This study, then, seeks to examine the rhetoric utilized by Hillary Clinton and Donald Trump during their respective 2016 US presidential campaign speeches. In particular, it frames each candidate’s speeches within the notion of restricted and elaborated codes developed by sociolinguist Basil Bernstein. Expanding upon Bernstein’s codes, R. Young Spring distinguishes the two thusly:

The restricted code is less formal with shorter phrases interjected into the middle or end of a thought to confirm understanding. For example, “you know,” “you know what I mean,” “right?” and “don’t you think?” Elaborated codes have a longer, more complicated sentence structure that utilizes uncommon words and thoughts. In the elaborate code there is no padding or filler, only complete, well laid out thoughts that require no previous knowledge on the part of the listener, i.e., necessary details will be provided. (Young Spring, 2002)

Bernstein further adds a class dimension to this distinction, arguing that “a working class person communicates in restricted code as a result of the conditions in which they were raised and the socialization process. The same is true for the middle class person with the exception that they were exposed to the elaborate code as well” (Bernstein, 1971). Operating on these distinctions, the end-goal of this project is to examine such constructions through corpus linguistic means in order to determine to what extent either candidate employed working or middle-class language throughout their respective campaigns.

2 Data

The data for this experiment was obtained from the University of California Santa Barbara’s
Presidency Project, which aims to collect, transcribe, and present campaign speeches given by candidates for the United States’ presidency. Every relevant speech was scraped from the project’s website using Scrapy and processed using a combination of NLTK and Spacy. In order to ensure that the speeches’ rhetoric pertained only to the general election (and not the party primaries), only speeches given between the candidates’ respective party nominations (July 21st, Republicans; July 28th, Democrats) and the general election (November 8th, 2016) were extracted. Interestingly, the number of speeches within this timeframe given by Donald Trump (49) doubled that of those given by Clinton (24). Further descriptives for the working data are captured in Table 1.1.

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<thead>
<tr>
<th></th>
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<th>CLINTON</th>
</tr>
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<tr>
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<td>49</td>
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</tr>
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<td>17.99</td>
</tr>
<tr>
<td>avg word length</td>
<td>4.23</td>
<td>3.97</td>
</tr>
</tbody>
</table>

3 Method

3.1 General Comparison

A Sparse Additive Generative Model (SAGE) approach was adopted in order to yield a general comparison of the Trump and Clinton speech corpora. For this task, the entirety of each corpus was compared, with stop-words omitted. Each word was then attributed with a log-probability and deemed as being characteristic of a candidate. Positive values were thus likened to Trump and negative values to Clinton. The results were ultimately analyzed for relevance to the subjects of economics, trade, or labor. This approach was later extended to sub-corpora of adjectives and adverbs.

3.2 Sympathetic Circularity VS “I think”

Following this, the corpora were scanned to determine the degree to which each candidate employed sympathetic circularity (S.C.) in their speeches. S.C. is the accepted term for a speaker’s tendency to seek affirmation and reduce uncertainty from when the message was first planned typically characterized by the phrases “isn’t it?”, “right?”, etc. appearing at the end of a sentence (Bernstein, 1971, p.74). A list of twelve S.C. phrases was culled from (Romero-Trillo, 2002) for this experiment. The frequency of every S.C. phrase was calculated and added together in order to establish a raw total for each candidate. This was then compared to the total number of tokens in each corpus and a chi-square significance score was calculated. An \( \alpha \)-value of 0.05 was assumed for this and every following experiment.

An analogous experiment involving the phrase “I think” was run in conjunction with the S.C. experiment. Contrary to the latter, use of “I think” signifies that the speaker relates the thought to himself and does not require further affirmation from the listener (Bernstein, 1971, p.88). In counting the occurrences of “I think”, windows of three and four tokens were assumed, in an attempt to account for modifiers within the phrase (e.g. “I really think”). These were counted in addition to the general “I think” bigram. Significance testing was conducted in an identical manner to the S.C. experiment.

3.3 Adjective and Adverb Complexity

Adjective and adverb complexity was assessed by extracting the top 100 most common words in both lexical categories as they appeared in the Corpus of Contemporary American English’s spoken section. Each corpus was then part-of-speech tagged and every adjective/adverb uttered by the candidates was counted. The use of any adjective/adverb that did not appear in the common list was also counted separately and deemed uncommon. A chi-square test was used to measure the significance of the proportion of uncommon words to total words for each candidate.

3.4 Personal Pronoun Proportion

A distinction was made between the pronouns “you”, “them”, and “I” in measuring each candidate’s pronoun usage. This was done per Bernstein’s intuition that “the middle class select ‘I’ more frequently among the personal pronouns than do the working class; whilst the working-class select ‘you’ and ‘they’ more frequently among personal pronouns and these pronouns are used more frequently in the speech” (Bernstein, 1971, p.86). As such, “I” was counted individually while “you” and “them” were considered together. Both totals were then tested against the total number of personal pronouns used by each candidate.
and a chi-square score was obtained. This process was then repeated in respect to all tokens in the candidates’ respective corpora.

4 Results

4.1 S.C. vs. I think

A chi-square test revealed that Clinton employed S.C. phrases in higher proportion than Trump, with $X^2 = 49.96$ and $p < 0.001$. Out of 93,209 tokens, 120 occurrences of S.C. were observed for Clinton, opposed to 56 occurrences per 130,620 tokens for Trump. For both candidates, "you know" was the most common instance of S.C.: occurring 84 times in Clinton’s speeches and 29 in Trump’s. This accounted for 69% and 52% of all S.C. instances, respectively. Another notable phrase was observed to be “right?”, which was the second most frequent phrase for both candidates (28 for Clinton; 12 for Trump). Outside of these two instances, however, other uses of S.C. were negligible in terms of frequency. Clinton was also the more frequent user of the phrase “I think”, employing it 136 times compared to Trump’s 61. A chi-square test likewise revealed that this was significant with $X^2 = 59.75$ and $p < 0.001$.

4.2 Adjective and Adverb Complexity

Regarding the use of uncommon adjectives, a chi-square test revealed that the difference between candidates was significant ($X^2 = 7.67$, $p < 0.01$), with Trump being the more frequent user. Out of 9,321 total adjectives employed by Trump, 4,520 were considered uncommon (48%). Among these were “illegal” (log-prob = 4.43), “massive” (4.00), and “failed” (3.47), as determined by SAGE. On the other hand, Clinton utilized roughly half the amount of adjectives as Trump: 2,574 uncommon out of 5,579 total adjectives. Per SAGE, Clinton’s characteristically uncommon adjectives included “grateful” (-2.88), “divisive” (-2.81), and “renewable” (-1.98).

Trump was also the more frequent user of uncommon adverbs ($X^2 = 68.72$; $p < 0.001$), employing 1,297 uncommon terms out of 4,743 total. These included “immediately” (3.18), “completely” (2.61), and “viciously” (2.21). Clinton’s adverb use was comparable to Trump’s, comprising a total of 4,481 terms. The number of uncommon adverbs she utilized, however, was significantly smaller than that of Trump: 895. Moreover, the number of uncommon adverbs characteristic to Clinton was also low, as the top terms returned by SAGE happened to be mostly considered common: “pretty” (-2.79), “particularly” (-2.44). The only uncommon adverbs to note here were “indeed” (-1.40) and “practically” (-1.40), both of which are far less rhetorically rich than Trump’s adverbs.

4.3 Pronoun Proportion

Initially, the pronoun experiment was conducted in respect to Bernstein, with only subject pronouns considered. In this case, a chi-square test revealed that Clinton’s use of “I” in proportion to all personal pronouns (1617 per 6867) was more significant than Trump’s (1224 per 5660): $X^2 = 6.43$; $p < 0.05$. When compared against all tokens, this figure proved to be even more telling: $X^2 = 298.75$; $p < 0.001$. Furthermore, roughly the same level of significance was observed regarding Clinton’s use of “you” and “they” in proportion to all tokens: $X^2 = 253.30$; $p < 0.001$. The proportion of these latter pronouns to all personal pronouns was insignificant between candidates.

Following this, all other pronoun categories (object, dependent possessive, independent possessive, and reflexive) were counted. The results remained largely the same, however, as Clinton still employed first-person pronouns in proportion to all pronouns (2,246 per 8,964) at a more significant rate than did Trump (1,733 per 8,780): $X^2 = 71.80$; $p < 0.001$. An all-tokens analysis reinforced these results in Clinton’s favor for first-person pronouns: $X^2 = 396.22$; $p < 0.001$. Though neither candidate’s second-person + third-person/epicene pronoun use in proportion to all pronouns was significant, Clinton again managed to use these pronouns in much higher proportion to all tokens than Trump: $X^2 = 165.85$; $p < 0.001$.

5 Discussion

5.1 Effectiveness of SAGE Method

Based on the results of the study, the SAGE comparison was the most informative in terms of the content of each candidate’s speeches. One obvious insight to be gained from the output is that Trump and Clinton’s rhetorical tones are characteristically different. For example, while “crime” (log-probability: 3.91) and “corruption” (3.51) appear among Trump’s top 10 most characteristic words, one will find “climate” (-3.51) and “gun” (-2.95) among Clinton’s. When extended to modifiers, the
SAGE method proves to be especially effective, as it exposes how each candidate describes concepts and issues. Examining Clinton’s adjectives, for instance, one envisions a positive tone, even without reading the transcript: “grateful” (-3.06), “kind” (-2.88), “renewable” (-2.76). Trump’s, on the other hand, manages to describe his subjects much more negatively: “illegal” (4.28), “corrupt” (3.05), “radical” (2.81). This applies to adverbs as well, with Trump assuming a dire, violent tone (“immediately” (3.81), “viciously” (2.21)) and Clinton a tame, measured one (“forward” (-1.48), “practically” (-1.40)).

However, as effective as the SAGE method is for approximating the candidates’ tone, it was not so informative for the main goal of this study: establishing the extent to which either candidate aligns with the working or middle classes, rhetorically or otherwise. For instance, though NAFTA appeared as Trump’s 7th most characteristic word (3.37 log-probability), any other mention of economic or labor issues was difficult to gauge without proper context. Terms like “renegotiate” (2.78), “regulation” (2.75), and “deficit” (2.40) were present, but lost among more thematically obvious terms: “Obamacare” (3.56, 85), “Islamic” (3.23), “refugees” (2.90). It was even harder to pinpoint working class terms in Clinton’s speeches, which, themselves appeared to be far more gender and domestic-focused: “kids” (-2.20), “families” (-1.67), “woman” (-1.61).

5.2 Phrase and Pronoun Usage

The experiment involving the use of S.C. phrases and “I think” did not align with the study’s hypothesis. According to Bernstein’s observation that working-class speakers are more like to employ S.C., it was assumed that Trump would be the more frequent user of such phrases. However, as Clinton proved to utilize S.C. significantly more frequently, this particular hypothesis had to be rejected. Furthermore, though Trump was also the more frequent user of “I think”, which, per Bernstein’s research, indicated middle-class speech, the fact that she had also used more S.C. phrases made it impossible to classify her rhetoric as either class.

The candidates’ use of pronouns also conflicted with Bernstein’s observations, adding further confusion. Though Trump was again hypothesized to belong to the “you + them” category, this hypothesis could not be accepted in any of the experiments that were conducted (within pronouns, within all tokens, all pronoun categories, etc.). Furthermore, the fact that Clinton performed as characteristically working and middle-class nullified any categorical classification of the candidates. Thus, as in the phrase experiments, binary classification of the candidates into either class was deemed impossible.

One problem with the approaches taken here is that they only concerned two subjects each of whom was expected to align with an economic class in their use of select phrases and pronouns. If a more diverse sample size had been considered, the trends observed by Bernstein may have emerged more clearly. One possible extension to this experiment could have been to collect the speeches of all candidates and analyze them by party affiliation. However, though this was initially considered, the idea was ultimately discarded after being deemed antithetical to the general election focus of the study.

5.3 Modifier Complexity

Some of the more surprising results of this study were observed in the adjective and adverb complexity experiments. Here, the hypothesis was again that Trump would employ a significantly lower number of complex modifiers than Clinton and, consequently, evoke working-class speech. However, the chi-square test and the SAGE comparison revealed quite the opposite phenomenon regarding both adjectives and adverbs, forcing the hypotheses to be rejected. Instead, Trump’s modifier usage proved to be unexpectedly frequent and descriptive, comprising of words like “massive” (log-probability: 4.00), “disastrous” (2.99), and “immediately” (3.18). The opposite effect was observed with Clinton, as the majority of her most characteristic words were deemed common.

These observations certainly in conflict with the intuition that Trump is a plain speaker, as described by Oprea. However, given the limitations of this study, it is nonetheless still difficult to conclude whether Trump is surprisingly verbose or if this quality only manifests when his speeches are compared with Clinton’s. One way to refine this particular experiment could be to develop a more sophisticated method of assessing word complexity/commonality. A system that incorporates morphology, could, for instance, yield ad-
ditional insights about the nature of either candidate’s modifier use. Furthermore, as stated above, a wider sample size would position both Clinton and Trump among their political peers. This would, in turn, work to reinforce or reject the intuitions regarding the candidates’ class speech gained from this study.

6 Conclusion

This study employed corpus linguistic techniques towards the task of analyzing the campaign speeches of Donald Trump and Hillary Clinton during the 2016 US presidential election. The linguistic analysis was framed in terms of Bernstein’s theory of restricted and elaborated language codes, which served as analogues to how members of the American working and middle classes respectively communicate. Despite the hypotheses that Trump and Clinton would evoke working and middle class speech, respectively, no uniform conclusion was reached. Instead, it was found that Clinton employs both restricted and elaborated codes in her use of pronouns and sympathetic circularity/”I think” phrases. Likewise, it was observed that Trump’s use of uncommon adjectives and adverbs characterized his speech as more middle-class, refusing the opposite hypothesis. It was concluded that a bigger sample size of political text and more refined computational linguistic analyses were required in order to properly characterize either candidate’s rhetoric as being aligned to either working or middle class.

References


A  Top 10 SAGE Terms per Candidate

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<th>LOG-PROB.</th>
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B  SAGE Comparison, All Words
C  SAGE Comparison, Adjectives

D  SAGE Comparison, Adverbs