1   Moral Foundations of U.S. Political News Organizations

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11   Abstract

12   The media ecosystem has grown, and political opinions have diverged such that there are

13   competing conceptions of objective truth. Commentators often point to political biases in

14   news coverage as a catalyst for this political divide. The Moral Foundations Dictionary

15   (MFD) facilitates identification of ideological leanings in text through frequency of the

16   occurrence of certain words. Through web scraping, the researchers extracted articles from

17   popular news sources' websites, calculated MFD word frequencies, and identified words'

18   respective valences. This process attempts to uncover news outlets' positive or negative

19   endorsements of certain moral dimensions concomitant with a particular ideology. In

20   Experiment 1, the researchers gathered poltical articles from four sources. They were unable

21   to reveal significant differences in moral or political endorsements, but they solidified the

22   method to be employed in further research. In Experiment 2, the researchers will expand

23   their number of sources to 10 and will analyze articles that pertain to the 2018 confirmation

24   hearings of U.S. Supreme Court Justice Brett Kavanaugh. This topic was selected due to the

25   moral disputes associated with his nomination.

26   *Keywords:* politics, morality, psycholinguistics

Moral Foundations of U.S. Political News Organizations

In the United States, today's media landscape affords consumers a multitude of options for obtaining political news. Since the advent of cable news networks and the World Wide Web in the last decades of the twentieth century, consumers have gained access to an ever-expanding menagerie of news sources, many of which can be called up via a simple click, touch, or swipe. Concurrent with this growth in available news sources, concerns regarding political bias in news reporting have entered public consciousness. For example, commentators argue that networks including Fox News Channel and MSNBC communicate political news from a conservative and liberal slant, respectively. These purported biases have been a cause for concern given the potential for incomplete or inaccurate news reporting potentially resulting from these biases. Given the inherently moral nature of many political arguments and positions, bias in news reporting might manifest as differing moral appeals. Specifically, the use of differing moral language in political articles might be an indicator of political bias in news media.

Morality and ethics have been of interest to thinkers, academics, and philosophers since antiquity. Starting chiefly in the twentieth century, a scientific approach to humans' understanding of morality emerged under the domain of psychology. Theories attempting to explain the development and application of people's moral intuitions built the foundation for the subfield of moral psychology. As the field developed, however, considerable debate has taken place regarding operational definitions of "morality." Concerns regarding operationalization remain an issue in the field in the twenty-first century as researchers attempt to infer moral and political leanings from text and speech.

Moral Foundations Theory

As a discipline, modern moral psychology started in the late 1960s with Lawrence Kohlberg (Haidt & Graham, 2007). Kohlberg's research popularized his theory of the development of moral reasoning. This theory establishes the steps of moral reasoning through which humans proceed as their cognitive structures assume higher levels of sophistication and nuance (Kohlberg & Hersh, 1977). Kohlberg borrowed from Jean Piaget's stages of cognitive development in which children progress from the sensorimotor through to the formal operations stage. Similarly, Kohlberg found people typically start with a "pre-conventional" understanding of morality during infancy in which children understand "right" and "wrong" purely in terms of how they interact with resultant experiences of rewards and punishment. Typically, people progress through several steps until they reach a "post-conventional" ethics. People who have reached the post-conventional stage are said to be able to weigh competing abstractions and reason their way to a conclusion that promotes justice based upon their "self-chosen ethical principles" (Kohlberg & Hersh, 1977). From Kohlberg's perspective, issues of justice and fairness comprise the foundation of morality (Haidt & Graham, 2007). This view persisted until it encountered criticism in the early 1980s.

Kohlberg's conception of morality faced major scrutiny from psychologist Carol Gilligan. In 1982, Gilligan criticized Kohlberg's theory on the grounds that it focused solely on the moral concerns of men, and that it ignored those of women (Haidt & Graham, 2007). Gilligan drew attention to purported differences in the ways men and women are taught to relate to self and others. She offered a historic argument contending women have traditionally filled roles related to caring and nurturing. She pushes back against Kohlberg's assumption that moral development replaces "rule of brute force," as enforced by men, with the justice-based "rule of law." According to Gilligan, this assumption implies women are less morally developed, owing to their absence both in masculine displays of violence as well as in enforcement of the law (Gilligan, 1982). Gilligan argues for the existence of a distinct,

75 but equal development process that women and girls must undergo in order to develop their

76 moral selves. Stark differences in the ways women are traditionally taught to interact with

77 their social world cause them to develop ethical systems based upon their non-aggressive

78 relationships with others. Gilligan thus asserted morality was built upon an alternative

79 moral foundation: caring (Gilligan, 1982). This debate between competing conceptions of

80 morality did not resolve until Gilligan and Kohlberg conceded the existence of two moral

81 foundations: justice and caring (Haidt & Graham, 2007). While this new direction in moral

82 psychology appeared to represent a more inclusive outlook on the construct, these novel

83 ideas would soon be challenged on the grounds of its apparent western-centric outlook.

84   Jonathan Haidt and Jesse Graham formulated Moral Foundations Theory as a method

85 by which to capture the entirety of humans' moral domain (Haidt & Graham, 2007). The

86 researchers argued older theories of moral psychology were focused primarily on issues of

87 justice, fairness, and caring - individually focused foundations of morality that align with the

88 beliefs of political liberals (Haidt & Graham, 2007). In other words, moral psychology

89 ignored the valid moral foundations of conservatives. Moral Foundations Theory (MFT)

90 holds that people's moral domain can be mapped by quantifying their endorsement of five

91 moral foundations: *harm/care*, *fairness/reciprocity*, *ingroup/loyalty*, *authority/respect*, and

92 *purity/sanctity* (Haidt & Graham, 2007).

93   In their brief overview of the history of moral psychology, Graham, Haidt, and Nosek

94 (2009) explained Shweder, Much, Mahapatra, and Park's objections to moral psychology as it

95 stood in the late 1980s. Their criticism centered on the fact moral psychology concerned

96 itself with issues regarding justice and individuals' rights. Such a system, they argued, did

97 not account for moral concerns outside of the western world (Graham et al., 2009).

98 Individually focused concerns can be grouped under an overarching "ethic of autonomy,"

99 which was thought to be one of three ethics upon which humans base moral decisions. The

100 other two ethics were the "ethic of community" (comprising one's duty to their family, tribe,

etc.), and the "ethic of divinity" - representing one's duty not to defile their God-given body and soul (Graham et al., 2009). In the 2000s, Haidt and Graham (2007) took this line of reasoning further in their assertion that moral psychology favored certain political ideologies over others.

Haidt and Graham settled on these specific foundations after the completion of a literature survey of research in anthropology and evolutionary psychology (Graham et al., 2011). The researchers attempted to locate virtues and morals corresponding to "evolutionary thinking." For instance, the researchers cited Mauss' work on reciprocal gift-giving, which informed the establishment of the *fairness/reciprocity* foundation. Additionally, evolutionary literature on disgust and its correlation to human behavior regarding food and sex informed the *purity/sanctity* foundation (Graham et al., 2011). The researchers identified the five "top candidates" for the foundations of human cultures' morality (Graham et al., 2011).

The first two foundations (*harm/care* and *fairness/reciprocity*) are termed the "individualizing foundations," as they are centered on the concerns of individuals rather than groups. *harm/care* represents an endorsement of compassion and kindness, while opposing cruelty and harm. *Fairness/reciprocity* represents concerns centered on guaranteeing individual rights as well as justice and equality among all people. The other three foundations (*ingroup/loyalty*, *authority/respect*, and *purity/sanctity*) are the "binding" foundations, owing to their focus on group-related concerns, rather than those of individuals. *Ingroup/loyalty* represents endorsements of patriotism and heroism and discourages nonconformity and dissent. *Authority/respect* represents an endorsement of social hierarchies and traditions while denigrating disobedience. Finally, *purity/sanctity* represents concerns regarding chastity and piety, while discouraging vices and indulgences, including lust, avarice, and gluttony (Haidt & Graham, 2007). Liberals tend to endorse the individualizing foundations more than conservatives. Conservatives, on the other hand, tend to endorse the

127 binding foundations more than liberals. It should be noted, however, conservatives also tend

128 to endorse all five foundations equally, implying they base moral judgments on all

129 foundations (Graham et al., 2009).

130   Moral Foundations Theory has received criticism on the grounds that its assumptions

131 regarding moral intuitions have little empirical basis. Suhler, Churchland, Joseph, Graham,

132 and Nosek (2011) list several potential weaknesses of MFT that they argue might threaten

133 the theory's validity. First, the authors challenge Haidt and Graham (2007)'s claims the

134 moral intuitions represented by MFT are innate and modular. Suhler et al. (2011) claim

135 that advances in biological sciences (embryology and microbiology, specifically) make it more

136 difficult for researchers to claim any one trait is either innate or learned through experience.

137 Rather, behaviors likely result from interactions between genetics and experience (Suhler et

138 al., 2011). According to the authors, without solid data supporting the innateness of moral

139 foundations, Haidt and Graham have little from which to make such a claim. Similarly,

140 Haidt and Graham (2007) rely on evidence authored by evolutionary psychologists to make a

141 "strong modularity claim" (Suhler et al., 2011). However, as with innateness, there is little

142 neurobiological evidence to support modularity.

143   Suhler et al. (2011) also criticized the content and taxonomy of the five foundations.

144 The authors criticize Haidt and Graham (2007)'s omissions of additional foundations,

145 including *industry* and *modesty*, claiming these concepts are moralized in many societies

146 worldwide. Likewise, the authors question whether or not the foundations are sufficiently

147 distinct as to stand as their own foundation. For example, Suhler et al. (2011) posit that

148 *ingroup/loyalty* is merely a group-focused version of *harm/care*. Work by Graham et al.

149 (2011) might serve to rebut this criticism, as the researchers found their original five-factor

150 structure seemed to best fit the data when validating the Moral Foundations Questionnaire.

151 Finally, Suhler et al. (2011) point out that particular concepts related to a foundation,

152 including "anger" in *fairness/reciprocity* and "deception" in *ingroup/loyalty*, could be

153 ascribed to any of the other foundations as well. In other words, it becomes difficult to

154 recognize a particular concept as indidcative of any one foundation when, in theory, they

155 could be applied to all five (Haidt & Graham, 2007; Suhler et al., 2011).

156 These criticisms of Moral Foundations Theory are valid and should be taken into

157 consideration when conducting research with instruments derived from MFT. The current

158 authors argue these criticisms are especially valid when considered alongside questions

159 regarding the Moral Foundations Dictionary they state herein. However, there exists

160 compelling evidence regarding the validity of Moral Foundations Theory, albeit regarding its

161 application solely through the Moral Foundations Questionnaire. This evidence is discussed

162 within a brief explanation of the Moral Foundations Questionnaire and its relationship to the

163 Moral Fondations Dictionary.

164 **Moral Foundations Dictionary**

165 In order to capture language's role in moral and political reasoning, Graham et al.

166 (2009) formulated the Moral Foundations Dictionary (MFD) in order to capture moral

167 reasoning and justification as used in speech and text. The MFD is composed of 259 words,

168 with around 50 words assigned to each of the five foundations. The researchers created a

169 preliminary list of words that they believed would be associated with the five foundations.

170 Then, using the Linguistic Inquiry and Word Count (LIWC; Pennebaker, Booth, & Frances,

171 2007) computer program, they analyzed transcripts of liberal and conservative Christian

172 sermons in order to obtain frequencies of the occurrence of words from the researchers' initial

173 list. The researchers manually checked the results from LIWC in order to make sure the

174 results make sense given the contexts and rhetorical devices used in the sermons, as word

175 frequency analysis ignores sentence context. The researchers offered the following example

176 from a Unitarian sermon as a demonstration of ambiguous statements requiring human

177 verification: "Don't let some self-interested ecclesiastical or government authority tell you

what to believe, but read the Bible with your own eyes and open your heart directly to Jesus" (Graham et al., 2009). This sentence added to the *authority/respect* total in LIWC's analysis, but it appears to suggest that one should reject authority in this context. The researchers eliminated this sentence from the *authority/respect* raw count on account of this discrepancy between the use of authority-related words and the speaker's clear intentions (Graham et al., 2009).

Similar to previous research on Moral Foundations Theory, liberal ministers used *harm*, *fairness*, and *ingroup* words more often than conservative ministers. Conversely, conservative ministers used *authority* and *purity* words more often than liberal ministers. However, conservative ministers did not use *ingroup/loyalty* words more than liberals. Rather, liberal ministers used words pertaining to *ingroup/loyalty*, but in contexts that promote rebellion and independence - causes *opposite* to positive endorsements of that foundation (Graham et al., 2009).

To this point, most text analysis utilizing the Moral Foundations Dictionary operationalizes endorsement of any one of the foundations as percent occurrence of words in a given text from the foundation's respective word list. As such, most analyses assume that zero percent occurrence is indicative of no endorsement, while any non-zero percent occurrence indicates endorsement of the foundation. This operational definition may not be sufficient in describing the true nature of the writer or speaker's endorsement of one of the sets of moral intuitions. A quick glance at the MFD words for *harm/care* reveals the presence of words that are more closely associated with universally accepted conceptions of *harm* over *care* and vice-versa (Graham et al., 2009). For example, the word "cruel" has relatively negative connotations compared to "benefit." For the *harm/care* foundation, it is conceivable that use of the word "cruel" might indicate a greater attentional focus of the idea of *harm* rather than *care*.

For *harm/care*, the definition of the foundation, as well as its name, clearly

²⁰⁴ distinguishes between two somewhat opposite sides of an attentional continuum, with *harm*

²⁰⁵ on the negative end and *care* on the positive side. In other words, the entries in the MFD for

²⁰⁶ *harm/care* have somewhat clear positive and negative valences. The same pattern can be

²⁰⁷ seen in the MFD entries for the other four foundations. *Purity/sanctity* features words that

²⁰⁸ likely have a negative valence to most observers, including "disease" and "trash," along with

²⁰⁹ more positive words, including "right" and "sacred" (Graham et al., 2009). These

²¹⁰ dichotomies, however, bring up other questions regarding the definition and names of the

²¹¹ other four foundations apart from *harm/care*: *fairness/reciprocity*, *ingroup/loyalty*,

²¹² *authority/respect*, and *purity/sanctity*. The latter four foundations have names that are

²¹³ harder to understand as a valence continuum, as the concepts in the names are more similar,

²¹⁴ even to the point of being virtually synonymous in the case of *fairness/reciprocity*.

²¹⁵   When considering the issue of positive versus negative valence in MFD words, the

²¹⁶ question of how texts are analyzed vis-a-vis the MFD remains. How can raw percentage of

²¹⁷ MFD word occurrence capture the valence and focus of the writer or speaker? If 2% of a

²¹⁸ politician's speech features positive words (i.e., "benefit" and "defend") from the MFD

²¹⁹ *harm/care* list, how can researchers be sure the level and nature of the speaker's

²²⁰ "endorsement" of the foundation equals that of another politician whose speech contained

²²¹ negatively connoted MFD words from the *harm/care* list? They would have equal

²²² endorsements as far as the numbers are concerned, but the words used and focus given are

²²³ on opposite sides of the *harm/care* spectrum.

²²⁴   This issue is compounded by the fact the Moral Foundations Questionnaire (MFQ) and

²²⁵ its subscales assume endorsement lies on a continuum. The Moral Foundations

²²⁶ Questionnaire (MFQ), which was developed subsequent to the MFD, measures individuals'

²²⁷ endorsements of each of the foundations using a six-point scale (Graham et al., 2011). The

²²⁸ questionnaire is made up of judgment items and relevance items. Judgment items are

²²⁹ phrased such that the respondent signals their agreement or disagreement with

230 straightforward statements. An example of such a statement reads: "It can never be right to

231 kill another human being" (Graham et al., 2011). Relevance items gauge the respondent's

232 opinion regarding the importance of foundation-related concerns. For example, the

233 respondent is directed to rate how important the following situation is to their sense of

234 morals: "whether or not someone did something disgusting." This example measures the

235 relevance of the *purity/sanctity* foundations. Each foundation has a judgment and relevance

236 subscale, totaling 10 subscales for the MFQ (Graham et al., 2011).

237   The Moral Foundations Questionnaire has been validated by multiple researchers.

238 Likewise, its five-factor structure has been demonstrated to fit data in multiple countries

239 (Davies, Sibley, & Liu, 2014; Graham et al., 2011). In their article introducing the 30-item

240 MFQ, Graham et al. (2011) conducted an exploratory factor analysis (EFA) and found that

241 a five-factor model fit better than a one, two, or three-factor model. Davies et al. (2014)

242 conducted a confirmatory factor analysis (CFA) of the MFQ with a sample from New

243 Zealand and likewise found the five-factor model provided the best fit. While Davies et al.

244 (2014) concede the US and New Zealand share many similarities as Western nations, which

245 could raise questions regarding the validity of the MFQ in non-Western nations. However,

246 there are striking differences between the two countries, including the lack of a two-party

247 political system in New Zealand, that provide grounds for claiming the MFQ generalizes

248 beyond the United States. Furthermore, Graham et al. (2011) claim to find a "reasonable"

249 degree of generalizability for the MFQ across participants from many different regions in the

250 world. These two bodies of work also provide the best available evidence that the five moral

251 foundations are sufficiently distinct from one another, though broader criticisms of MFT

252 raised by Suhler et al. (2011) should still be taken into account in studies involving the

253 theory.

254   The aforementioned ambiguity of the Moral Foundations Dictionary as an instrument

255 becomes clearer upon closer examination of the items in the Moral Foundations

Questionnaire. One item under the *fairness/reciprocity* judgment subscale reads, "Justice is

the most important requirement for a society" (Graham et al., 2011). The survey respondent

must select a number on a scale from 1 to 6 indicating responses spanning "strongly

disagree" at 1 to "strongly agree" at 6. While the scales in the MFQ do not represent true

valence as it pertains to individual words, it does allow for a greater degree of specificity in

terms of an individual's endorsement of a particular moral foundation. When a respondent

selects a 4 for the aforementioned MFQ statement, they clearly are indicating they "slightly

agree" with the statement (Graham et al., 2011). This specificity is not present in most

analyses involving the MFD and percent occurrence, unless they also take into account the

valence of the words used in the text or speech of interest.

Valence

Borrowing from Osgood's work in the 1950s, Bradley and Lang (1999) recognized

valence as one of three related dimensions comprising emotion when developing their

Affective Norms for English Words (ANEW). As mentioned before, "valence," the first

dimension, denotes the pleasantness of a given word. "Arousal," the second dimension,

describes the stimulating nature of a word. Lastly, "dominance" or "control" describes the

extent to which a word makes one feel in or out of control (Bradley & Lang, 1999). The

researchers developed ANEW by presenting participants with a list of 100-150 words and

asking for them to rate the word on all three dimensions using the Self-Assessment Mannikin

(SAM), which allows ratings along either a nine-point scale when using traditional paper

instruments or a twenty-point scale when using a computerized version.

Participants saw the stimulus word and responded on each scale. The valence scale

featured a smiling figure at one end (representing pleasantness) and a frowning figure at the

other end (for unpleasantness). The arousal scale had a "wide-eyed" figure at one end with a

sleepy figure at the other, representing stimulating and unstimulating respectively. Finally,

the dominance scale featured a large figure, indicating the highest degree of control, at one end and a small figure, indicating a lack of control, at the other end (Bradley & Lang, 1999). The end result of this procedure yielded affective norms along the three dimensions for 1,040 English words (Bradley & Lang, 1999). ANEW represented an important first step in establishing affective norms for large numbers of English words. However, later researchers found the 1,040-word list to be limiting for a language consisting of thousands of words.

Warriner, Kuperman, and Brysbaert (2013) exponentially lengthened the list of words with affective norms to 13,915 English lemmas, the base forms of words without inflection (i.e., "watch" rather than "watched" and "watching"). The researchers recognized the importance of affective norms in several areas of study, including emotion, language processing, and memory (Warriner et al., 2013). They argue the list of words included in ANEW is sufficient for small-scale factorial research designs, but the list is "prohibitively small" for larger-scale "megastudies" that are common in psycholinguistic research today (Warriner et al., 2013).

In order to source a large number of lemmas for affective ratings, the researchers drew from several validated sources. These include the 30,000 lemmas with age-of-acquisition (average age at which a particular word is learned) ratings gathered by Kuperman, Stadthagen-Gonzalez, and Brysbaert (2012) as well as the content lemmas from the SUBTLEX-US corpus consisting of subtitles from various forms of visual media (New, Brysbaert, Veronis, & Pallier, 2007). This data collection resulted in the final list of 13,915 lemmas. Lists of 346-350 words were presented to participants recruited through the Amazon Mechanical Turk subject pool. Participants rated the words along one of the three dimensions, unlike the ANEW project in which participants rated each word along all three dimensions at once. The researchers used a nine-point scale similar to the one used by Bradley and Lang (1999) when collecting ratings for ANEW (Warriner et al., 2013).

The researchers noted several points of interest upon observing ratings. First, they

307 found that valence and dominance ratings had a negative skew, indicating more words

308 elicited feelings of happiness and control than their respective opposites. Also, when

309 examining the relationship between valence and arousal ratings, the researchers found a

310 U-shaped relationship. This U-shape indicates words with high degrees of positivity and

311 negativity elicited higher arousal (Warriner et al., 2013). These observations along with the

312 now-greatly expanded list of affective norms has been applied to several lines of inquiry in

313 psycholinguistics.

314   Warriner and Kuperman (2015) utilized the new affective norms list in order to

315 investigate the validity of the Pollyanna hypothesis, or the prevalence of a generally

316 optimistic outlook in humans as reflected in language. The researchers were able to conclude

317 the existence of a greater number of positive-valence English words in the list of 13,915

318 lemmas. Additionally, after observing token frequency in a number of text corpora, including

319 SUBTLEX-US, the Corpus for Contemporary American English (COCA), the British

320 National Corpus (BNC), Touchstone Applied Science Associates, Inc. Corpus (TASA), and

321 the corpus used for the Hyperspace Analogue to Language model (HAL), the researchers

322 found that words with positive valence were also used more frequently (Warriner &

323 Kuperman, 2015). While the researchers concede the possibility of an acquiescence bias in

324 ratings as a possible explanation for the observed positivity bias, this investigation represents

325 one application of the Warriner et al. (2013) list in emotional studies.

326   In addition to applications in emotion research, the Warriner et al. (2013) norms have

327 been utilized in cognitive research as well. One cognition-based study investigates the

328 relationship between emotion and response latencies in word recognition. Kuperman, Estes,

329 Brysbaert, and Warriner (2014) sought to use these new norms to fill in the knowledge gaps

330 regarding variance in word recognition. The researchers drew several conclusions regarding

331 emotion and word recognition (specifically in naming and lexical decision tasks - two

332 cognitive processing tasks wherein a participant has to read aloud or judge a word for its

lexicality). First, Kuperman et al. (2014) found slower decision-making and reading times in negative-valence words, faster times in neutral words, and even faster times in words with positive valence. The researchers also concluded that words causing higher arousal tend to have slower decision times than less-arousing words. They found valence had a stronger effect on recognition than arousal (both effects were independent, not interactive). They found an interaction between emotion and word frequency such that valence and arousal are more effective on lower frequency words than high frequency words. Finally, Kuperman et al. (2014) found a greater effect of valence and arousal on response latency for lexical decision tasks than for naming tasks (Kuperman et al., 2014). This research serves as further evidence that the Warriner et al. (2013) list can be used for research inquiries both within and without the field of psycholinguistics.

In the present studies, the researchers used the Warriner et al. (2013) list in order to denote the valence of the words appearing in the news articles scraped from the internet. Valence was considered as another independent variable and its relationship with the words comprising the Moral Foundations Dictionary were of chief interest to the researchers. The valence was used as a means to determine whether individual words in the MFD represented more positive aspects of their respective foundation or if they denoted a more negative aspect of the foundation. Specifically, valences were used to weight the MFD words by their relative degree of positivity or negativity. Incorporating word valence into a study involving the MFD is meant to alleviate some of the issues regarding the aforementioned ambiguity regarding the words in the Moral Foundations Dictionary.

News Media and Politics

Research into politics, language, and media has illuminated the complex relationships between all three. Any politically-oriented discussion of word occurrence as an implication of moral or political position assumes that language and ideology are intrinsically linked.

358 Deborah Cameron (2006) points out the expressive nature of ideological beliefs and how that

359 expression is conveyed through language, thus implying a connection between ideology and

360 language. She goes on to criticize the notion that language is either the "pre-existing raw

361 material" used to shape ideologies or the "post-hoc vehicle" for their propagation. Rather,

362 the structure of language itself is shaped by ideology and social processes even when it is used

363 to explain or express ideologies (Cameron, 2006). Owing to the fact the Moral Foundations

364 Dictionary was developed in order to assess the moral, which includes the ideological,

365 orientation of discourse, its purported ability to assess parts of the structure of language

366 (vocabulary) for ideological lean is of chief interest to the researchers in the present study.

367   The use of language both to express and further an ideological goal has been

368 documented in the techniques employed by candidates for political office in the U.S.,

369 Druckman, Jacobs, and Ostermeier (2004) considered political "issues" as communication

370 that attempts to persuade constituents to vote for the candidates based on their strengths in

371 matters of public policy. According to the researchers, "image" priming describes techniques

372 deployed in order to sway votes based on favorable aspects of the candidate's behavior and

373 personality (Druckman et al., 2004). The researchers investigated political issue and image

374 priming on the part of candidates as implied by the disproportionate attention candidates

375 paid to particular issues over others. The researchers found numerous examples of issue and

376 image priming during the 1972 re-election campaign of Richard Nixon.

377   They linked the Nixon administration's awareness of the issues for which the president

378 had public support to the issues he should emphasize (and prime) during the campaign.

379 Likewise the researchers found evidence that Nixon's team was aware of negative evaluations

380 of his warmth and trustworthiness, and thus took steps to prime his purportedly positive

381 qualities, including strength and competence (Druckman et al., 2004). The researchers also

382 cited research from Iyengar and Kinder (1987) suggesting the news media affected

383 perceptions of President Jimmy Carter's competence by emphasizing (e.g., priming) issues

384 related to energy, defense, and the economy. This focus implies news media may contribute
385 to Americans' perception of politicians based on where the media places emphasis.

386   There is a potential caveat regarding the validity of Druckman et al. (2004)'s findings:
387 reproductions of several studies purporting to demonstrate social priming effects have failed
388 to replicate the original results. Pashler, Coburn, and Harris (2012) point out the distinction
389 between perceptual and social (or goal) priming both in their operational definitions as well
390 as their replicability. Perceptual priming often works through the inducement of a certain
391 response from a related prime, as in, for example, semantic priming. Social (or goal) priming
392 encompasses phenomena by which people exhibit complex behavioral changes subsequent to
393 exposure to a prime. Pashler et al. (2012) point out well-known studies investigating social
394 priming, including the use of elderly-related primes to induce slower walking speeds in
395 participants. Studies investigating perceptual priming have been "directly replicated in
396 hundreds of labs" (Pashler et al., 2012). This replication rate does not appear to be the case
397 for social priming, as argued by Pashler et al. (2012).

398   Pashler et al. (2012) noticed the unusually large effect size values (Cohen's d) reported
399 by researchers studying social priming effects. The researchers reproduced two studies from
400 Williams and Bargh (2008) The first study attempted to prime participants by having them
401 plot points on a Cartesian grid. The independent variable was priming condition and
402 contained three levels: short, middle, and long distance. Those instructed to plot points
403 further apart were hypothesized to express a higher degree of psychological distance
404 regarding their family. The second study used the same priming conditions, but hypothesized
405 that greater distance between points would prime participants to estimate fewer calories in
406 unhealthy foods than those who were primed with shorter distances between points. Pashler
407 et al. (2012) concluded those two studies from Williams and Bargh (2008) held little validity
408 while also casting doubt on the prevalence of social priming effects themselves, based on the
409 inability of other researchers to replicate previously reported effects in this area.

410   While these concerns regarding the replication of social priming studies are valid and

411 deserve further investigation, Druckman et al. (2004) does not purport to demonstrate a

412 widespread effect of social priming on the American electorate. In other words, this reseach

413 makes no claim to empirically supported priming effects. Rather, Druckman et al. (2004)

414 chronicle the efforts on the part of the Nixon Administration to prop up the president's

415 supposed strengths while downplaying his weaknesses. These tactics were deployed through

416 the careful use of language in order to achieve the administration's political goals. As such,

417 Druckman et al. (2004)'s research on Nixon serves as an example of language's potential

418 utility in the propogation of desirable political opinions. The researcher's investigation of

419 news media's focus on specific issues during the Carter Administration likewise provide an

420 example of language as a potential conduit for the transfer of politically biased information.

421 The idea that even 1970s news media could contain political biases is of particular interest to

422 the current study, which investigates similar phenomena in contemporary news media.

423   Other research into news media suggests certain media outlets, at least indirectly, may

424 have an effect on the voting records of representatives in Congress (Clinton & Enamorado,

425 2014). Specifically, the researchers identified a pattern of declining support for President Bill

426 Clinton's policies chiefly among Republicans in the House of Representatives after the Fox

427 News Channel began broadcasting on cable and satellite systems in their respective districts.

428 As Fox News was, at the time of its launch in 1996, the only outwardly ideological national

429 news network, the researchers were able to track its spread across the country and observe

430 voting records of members of Congress both before and after Fox News' arrival. The

431 researchers concluded that members of Congress, excluding those newly elected at the time

432 of Fox News Channel's emergence, attempted to anticipate resultant conservative-leaning

433 shifts among their constituents by bolstering their conservative voting record before the next

434 election (Clinton & Enamorado, 2014).

435   Therefore, the current study sought to combine both methods related questions and

436 extension/replication of previous moral foundation results found for liberal and conservative

437 sources. First, the MFD was combined with previous research by the current authors (see

438 below) and weighted by valence to create weighted percentages to better specify

439 endorsement. Second, these weighted percentages were examined for their differences in

440 across liberal and conservative news sources.

441   **Experiment 1**

442   **Method**

443   For Experiment 1, the researchers approached the study with the intention to answer a

444 method question. That is, this portion of the current research was conducted in order to

445 solidify the best method by which to analyze political news text under the Moral

446 Foundations Theory framework while also alleviating some of the aforementioned valence

447 problem observed in the Moral Foundations Dictionary. The researchers hypothesized the

448 news sources genrally perceived as liberal leaning (*NPR* and *The New York Times*) would

449 contain MFD words and valences indicating endorsements of the individualizing moral

450 foundations (*harm/care* and *fairness/reciprocity*). Additionally, the researchers hypothesized

451 the two sources generally perceived to be conservative leaning (*Fox News* and *Breitbart*)

452 would feature MFD words and valences indicating equal endorsement of all five foundations.

453 **Sources**

454   Political articles were collected from the websites of four notable U.S. news sources, a

455 process known as web scraping. The sources were *The New York Times*, *National Public*

456 *Radio (NPR)*, *Fox News*, and *Breitbart*. They were selected for their widespread recognition

457 and the fact politcial partisans have strong preferences for some sources over others. The

458 researchers determined the political lean of each source by referencing Mitchell, Matsa,

Gottfried, and Kiley (2014)'s article demonstrating the self-reported idealogical consistency represented by the consumers of several news sources. In general, *The New York Times* and *NPR* are preferred by consumers reporting a liberal bias or lean. In contrast, *Fox News* and *Breitbart* are believed to have a conservative bias or lean. Mitchell et al. (2014)'s article presented political ideology as a scale ranging from "consistently liberal" to "consistently conservative." In between these extremes lie more moderate positions, including "mostly liberal," "mixed," and "mostly conservative." Owing to the lower number of sources analyzed herein, the researchers elected to categorize the sources as either "liberal" and "conservative" in order to form a basis for comparison.

Political articles in particular were identified and subsequently scraped by including the specific URL directing to each source's political content in the *R* script. For example, rather than scrape from nytimes.com, which would return undesired results (non-political features, reviews, etc.), we instead included nytimes.com/section/politics so that more or less exclusively political content was obtained. All code for this manuscript can be found at https://osf.io/5kpj7/, and the scripts are provided inline with this manuscript written with the *papaja* library (Aust & Barth, 2017).

Identification of the sources' political URLs presented a problem for two of the sources owing to complications with how their particular sites were structured. While in the multi-week process of scraping articles, we noticed word counts for *NPR* and *Fox News* were not growing at a similar pace as those from *The New York Times* and *Breitbart*. Upon investigation, we found another, more robust URL for political content from NPR: their politics content "archive." The page structure on NPR's website was such that only a limited selection of articles is displayed to the user at a given time. Scraping both the archive and the normal politics page ensured we were obtaining most (if not all) new articles as they were published. We later ran a process in order to exclude any duplicate articles. *Fox News* presented a similar issue. We discovered *Fox News* utilized six URLs in addition to the

regular politics page. These URLs led to pages containing content pertaining the U.S. Executive Branch, Senate, House of Representatives, Judicial Branch, foreign policy, and elections. Once again, duplicates were subsequently eliminated from any analyses.

Materials

Using the *rvest* library in the statistical package *R*, we pulled body text for individual articles from each of the aforementioned sources (identified using CSS language) and compiled them into a dataset (Wickham, 2016). Using this dataset, we identified word count and average word count per source. This process was run once daily starting in February 2018 until March 2018. Starting in mid-March 2018, the process was run twice daily - once in the morning and again in the evening. Data collection was terminated once 250,000 words per source was collected in April 2018.

Data analysis

Once data collection ended, the text was scanned using the *ngram* package in *R* (Schmidt, Gonzalez-Cabrera, & Tomasello, 2017). This package includes a word count function, which was used to remove articles that came through as blank text, as well as to eliminate text picked up from the Disqus commenting system used by certain websites. At this point, duplicate articles were discarded.

The article text was processed using the *tm* and *ngram* packages in *R* in order to render the text in lowercase, remove punctuation, and fix spacing issues (Feinerer & Hornik, 2017). The individual words were then reduced to their stems (i.e., *abused* was stemmed to *abus*). The same procedure was applied to the MFD words and the words in the Warriner et al. (2013) dataset. Using the Warriner et al. (2013) dictionary, the words making up each of the five foundations in the MFD were matched to their respective valence value.

Concurrent research by Jordan, Buchanan, and Padfield (2019) is assessing the validity of both the Moral Foundations Questionnaire and the Moral Foundations Dictionary through a multi-trait multi-method analysis of the two instruments using multiple samples. The instruments and foundation areas are being analyzed against one another, in order to test reliability, as well as against the Congressional Record in order to test predictive validity for political orientation. The researchers were able to identify a number of potential new words that, if added to the MFD, could comprise a dictionary with greater validity, and less likelihood of zero percent texts, as this often occurs with the current MFD. Those results have informed this analysis, and their updated findings may change the underlying dictionary used in this analysis (albeit, we do not expect any changes in the results presented below).

The source article words were compiled into a dataset where they were matched up with their counterparts in the MFD along with their valence and a percentage of their occurrence. Therefore, for each article, the percentage of the number of *harm/care* words occurring in the articles were calculated, and this process was repeated for each of the foundations. Words' percent occurence were multiplied by their z-scored valence. Valences were z-scored in order to eliminate any ambiguity regarding the direction of the valence. Positive values indicate positive valence, and negative values indicate negative valence. Words were categorized in accordance to their MFD affiliation, creating a weighted sum for each moral foundation.

Results

Descriptive Statistics

Breitbart Fox News NPR NY Times 0.2859474 0.2865543 0.2836801 0.3036140 Breitbart Fox News NPR NY Times 0.1758739 0.1657591 0.2303375 0.1316283 Breitbart Fox News NPR NY Times 502.4509 590.0179 435.9381 1114.7266 Breitbart Fox News NPR NY

Times 347.9033 528.6040 642.6311 511.8552 Breitbart Fox News NPR NY Times 243.3633
283.5666 191.9583 454.2660 Breitbart Fox News NPR NY Times 120.7606 188.9969 192.2881
154.5782 Breitbart Fox News NPR NY Times 1437 503 695 406 Breitbart Fox News NPR NY
Times 722022 296779 302977 452579 Breitbart Fox News NPR NY Times 18.41894 16.92098
13.80370 16.32188 Breitbart Fox News NPR NY Times 8.011796 7.159823 3.928992 3.290628

The researchers calculated descriptive statistics for each news source in order to
understand any and all fundamental linguistic differences in the sources' use of English.
Statistics calculated included *z*-scored valence, number of articles per source, total number of
words per source, average number of tokens (words) per article in each source, average
number of types (unique words) per article in each source, and mean readability level per
source. Readability statistics were calculated using the Flesch-Kincaid Grade Level
Readability formula. Readability is calculated using a formula where the total number of
syllables, words, and sentences in a given passage are determinants of its difficulty. The
obtained value is intended to match up with the grade level at which one should be able to
comfortably read the passage (Kincaid, Fishburne, Robert P., Richard L., & Brad S., 1975).
For example, a text with a readability score of 11 should be easily read by a high school
junior.

As seen in Table 1, the sources are similar in some aspects yet different in others.
Valence appears to be slightly positive across all sources. The standard deviations seem to
indicate little to no presence of a difference in valence. *The New York Times* published the
greatest number of articles as well as total words. *Breitbart* featured the lowest number of
articles, and *NPR* the lowest number of total words from all articles. Per indvidual article,
however, *Breitbart* appears to feature the highest average number of words as well as unique
words. Once again the standard deviations call into question any apparent differences
between sources. Finally, *Fox News* appears to be the most readable source on average, while
The New York Times is the least readable. This might be attributable to the greater number

558 of tokens in the average *New York Times* article compared to *Fox News.* As before, the

559 standard deviations for readability hamper one's ability to draw solid conclusions regarding

560 differences in the sources' use of language.

Inferential Statistics

562   To analyze if news sources adhered to differences in word use based on their target

563 audience, we utilized a multilevel model (MLM) to analyze the data. MLM is a regression

564 technique that allows one to control for the repeated measurement and nested structured of

565 the data, which creates correlated error (Gelman, 2006). Using the *nlme* library in *R*

566 (Pinheiro, Bates, Debroy, Sarkar, & Team, 2017), each foundation's weighted percentage was

567 predicated here by the political lean of the news source, using the individual news sources as

568 a random intercept to control for the structure of the data.

569   The multilevel model did not indicate the presence of any significant or practical effect

570 of political lean for any of the five moral foundations. The strongest effect size was observed

571 for the *authority/respect* foundation, but the effect was in the opposite direction from what

572 was originally hypothesized - liberal sources tended to use more *authority/respect* words than

573 did conservative sources. Descriptive and test statistics, *p*-values and effect sizes (Cohen's *d*)

574 can be found in Table 2. To interpret the weighted scores, one can examine the mean and

575 standard deviations for each. A zero score for the mean, with a non-zero standard deviation,

576 would indicate a perfect balance of positive and negative words in each category, likely

577 representing a neutral tone when all words are considered. Negative percentages would

578 indicate more representation of the negative words in the MFD area, while positive

579 percentages indicate an endorsement of the positive words in a MFD. Therefore, we suggest

580 using the sign of the mean score to determine the directionality of the endorsement for the

581 MFD (positive, neutral, negative), and the standard deviation to ensure that a zero score is

582 not zero endorsement (i.e., a SD of zero indicates no words were used). Based on the

weighted percent values for the five foundations, the researchers observed that MFD words seem to make up a small portion of the article text. Furthermore, the observed percentages and means appear to indicate a generally positive endorsement of all five foundations across both liberal and conservative sources.

Discussion

The results obtained in Experiment 1 did not confirm the hypothesis. The researchers found little compelling evidence of an effect of partisan lean on MFD endorsement. The strongest effect found was for the *authority/respect* foundation owing to the fact its Cohen's *d* value was greater than the other four foundations. However, the effect was in the opposite direction of that which was hypothesized. Specifically, the results indicated that liberal leaning sources demonstrated higher positivity regarding that foundation than conservatives. This result is contrary not only to the research hypothesis for Experiment 1 but also to previous findings in Moral Foundations Theory research. It should be noted, however, the effect size was small and the relationship was not found to be statistically significant.

Upon speculation, the researchers identified one possible reason for why the results were unable to confirm the hypothesis. The selection of the broad and amorphous topic of "political news" may have led to the scraping of large numbers of articles with little to no moral-centric content. Rather, many articles may have been, for example, simple reporting on congressional procedures that would leave little room for the use of moral language here, let alone words from the Moral Foundations Dictionary. In short, the range of topics covered in Experiment 1 was likely too broad. The possibility exists that a tighter focus on one political issue or event, especially one that (on the surface) has a stronger relationship with morality might be more illuminating for research in moral language in news media.

Owing to the exploratory nature of Experiment 1, the researchers were afforded the

opportunity to consider changes to the method to be utilized in Experiment 2. Generally speaking, the researchers believe their methodology to be sound. Web scraping methods and text processing remain viable methods for collecting large amounts of text and subsequently rendering that text in a form suitable for data analysis. Experiment 1 also demonstrated a method by which to address inherent problems in the Moral Foundations Dictionary relating to valence. The solution provided in Experiment 1 appears to provide insights into the MFD words where none previously existed. Finally, calculating weighted percentages and sums for each moral foundation provides an easily interpreted summary of MFD word positivity and occurence.

While the methodology used in Experiment 1 features many strengths, there are aspects which could be strengthened for future studies. The researchers identified two such changes that were subsequently employed in Experiment 2. First, the researchers elected to include more news sources for web scraping and analysis in addition to the four used in Experiment 1. Second, the researchers chose to focus their data collection efforts exclusively on one event in U.S. politics: the nomination and confirmation of Justice Brett Kavanaugh to the U.S. Supreme Court. In Experiment 2, the researchers sought to confirm the usefulness and validity of the method as well as test a similar hypothesis as Experiment 1.

Experiment 2

Kavanaugh Supreme Court Hearing

In the wake of Justice Anthony Kennedy's retirement from the Supreme Court of the United States, President Donald Trump nominated Brett Kavanaugh as the new Associate Justice. Kavanaugh was previously on the U.S. Court of Appeals for the District of Columbia. The Senate Judiciary Committee began his confirmation hearing on September 4, 2018 (US Government, 2018a). Following allegations of sexual assault by high school

classmate Dr. Christine Blasey Ford, the committee postponed its vote on whether or not to open the confirmation to the entire Senate.

On September 27, the committee questioned Dr. Ford before commencing a second round of questioning for Judge Kavanaugh (US Government, 2018b). During the intervening weeks between hearings, two more women came forward with two separate allegations of sexual assault on the part of Kavanaugh. According to Nielsen reports, more than 20 million people watched the September 27 proceedings on television (O'Connell, 2018). This figure does not take into account viewers who watched online, nor does it account for viewers outside the United States. On September 28, the Senate Judiciary Committee voted to send the nomination to the Senate floor. Senator Jeff Flake of Arizona, however, lobbied for a week-long FBI investigation on Kavanaugh and the allegations facing him, which the committee, and later the President, approved. The investigation concluded with no significant findings. The Senate voted 50-48 to approve Kavanaugh's appointment on October 6, 2018 (US Government, 2018c).

The Kavanaugh nomination, confirmation hearing, and eventual swearing-in, as well as the news media's coverage of all three events, feature many dimensions that likely differ depending on one's morals. The issue might be exacerbated given the presence of questionable sexual behaviors at the center of many concerns. On one side of the debate, Kavanaugh's Supreme Court tenure presents a prime opportunity to bring morality back into interpretation of the Constitution. Kavanaugh's confirmation creates a conservative stronghold among the justices on the court. Commentators have noted this might help advance a judicial agenda that backpedals certain rights previously upheld by the Supreme Court, including abortion and gay marriage - social issues challenged by their opponents at least partially on moral grounds. Concerns around abortion might be related either to *harm/care* or *purity/sanctity*. On the other side of the debate, the assault allegations have energized Kavanaugh's opponents to advocate for his rejection from the court owing to

657 misdeeds resulting from Kavanaugh's own alleged lack of morals. Likewise, arguments could

658 be made that relate concerns regarding sexual violence to *harm/care* or *fairness/reciprocity*.

659 Additionally, the moral duty of the Senate as the upper chamber in the U.S. legislature has

660 been scrutinized in public discourse with respect to its handling of the assault allegations

661 vis-a-vis Kavanaugh's confirmation.

U.S. Government Shutdown of 2018-2019

663 The U.S. Federal Government partially shut down on December 22, 2018. The

664 government reopened on January 25, 2019 upon the passage of an appropriations bill by

665 both houses of Congress (Axelrod, 2019). The shutdown stemmed from a disagreement

666 between President Donald Trump and Congress over funding for the president's proposed

667 U.S.-Mexico border wall. President Trump demanded $5.7 billion dollars in the new budget

668 to be appropriated for the wall, which Congress did not provide in its budget (Peoples &

669 Swanson, 2019). Owing to the lack of funding, the government began a partial shutdown,

670 causing "around 800,000" federal employees to be either furloughed or compelled to work

671 without pay (Axelrod, 2019).

672 The government shutdown ended 35 days later when Congress passed a continuing

673 resolution to fund the government for three weeks while further negotiations regarding the

674 budget would take place. President Trump signed the bill, ending the longest govenrment

675 shutdown in U.S. history (Axelrod, 2019). Many political commentators cite the mounting

676 pressure on Trump and Congress stemming from significant costs both to unpaid American

677 workers and the economy as a whole (Kheel & Mitchell, 2019). Perhaps owing to the

678 financial pressures experienced by thousands of federal employees and their families as a

679 result of a political quarrel, President Trump saw his approval rating fall as the shutdown

680 progressed (Peoples & Swanson, 2019). While the shutdown and its associated burdens were

681 unpopular, the issues discussed concurrent to the shutdown offer the potential for more

682 divergent opinions.

683   As mentioned before, the shutdown started as a result of an impasse regarding funding

684 for the border wall. Since the wall was proposed during the 2016 presidential campaign, the

685 issue has taken on a moral dimension. As an example, Shaun Casey, the director of

686 Georgetown University's Berkely Center for Religion, Peace and World Affairs, cites

687 diverging opinions stemming from theological concerns (Martin, 2019). Some supporters,

688 citing certain passages from the Bible, believe construction of the wall is part of a divinely

689 ordained process handed down by God. Opponents, on the other hand, have cited other

690 parts of the Bible extolling the significance of exiled peoples, especially the Hebrew people

691 (Martin, 2019). This example potentially ties into the five moral foundations. Theological

692 concerns regarding the border wall might invoke *authority/respect* as well as *purity/sanctity*.

693 In addition to these two foundations, the involvement of foreign countries and their citizens'

694 migration into the U.S. could also elicit moral concerns related to *ingroup/outgroup*.

695   Owing to the wealth of moral opinions regarding the border wall and its association

696 with the 2018-2019 government shutdown, the researchers decided to add the government

697 shutdown as a news event to analyze under the auspices of Moral Foundations Theory. In

698 addition to articles related to the Kavanaugh confirmation hearing, the researchers scraped

699 articles related to the government shutdown in order to analyze their content for valence and

700 moral alignment.

Method

702   In contrast to Experiment 1, the researchers approached Experiment 2 with the

703 intention to confirm the method employed was valid for the analysis of the scraped text as

704 well as for any inferences drawn from the analyses. For Experiment 2, the researchers

705 hypothesized that news sources perceived as liberal will exhibit positive endorsements of the

individualizing moral foundations (*harm/care* and *fairness/reciprocity*) in their articles

reporting on both the Kavanaugh confirmation hearing as well as the 2018-2019 government

shutdown. News sources perceived as conservative are hypothesized to positively endorse all

five foundations equally in their coverage of the Kavanaugh hearing and the government

shutdown. The researchers tested the hypothesis by analyzing the content scraped from news

sources' web pages spanning the two weeks before (September 13, 2018) and two weeks after

(October 11, 2018) Kavanaugh's confirmation hearing, owing to its prominence in the news.

Likewise, the researchers analyzed content spanning two weeks before the start of the

government shutdown (December 8, 2018) to two weeks following the end of the shutdown

(February 8, 2019). The content will be analyzed for valence and moral alignment under

Moral Foundations Theory.

Sources

Articles pertaining to the Brett Kavanaugh Supreme Court nomination and

confirmation were scraped from the websites of 12 U.S. news sources. As in Experiment 1,

these sources were selected owing to their favorability among political partisans according to

Mitchell et al. (2014). The sources favored by the highest proportion of consistent liberals

were *The New York Times*, *National Public Radio (NPR)*, *Slate*, *Huffington Post*, and

Politico (Mitchell et al., 2014). The sources favored by the highest proportion of consistent

conservatives included *Fox News*, *Breitbart*, *The Rush Limbaugh Show*, *The Blaze*, and *Sean

Hannity*. Political articles referencing Brett Kavanaugh's nomination process were identified

and subsequently scraped by including the URL for each source's coverage of the nomination

in the *R* script. All code for this manuscript can be found at https://osf.io/5kpj7/, and the

scripts, again written with the *papaja* library in *R*, are provided inline with this manuscript

(Aust & Barth, 2017).

Materials

730

731   Using the *rvest* library in the statistical package *R*, we pulled body text for individual

732 articles from each of the aforementioned 10 news sources (identified using CSS language).

733 We compiled the articles into a dataset (Wickham, 2016). Using this dataset, we identified

734 word count and average word count per source. This process was run for articles pertaining

735 to Kavanaugh's nomination that were published between September 13, 2018 and October

736 11, 2018 inclusive. This date range was selected in reference to the widely-publicized and

737 viewed nomination hearing on September 27, 2018. We set the start date at September 13

738 (two weeks before the hearing) and the end date at October 11 (two weeks after the hearing)

739 so that we could capture a large amount of data (roughly one month) during which

740 Kavanaugh's nomination was at its peak saturation in news coverage.

741   The same process was followed for scraping articles related to the partical U.S.

742 Government shutdown of 2018-2019. The articles scraped were published between December

743 8, 2018 and February 8, 2019 inclusive. Once again, the researchers elected to scrape articles

744 published two weeks before and after the event in question in order to capitalize on the

745 shutdown's saturation in American news media.

```
##       BLAZE BREITBART        FOX   HANNITY    HUFFPO       NPR  NY Times
##    462.4440  496.4967 2018.6502  219.4815  650.4457  296.7350 1108.0689
##   POLITICO      RUSH      SLATE
## 1551.9478 1552.7151   845.2059

##       BLAZE BREITBART        FOX   HANNITY    HUFFPO       NPR  NY Times
##     128097    375848   1304048      5926    359046    108605    723569
##   POLITICO      RUSH      SLATE
##    1069292    267067    229896
```

```
754 ##      BLAZE BREITBART       FOX  HANNITY   HUFFPO      NPR NY Times
755 ##   397.7857  332.9644 2763.2942  163.6667  560.6944  348.1889 1106.7696
756 ## POLITICO      RUSH     SLATE
757 ## 1574.3198 1956.7949  728.6667
```

```
758 ##     BLAZE BREITBART       FOX  HANNITY   HUFFPO      NPR NY Times
759 ##     38983    102886   2799217    10311    242220   151114    831184
760 ## POLITICO      RUSH     SLATE
761 ##    349499    152630     85254
```

Data analysis

As in Experiment 1, the text was scanned with *ngram.* Again, blank articles, text from the Disqus system, and duplicate articles were removed (Schmidt et al., 2017). The text was processed and stemmed in order to convert to a usable form for further analysis (Feinerer & Hornik, 2017). Words were subsequently matched with their valences from Warriner et al. (2013). Depending on the results of Jordan et al. (2019)'s research, alternative forms of the Moral Foudnations Dictionary may be imported instead of the original dictionary.

Using the *tm* and *ngram* packages in *R*, the researchers processed the text in order to convert it to lowercase, fix spacing anomalies, and remove punctuation (Feinerer & Hornik, 2017). Each individual word was reduced to its stem (i.e., *diseased* was stemmed to *diseas*). Once again, the same procedure was applied to the MFD words and the words in the Warriner et al. (2013) dataset. Using the Warriner et al. (2013) dictionary, the words in the MFD were assigned their respective valence. The researchers obtained the words' percent occurence in the text. Once again, percents were multiplied by *z*-scored valence and categorized into their proper MFD category.

```
777 ##
```

```
## fought  safer  spurn
##     87     26      5

##
## fought  safer  spurn
##    112     80      5
```

<p style="text-align:center">Experiment 2</p>

Results

Descriptive Statistics

The researchers calculated descriptive statistics for each news source per topic in order to reveal the presence (if any) of linguistic differences in the sources' use of language. As in Experiment 1, statistics calculated include *z*-scored valence, number of articles per source, total words per source, mean tokens per article in each source, mean types per article in each source, and mean readability level (using the Flesch-Kincaid Grade Level Readability formula) per source (Kincaid et al., 1975).

Table 3 displays the descriptive statistics for sources' writing on the Kavanaugh confirmation. The sources are similar in some aspects yet different in others. Valence appears to be slightly positive across all sources. The standard deviations seem to indicate little to no presence of a difference in valence. *The New York Times* published the greatest number of articles as well as total words. *Breitbart* featured the lowest number of articles, and *NPR* the lowest number of total words from all articles. Per indvidual article, however, *Breitbart* appears to feature the highest average number of words as well as unique words. Once again the standard deviations call into question any apparent differences between sources. Finally, *Fox News* appears to be the most readable source on average, while *The*

New York Times is the least readable. This might be attributable to the greater number of tokens in the average *New York Times* article compared to *Fox News.* As before, the standard deviations for readability hamper one's ability to draw solid conclusions regarding differences in the sources' use of language. Table 4 displays descriptive statistics for articles about the partial government shutdown.

BLAZE BREITBART   FOX   HANNITY   HUFFPO   NPR   NY Times

       10.829946 11.011777 9.701136 11.884344 10.791419 12.489576 10.563974 POLITICO RUSH SLATE 12.090968 9.415941 12.350359 BLAZE BREITBART FOX HANNITY HUFFPO NPR NY Times 1.871086 2.122317 1.848820 2.372470 1.909656 3.620217 2.099457 POLITICO RUSH SLATE 2.602008 9.255734 2.469494

BLAZE BREITBART   FOX   HANNITY   HUFFPO   NPR   NY Times

       10.684144 10.714110 9.337567 13.406829 10.669212 11.192714 11.279935 POLITICO RUSH SLATE 11.283515 9.760202 11.858193 BLAZE BREITBART FOX HANNITY HUFFPO NPR NY Times 1.849923 2.046638 1.907440 4.791906 1.826810 3.150647 2.188760 POLITICO RUSH SLATE 1.234029 7.600883 2.510134

Discussion

Conclusions

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Table 1

Experiment 1 - Descriptive Statistics by Source

Source	M_V	SD_V	$N_{Article}$	N_{Words}	M_T	SD_T	M_{Ty}	SD_{Ty}	M_{FK}	SD_{FK}
NY Times	0.29	0.18	1437	722022	502.45	347.90	243.36	120.76	18.42	8.01
NPR	0.29	0.17	503	296779	590.02	528.60	283.57	189.00	16.92	7.16
Fox News	0.28	0.23	695	302977	435.94	642.63	191.96	192.29	13.80	3.93
Breitbart	0.30	0.13	406	452579	1,114.73	511.86	454.27	154.58	16.32	3.29

Note. Readability statistics were calculated using the Flesch-Kincaid Grade Level readability formula. V = Valence, T = Tokens or total words, Ty = Types or unique words, FK = Flesch-Kincaid

Table 2

Foundation	M_C	SD_C	M_L	SD_L	t	p	d
Harm/Care	0.50	2.21	0.49	2.21	-0.21	.850	0.01
Fairness/Reciprocity	1.13	1.38	1.11	1.38	-0.42	.715	0.02
Ingroup/Loyalty	1.28	1.63	1.34	1.63	0.30	.789	-0.04
Authority/Respect	0.72	1.62	1.06	1.62	3.17	.087	-0.20
Purity/Sanctity	1.11	1.48	1.27	1.48	2.37	.141	-0.09

Note. For mean and standard deviation values, 'C' and 'L' refer to 'conservative' and 'liberal,' respectively

Table 3

Kavanaugh - Descriptive Statistics by Source

Source	M_V	SD_V	$N_{Article}$	N_{Words}	M_T	SD_T	M_{Ty}	SD_{Ty}	M_{FK}	SD_{FK}
NY Times	0.25	0.13	277	128097	462.44	149.66	210.52	53.14	10.83	1.87
NPR	0.30	0.13	757	375848	496.50	609.91	230.03	153.62	11.01	2.12
SLATE	0.29	0.11	646	1304048	2,018.65	2,709.77	534.47	404.21	9.70	1.85
HUFFPO	0.31	0.11	27	5926	219.48	145.98	121.04	57.26	11.88	2.37
POLITICO	0.27	0.12	552	359046	650.45	462.21	283.07	129.23	10.79	1.91
FOX	0.22	0.25	366	108605	296.73	499.10	128.12	172.51	12.49	3.62
BREITBART	0.33	0.13	653	723569	1,108.07	570.31	461.26	174.20	10.56	2.10
RUSH	NA	NA	689	1069292	1,551.95	1,045.47	614.66	358.68	12.09	2.60
BLAZE	0.38	0.13	172	267067	1,552.72	1,258.51	419.00	225.80	9.42	9.26
HANNITY	0.29	0.12	272	229896	845.21	612.22	332.42	168.17	12.35	2.47

Note. Readability statistics were calculated using the Flesch-Kincaid Grade Level readability formula. V = Valence, T = Tokens or total words, Ty = Types or unique words, FK = Flesch-Kincaid

Table 4

Government Shutdown - Descriptive Statistics by Source

Source	M_V	SD_V	$N_{Article}$	N_{Words}	M_T	SD_T	M_{Ty}	SD_{Ty}	M_{FK}	SD_{FK}
NY Times	0.26	0.13	98	38983	397.79	102.10	185.66	41.93	10.68	1.85
NPR	0.34	0.15	309	102886	332.96	238.70	168.31	81.59	10.71	2.05
SLATE	0.35	0.13	1013	2799217	2,763.29	3,405.44	637.30	494.00	9.34	1.91
HUFFPO	0.29	0.14	63	10311	163.67	33.59	95.13	16.59	13.41	4.79
POLITICO	0.30	0.13	432	242220	560.69	425.52	258.27	130.54	10.67	1.83
FOX	0.23	0.22	434	151114	348.19	457.34	155.53	171.30	11.19	3.15
BREITBART	0.33	0.13	751	831184	1,106.77	506.92	471.80	174.88	11.28	2.19
RUSH	0.29	0.10	222	349499	1,574.32	875.63	638.32	313.34	11.28	1.23
BLAZE	0.37	0.12	78	152630	1,956.79	1,544.14	482.79	252.79	9.76	7.60
HANNITY	0.30	0.12	117	85254	728.67	464.34	301.71	138.74	11.86	2.51

Note. Readability statistics were calculated using the Flesch-Kincaid Grade Level readability formula. V = Valence, T = Tokens or total words, Ty = Types or unique words, FK = Flesch-Kincaid

Table 5

Foundation	M_C	SD_C	M_L	SD_L	t	p	d
Harm/Care	0.39	1.35	0.66	1.35	2.89	.020	-0.19
Fairness/Reciprocity	1.26	1.27	1.06	1.27	-1.58	.154	0.16
Ingroup/Loyalty	1.15	1.22	1.06	1.22	-0.63	.549	0.07
Authority/Respect	0.85	0.99	0.75	0.99	-0.93	.380	0.10
Purity/Sanctity	0.90	1.28	1.06	1.28	0.88	.406	-0.11

Note. For mean and standard deviation values, 'C' and 'L' refer to 'conservative' and 'liberal,' respectively

Table 6

Foundation	M_C	SD_C	M_L	SD_L	t	p	d
Harm/Care	0.91	1.27	1.01	1.27	1.68	.132	-0.07
Fairness/Reciprocity	1.22	1.05	0.91	1.05	-0.76	.468	0.27
Ingroup/Loyalty	1.38	1.16	1.11	1.16	-0.48	.644	0.21
Authority/Respect	0.87	1.24	0.36	1.24	-1.38	.203	0.37
Purity/Sanctity	1.29	1.13	0.99	1.13	0.03	.979	0.22

Note. For mean and standard deviation values, 'C' and 'L' refer to 'conservative' and 'liberal,' respectively