Journal of Computational Social Science (2022) 5:1529–1554
https://doi.org/10.1007/s42001-022-00181-9

RESEARCH ARTICLE

Strategic sentiments and emotions in post-Second World War party manifestos in Finland

Juha Koljonen[1] · **Emily Öhman**[1,2] · **Pertti Ahonen**[1] · **Mikko Mattila**[1]

Received: 7 February 2022 / Accepted: 22 August 2022 / Published online: 3 September 2022

Abstract

We contribute to the growing number of studies on emotions and politics by investigating how political parties strategically use sentiments and emotions in party manifestos. We use computational methods in examining changes of sentiments and emotions in Finnish party manifestos from 1945 to 2019. We use sentiment and emotion lexicons first translated from English into Finnish and then modified for the purposes of our study. We analyze how the use of emotions and sentiments differs between government and opposition parties depending on their left/right ideology and the specific type of party manifesto. In addition to traditional sentiment and emotion analysis, we use emotion intensity analysis. Our results indicate that in Finland, government and opposition parties do not differ substantially from each other in their use of emotional language. From a historical perspective, the individual emotions used in party manifestos have persisted, but changes have taken place in the intensity of using emotion words. We also find that in comparison with other parties, populist parties both appeal to different emotions and appeal to the same emotions with different intensities.

Keywords Political parties · Party manifestos · Sentiment analysis · Emotions

Introduction

Emotions influence politics and party competition. It has long been known that politicians appeal to emotions [25], and recent studies have documented, for example, how emotions can influence voting behavior [8], how emotions are utilized in campaign advertising [41], and how negative language affects how citizens evaluate policies and develop political attitudes [45].

✉ Juha Koljonen
juha.koljonen@helsinki.fi

[1] Faculty of Social Sciences, University of Helsinki, Helsinki, Finland

[2] Faculty of International Research and Education, School of International Liberal Studies, Waseda University, Tokyo, Japan

However, politicians rarely operate in a static environment. Politicians themselves are influenced by many stakeholders, with probably the most important stakeholder for a politician being their political party. It has been shown that party manifestos play a crucial role in parties' election campaigns, providing guidance, streamlining party candidates' stances on issues, and offering a comprehensive summary of party positions [14]. We assume that as party manifestos guide party candidates about what to say, at the same time these guide candidates about how to say it. This means that the manifestos may also influence the emotions and sentiments used by party politicians and party candidates. However, given that parties and their electoral campaigns constitute a central part of the modern democratic process, it is surprising that to date there have been only a few studies using sentiment or emotion analysis with party manifestos as data [5, 11, 24]. Thus, the question of how political parties use sentiments and emotions remains largely uninvestigated.

To fill the research gap, we examine what kind of sentiments and emotional contents party manifestos contain. We use computational sentiment and emotion analysis to investigate sentiments and emotions in Finnish party manifestos in the post-Second World War period. Unlike previous research (e.g., Ref. [11]), we take a longitudinal view by examining a large data set of 797 party manifestos, with a time span from 1945 to 2019. Moreover, we do not limit our study to only positive and negative sentiments, as we also examine specific emotions and emotion intensities to understand better how political parties use sentiments and emotions.

Reference to sentiments and emotions is sometimes made interchangeably in various fields of research. However, in sentiment analysis—in many fields understood to be an umbrella term for sentiment analysis, emotion analysis, and opinion mining—sentiments are taken to mean the binary or ternary categorization of words into positive, negative, and sometimes neutral or ambiguous. From this perspective, emotions are typically unconscious and involuntary, specific, and transitory precursors to sentiments, such as in distinguishing love (sentiment) and happiness (emotion) [34]. The reason why we focus on emotions rather than sentiments in this study derives from our aim to access more specific affective states in political texts than mere overarching sentiments, leading us to look at the specific emotions that specific parties focus upon. The concept of affect is often used with concepts of sentiment and emotion. Papacharissi [37], for example, states that affect is the intensity of emotion we experience. In this study, we focus on the concepts of sentiment and emotion.

Acknowledging that emotions are more than merely binary entities, we also contribute to the existing literature by examining emotion intensities. By emotion intensity we mean the association of words with different degrees of emotional intensity [27]. The main difference between emotion analysis and emotion intensity analysis is that in the former, emotions are considered to be binary entities, and each word is seen as being associated with or dissociated from a particular emotion. In contrast, emotion intensity analysis grades emotive words by the strength of the emotion in question. Our assumption is that emotion intensity analysis can provide a more complete picture of how emotions are used than if emotions are only considered to be binary entities. We show that emotion intensity analysis provides a different and complementary aspect of emotions that is not necessarily superior to word

count-based analysis, enriching our understanding of how emotion words are used in texts. Some previous studies have acknowledged intensity in political texts, such as tweets or discussion forum posts [10, 16, 18, 49]. However, to our knowledge, the intensity of emotion words in the language used by political parties has not been previously examined.

Our main contribution is an empirical overview of the strategic use of sentiments and emotions by political parties in their party manifestos. We base our analysis on hypotheses used in previous studies, and supplement them with emotion analysis and intensity analysis to gain a fuller picture of persuasive political party rhetoric in the manifestos. We have selected Finland as our focus because there is a distinct lack of research which utilizes sentiment or emotion analysis to examine political parties in the Nordic countries. Furthermore, our focus of analysis, Finland, represents a typical [43] case in the European Nordic cluster [26].

The secondary, supporting, contribution of this article is methodological, as we utilize emotion and emotion intensity analysis to form a richer view of the strategic use of emotions in political party manifestos. Our data comprise 797 Finnish party manifestos from 1945 to 2019 from parties that have participated in at least one government coalition during this period. To formulate an overview, we test five hypotheses using a Finnish language data set and carrying out emotion and emotion intensity analysis.

First, to our knowledge, there has been only one previous study with a long-term view of emotional language in party manifestos [24]. We explore longer-term shifts in emotions, sentiments, and emotion intensities in Finnish party manifestos by comparing three historical post-Second World War periods. Second, previous research suggests that a party's position either in the government or in opposition influences the vocabulary of this party's manifestos [5–7, 11]. Hence, we investigate whether the government parties express different sentiments, emotions, and emotion intensities than parties in the opposition in the Finnish multiparty context, which typically has majority coalition governments with from three up to six parties [26].

Third, in Finland parties typically publish manifestos in three main types: general manifestos, election manifestos, and specific manifestos. General manifestos are about party principles, the overall outline of the party platform, or the longer-term party goals or objectives. Election manifestos outline the positions of parties in national parliamentary elections, European parliamentary elections, or municipal elections. Special manifestos focus on specific topics such as individual social and economic policies (see [1, 9]). This differentiation—by no means present in all countries—opens up interesting comparative perspectives, as we assume that each manifesto type is used for different but partly overlapping functions, such as election manifestos used to outline parties' electoral objectives and as campaign material, and general manifestos used to define the party's core values and identity. We explore whether the manifesto type influences the strength of sentiments and emotions and the intensity of the emotions in the manifestos. We expect that involving all three manifesto types will provide a versatile view of sentiments and intensities in party politics and in elections, supporting more robust conclusions.

Fourth, previous research [11, 46] indicates that the sentiments and emotional appeals that parties use are affected by their ideological positions. Accordingly, we

examined how a party's distance from the political center, either to the right or to the left, influences sentiments, emotions, and emotion intensities in the manifestos of parties. Fifth, we examine whether populist parties' use of sentiments and emotions differs from the other parties in Finland as previous research in other countries suggests [50].

The results of our study in some respects align with, but in some other respects differ from, previous results on political sentiments and emotions. Our results do not indicate substantial differences between the Finnish government and opposition parties in their use of emotional language. Historically, individual emotions have persisted in party manifestos, but there have been changes in the intensity of these emotions. Our results also indicate that, contrary to previous research, when there are observable ideological differences, it is the parties at both ends of the left–right dimension that use more positive sentiments rather than parties positioned closer to the center. Furthermore, in comparison to other parties, populist parties have both appealed to different emotions and have appealed to some emotions with different intensities than other parties. We generally conclude that in future studies it is not enough to use word count-based sentiment and emotion analysis. Instead, intensity analysis should be used to provide a more comprehensive view of the different uses of political language by political parties. Our results also highlight the need to acknowledge the national and historical political context in the interpretation of the results, given that political institutions and cultures affect the use of political language.

Previous studies, theory, and hypotheses

Previous studies that have examined party manifestos using sentiment analysis have focused on such topics as Central Eastern European Social Democratic party manifestos [5], political bias [6], the use of emotions in political campaigns [11], inferring party affiliation from texts [7], and the use of emotive rhetoric by parties [24]. According to the findings, positive sentiments in party manifestos strongly correlate with the standing of parties in parliament and the number of party seats in parliament [7]; certain sentiment characteristics of party manifestos are correlated with political power [6]; incumbent parties use more positive emotive language in their party manifestos than opposition parties [11]; and when a party is in opposition, the ratio of negative words in its manifesto is higher than when the party is incumbent [5].

As parties use manifestos to both communicate directly to voters and to guide candidates [14], we therefore identify a particular research gap we wish to fill in the relative dearth of previous sentiment and emotion analyses examining how political parties use sentiments and emotions strategically in party manifestos.

First, in certain respects in our study, we build on previous research by analyzing how general these previous findings are, i.e., if we can find similar effects in the longitudinal Finnish data. Second, in addition to testing hypotheses that have been proposed before, we also add our own hypotheses to extend the examination of emotional language in party manifestos.

Previous studies indicate how parties use emotional language as a tool in political competition to increase the appeal of their political goals and to portray themselves in a positive light. Kosmidis et al. [24] argue that party competition affects emotions expressed in a party's language, as increasing voter volatility encourages parties to use more positive emotive language. When parties are less certain about voter preferences, they are strongly incentivized to use positive language in their efforts to reach as wide a voter base as possible. This is especially the case where their programmatic goals are not distinctive enough to separate them from their main competitors.

When looking at the post-Second World War political history in Finland, one can legitimately propose that the above developments have taken place. Electoral volatility among voters has substantively increased from 1948 to the late 1990s, although more recently the situation has stabilized [44], while Kosmidis et al. [24] argue that the use of positive emotional language in Finnish manifestos/should have increased/has increased/over time. Thus, our first hypothesis is the following:

H1 The use of positive language in Finnish party manifestos has increased over time.

Differences in the use of political language between government and opposition parties have been studied both by Crabtree et al. [11] and Kosmidis et al. [24]. Both studies observed that government parties use more positive language than opposition parties do. The mechanism seen to underlie this is simple: incumbent parties are more likely to use positive language as they need to justify the decisions they have made while in power and portray these decisions in the best possible light to the voters. Hence, our second hypothesis is:

H2 Manifestos from incumbent government parties use more positive language than opposition parties' manifestos.

It has been hypothesized that the left–right position of parties influences the ways in which these parties use language. According to Crabtree et al. [11], the further away a party is positioned from the center of the political left–right dimension, the more is this party likely to resort to negative emotions in its language. The idea is that extreme parties are more likely to try to reach voters who are more dissatisfied about the state of the country with emotionally stronger language. Referring to Crabtree et al. [11], we propose the following hypothesis:

H3 Extreme parties on the left–right dimension use more negative language in their manifestos.

There are also other types of parties that try to reach disengaged voters, but which are somewhat difficult to pinpoint on the traditional left–right dimension. Particularly noteworthy are populist parties whose rhetoric may differ in important ways from the rhetoric of other parties. Widmann [50] has studied emotional

communication by populist parties in Germany, Austria, and Switzerland. His results suggest that populist parties use significantly more negative and less positive sentiments in their language than other parties. Hence, we formulate a hypothesis as follows:

H4 Populist parties use more negative language in their manifestos.

Our final hypothesis relates to the different types of party manifestos published in Finland to find out if there are differences in the language used in manifestos prepared for different purposes. We use the established categorization of party manifestos in Finland into general manifestos, election manifestos, and special programs. As the parties presumably use different manifesto types for different purposes, examining all three types promises a richer view of the sentiments and intensities present in the Finnish party manifestos. Because to our knowledge there has been no prior research on different types of manifestos on this issue, our hypothesis is explorative. We propose that general party manifestos expressing the parties' main goals and principles contain more emotional language than the other types of manifestos. We expect that the general manifestos would be directed mostly at current and potential party supporters to incite them to participate in party work and vote for the party. Special manifestos, such as manifestos for regional development or energy policy, are written for narrower purposes, and we assume that they would contain more technical and less emotional language. Finally, we expect that election manifestos would fall between the two former types of manifestos in the use of emotional language. Our hypothesis here is:

H5 Parties use more emotional language in general manifestos and less emotional language in special manifestos. Election manifestos situate themselves between general and special manifestos.

In summary, with the guidance of our hypotheses H1–H5 we examine how sentiments, emotions, and emotion intensities have changed in the language used in Finnish party manifestos in the post-war period. Moreover, we ask what factors have contributed to these changes and why they have taken place.

Data and methods

Data

Using party manifesto data in political science has become well established over the decades. Party manifestos have been accepted as an authoritative, albeit not the sole, source of information on the policy positions of parties [4]. We retrieved the Finnish party manifestos from the national party manifesto database *Pohtiva* of the Finnish Social Science Data Archive [39], except for the most recent manifestos, which we collected from party websites. The data span seventy-five years of party manifestos

from 1945 to 2019 (see supporting information Appendix S1 for a full list of manifestos examined).

In our data, we only included manifestos from parties that have participated in at least one government coalition during the entire study period. This restriction does not ignore any significant parties, as in Finland a coalition government with several parties has been a norm since the beginning of independence, and minority governments have comprised exceptions. The parties examined are the Social Democratic Party (SDP, with MPs since 1907); Finland's Centre Party (Centre, since 1908, including its predecessor parties); the Swedish People's Party (SPP, 1907); the National Coalition Party (Coalition, 1918); the Christian Democrats (Christians, 1970, including its predecessor party); Left Alliance (Left, 1990); Green League (Greens, 1983); the Finns (1999); the Democratic League for the Finnish People (DLFP, 1944–1990, an indirect predecessor of Left Alliance); the Liberal People's Party (LPP, 1965–2011); the Finnish Rural Party (FRP, 1959–1995), and the Social Democratic Union of Workers and Smallholders (SDUWS, 1959–1973).

Previous research indicates that the national context influences both the length of party manifestos and the number of manifestos published in connection with each election [19]. As indicated above, to capture the party competition at its fullest, we decided to include all three main types of Finnish party manifestos: election manifestos, general manifestos, and specific manifestos.

There has been some criticism toward using party manifestos as data on the grounds that manifestos would only insufficiently represent the political debate [46]. However, although the manifestos do not reflect all nuances of the political debate, they represent the most authoritative source of the parties' policy positions [4], which suggests that the manifestos comprise a valid source of data when comparing temporal changes in political discourse or differences between parties.

Methods

Sentiment and intensity analysis lexicons

Two general approaches to computational sentiment analysis exist: data-driven (i.e., machine learning) and lexicon-based methods [30]. Machine learning approaches require extensive datasets annotated by humans and are therefore beyond the limits of most projects. Lexicon-based methods are commonly used in applied sentiment and emotion analysis as opposed to the quest of pushing the limits of state-of-the-art accuracies using benchmarking datasets with machine learning. Lexicon-based methods are used for three main reasons. First, the costs are low, as many lexicons already exist and therefore there is no need to create new lexicons from scratch. Second, lexicons are less domain-dependent than machine learning datasets, which makes the lexicons useful for different kinds of studies using data from a variety of domains with minor tweaks to keywords (see, e.g., Ref. [3]). Third, using lexicons enables presenting quantitative results in a human-readable format unlike the results of many machine learning approaches that make it difficult or impossible to trace how the results were achieved.

There has been much debate and many comparative studies regarding the accuracy of lexicon-based methods compared to machine learning approaches (see e.g., Refs. [17, 47]). Machine learning is generally considered to be the more accurate of the two, based on studies that typically compare numbers of sentiments per document used as a binary score of positive and negative sentiments using datasets that tend to be comprised of short documents, such as tweets, reviews, or newspaper headlines. It is easier to carry out comparisons with manual annotation procedures with compact data, whereas large documents are almost impossible to categorize as just positive or negative or even angry, fearful, or trusting, for instance. Instead, parts of a longer document might express some anger, some other parts much more anger, but still other parts of the document might express joy, for instance. With longer documents, lexicon-based methods are likely to be more successful than machine learning methods as the former have the capacity to deliver comprehensive, detailed overviews of emotions present in the text as expressed by word choices. However, it should not be forgotten that lexicon-based methods have their limitations. These limitations may include a disregard of context and negations as well as a related inability to detect which meaning of a polysemous word has been intended; risks of assigning associations to emotions where there are none; or ignoring words that have not found their way into the lexicon used. In fact, a word may be used with the intention of conveying a specific emotion in one part of the text, and at another part it is supposedly neutral. Generally, lexicons are effective when the language of the text is varied [17] and when the text is long rather than short [35].

We chose to use a lexicon-based approach as we wanted to show that there are simple but robust ways of conducting applied sentiment analysis for languages other than English. Although there are many lexicon- and rule-based methods that consider things like negation and work well with colloquial expressions, to our knowledge none of these are available for Finnish (TextBlob, Vader Sentiment, LIWC) and offer very limited or no opportunities for adjusting the lexicon. It is possible to translate our data into English and use these existing resources, but that would require machine translation and would therefore risk losing the emotion and especially the intensity of the words. The lexicons we used were based on the multilingual National Research Council Canada (NRC) Emotion Lexicon [31] and the NRC Intensity Lexicon [27]. The annotation scheme in these lexicons follows Plutchik's categorization of basic emotions [38], which, in turn, builds upon Paul Ekman's account of universal emotions [15].

The NRC Emotion Lexicon and the NRC Intensity Lexicon have been originally annotated manually using the crowdsourcing platform Mechanical Turk. For the NRC Emotion Lexicon, English words have been annotated to show their associations with the eight basic emotions (anger, fear, anticipation, trust, surprise, sadness, joy, and disgust) and two sentiments (negative and positive) [31]. The NRC Emotion Lexicon was originally annotated by over 1000 Mechanical Turk users with high agreement values and containing 9892 valid annotations [31].

In building the NRC Intensity Lexicon, words were presented to annotators, four words at a time for each emotion, the annotators being asked to rank the words from the most to the least associated with the emotion in question (best–worst scaling) [27]. The annotators used the crowdsourcing platform Crowd Flower with a total of

47,134 pairs of responses (best and worst) with a high reproducibility assessed using a split-half reliability criterion [31].

Lexicons for Finnish language data: FEIL and SELF

We used the Sentiment and Emotion Lexicon for Finnish (SELF) and the Finnish Emotion Intensity Lexicon (FEIL) [33] as the lexicons on which to base our examination. These Finnish emotion lexicons are based on the NRC lexicons and were edited for domain specificity.

The Sentiment and Emotion Lexicon for Finnish (SELF) comprises a mixed sentiment and emotion lexicon, and is based on the original NRC Emotion Lexicon [31]. In SELF, words are labeled as either being associated with certain emotions and sentiments (1) or as not being associated with them (0). Second, we used a slightly smaller Finnish Emotion Intensity Lexicon (FEIL), based upon the NRC Intensity Lexicon [27]. In FEIL, words are labeled both by being associated with an emotion and with an accompanying intensity score for each emotion obtained by translating and carefully editing the results obtained for the original English version by means of the best–worst scaling method [23].

SELF contains 12,448 words categorized by emotion. The emotions included for SELF are anger, anticipation, disgust, fear, joy, sadness, surprise, trust, and positive and negative emotions. For FEIL the emotions are anger, anticipation, disgust, fear, joy, sadness, and trust. In addition, scores between 0 and 1 were given for emotion intensities. The distribution of the emotions in these lexicons is proportionally similar, as can be seen in Table 1. In examining our hypothesis, we considered anger, sadness, disgust, and fear to be negative emotions, and joy, anticipation, and trust as positive emotions in accordance with a typical sentiment analysis mapping of emotions to sentiments (see, e.g., Ref. [12]). Surprise was defined as a neutral emotion.

Table 1 Distribution of emotions and sentiments in SELF and distribution of emotions in FEIL

	Sentiment and Emotion Lexicon for Finnish (SELF)	Finnish Emotion Intensity Lexicon (FEIL)
Positive	2117	N/A
Negative	2938	N/A
Anger	1084	1304
Anticipation	783	805
Disgust	919	946
Fear	1309	1554
Joy	636	1145
Sadness	1059	183
Surprise	473	N/A
Trust	1130	1354

Intensity scores for positive and negative sentiments and for the emotion of surprise were not available as the version of the NCR Intensity Lexicon we used did not include them

Party manifestos

The manifestos were saved as individual text files. Next, the texts were lemmatized using the Turku Neural Parser [20] into a CoNLL-u (Conference on Computational Natural Language Learning) file, from which the individual lemmas were extracted. Stop words were not included in the lexicons, and therefore we did not remove these words from the manifestos. Thus, stop words are included in the full text word counts, but do not affect the results.

Next, we used a custom Python script to match the lemmas with corresponding emotions in each lexicon. In the case of the emotion lexicon SELF, the values were either 0 or 1 for each emotion, value 0 meaning that a word was not associated with the emotion, and value 1 that the word was associated with this emotion. Positive and negative sentiments were calculated as sums of positive (anticipation, joy, and trust) or negative (anger, disgust, fear, and sadness) emotions. In the case of the emotion intensity lexicon FEIL, we obtained decimal numbers between 0 and 1, and the greater the number, the more intense were the emotions. For a sentence such as "We must **fund higher education** to ensure the **future** of Finland," the aforementioned script would mark the highlighted words with the matched emotions or intensities, depending on the lexicon used, as in Table 2.

Next, the number of emotion labels was summed for each manifesto, and in the case of emotion intensities the emotion intensity values were summed for each manifesto. Finally, the values were normalized for the number of words in each manifesto to ensure comparability. For better readability and comparison between the two lexicons, as well as the different manifestos, we normalized the values, making them values per 10,000 words.

For example, the Finnish Social Democratic Party's special manifesto from 1969 contained 2620 words after lemmatization. In this manifesto, the sum of the occurrences of the emotion of anger was 118, whereas the sum of the intensities of the anger words was 65.32. In the case of the emotion of anticipation in this manifesto, the sum of the occurrences of the anticipation emotion was 201, and the sum of the intensities of the anticipation-associated words 76.01. These values were calculated for each emotion and emotion intensity, and were normalized for the manifesto word length.

Metadata were also used in the examination, namely the year of publication, the party name, the type of manifesto, and the manifesto title. In addition, we included information on whether the party was in the government or in the

Table 2 Example of matching words with emotions and emotion intensities

Lemma	Emotion	Intensity
Fund	Anticipation	0.414
	Joy	0.366
	Trust	0.594
Higher education	Anticipation	0.406
Future	Anticipation	0.671

opposition when the party manifesto was published. The process was identical both for the sentiment analysis and for the intensity analysis. We also examined lists of the most common words for each emotion and adjusted the lexicon to better reflect the language use encountered in these manifestos before finalizing the results.

Validation

Validation is a complex issue, particularly when it comes to lexicon-based sentiment analysis where typically both the goals of projects and the usage of methods vary greatly. Most validation methods are support tools to show state-of-the-art accuracies in new machine learning approaches and are not as useful as validation tools in applied sentiment analysis, and certainly not in the validation of lexicon-based results. In these cases what matters is that the results align with a human reading of the data, although this alignment is difficult to measure. Studies comparing methods often try to fit the lexicon-based results into a validation method meant for machine learning and focus on very short texts such as newspaper headlines or tweets (see e.g., Refs. [17, 47]), where, indeed, lexicon-based models are likely to fare worse as individual words carry so much meaning.

Van Atteveldt [47] recommends that at least 100 units, but preferably at least 300, should be manually annotated to calculate accurate Krippendorff alpha scores. However, because we evaluate the summative emotions of over 800 large units of texts (manifestos) that have been annotated at the word level, we cannot manually annotate data consisting of millions of words. Instead, we define a unit as a line of text in a manifesto. We randomly chose two full party manifestos for annotation, which represented two different periods and two different parties. Two annotators annotated a total of 997 lines of text for the emotions they contained. The inter-annotator agreement scores were $\alpha > 0.84$ for both manifestos. We then compared the means of these values per emotion and per manifesto to those produced by our lexicon-based approach per manifesto. The detailed results can be seen in Appendix S3.

Although our results suggest that manual coding results in lower values for certain emotions (fear, anticipation) this is because these emotions are more likely to be expressed as phrases rather than individual words (see, e.g., Ref. [2]). Moreover, for manual annotation each emotion is only marked once even if the lexicon marks it twice or more. With a simplistic lexicon-based model it is also difficult to distinguish between different contexts, and therefore when a word is used neutrally and when it is used emotively. However, combined with statistical significance testing we can minimize the impact of possibly skewed measures. Based on the validation results, and previous studies using SELF and FEIL [34], we claim that our method produces reliable and meaningful results reflective of the emotions expressed in the text, particularly for large texts where minor mislabeling will have a lesser impact. In combination with statistical significance testing, we can show that any differences within manifestos are due to the authors' choices rather than systematic misclassification (discussion regarding significance testing can be found from Appendix S3).

Regression analysis

Following previous analyses (e.g., Ref. [11]), we used multilevel linear regression to examine our results further. We added dummy variables to the data to denote the sub-periods of our study period, the party's government or opposition standing at the time each manifesto was published, the manifesto type, the populist or non-populist type of the party, and the left–right position of the party. The data were analyzed with a two-level random intercept model in which the party manifestos were grouped by parties.

To examine changes over time, we used a periodization that knowledge on Finnish history helps sustain [21]. The first period, 1945–1965, comprised post-war reconstruction. At the start of this period, the previously banned Communist party was allowed to re-enter Finnish politics, and organizations categorized as fascist or anti-Soviet were banned. A substantial part of the Finnish economy was geared to producing goods sent to the Soviet Union as war reparations until 1952. In addition, large socioeconomic and cultural changes followed from the resettlement of ten percent of Finland's population from territories ceded by the Soviet Union after the 1944 armistice. The first period is also defined by the economic post-war boom and Finland's participation in Western integration since the mid-1950s [36], technological development causing further major changes in socioeconomic structures.

The second period, 1966–1994, comprises the construction of the welfare state. In the 1966 parliamentary elections, the leftist parties won a majority of the seats in the parliament. This majority supported a wave of welfare reforms, including changes in social and educational policies. At the same time, Finland completed its industrialization and turned into an increasingly urbanized wage earner society [21].

The third period, 1995–2019, comprises Finland's stabilization as a welfare state. The dissolution of the Soviet Union opened up a window of opportunity for the European neutral and non-aligned states, Finland, Sweden, and Austria, to apply for membership in the evolving European Union and start their membership in 1995. In the early 1990s, the development of the welfare state stabilized and policymaking became aimed at maintaining the achieved levels of the welfare state instead of its further expansion. After the 1995 elections, the government noted that its aim was to rescue the core of welfare society by cutting down on other than absolutely necessary spending, lowering income taxes, and by joining and actively participating in the European Union [22]. The number of manifestos per period is presented in Table 3.

We classified the party manifestos into government party manifestos and opposition party manifestos. More precisely, manifestos published in parliamentary election years were classified according to the date of the manifesto. If no date was found, the manifesto was classified by acknowledging the pre-electoral governing coalition on the assumption that parties publish election manifestos before elections. Table 3 gives an overview of the manifestos according to the government or opposition standing of the parties.

Following previous research [42], we classified the Finns from among Finland's parties and the Finns' predecessor party, the Finnish Rural Party, as populist parties. An overview of the manifestos of the populist parties by manifesto types is presented

Table 3 Number of manifestos according to their type: total and by sub-periods, by parties' government or opposition standing, and by populist parties

	1945–2019	1945–1965	1966–1994	1995–2019	Government	Opposition	Finnish Rural Party	The Finns
Special manifestos	563	14	237	312	258	305	27	10
Election manifestos	134	5	6	123	67	67	0	14
General manifestos	100	14	47	39	46	54	2	5
Total	797	33	290	474	371	426	29	29

in Table 3. In previous research [11], left–right party positions have been created using the ParlGov database positions [13]. However, as the ParlGov database lacks positions for three Finnish parties, we applied the Manifesto RILE indicator [48] to define the positions of the parties. As our study period spans over 70 years, the Manifesto RILE indicator is superior to the ParlGov database classifications as the former allows consideration of changes in party positions over time.

Results

Sentiment and emotion analysis results

The results of the analysis of positive and negative sentiments are presented in Fig. 1. We show the regression analysis results in a set of figures to facilitate interpretation of the results. The full results are available in the supporting information, Appendix S2.

The results indicate that party manifestos of the welfare state construction (1966–1994) and the welfare state stabilization (1995–2020) periods show fewer positive sentiments than the manifestos during the post-war reconstruction (1945–1965) period. However, negative sentiments do not show statistically significant differences between the three periods. Figure 2 presents the results of the emotion analysis. The emotions of joy, trust, and sadness were rarer in manifestos

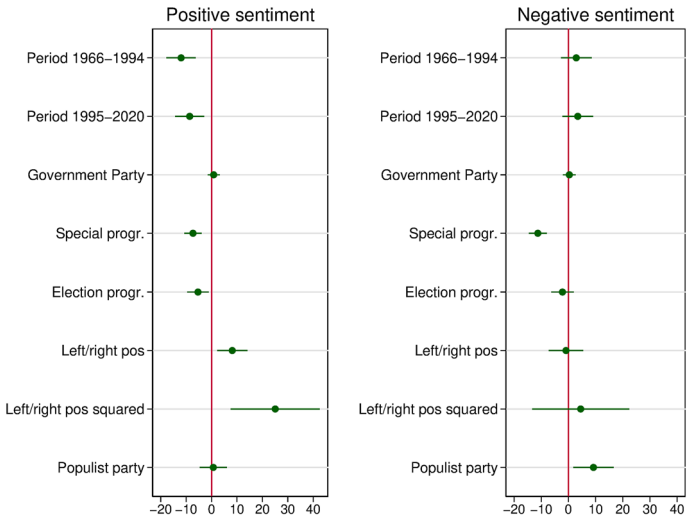

Fig. 1 Multilevel linear regression analysis of positive and negative sentiments. The dots show the values of the regression coefficients on the independent variables, and the horizontal lines indicate the 95% confidence intervals. The reference categories for dummy variables are as follows: time period 'Period 1945–65'; government party 'Opposition party'; manifestos 'General programs'. The dependent variable measures the quantity of words related to positive or negative sentiments per 10,000 words. For example, the − 10 value for special programs means that the special programs have on average ten less positive words than general programs (per 10,000 words)

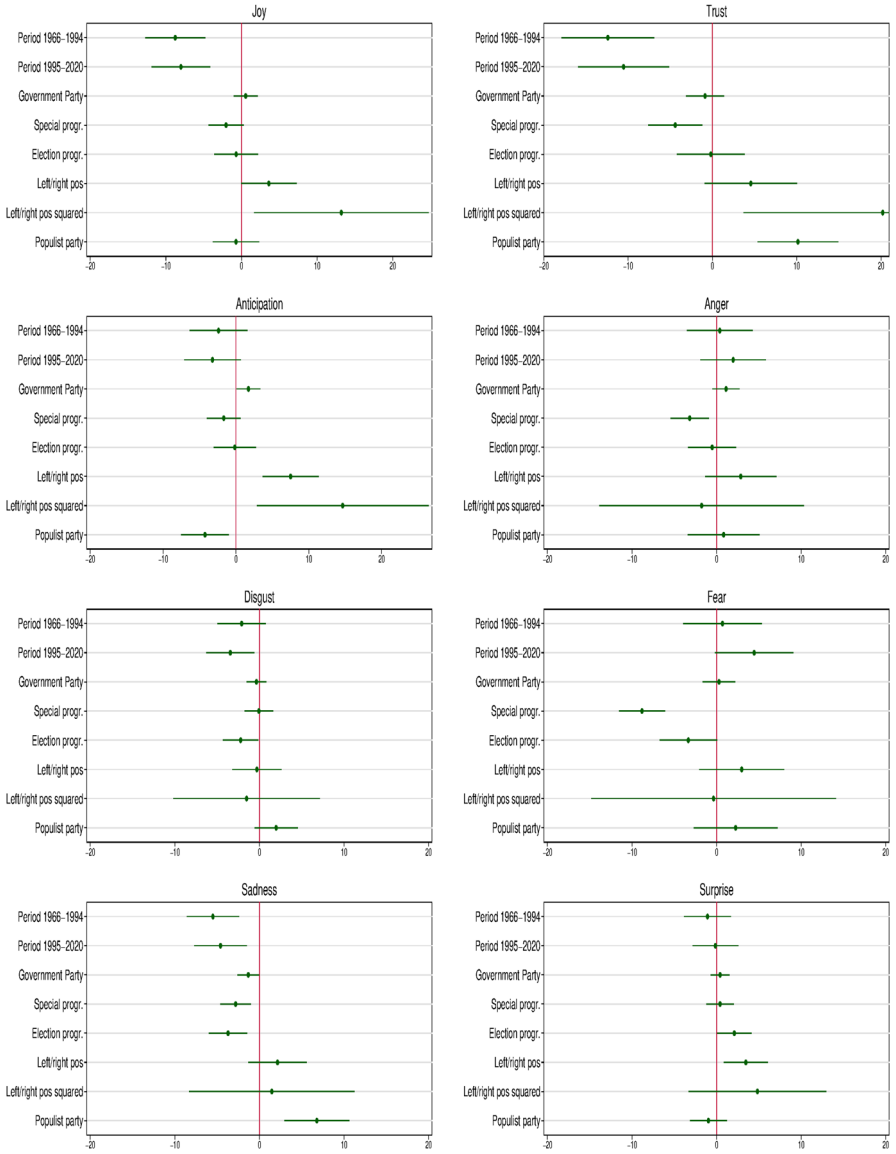

Fig. 2 Multilevel linear regression analysis of the different emotions (regression coefficients with 95% confidence intervals). For the dummy variable reference categories, see the note in Fig. 1. The dependent variable measures the quantity of words related each emotion per 10,000 words

during the welfare state construction (1966–1994) and the welfare state stabilization (1995–2020) periods than during the reconstruction (1945–1965) period. The emotion of disgust was slightly less prevalent in manifestos of the welfare state stabilization (1995–2020) period than during the reconstruction period and the welfare state construction period. As expression of the positive emotions joy

and trust has decreased in the manifestos, and positive emotions anticipation has shown no change, these results fail to support hypothesis H1 concerning the use of positive language in Finnish manifestos. The results indicate an opposite shift, as the use of positive language has decreased over time.[1]

Figure 3, presenting development in the use of all emotions over time, shows that both the positive emotions of joy and trust and the negative emotion of sadness decreased from 1945 to the late 1970s. The negative emotions of fear and anger show an increase since the late 1970s. The positive emotion of anticipation decreased from 1945 to the early 2000s, and then started to increase. Similarly, the negative emotion disgust shows a decrease between 1945 and the early 2000s, and then a slight increase. The emotion of surprise has remained stable. A more detailed view is available in Appendix S4, which shows the changes over time in the use of emotions of individual Finnish parties in their manifestos. These figures show that for all major parties trust is the most salient emotion, which we suggest possibly indicates that Finnish parties use party manifestos to communicate their trustworthiness. Differences between parties emerge when less salient emotions are compared. For example, most parties have anticipation as the second most salient emotion, but the Finns Party (between 1995 and the mid-2010s), the Rural party (between the mid-1970s and the mid-1980s), the Left alliance (between the mid-1990s and 2010) and the Green League (from late 1980s to 2019) have sadness as the second most salient emotion. This suggests that these parties use a different strategy from the three traditional major parties, the National Coalition Party, the Centre Party and the Social Democratic Party. From Appendix S4 we can also see that how expression of emotion has changed after the 2011 and 2015 elections. The Christian Democratic Party and the Swedish People's Party have increased emotion-based vocabulary in their party manifestos

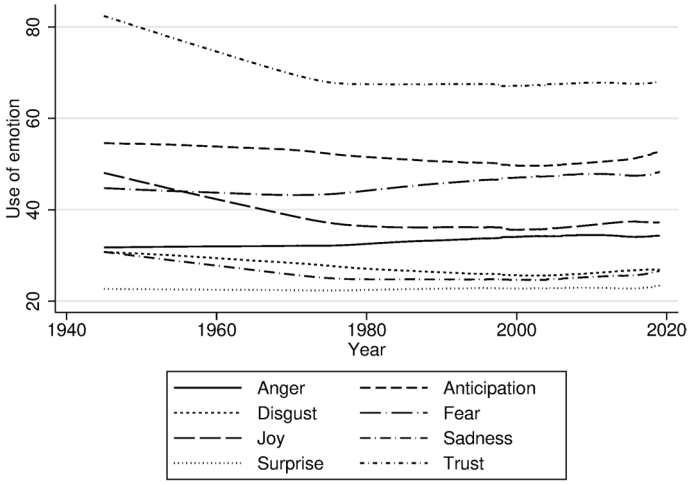

Fig. 3 Use of emotions over time in Finnish manifestos (lowest smoothed values, 1945–2019)

after the 2011 elections, whereas the Centre, the Finns and the Left Alliance from among the parties have increased the use of emotional vocabulary after the 2015 elections.

According to our results, there are no major differences between sentiments or emotions in government party manifestos and opposition party manifestos. Only the emotion of sadness has been used less and anticipation more by the government parties than the opposition parties, although the difference is small. As only one positive emotion, namely anticipation, aligns with our expectations, we find that the results fail to support hypothesis H2, namely that the manifestos of incumbent parties would use more positive language than the manifestos of opposition parties.

Concerning manifesto types, Fig. 1 indicates that special manifestos have been less emotion intensive—i.e., have used fewer positive and negative sentiments—than general manifestos. Turning to emotions (Fig. 2), special manifestos show the negative feelings of anger, fear, sadness less, and the positive feelings of trust more than general manifestos. This suggests that the special manifestos have used less emotional vocabulary, contained fewer negative words than the general manifestos, and relied more on technical language. Election manifestos show fewer positive sentiments than the general manifestos, but there are no significant differences between these two types of manifestos where negative sentiments are concerned. Looking at separate emotions, election manifestos have been less inclined to use the negative vocabularies of sadness, disgust, or fear. These results support hypothesis H5 that parties use more emotional language in general manifestos and less emotional language in special manifestos, and that election manifestos are positioned between general and special manifestos.

The results concerning the parties' positioning in the political left–right position dimension show a statistically significant increase in positive sentiments toward both ends of the dimension compared to the center parts of the same dimension. Where individual emotions are concerned, parties at both ends of the left–right dimension show more positive emotions of anticipation, joy, and trust and more neutral emotion of surprise than parties close to the center of this dimension. For example, we can see from Appendix S4 that the three traditional main parties that are positioned close to the ideological center (the Centre party, the National Coalition Party and the Social Democratic Party) each decreased their use of trust- and joy-related vocabulary in their manifestos from 1945 to the 1980s or 1990s.The Christian Democratic Party (which has a more right-wing party position), the Green League, and the Democratic League for the Finnish People (both with a left-wing party position) have not changed their use of trust-related used vocabulary to any great extent over the years. Based on these results, we conclude that the results fail to support hypothesis H3 that extreme parties on the left–right dimension would use more negative language in their manifestos.

Populist parties have used more negative sentiments than non-populist parties and, in particular, used more negative emotion of sadness, less positive emotion of anticipation, and, interestingly, employed more positive trust-related vocabulary than other parties. For example, Appendix S4 indicates that the populist The Finns have used words related to sadness more frequently than most other parties. Furthermore, The Finns have used vocabulary related to trust more often than other

main parties. However, there is a sharp decrease in the use of trust-related words in 2015 (which coincides with The Finns entering into a government coalition with the Centre Party and the National Coalition Party, and subsequent return to high values of trust).

Closer examination of trust-related words used in populist party manifestos reveals that populist parties use the word "country/land" (*maa* in Finnish) relatively more frequently. We interpret this result to indicate that populist parties' nationalistic political positions place greater emphasis on nation and land. Other trust-related words common in populist party manifestos are money or economy related, namely, "to pay" (*maksaa*), "money" (*raha*), and "revenue" (*tulo*). This possibly indicates that the populist parties attempt to emphasize their own trustworthiness by making appeals to nationalistic and economy-related positions.[2] Populist parties might not be using trust-related vocabulary in an emotional sense. However, we posit that a party manifesto that consistently refers to topics that can also be neutral, e.g., money and pay, is quite possibly trying to emphasize trust, even though it might not be a conscious effort for each occurrence.

The results of both sentiment and intensity analysis regarding populist parties are aligned with previous research (e.g., Ref. [50]), and support hypothesis H4 that populist parties use more negative language than non-populist parties in their manifestos.

In general, the results summarized in Figs. 1 and 2 suggest that positive sentiments have decreased since the 1945–1965 reconstruction period. We find only marginal differences when comparing government parties and opposition parties. Contrary to previous research, our results show that parties positioned further away from the center in the left–right dimension use more positive sentiments and positive emotions than parties in the center of the dimension. Moreover, special party manifestos have used language that is least emotional of all, and populist parties have employed a vocabulary with words related to negative sentiments and emotions more than the non-populist parties.

Intensity analysis results

While sentiment and emotion analysis allowed us to examine how positive and negative sentiments and emotions have been used in Finnish party manifestos, intensity analysis allows us to examine whether there are differences in the intensity with which emotions are used in manifestos. In other words, intensity analysis suggests whether the same emotion words are used in different ways.

Figure 4 summarizes our regression analysis of emotion intensities. Between the three periods, no major differences in intensities occur. Only words related to the positive emotion of trust were slightly less intense during the welfare state stabilization period (1995–2020) than in the post-war reconstruction period (1945–1965). As with the sentiment analysis results, the intensity analysis results do not support hypothesis H1 on increasingly positive language in Finnish party manifestos over time. Government parties have used slightly less intense words related to the negative emotion of sadness, but there are no major differences between government and

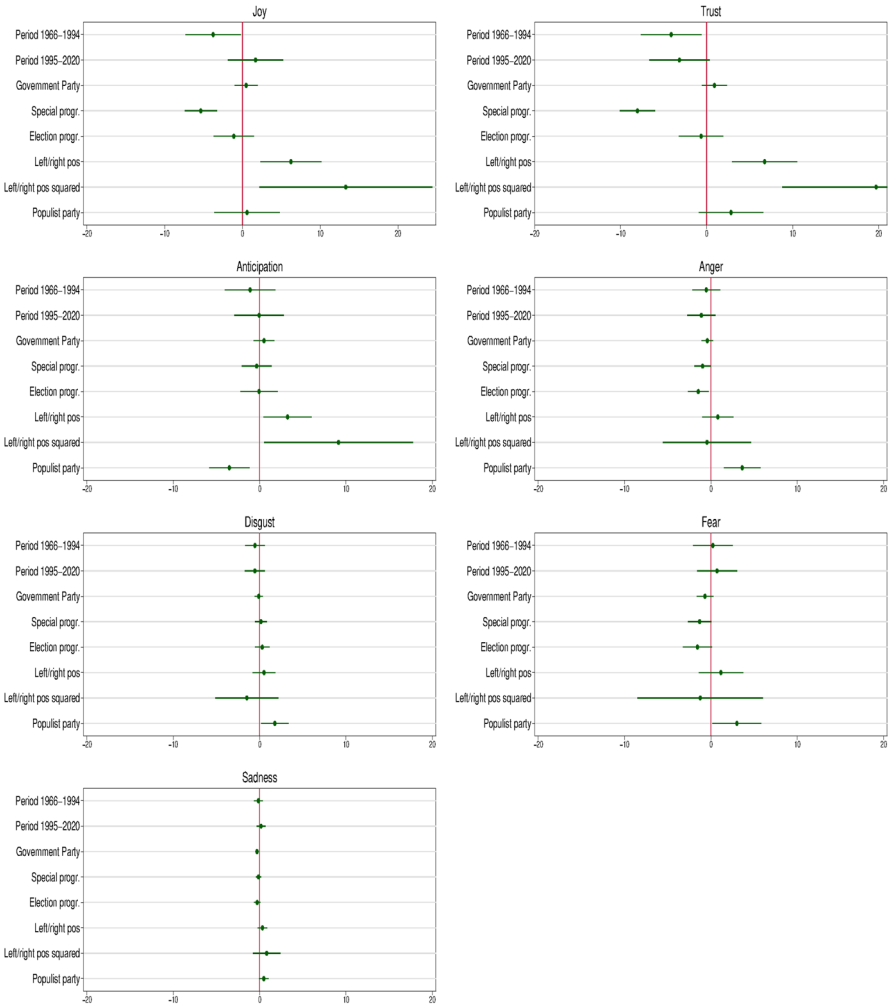

Fig. 4 Multilevel linear regression analysis of intensities (regression coefficients with 95% confidence intervals). For the dummy variable reference categories, see the note in Fig. 1. The dependent variable measures the intensity weighted quantity of words related each emotion per 10,000 words

opposition party emotion intensities. This result fails to support hypothesis H2 that incumbent government parties use more positive language than opposition parties. However, the manifesto type influences the intensities: special manifestos show significantly lower levels of intensity related to the positive emotions of joy and trust than general and election manifestos. Election manifestos use slightly less intense vocabulary related to the negative emotion of anger than the other manifesto types. We conclude that these results support hypothesis H5, as special manifestos use less intense language than either general or election manifestos, and election manifestos use slightly less intense language than one finds in the general manifestos.

There are indications that the left–right positions of the parties affect emotion intensities in a similar way as emotions. Parties with either a left or a right position use more intense language concerning positive emotions anticipation, joy, and trust than parties at or close to the center of the left–right dimension. Thus, hypothesis H3 that extreme parties on the left–right dimension would use more negative language cannot be sustained.

Populist parties use more intense vocabulary related to the negative emotions of disgust, anger and fear and less intense words related to the positive emotion of anticipation than non-populist parties. This result supports hypothesis H4 that populist parties use more negative language than non-populist parties in their manifestos.

In conclusion, unlike sentiments and emotions, intensities do not show major differences between periods. This suggests that even though certain emotions appear more frequently in the vocabulary during different periods, the intensities of these emotions have largely remained stable. Interestingly, with the exception of sadness, the government and opposition manifestos show fewer differences in sentiments and emotions in the Finnish data than those in the results of previous studies [5–7, 11]. A possible reason for this is the dynamics of party competition in Finland, where party coalitions are the main form of government because of a lack of clear majorities [26]. This means that all parties are potential candidates for the next governing coalition. Concerning manifesto types, special manifestos have used considerably fewer intense words related to the emotions of joy and trust than general or election manifestos. A possible reason for this is the specific and technical language of special manifestos. Parties on both the left and the right use more intense language with some emotions than parties in the center of the left–right dimension. Populist parties have used words that are substantially more intense than the words that non-populist parties use concerning the emotions of anger, whereas the difference concerning emotions of fear is only slight. Moreover, populist parties have used a vocabulary that is less intense concerning emotions of anticipation than non-populist parties, suggesting different expectations concerning what the future has to offer.

Discussion and conclusions

In this study, we have examined how political parties use sentiments, emotions and emotion intensities that, in turn, influence how party candidates and politicians use sentiments, emotions, and emotion intensities. Acknowledging that sentiment, emotion, and intensity analyses have not been used before in examining party manifestos, we formulated five hypotheses, building on previous research.

Our first objective was to investigate whether the use of positive emotions had increased in Finnish manifestos from 1945 to 2019. Our findings indicate that the use of positive language has not increased, but has, on the contrary, decreased between 1945 and 1965, the period of post-war reconstruction. Referring to Kosmidis et al. [24], one possible explanation refers to relatively more undecided voters about which party to vote for, and to fiercer party competition between 1945 and 1965 before an expanding consensus on the welfare state was reached after 1966 [21]. Since the mid-1960s, the Finnish party system stabilized, which allowed the

suggestion that parties' manifesto work shifted toward satisfying existing supporters rather than toward attracting new supporters from other parties. Another possible explanation for the positive language during 1945–1965 refers to the post-war economic boom, which encouraged politicians to use positive language, as suggested by the results from Kosmidis et al. [24].

Our second objective was to examine whether incumbent government parties have indicated emotions that are more positive than the emotions indicated by opposition parties. However, our results suggest that the differences between the two groups are only minor. Concerning emotions and intensities, our results indicate that government parties have used the emotion of sadness less and with a lower intensity than opposition parties. This agrees with the results of previous research [5–7, 11], despite the fact that in several other respects our results differ from those of previous studies. One possible explanation for these differences from, for instance, Crabtree et al. [11], derives from the fact that the parties in our data have all participated in multiparty governing coalitions during our study period. All parties have been eligible coalition partners at least in principle and, furthermore, aware that they would be able to start negotiations for the next government with the other parties after each election. This suggests that the opposition parties' incentives to use a very different language than the incumbent parties may have been low. Notably, according to the results of Müller [32], incumbent parties and opposition parties express similar levels of sentiments in sentences related to the future. Müller also offers evidence that parties not represented in parliament before elections are more negative about the past than opposition parties that have at least one seat.

Our third objective has been to investigate whether Finnish general party manifestos use the most positive emotions, whether specific manifestos use the least positive emotions, and whether election manifestos find their place between general and special manifestos. Our results support this hypothesis, as special manifestos have been less emotional and less intense in their use of language than general manifestos and election manifestos. This result can be interpreted to indicate that general manifestos play an important role in guiding the sentiments and emotions of politicians and party candidates.

We have interpreted the relative lack of emotion in special manifestos to reflect the more technical character of this manifesto type. Special manifestos mainly provide candidates and politicians with the parties' positions on political issues, and only to a lesser extent carry contents with sentiments and emotions. Election manifestos have had fewer emotions of sadness, disgust, and fear and have been less intense in their expressions of anger. As election manifestos are published not long before the upcoming elections (see Appendix S1), a possible explanation for our results is a backlash effect, with voters punishing parties for using language that contains negative sentiments that are felt to be excessive [41].

Our fourth objective was to investigate whether parties' ideological positions are related to the language they use. The results do not support our hypothesis, as parties at both the left and the right ends of the left–right dimension in Finland have expressed more positive sentiments of anticipation, joy, surprise, and trust, and more intense sentiments of anticipation, joy, and trust. This contradicts previous research (e.g., Ref. [11]), according to which parties in extreme positions indicate fewer

positive sentiments. A possible explanation for our results is the insignificant role of marginal extremist parties in the Finnish political system. Moreover, the parties we have been looking at have at least once been part of a governing coalition during our study period. Kosmidis et al. [24] note that parties are more likely to use more positive emotive rhetoric when they represent less distinct policy positions. Both parties on the left and the right compete with parties in the center. As in Finland all parties can be potential governing coalition members, this suggests that the policy positions of center and left and right parties may not be very distinct in our data set. This would make it more understandable why parties on the left and right have expressed more positive sentiments and emotions and more intense positive emotions than parties at or close to the center. Positive sentiments have been indicated by parties both on the left and the right that have tended to be small to differentiate themselves from the typically larger parties at or close to the political center.

Our last objective was to examine whether populist parties use more negative language in their manifestos. The results support our hypothesis (H4), as Finland's populist parties have indeed expressed more negative sentiments and emotions than non-populist parties have done, indicating more sadness and disgust in particular. Interestingly, Finland's populist parties have used more positive emotions of trust in their party manifestos than non-populist parties. This is a possible indication that populist parties emphasize their own trustworthiness by making appeals to trust. The populist parties also use words that are more intense than those used in the manifestos of non-populist parties with regard to anger, and, by a narrow margin, the emotion of fear. This result provides evidence of the fact that the intensity of the emotion of anger in populist party manifestos may not just be a reaction to political issues, but may instead be a strategy. That is, populist parties are strategically angrier in their mode of expression. Our results align with previous studies, whose results indicate that populist actors are more negatively emotional and make more appeals to anger, fear, disgust, and sadness than non-populist actors [50]. In conclusion, our hypotheses H1, H2 and H3 are not supported by our results, whereas hypotheses H4 and H5 are sustained.

We draw two more general main conclusions. First, our results suggest that when investigating how parties utilize emotions in political language, it is not enough to use only sentiment and emotion analysis. In addition to them, emotion intensity analysis may be able to uncover the intensity of words to provide a more comprehensive view of language use. Related to our first general conclusion, a major limitation of our study is that both the emotion lexicon and the intensity lexicons used have originally been annotated for English, and it was necessary to translate both lexicons into Finnish [28, 29]. This might have caused some inaccuracies in the results. However, we argue that our study reinforces claims from previous research [40] that automatically translated lexicons yield valid results. Thus, we have offered a useful example of how translated lexicons can be adjusted to work with languages that are globally marginal, such as Finnish. Another limitation of our study has been that our analyses have not considered semantic drift. This may introduce possible changes in the emotional character and intensity of words during our long study period from 1945 to 2019. This is a potential problem in long-term party manifesto analyses that requires further attention in future studies. Acknowledging the laboriousness of annotating

new emotion lexicons, we conclude that translating and adjusting existing lexicons is a defensible procedure.

Our second main conclusion relates to context specificity. In certain respects, political language is likely to depend on the institutional, cultural, and political specifics of the country. For example, we suggest that the inability to find differences between parties in government and in opposition reflects large multiparty governing coalitions in Finnish consensual politics. Within this framework, all parties represented in parliament are possible coalition partners, blurring the difference between government and opposition in the longer run.

One of the challenges of this study was the imbalance between the hypotheses derived mostly from previous studies and the use of emotion analysis as one of its methods. The previous hypotheses were built on the idea of polarity of positive/negative language, while our method also focused on specific emotions. However, as the specific emotions studied in our analysis can be classified as positive and negative, we feel that our approach justifies the hypotheses we test.

Admittedly, our approach in this paper can be seen as somewhat cursory, as the strategic use of emotions and sentiments in party manifestos is a highly complex issue. However, the findings of this study create a basis for many future topics for research. One possible avenue would be a more qualitative analysis of the causes of the changes presented in Fig. 3, including which words are driving the scores and in which kind of context parties use emotional words. For example, what kind of transitions caused a decrease in trust- and joy-related vocabulary usage between 1945 and the 1980s, and did that transition have any policy implications? Other possible avenues for future work include constructing authentic Finnish language emotion and intensity lexicons and using these lexicons in research, including the examination of political and ideological language. To test these lexicons, the results we have acquired using translated lexicons offer a possible test bench. Where comparative studies between populist and non-populist parties are concerned, we envisage future work with the qualitative examination of the words that populist parties use in different ways than non-populist parties. Such work could help us understand better the populist parties' use of emotional language, which is of indubitable relevance in today's world. Furthermore, we foresee that our data on the emotions expressed by parties in their manifestos could be extended to include social media data, parliamentary speeches, and blogs written by political personalities.

Notes:

1. We also tested whether this periodization affects our results. We repeated the analyses, but instead of using period dummies, we included time and time squared as independent variables. This does not substantially affect our results.
2. In addition, the populist parties use relatively more words related to politics and public administration, such as "real" (*todellinen*), "bureaucracy" (*byrokratia*), and "parliament" (*eduskunta*). The word "real" can be interpreted to indicate that populist parties claim to represent reality in opposition to other parties. Moreover, populist parties tend to view such notions as ideology, interests, big business, the educated social strata, atheism, multi-culturalism, or corruption as the opposite to reality. The word "bureaucracy" might suggest a difference in meaning between

English and Finnish, as in Finnish the word "bureaucracy" might not be trust related.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s42001-022-00181-9.

Funding Open Access funding provided by University of Helsinki including Helsinki University Central Hospital. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Availability of data and materials The data that support the findings of this study are available from the corresponding author upon request.

Declarations

Conflict of interest No potential competing interest is reported by the authors.

References

1. Ahonen, P., & Koljonen, J. (2018). Transitory and Resilient Salient Issues in Party Manifestos, Finland, 1880s to 2010s. In 10th International Conference, SocInfo 2018, St. Petersburg, Russia, September 25-28, 2018, Proceedings, Part I. https://doi.org/10.1007/978-3-030-01129-1_2
2. Alm, C. O., Roth, D., & Sproat, R. (2005). Emotions from text: Machine learning for text-based emotion prediction. In Proceedings of human language technology conference and conference on empirical methods in natural language processing (pp. 579–586).
3. Araque, O., Gatti, L., Staiano, J., & Guerini, M. (2019). Depechemood++: A bilingual emotion lexicon built through simple yet powerful techniques. IEEE transactions on affective computing.
4. Benoit, K., & Laver, M. (2006). *Party policy in modern democracies*. Routledge.
5. Bielik, I. (2020). Application of natural language processing to the electoral manifestos of social democratic parties in central eastern european countries. *Politics in Central Europe, 16*, 259–282.
6. Biessmann, F. (2016). Automating political bias prediction. Preprint retrieved from arXiv:1608.02195. Accessed 5 May 2022.
7. Biessmann, F., Lehmann, P., Kirsch, D., & Schelter, S. (2016). Predicting political party affiliation from text. In International Conference on the Advances in Computational Analysis of Political Text (PolText) 2016.
8. Brader, T. (2005). Striking a responsive chord: how political ads motivate and persuade voters by appealing to emotions. *American Journal of Political Science., 49*, 388–405. https://doi.org/10.1111/j.0092-5853.2005.00130.x
9. Budge, I. (1987). The internal analysis of election programs. In I. Budge, D. Robertson, & D. Hearl (Eds.), *Ideology, strategy, and party change: Spatial analysis of post-war election programmes in 19 democracies.* Cambridge University Press.

10. Carvalho, P., Sarmento, L., Teixeira, J., & Silva, M. J. (2011). Liars and saviors in a sentiment annotated corpus of comments to political debates. In Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies (pp. 564–568).
11. Crabtree, C., Golder, M., Gschwend, T., & Indriđason, I. H. (2020). It is not only what you say, it is also how you say it: The strategic use of campaign sentiment. *The Journal of Politics, 82*(3), 1044–1060.
12. Demszky, D., Movshovitz-Attias, D., Ko, J., Cowen, A., Nemade, G., & Ravi, S. (2020). GoEmotions: A dataset of fine-grained emotions. In Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (pp. 4040–4054).
13. Döring, H., & Philip M. (2019). Parliaments and Governments Database (ParlGov): Information on Parties, Elections and Cabinets in Modern Democracies. Development version. http://www.parlgov.org/
14. Eder, N., Jenny, M., & Müller, W. C. (2017). Manifesto functions: How party candidates view and use their party's central policy document. *Electoral Studies, 45*(2017), 75–87. https://doi.org/10.1016/j.electstud.2016.11.011
15. Ekman, P. (1992). Are there basic emotions? *Psychological Review, 99*(3), 550–553. https://doi.org/10.1037/0033-295X.99.3.550
16. Fridkin, K. L., & Kenney, P. (2011). Variability in citizens' reactions to different types of negative campaigns. *American Journal of Political Science, 55*(2), 307–325.
17. González-Bailón, S., & Paltoglou, G. (2015). Signals of public opinion in online communication: A comparison of methods and data sources. *The ANNALS of the American Academy of Political and Social Science, 659*(1), 95–107.
18. Haselmayer, M., & Jenny, M. (2017). Sentiment analysis of political communication: combining a dictionary approach with crowdcoding. *Quality & Quantity, 51*(6), 2623–2646.
19. Hjorth, F., Klemmensen, R., Hobolt, S., Hansen, M., & Kurrild-Klitgaard, P. (2015). Computers, coders, and voters: comparing automated methods for estimating party positions. *Research & Politics, 2*, 205316801558047.
20. Kanerva, J., Ginter, F., Miekka, N., Leino, A., & Salakoski, T. (2018). Turku Neural Parser Pipeline: An End-to-End System for the coNLL 2018 Shared Task. In Proceedings of the CoNLL 2018 Shared Task: Multilingual Parsing from Raw Text to Universal Dependencies (pp. 133–142).
21. Kettunen, P. (2018). Wars, nation, and the welfare state in Finland. *Warfare and welfare: military conflict and welfare state development in western countries* (pp. 260–289). Oxford University Press.
22. Kettunen, P. (2019). The conceptual history of the welfare state in Finland. *Changing meanings of the welfare state: Histories of a key concept in the nordic countries* (pp. 225–275). Berghahn Books.
23. Kiritchenko, S., & Mohammad, S. (2017). Best-worst scaling more reliable than rating scales: A case study on sentiment intensity annotation. In Proceedings of the 55th Annual Meeting of the Association for Computational Linguistics (pp. 465–470). Vancouver, Canada, July 30–August 4, 2017.
24. Kosmidis, S., Hobolt, S., Molloy, A., & Whitefield, S. (2018). Party Competition and Emotive Rhetoric. *Comparative Political Studies, 52*(6), 811–837.
25. Lazarsfeld, P. F., Berelson, B., & Gaudet, H. (1944). *The people's choice*. Columbia University Press.
26. Magone, J. (2011). *Contemporary european politics: A comparative introduction*. Routledge.
27. Mohammad, S. (2018). Word Affect Intensities. In Proceedings of the 11th Edition of the Language Resources and Evaluation Conference (LREC-2018), May 2018, Miyazaki, Japan.
28. Mohammad, S. (2020a). NRC Word-Emotion Association Lexicon. https://www.saifmohammad.com/WebPages/NRC-Emotion-Lexicon.htm. Accessed 28 Oct 2020.
29. Mohammad, S. (2020b). NRC Affect Intensity Lexicon. https://www.saifmohammad.com/WebPages/AffectIntensity.htm. Accessed 28 Oct 2020.
30. Mohammad, S. (2020c). Sentiment Analysis: Detecting Valence, Emotions, and Other Affectual States from Text'. Second Edition of Emotion Measurement. Preprint retrieved from arXiv:abs/2005.11882. Accessed 5 May 2022.
31. Mohammad, S., & Turney, P. (2010). Emotions Evoked by Common Words and Phrases: Using Mechanical Turk to Create an Emotion Lexicon. In Proceedings of the NAACL HLT 2010 Workshop on Computational Approaches to Analysis and Generation of Emotion in Text (pp. 26–34).
32. Müller, S. (2022). The temporal focus of campaign communication. *The Journal of Politics, 84*(1), 585–590. https://doi.org/10.1086/715165

33. Öhman, E. (2021a). SELF & FEIL: Emotion and Intensity Lexicons for Finnish. Preprint retrieved from arXiv:2104.13691. Accessed 5 May 2022.
34. Öhman, E. (2021b). The Language of Emotions: Building and Applying Resources for Computational Approaches to Emotion Detection for English and Beyond.
35. Öhman, E. (2021c). The validity of lexicon-based emotion analysis in interdisciplinary research. In Proceedings of the 18th International Conference on Natural Language Processing (ICON 2021): NLP4DH.
36. Paavonen, T. (2001). From isolation to the core: Finland's position towards european integration, 1960–95. *Journal of European Integration History, 7*(1), 53–76.
37. Papacharissi, Z. (2016). Affective publics and structures of storytelling: Sentiment, events and mediality. *Information, Communication & Society, 19*(3), 307–324.
38. Plutchik, R. (1980). A general psychoevolutionary theory of emotion. Theories of EmotionIn R. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, research, and experience* (Vol. 1, pp. 3–33). Academic.
39. Pohtiva. (2019). Pohtiva – Poliittisten Ohjelmien Tietovaranto (Pohtiva – Repository of Party Manifestos in Finland). https://www.fsd.tuni.fi/pohtiva/. Accessed 15 Oct 2019.
40. Proksch, S.-O., Lowe, W., Wäckerle, J., & Soroka, S. (2019). Multilingual sentiment analysis: A new approach to measuring conflict in legislative speeches. *Legislative Studies Quarterly, 44*, 97–131. https://doi.org/10.1111/lsq.12218
41. Ridout, T. N., & Searles, K. (2011). It's My Campaign I'll Cry if I Want to: How and When Campaigns Use Emotional Appeals. *Political Psychology, 32*(3), 439–458. https://doi.org/10.1111/j.1467-9221.2010.00819.x
42. Rooduijn, M., Van Kessel, S., Froio, C., Pirro, A., De Lange, S., Halikiopoulou, D., Lewis, P., Mudde, C., & Taggart, P. (2019). The PopuList: An Overview of Populist, Far Right, Far Left and Eurosceptic Parties in Europe. www.popu-list.org.
43. Seawright, J., & Gerring, J. (2008). Case selection techniques in case study research: A menu of qualitative and quantitative options. *Political Research Quarterly, 61*(2), 294–308.
44. Söderlund, P. (2020). Electoral Volatility: Finland in a Comparative Perspective. In Politiikan ilmastonmuutos – Eduskuntavaalitutkimus 2019. Sami Borg, Elina Kestilä-Kekkonen ja Hanna Wass (eds.). https://www.vaalitutkimus.fi/wp-content/uploads/2020/09/OM_2020_05_SO_Politiikan-ilmastonmuutos_net.pdf
45. Utych, S. (2017). Negative affective language in politics. *American Politics Research, 46*, 1532673X1769383. https://doi.org/10.1177/1532673X17693830
46. Valentim, V., & Widmann, T. (2021). Does radical-right success make the political debate more negative? Evidence from emotional rhetoric in German state parliaments. *Political Behavior*. https://doi.org/10.1007/s11109-021-09697-8
47. van Atteveldt, W., van der Velden, M. A., & Boukes, M. (2021). The validity of sentiment analysis: Comparing manual annotation, crowd-coding, dictionary approaches, and machine learning algorithms. *Communication Methods and Measures, 15*(2), 121–140.
48. Volkens, A., Burst, T., Krause, W., Lehmann, P., Matthieß T., Merz, N., Regel, S., Weßels, B., & Zehnter, L. (2020). The Manifesto Data Collection. Manifesto Project (MRG/CMP/MARPOR). Version 2020b. Berlin: Wissenschaftszentrum Berlin für Sozialforschung (WZB). https://doi.org/10.25522/manifesto.mpds.2020b.
49. Wang, Y., Clark, T., Staton, J., & Agichtein, E. (2014). Towards Tracking Political Sentiment through Microblog Data. In Proceedings of the Joint Workshop on Social Dynamics and Personal Attributes in Social Media (pp. 88–93).
50. Widmann, T. (2020). How emotional are populists really? Factors explaining emotional appeals in the communication of political parties. *Political Psychology*. https://doi.org/10.1111/pops.12693