanteda` operations on chapter 1.

### corpusTools

- 1) `corpusTools::create_tcorpus(chapter1JekyllVector)`  
This function instantiates the `tcorpus` class, and enables us to perform `corpusTools` operations on chapter 1.
- 2) `tc$get()`  
Retrieves the token data/metadata of chapter 1; this function prints a concise summary of the chapter 1 tokens.
- 3) `chapter1TC$subset(subset = docfreq_filter(token, min=2))`  
This function retrieves document frequency statistics for a subset of chapter 1; this way, we can examine specific aspects of the chapter.

### stringi

- 1) `sentenceVector <- stri_split_boundaries(paste(jekyllVector, collapse=" "), type="sentence")`  
This function is very important to all of our analysis; in one powerful line, the `stringi` library performs tokenizations, detects sentence boundaries and returns a vector where each element is a sentence in chapter 1.
- 2) `chapter1UniqueStrings <- stri_unique(chapter1JekyllVector)`  
This function removes all duplicate strings in chapter 1.
- 3) `chapter1EmptyStringRemoved <- stri_remove_empty(chapter1JekyllVector)`  
This function removes all empty strings and whitespace from chapter 1; this is useful for pre-processing purposes and enhances the efficiency of our later analysis.

### tidytext

- 1) `chapter1Doc %>% unnest_tokens(word, document)`  
The first step in `tidytext` handling of data is to convert from a dataframe to one token per row.
- 2) `chapter1Tidy <- tidy(chapter1JekyllVector)`  
This function enables us to perform `tidytext` operations on chapter 1.
- 3) `td_lda <- tidy(chapter1LDA)`  
`td_lda_filtered <- td_lda %>%`

```

filter(beta > .004) %>%
mutate(term = reorder(term, beta))
#Plot the top terms in each topic of chapter 1
ldaPlot <- ggplot(td_lda_filtered, aes(term, beta)) +
  geom_bar(stat = "identity") +
  facet_wrap(~ topic, scales = "free") +
  theme(axis.text.x = element_text(angle = 90, size = 15))
ldaPlot + ggtitle("Dr. Jekyll Chapter 1 Topic Analysis",
  theme(plot.title = element_text(lineheight=.8, face="bold")))

```

The above functions, in conjunction with the topicmodels package, allow us to instantiate a tidy() object with an LDA object; this enables us to perform analysis on the

topics of Chapter 1, as seen below.

Dr. Jekyll Chapter 1 Topic Analysis

```
list(family = NULL, face = "bold", colour = NULL, size = NULL, hjust = NULL, vjust = NULL, angle = NULL, lineheight = 0.8, margin = NULL, debug = NULL, inherit.blank = FALSE)
```

