

Manifest emotions: Quantifying the emotional use of language in political manifestos across English-speaking countries

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Abstract

Rhetoric on the political left in the last decade has largely been associated with calls for equity across lines of family, gender and sexuality, while the political right has come to be associated with championing traditionalist notions of human sexuality and “family values.” This paper explores the emotional context in which political parties across English-speaking countries use words related to family, gender and sexuality (e.g. children, women, LGBT). We use Khodak et al.’s (2018) Natural Language Processing (NLP) methodology—à la carte (ALC) word embedding—to analyze and compare the semantic meaning of these words in a corpus of political manifestos from Australia, Canada, New Zealand, the United Kingdom and the United States, across political parties, over the last decade of elections. We find evidence of differences across a spectrum of political conservatism, presenting evidence of variation in the emotional context in which family, gender and sexuality words are used.

1 Introduction

Political manifestos

Political manifestos are a critical site in which to explore how parties communicate their social values and political priorities. A great deal of research has assessed how political manifestos can be used to communicate priorities to both active and potential supporters. Manifestos—the programs that parties publish ahead of elections—contain the ideas, values, and policies that a party believes to be important and resonant with potential voters, and form the basis of a party’s mandate once in government (Allen and Bara 2019; Allen and Mirwaldt 2010; Koljonen et al. 2022). Additionally, though voters tend to believe manifestos may not be fully implemented once a party is in government, manifestos can use the contents of manifestos to hold a governing party accountable for failed campaign promises in future elections (Allen and Bara 2019; Muers 2018). The contents of party manifestos are influenced by desires to secure votes, perceived public support for various policies among voters, interests groups and issue salience (Braun and Schmitt 2020; Brouard et al. 2018; De Sio and T. Weber 2014).

Often, political parties’ have limited capacity for expensive redistributive (fiscal or social) policies, and therefore focus their attention on partisan regulatory policies (i.e. environmental or civil rights policies) that do not “systematically imply public spending, that fall under the cabinet’s direct jurisdiction, and that tend to impact only specific types of social groups” (Brouard et al. 2018, p. 5). However, manifestos also tend to portray issues in abstract terms to appeal to voters’ tendency to group issues into a limited number of broad types, each with a desirable goal or approach, and only emphasize those issues in which the party’s ideological position aligns with majority preferences (Dolezal et al. 2014; Kosmidis et al. 2018).

Regardless of their contents, manifestos cannot demonstrate how a leader will respond to unexpected events. Voters may, however, extrapolate a party’s priorities and what values a leader will embody and promote from a manifesto’s contents rather than viewing them as binding statements on what a party will deliver in office (Muers 2018). Though manifestos have recently become less influential on election outcomes and campaign agendas with the rise of new forms of digital and social media, they continue to be an important representation of a party’s political priorities and ideological positions (Allen and Bara 2019).

Emotional communication in political manifestos

Scholars argue that emotion plays an important role in political speech as politicians appeal to voters’ emotions to gain support (Koljonen et al. 2022). Much of this research focuses on how political messaging influences voter behavior, rather than the use of emotion by the party itself (Crabtree et al. 2020). As Kosmidis et al. (2018) argues, persuasiveness increases with “the strength of the argument and the emotional state of the decision maker” (2018, p. 814). Some studies, however, have found that incumbent parties are more likely to use positive language than opposition parties in their political rhetoric in an effort to justify their actions in office (Crabtree et al. 2020; Kosmidis et al. 2018; Utych 2018). Studies that have begun to explore distinct emotions such as anger, fear, hope and sadness in political rhetoric assume that political campaigns make deliberate attempts to manipulate voter emotions in their favor (Rid-

out and Searles 2011; Valentino, Hutchings, et al. 2006; Valentino, Gregorowicz, and Groenendyk 2007; C. Weber 2007). Many of these studies, however, have tended to focus on the role of emotion in televised political advertising (Ridout and Searles 2011).

There is little research that has explored the extent to which a party's degree of social conservatism or liberalism influences how they employ emotional language in communicating those values. As such, this paper explores the emotional context in which political parties across English-speaking countries use family, gender and sexuality-related words (e.g. children, woman, and LGBT) in their political manifestos. While rhetoric on the political left has largely been associated with calls for equality related to gender and sexuality, the political right has come to be associated with championing traditionalist roles of family and gender. Specifically, we use Khodak et al.'s (2018) Natural Language Processing (NLP) methodology—à la carte (ALC) word embedding—to analyze and compare the semantic meaning of these words in a corpus of political manifestos from Australia, Canada, New Zealand, the United Kingdom and the United States across political parties, over the last ten years of elections.

2 Purpose and research questions

This work aims to fill the gap in the literature between the study of political manifestos as both agenda-setting and campaign communication tools and research on the role of emotion in political communication. In particular, this paper asks:

- How is a political party's social conservatism related to the shift in semantic meaning of gender-, sexuality-, and family-related words relative to the emotions of fear and love?

Given the established importance of emotion in political communication, it is crucial to understand how different parties use emotion to signal their social values with regards to specific topics to potential voters. Our first step is to map political parties along a spectrum of social conservatism, followed by an examination of the lexical context of specific gender-, sexuality- and family-related words, and finally an analysis of how these words relate to the emotions fear and love in lexical space.

3 Data

Party manifestos

The text of party manifestos was collected from the Manifesto Project data set (Lehmann et al. 2022) maintained by the Manifesto Research on Political Representation (MARPOR) project. Using this data, we created a corpus that includes the full text of party platforms from five predominantly English-speaking countries—Australia, Canada, New Zealand, the United Kingdom, and the United States—for general elections that occurred between 2010

and 2020.¹

Social conservatism

Data on the social conservatism of political parties were taken from version 1.0 of the Global Party Survey which relies on expert surveys to provide estimates for ideological values, issue positions, and willingness to use populist rhetoric for 1,043 parties in 163 countries (Norris 2019). We use two observations for each political party: expert rankings of a party on a ten-point scale of social liberalism-conservatism, and a ten-point social value salience rating (i.e. "how important are liberal/conservative social values for each of the following parties?"). We operationalize social conservatism by constructing a mean-centered scale of social conservatism (positive scores are more conservative than average in our sample) that is multiplied by the salience score for the same party. Thus, a socially conservative party for which social conservatism is less salient to their overall political values will be closer to the mean (0) than a party whose social conservatism is highly salient to their overall political values. Table 1 provides an overview of the political parties for which we have both manifesto text and social conservatism scores.

Target and emotion words

We are primarily interested in gender-, sexuality-, and family-related words as these represent issues that are often politically salient and polarizing. Our target words therefore include "family", "children", "men", "women", "LGB*", and "sexual*". We only include "exact matches" for our target words. For example, we only include "children" rather than also including "child", "childhood", "childcare", and other variations. Given that each word would have a different location on their own in the word embedding, we choose the singular word as our target. (The two exceptions are LGB* and sexual* since different countries use different variants of the acronym LGBT, LGBTQIA, LGBT+, etc. and sexual* captures both the words "sexual" and "sexuality".)

We use a subset of Ekman's (1992) basic list of emotions: love, joy, surprise, anger, sadness, and fear. Specifically, we choose to focus on love and fear as representations of political party's feelings towards gender-, sexuality-, and family-related issues. At present, we use the basic emotion word's vector in a pre-trained GloVe embedding.

4 Methods

Generating a word embedding

Word embeddings are a technique used in natural language processing (NLP) to represent words in a way that captures their semantic meaning. Embeddings rely on the so-called

¹The MARPOR project did not contain the English-language text of party manifestos for Canada's 2011 federal election. In this case, the texts used come from the collection of political texts made available at www.poltext.org by The Center for Public Policy Analysis (CAPP) from Laval University, with the financial support of the Fonds de recherche du Québec - Société et culture (FRQSC). These PDF manifestos were processed by the authors and harmonized with the MARPOR data.

distributional hypothesis (Rumelhart, Hinton, and Williams 1986); in the words of Firth (1957, p. 11), "you shall know a word by the company it keeps." Word embeddings work by reducing a co-occurrence matrix derived from a text corpus such that each word or token is mapped to a vector in a high-dimensional space, usually 250-500 elements (Mikolov et al. 2013; Arseniev-Koehler and Foster 2022). In such a high-dimensional space, the elements of the vectors do not have intrinsic meaning (i.e. there is unlikely to be a specific element that represents the "positivity" of a word or how related that word is to a specific topic.) Instead, it is the relationship between vectors in embeddings that capture semantic relationships between words.

One way to understand how word embeddings represent semantic meaning is to look at analogy tests. The canonical example for such tests provides the prompt "man:woman" is to "king:___" (Mikolov et al. 2013). The semantic difference between the words man and woman should be the same semantic difference between king and queen. Thus, the answer, "queen", is derived by calculating the difference in the vectors for "woman" and "man" and adding that value to the vector for "king".

We use *text2vec* and 10,000,000 randomly selected paragraphs from Wikipedia 2010 (Shaoul and Westbury 2010)—removing stop-words, words fewer than three characters, and words that appear fewer than five times across the corpus—to generate the GloVe word embedding (Pennington, Socher, and Manning 2014). This GloVe model serves as the base model into which project the à la carte embeddings described in the next section.

À la carte (ALC) word embedding

In this study we want to compare the use of specific target words in party manifestos from different political parties. To accomplish this, we use à la carte (ALC) word embeddings (Khodak et al. 2018). ALC embeddings offer an intuitive and computationally cheaper method of creating multiple embeddings for the same word based on some property of the source (in this case, coming from different political party). It also allows for estimating an embedding from sources outside of the original embedding.

Having already generated a word embedding based on text from Wikipedia, an ALC embedding for a target word is constructed by identifying the vector embeddings for the words surrounding the target word in a predefined window (e.g. the three words before and after the target word). A weighted average of these embeddings is then computed such that very common, uninformative words are down weighted while less common, more informative words are upweighted. In this way, ALC embeddings operate on the same distributional hypothesis as standard word embeddings—a word's embedding is literally the average of the company it keeps. Rodriguez, Spirling, and Stewart (2023) find evidence of high quality embeddings, even for infrequent words. Following Khodak et al. (2018) we generate an ALC embedding of the target word for each political party. For example, the word "mother" appears in the GloVe embedding, which we represent with $\overrightarrow{mother}_G$, and each party's ALC embedding we represent as $\overrightarrow{mother}_p$ where $p \in \{PoliticalParties\}$.

Cosine similarity

In the context of word embeddings, cosine similarity offers a more generalizable measure of similarity between the vectors of two different words than the analogy test describe previously. It measures how close in this high-dimensional space two embedding are (Arseniev-Koehler and Foster 2022). For example, the cosine similarity between the vectors for "man" and "woman" would be high, because these words share a strong semantic relationship. Conversely, the cosine similarity between the vectors for "man" and "cupboard" would be low, because these words have very little semantic relationship. Cosine similarity can vary between 0 and 1, where 1 would indicate identical semantic meaning.

Using cosine similarities, however, "blurs semantic similarity and semantic relatedness" (Arseniev-Koehler and Foster 2022, p. 467). Consider again, our canonical example of king and queen. These two words are both semantically similar (they have similar meanings) and are semantically related (they are conceptually related). On the other hand, the words "interior" and "exterior" are not at all semantically similar—they are antonyms—but they are semantically related and are likely to have a high cosine similarity. This conflation can be overcome by comparing two (or more) words not to each other, but to a third anchor word which has some semantic property of interest (Arseniev-Koehler and Foster 2022). Several authors have used this strategy when comparing gender bias related to careers (e.g. Caliskan, Bryson, and Narayanan 2017; Jones et al. 2020; Lewis and Lupyan 2020; Garg et al. 2018). For example, Lewis and Lupyan (2020) measure the cosine similarity of different careers (e.g. doctor) with a set of anchor words related to gender (e.g. "male", "female"). They interpret the difference between cosines as the amount of gender bias in the semantic meaning of the target word. We adopt a similar strategy with family, gender, and sexuality-related words as the target words and emotion words (i.e. "love", "fear") as the anchors, as described in a subsequent subsection.

We follow this anchoring strategy and compute the cosine similarity between the target word's party-specific ALC embedding and the GloVe embedding for each emotion word. We can then compare this cosine similarity to the cosine similarity of the target word and the emotion word within the GloVe embedding. Thus, each target word will have a set of observations:

$$\cos(\overrightarrow{target}_p, \overrightarrow{emotion}_G) - \cos(\overrightarrow{target}_G, \overrightarrow{emotion}_G)$$

where positive numbers indicate that a party's contextual use of the target word is closer in meaning to the emotion word than it is in the GloVe embedding, and negative numbers indicate that it is farther away in meaning to the emotion word.

5 Results and discussion

Results

Figures 1 and 2 show the results for the family-related words "children" and "family", respectively. When interpreting

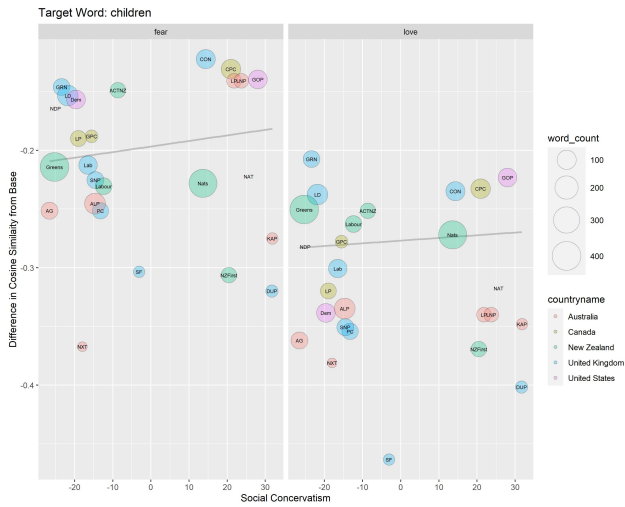


Figure 1: Relative cosine similarity between target word "children" and emotion words. Each panel shows results relative to a single emotion word. A point at 0 on the y-axis would indicate that the cosine similarity between the target word and the emotion word for that party is identical to the cosine similarity between the target word and the emotion word in the GloVe embedding.

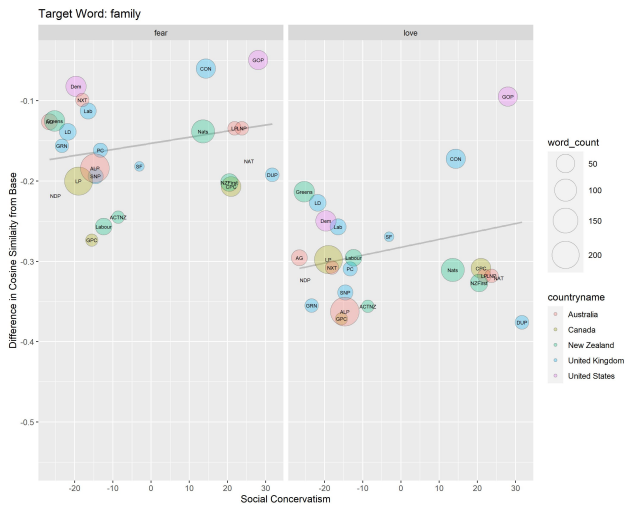


Figure 2: Relative cosine similarity between target word "family" and emotion words. Each panel shows results relative to a single emotion word. A point at 0 on the y-axis would indicate that the cosine similarity between the target word and the emotion word for that party is identical to the cosine similarity between the target word and the emotion word in the GloVe embedding.

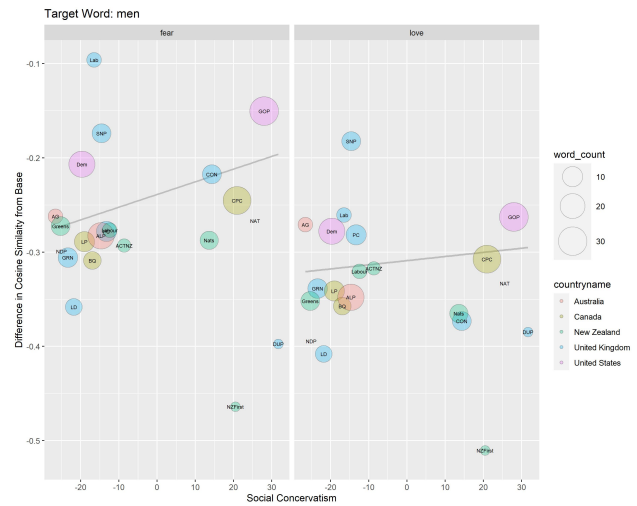


Figure 3: Relative cosine similarity between target word "men" and emotion words. Each panel shows results relative to a single emotion word. A point at 0 on the y-axis would indicate that the cosine similarity between the target word and the emotion word for that party is identical to the cosine similarity between the target word and the emotion word in the GloVe embedding.

the figures in this section, recall that the closer a party's estimate is to 0, the closer the semantic relationship between the target word and the emotion word is for a given party to the "baseline" semantic relationship in the baseline GloVe embedding. Figure 1 shows that every party has a value below 0 (when the party-specific embedding would be identical to the GloVe embedding); all parties are using the word "children" in a way that has less semantic relationship to "fear" or "love" than one would naturally expect in common use (or at least on Wikipedia.) With respect to "love", there is little difference in this phenomenon across the dimension of social conservatism, while we see that more socially conservative parties use the target word in a way more similar to baseline with respect to "fear" than socially liberal parties, who use the word in a less "semantically fearful" way. Figure 2 shows this second pattern across both emotion words with respect to the word "family". Again, all parties use the word "family" in a less semantically emotional way than baseline, but less socially conservative parties are less emotionally related in terms of both "fear" and "love".

The two gender words studied have similar outcomes relative to the family-related words. Again, we see in Figures 3 and 4 that all parties use these words in a way that is less semantically related to love and fear than baseline. There is a slight positive slope—indicating that on average across the two emotions, less socially conservative parties have less emotionally salient semantic meaning when using the terms "men" and "fear", which more socially conservative parties using the word in a way that is much closer to baseline than less socially conservative parties.

The sexuality related words have—perhaps predictably—the most dramatic differences across parties and have much different patterns than the previous four words. As we might expect, Figure 5 is even more extreme as it deals with a more contentious issue where more polarization exists. One difference here is that many of the more socially conservative

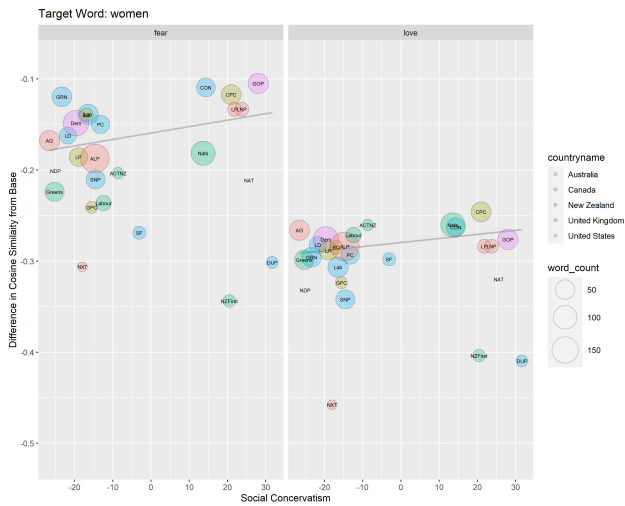


Figure 4: Relative cosine similarity between target word "women" and emotion words. Each panel shows results relative to a single emotion word. A point at 0 on the y-axis would indicate that the cosine similarity between the target word and the emotion word for that party is identical to the cosine similarity between the target word and the emotion word in the GloVe embedding.

parties do not use the term LGB* in their manifestos at all, which makes some of the comparisons more extreme (and the regression line less meaningful). A second difference is that the cosine similarities are positive, indicating that the meaning of the party-usage of the target word is actually closer to the meaning of the emotion word than the "natural" meaning of the target word. This indicates that even when used, parties are using much more emotional language in this context.

Figure 5 also shows the most dramatic difference across the spectrum of social conservatism. Even though few socially conservative parties use any form of LGB*, even among less socially conservative parties, we see a relationship between how socially liberal a party is and how "loving" their use of LGB* is semantically.

Figure 6 shows that, like family- and gender-related words, parties are using the words "sexual" and "sexuality" in less semantically emotional ways than baseline. But, it repeats the pattern shown in Figure 5 where there is little semantic difference related to "fear" across social conservatism but a much steeper negative relationship with "love". This helps bolster the finding from Figure 5, as more socially conservative parties use some form of the word "sexual*" than an "LGB*" word.

5.1 Discussion

In this study, we have examined how the semantic meaning of family-, gender-, sexuality-related words shifts relative to the emotion words fear and love based on a party's degree of social conservatism. We first map the sampled political parties along a spectrum of social conservatism and explore the semantic meaning of family and children, men and women, and LGB* and sexual* as they change based on a party's ideological position. We then use the words fear and love to examine how a party's semantic meaning of the gender-, sexuality-, and family-related target words changes across

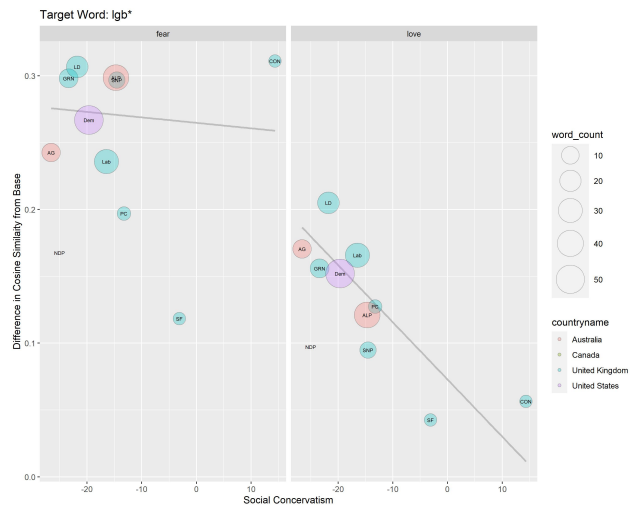


Figure 5: Relative cosine similarity between target word "LGB*" and emotion words (the star indicates that LGB, LGBT, LGBTQIA, etc. are all considered as one word in the manifestos). Each panel shows results relative to a single emotion word. A point at 0 on the y-axis would indicate that the cosine similarity between the target word and the emotion word for that party is identical to the cosine similarity between the target word and the emotion word in the GloVe embedding.

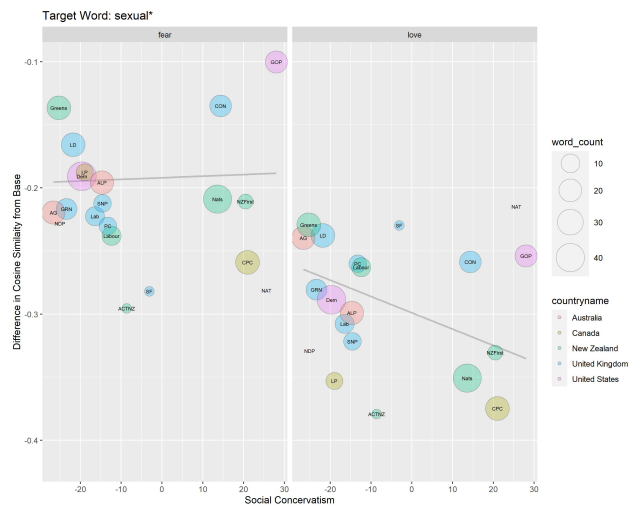


Figure 6: Relative cosine similarity between target word "sexual*" and emotion words (the star indicates that sexual and sexuality are all considered as one word in the manifestos). Each panel shows results relative to a single emotion word. A point at 0 on the y-axis would indicate that the cosine similarity between the target word and the emotion word for that party is identical to the cosine similarity between the target word and the emotion word in the GloVe embedding.

political parties. In other words, we look to see if a party uses a semantic meaning of these words that is closer to or further away from the words fear and love. This approach builds on previous research that acknowledges the importance of emotion in political rhetoric broadly to understand the specificities of how emotion words are used when parties along the ideological spectrum discuss different topics.

Our findings indicate that, for most of the words, parties are using the target words in less emotional terms in their manifestos than we might expect given the “natural” relationship the baseline embedding would suggest. It is possible that this lack of emotional meaning occurs because policy-related language is generally more focused on conveying a party’s qualifications for enacting certain policies and different emphasis on policy issues rather than demonstrating drastically different policy positions (Dolezal et al. 2014). This is largely because voters’ policy attitudes change slowly in comparison to large variation seen in their prioritization of issues between elections (Dolezal et al. 2014). Interestingly, though emotions are recognized for their importance in political rhetoric as a tool for communicating with and gaining support from voters (Crabtree et al. 2020; Koljonen et al. 2022), our findings suggest that the way political parties use emotions to portray certain issues in their manifestos is less significant. As Muers (2018) argues that voters typically do not pay significant attention to the details of the policy proposals presented in political manifestos, choosing to support leaders based on broader assessments of the alignment of the party’s values and their own values and identities, it is possible that emotion is conveyed in broader, more general terms through the manifesto as a whole in addition to political speeches and advertisements, rather than at the more granular, individual word level. We did, however, find that when using the word LGB* parties are actually using more emotional language than the “natural,” baseline relationship would suggest. We hypothesize that this occurs due to the hyper-polarization seen in politics and social discourse more broadly on the topic of LGBTQ+ identity.

Areas for future research include: an analysis of these findings as they change over time, similar to Koljonen et al. (2022) analysis, and a comparison of these findings across different discursive contexts (e.g. manifestos compared to Parliamentary and public speeches, or candidate speeches compared to speeches once elected).

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Table 1: Party Manifesto Counts and Conservatism

Country/Party	Count of Manifestos	Conservatism	Salience
Australia			
Australian Greens	3	1.29	7.15
Australian Labor Party	3	3.08	7.67
Katter's Australian Party	2	8.38	9.40
Liberal National Party of Queensland	3	7.82	8.42
Liberal Party of Australia	3	7.50	8.73
National Party of Australia	3	8.00	8.54
Nick Xenophon Team	1	2.43	7.00
Canada			
Conservative Party of Canada	2	7.50	8.38
Green Party	2	2.14	5.44
Liberal Party of Canada	2	2.60	7.91
New Democratic Party	2	1.50	7.15
Quebec Bloc	1	2.58	7.00
New Zealand			
ACT New Zealand	4	3.71	6.71
Green Party of Aotearoa New Zealand	4	1.89	8.13
New Zealand First Party	4	7.88	7.13
New Zealand Labour Party	4	3.33	7.43
New Zealand National Party	4	6.86	7.33
United Kingdom			
Conservative Party	3	7.10	6.83
Democratic Unionist Party	3	8.84	8.25
Green Party of England and Wales	3	1.82	7.34
Labour Party	3	2.47	6.52
Liberal Democrats	3	2.24	7.90
Scottish National Party	3	2.77	6.52
The Party of Wales	3	2.88	6.24
We Ourselves	3	4.44	5.50
United States			
Democratic Party	3	2.41	7.59
Republican Party	3	8.30	8.50