

# Quantifying Lexical Shifts in Political Speech: A Corpus-Based And AI-Driven Analysis of Power and Influence

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## Abstract

*This study investigates lexical shifts in German political discourse, focusing on terms related to power and influence. By analysing a corpus of Bundestag presidential speeches, significant changes in the frequency and meaning of key terms were identified. The findings suggest that historical events, political developments, and cultural changes influence these shifts. The study highlights the importance of considering the historical and social context of language use and emphasises the potential of AI-driven methods in analysing political discourse.*

**Keywords:** lexical shift, political discourse, corpus, semantics.

## Introduction

There has been a long tradition of linguistic research on political discourse, but little attention has been paid to what this concept encompasses (Randour et al. 2020). This study strives to detect lexical shifts in politics. One is aware that words change in meaning with time. “Mouse” for example, which is still a small rodent, is now also a computer accessory (Taylor et al. 2021).

Lexical shifts refer to changes in the use, frequency, and meaning of words within a particular language or discourse over time. In political discourse, these shifts can reflect broader societal, ideological, or institutional changes, often mirroring political dynamics and public opinion. Studies on lexical shifts in political language provide insights into how political actors strategically adjust their rhetoric to influence voters, react to changing socio-political environments, or reflect their evolving positions on issues (Charteris-Black 2005).

## Theoretical framework

Lexical shifts can be studied under the umbrella of sociolinguistics, discourse analysis, and corpus linguistics. In this regard, Saussure's theory of signs, particularly his distinction between *langue* and *parole*, provides a foundational understanding of how meaning can shift in language use, depending on context (Saussure 1916). His structuralist approach emphasises the fluid relationship between words and their meanings, allowing us to conceptualise how political contexts lead to new meanings or usages of terms (Gumperz 1982).

For example, the word "security" in political discourse could once have primarily referred to national security in a military context. However, over time, it may shift to include cybersecurity or economic security, reflecting changes in societal concerns.

Building on Saussure, Foucault (1981) advanced the notion that discourse serves as a form of social control, with lexical shifts reflecting changes in the distribution of power and knowledge. Foucault's idea of discourse as a system of representations that construct social realities is crucial for understanding how certain words become dominant or marginalised in political speech. For example, terms like "patriotism" or "populism" may shift in their connotation depending on who wields them in political arena and the ideological positions they represent.

Gramsci's (1971) concept of hegemony further complements this by explaining how language can reinforce or challenge power structures. Political actors use language to shape the collective understanding of social and political concepts, steering public perception through strategic lexical choices. For instance, a political leader might frame an economic policy as a form of "investment in the future" rather than "government spending", subtly shifting the discourse to favour their position.

## Lexical shifts in political discourse

Baker (2006) emphasises that corpus-based methods allow researchers to track changes in lexical patterns across large datasets, providing quantitative evidence of how political rhetoric evolves. His work analysing parliamentary speeches, for example, demonstrates how the frequency of certain politically charged terms, such as *terrorism* or *democracy*, spikes in response to external events like 9/11. Similarly, Fairclough's (1992) critical discourse analysis of political speeches identifies shifts in vocabulary as part of larger ideological shifts in discourse, particularly in neoliberal language.

Stubbs (1996) provides further evidence of lexical shifts in political language by examining keywords in political speeches over time. His analysis shows that the meaning and frequency of words like “freedom” and “rights” fluctuate in response to changing political landscapes. Wodak (2001) draws a similar conclusion, using corpus analysis to explore how populist politicians adapt their lexicon in response to shifts in public opinion, thereby revealing the interplay between language and ideology.

One significant contribution in political discourse and lexical change comes from Törnberg and Törnberg (2016), who employed computational methods, including word embeddings, to explore how political topics and associated vocabulary shift over time. They found that lexical change is closely related to broader shifts in political contexts, such as the rise of populism in Europe, which has introduced new terms and redefined the use of others. Their approach highlights the benefits of integrating AI-driven tools to identify these trends.

### **AI and lexical shifts**

Recent research leverages artificial intelligence (AI) and natural language processing (NLP) to detect and quantify lexical shifts with unprecedented precision. Hamilton et al. (2016) introduced dynamic word embeddings to measure diachronic lexical change, showing how political terms evolve in meaning over time. Their study demonstrates how AI-driven models can track subtle shifts in political rhetoric across decades, offering a deeper understanding of the semantic drift in words like “liberty” or “immigration.”

Another AI-driven study by Garg et al. (2018) applies word embeddings to track shifts in political bias in large corpora of news articles, revealing how media outlets adapt their language to align with evolving political climates. This study complements previous corpus-based research by offering a quantitative measure of bias and lexical shifts through unsupervised learning algorithms.

These AI-driven approaches contrast with earlier manual content analyses, like those conducted by van Dijk (1997), who examined the role of political power in shaping discourse. While van Dijk’s qualitative insights into the ideological function of lexical shifts are still valuable, AI-based models like those by Hamilton et al. (2016) and Garg et al. (2018) allow for more scalable and reproducible analyses.

## Lexical shifts and ideology in political speech

Lexical shifts in political speech are often ideologically motivated, as political actors craft their rhetoric to appeal to changing public sentiments or ideological shifts within their parties. Lakoff (2004) discusses how metaphors in political speech reflect ideological shifts, with lexical change accompanying shifts in metaphorical framing (e.g., tax relief vs. tax burden). Cap (2006) also analyses the strategic use of words to evoke particular ideological responses, emphasizing that political actors often reframe terms to construct new ideological narratives.

Similarly, Laclau and Mouffe (1985) argue that political discourse operates within a field of antagonism, where lexical shifts are used to construct new political identities. Their theory of discourse hegemony explains how certain terms gain prominence during political struggles, as political actors attempt to define the discursive boundaries of the political field. For instance, the recent rise of populist movements has led to shifts in terms like *elite* and *people* (Moffitt, 2016).

While many studies converge on the idea that political discourse adapts to external events and ideological shifts, there are some discrepancies in the methodologies and interpretations. For instance, Fairclough (1992) and van Dijk (1997) emphasise the role of social structures and power dynamics in shaping lexical shifts, focusing on how dominant ideologies dictate linguistic change. In contrast, Hamilton et al. (2016) and Baker (2006) offer a more data-centric approach, focusing on how changes in political events directly correlate with lexical frequency and contextual shifts.

Moreover, studies that incorporate AI, such as those by Garg et al. (2018) and Törnberg and Törnberg (2016), argue that machine learning techniques allow for the discovery of emergent lexical patterns that traditional manual content analysis might miss. This points to a methodological divide: traditional discourse analysts prioritise the ideological implications of lexical shifts, while AI-driven researchers focus on the computational discovery of such shifts.

Studying lexical shifts in political discourse offers significant insights into the evolving relationship between language, power, and ideology. While early research emphasised qualitative discourse analysis, recent studies have increasingly turned to corpus linguistics and AI-driven models to quantitatively analyse lexical change. The integration of AI into this field allows for greater precision and scalability, opening up new possibilities for tracking political rhetoric over time. The convergence of these methods provides a more comprehensive understanding of how political language evolves and its impact on public discourse.

## Corpus description

To conduct the analysis, a detailed search in the corpus “The German Political Speeches Corpus (GPSC) 4” (Barbaredi 2018, 2019) will be conducted that is a valuable resource for analysing lexical shifts in German political discourse. It encompasses a vast collection of political speeches from prominent German leaders and institutions, offering researchers a rich dataset to examine language change in response to social, political, and historical shifts. With over 12 million tokens, approximately 11 million words and more than 595 thousand sentences, the corpus provides substantial material for identifying recurrent lexical patterns and shifts across various political contexts.

The GPSC is particularly important in observing how political rhetoric evolves, revealing shifts in themes, ideological nuances, and terminology over time. Researchers can leverage this corpus to trace how words related to topics such as “democracy,” “security,” and “economy” have gained or diminished prominence.

By using SketchEngine (Kilgarriff et al. 2014), advanced corpus linguistics tools like frequency analysis, keywords and diachronic analysis can be applied, allowing for detailed insights into lexical shifts. Ultimately, this corpus serves as a crucial instrument for understanding the dynamics of German political language, offering a structured means to study changes in political lexicon over the decades.

## Methodology

This study involves a comparative key word analysis of three key word lists, each containing up to 50 lexical items derived from the *German Political Speeches* corpus, most precisely its subcorpus *Bundestagspräsidenten*. The first list is generated using SketchEngine, a widely recognised corpus analysis tool, the extracted key words were ranked by their keyness scores, obtained through a comparison with the reference corpus deTenTen20; the second list is sourced from the *Politische Reden*<sup>1</sup> website; and the third list is produced using ChatGPT-4. All three lists are based on the same corpus, ensuring consistency in the data source, and enabling a reliable comparison of results across different tools.

Following the creation of these lists, ChatGPT-4 is applied to identify both overlapping and distinct lexical items. This comparison includes an

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<sup>1</sup> German Political Speeches Corpus and Visualization, <https://politische-reden.eu>.

examination of terms that appear consistently across all lists, as well as those unique to each list, to provide insights into each tool's capacity for identifying significant terms in political discourse. By focusing on recurring terms, the analysis aims to reveal patterns that indicate core themes or shifts in lexical choices within the speeches of Bundestag presidents.

From the shared lexical items across all three lists, ChatGPT-4 is further used to isolate terms that semantically denote concepts of *power* and *influence*. Specifically, five items signifying power and five items denoting influence are extracted, offering insight into how these themes are linguistically represented in the corpus. This methodology provides a structured approach to assessing lexical significance in political speech, facilitating a focused exploration of authority and impact within political discourse.

The study answers the following hypotheses based on the one-way ANOVA test and subsequent Bonferroni correction:

H<sub>0</sub>: There is no significant difference in the frequency distribution of words linked to power and influence over time (years 1984-2017).

H<sub>1</sub>: There is a significant difference in the frequency distribution of words linked to power and influence over time (years 1984-2017).

## Results

The pairwise comparison of all three lists by means of AI tool detected 23 lexical items that appear in each list. These reflect fundamental concepts related to politics, society, and governance. Needless to say, each key word list was compiled by a different method and thus, it was composed of distinct lexical items. Keywords tool operationalised by SketchEngine that is very sophisticated since it compares corpora and identifies what is unique or typical. Unlike ChatGPT, the selected corpus is compared to a reference corpus (in this case deTenTen20) to identify key data. In this way the keywords are not extracted only by their frequency alone, but also by keyness score. This corpus-to-corpus comparison is not available with ChatGPT-4, which lists just the most recurrent lexical items. Nevertheless, the three lists manifest 23 lexical similarities which are clearly depicted in the following word cloud.

Chart 1: Similar lexical items presented in word cloud.



The overlap suggests a common linguistic and conceptual framework used to discuss the following interpretations:

- a) **core concepts and governance:** words like “*Demokratie*”, “*Staat*”, and “*Verfassung*” indicate a focus on the fundamental principles of governance and the structure of political systems.
- b) **societal concerns:** words like “*Gesellschaft*”, “*Menschen*”, and “*Bürger*” suggest a shared interest in societal issues, human rights, and civic engagement
- c) **historical and future perspectives:** words like “*Geschichte*”, “*Zukunft*”, and “*Entwicklung*” indicate a consideration of both historical context and future aspirations.
- d) **political discourse:** words like “*Politik*”, “*Parlament*”, and “*Verantwortung*” suggest a focus on political processes, institutions, and accountability.

This table is made up of the selected lexical items unique to each list. At first glance there is a huge difference between ChatGPT and the other two lists. The words generated by ChatGPT stand for commonly used lexemes in everyday German in contrast to the words in other two lists which are to a great extent of terminological nature. They are solely nouns, what was also the precondition prior to extracting the list, whereas ChatGPT-4 listed words beyond noun parts of speech e.g., *mit* (preposition), *denn* (conjunction), *ein* (article). This is the evidence that ChatGPT-4 operates with the

overall frequency and struggles with identifying word classes. However, this does not necessarily mean that it will perform similarly in future, since it continuously improves its performance. The third keyword list was determined by using a superficial syntactic parser (Barbarese 2013).

Table 1: Selected unique lexical items in each list.

<i>SketchEngine</i>	<i>ChatGPT</i>	<i>Bundestagspräsidenten</i>
Parlamentarismus	Menschen	Ausbildung
Reichstagsgebäude	Europa	Chancen
Bürgergesellschaft	Zeit	Digitalisierung
Ostdeutsche	Welt	Energiepolitik
Kulturstaat	Damen	Engagement
Verfassungsorgan	Ein	Finanzkrise
Ostdeutschland	Mit	Flüchtling
Sozialstaat	Blick	Gerechtigkeit
Volkskammer	Herren	Geld
Ermächtigungsgesetz	Denn	Reform

The 23 listed similar lexemes were source of subsequent prompt executed by ChatGPT-4 which consisted in detecting five lexemes semantically linked to the concept of *power* and *influence*. The findings are as follows:

- a) ***Deutschland*** (Germany) – this lexeme refers to a nation-state and is intrinsically associated with power as a sovereign political and social entity. The legislative, executive, and judicial branches of Germany’s government have an impact on foreign relations both inside and outside the European Union, as well as on its population.
- b) ***Politik*** (Politics) – since politics includes the actions and procedures by which power is obtained, used, and preserved in a society, it is closely related to influence and power. Politicians and policies emphasise the power dynamics within governmental and social systems by influencing laws, economic choices, and social norms.
- c) ***Verfassung*** (Constitution) – the constitution is a foundational legal instrument that defines the composition, powers, and boundaries of the state, thereby embodying the principles of power. The constitution, which serves as the cornerstone of governance, shapes the rights of citizens, the authority of the government, and the distribution of power among its many branches.



- d) **Verantwortung** (Responsibility) – it is inherently linked to power, as it signifies the duty and accountability that accompany authority. In political discourse, responsibility suggests that leaders and institutions are obligated to wield their power judiciously and in the best interests of the public. Furthermore, it embodies *influence* by emphasising the ethical and social expectations placed on political actors to guide, protect, and to serve society.
- e) **Recht** (Law) - it embodies both power and influence as it establishes rules and standards that regulate behaviour within a society. The legal system enforces order and determines justice, exerting influence by guiding individuals' actions, resolving conflicts, and setting precedents that shape societal norms.

These words represent the foundations of state structure, governance, and societal regulation, all of which are central to *power* and *influence*. Moreover, they illustrate mechanisms through which authority is established, exercised, and controlled. Together, these terms symbolise the organisation of power within the state, embodying institutions and systems that exert considerable influence over the lives of citizens and the trajectory of society.

These lexical shifts illustrate how political and historical changes can modify the semantic scope of key terms. In each case, the original meanings of these words have broadened or gained additional connotations tied to Germany's evolving democratic identity, its role in Europe, and a deeper focus on citizens' rights and public transparency.

### **Deutschland** (*Germany*)

Historically, Deutschland referred strictly to a geographic and cultural entity. Over time, particularly post-World War II and after reunification in 1990, the term has evolved in political discourse to symbolise unity, democracy, and Germany's role in the European Union. Deutschland now often represents Germany's identity as a leading European power and democratic state, shifting from a purely national concept to one tied to global influence and responsibility.

### **Politik** (*Politics*)

Traditionally, Politik referred to governance or the methods by which state affairs were managed. In modern political discourse, Politik has expanded to include a broader array of strategies, ideologies, and public relations. Politics now frequently refers to not just governmental actions but also to the

power struggles, influence tactics, and media-driven narratives used to sway public opinion and foster support.

### ***Verfassung*** (*Constitution*)

Originally, *Verfassung* simply denoted a foundational legal document outlining governmental structure and citizens' rights. Over time, especially after periods of political upheaval, such as the Weimar Republic and post-war Germany, *Verfassung* has come to represent democratic values, stability, and the rule of law within political discourse. Today, it often conveys the idea of enduring constitutional principles protecting democracy and individual freedoms.

### ***Verantwortung*** (*Responsibility*)

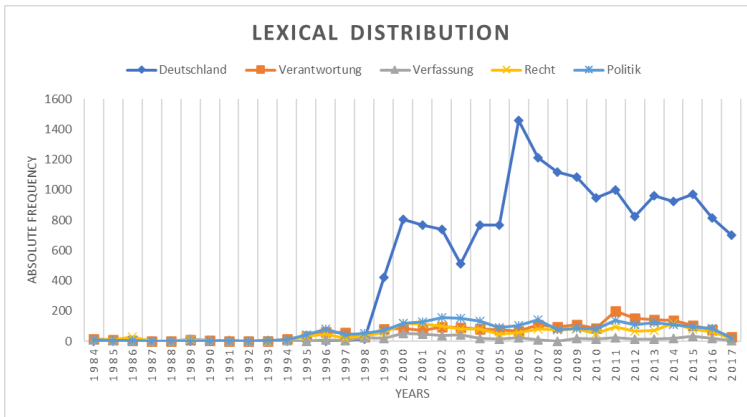
Generally, *Verantwortung* simply referred to an individual's obligation or liability in personal or moral matters. Over time, especially within political discourse, the term has expanded to denote a societal and ethical duty associated with leadership and governance.

In modern political contexts, *Verantwortung* often carries the added meaning of a commitment to democratic values, transparency, and social welfare. Politicians frequently invoke *Verantwortung* to signal accountability, reinforce democratic norms, and highlight their commitment to justice and the public good. This shift reflects a broader and more socially grounded interpretation of responsibility, moving beyond personal obligation to signify a duty that political figures hold toward their communities and nations.

### ***Recht*** (*Law/Right*)

Originally, *Recht* had a more rigid legal meaning focused on the rule of law. Over time, however, *Recht* has expanded to include human rights and social justice within political discourse, embodying broader ideas around equity, freedom, and the protection of individual liberties. Modern use in political contexts often implies not just legality but also ethical considerations, social justice, and moral authority.

Chart 2: Lexical distribution of the lexical items over time



The graph depicts the absolute frequency of five words over period of time (1984-2017). There is a general upward trend in their frequency, especially from the mid-1990s onwards.

*Deutschland* shows significant growth starting around 1999, with peaks in the early 2000s and again in 2005. The peak around 2005 might be linked to Germany's increased political influence in the European Union, particularly with Angela Merkel becoming Chancellor in 2005.

*Politik* has a moderate, steady increase, with visible fluctuations throughout the timeline. Peaks in political discourse can often correlate with significant elections or international crises. For instance, the frequency increases around 2001, possibly influenced by global political shifts after the September 11 attacks, where national and international politics became focal points in discourse.

*Verfassung* shows relative stability but increases slightly around the early 2000s. This could be linked to the European Union's attempts at constitutional reform during this period, including the drafting of the Treaty establishing a Constitution for Europe in 2004, which generated discussions across EU countries, including Germany.

*Recht* remains relatively stable but with slight increases after 2000.

*Verantwortung* remains consistent, with a slight increase after 2010. This term might have gained attention with Germany's leadership in Europe, particularly during the Eurozone crisis starting in 2009, where Germany was often seen as bearing significant responsibility for economic and political stability in the region.

Table 2: Statistical measurement of significant differences

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	5492681,588	4	1373170	29,09375409	0,0000000000000000026	2,426438
Within Groups	7787689,235	165	47198,12			
Total	13280370,82	169				
POST-HOC TEST						
Groups	t-test	significant?	ANOVA		0,05	
Deutschland vs Verantwortung	0,00000174	yes	Bonferroni test		0,005	
Deutschland vs Verfassung	0,00000017	yes				
Deutschland vs Recht	0,00000089	yes				
Deutschland vs Politik	0,00000217	yes				
Verantwortung vs Verfassung	0,00000238	yes				
Verantwortung vs Recht	0,23075287	no				
Verantwortung vs Politik	0,72505990	no				
Verfassung vs Recht	0,00000738	yes				
Verfassung vs Politik	0,00000094	yes				
Recht vs Politik	0,12127357	no				

The table presents the results of pairwise t-tests comparing the frequency “Deutschland”, “Verantwortung”, “Verfassung”, “Recht,” and “Politik”) across different time periods. The t-test is a statistical test used to determine if there is a significant difference between the means of two groups.

The “significant” column indicates whether the difference between the two groups is statistically significant. A value of “yes” means that the difference is likely not due to chance, while “no” suggests that the difference could be attributed to random variation.

The statistical measure p-value 0,0000000000000000026 indicated that there is an extreme likelihood of difference in the frequency distribution over time and thus the null hypothesis can be rejected.

Significant differences were found between “Deutschland” and all other terms. This suggests that the frequency of the term "Deutschland" changed significantly over time compared to the other terms.

Significant differences were found between “Verantwortung” and “Verfassung”. This indicates a significant change in the frequency of these terms relative to each other.

No significant differences were found between “Verantwortung” and “Recht” or “Politik”, suggesting that the trends in these terms were similar. Significant differences were found between “Verfassung” and "Recht" and “Politik”. This implies that the frequency of “Verfassung” changed significantly compared to these terms.

No significant difference was found between “Recht” and “Politik”, suggesting that the trends in these terms were similar.

The results suggest that the terms “Deutschland”, “Verfassung”, and “Recht” showed significant changes in frequency over time, while

“Verantwortung” and “Politik” exhibited more similar trends. This could be due to various factors, such as historical events, political shifts, or cultural changes.

## Conclusion

This study analysed lexical shifts in German political discourse, focusing on terms related to power and influence. Key terms like *Deutschland*, *Politik*, *Verfassung*, *Recht*, and *Verantwortung* have undergone semantic shifts, reflecting changes in national identity, political discourse, and societal values. These shifts are influenced by historical events, political developments, and cultural changes. By combining quantitative and qualitative methods, the study provides a deeper understanding of the relationship between language, power, and ideology in German political discourse.

## Reference

- BAKER, P. (2006). *Using Corpora in Discourse Analysis*. London: Continuum. <https://doi.org/10.5040/9781350933996>
- BARBARESI, A. (2013). A one-pass valency-oriented chunker for German. In: *Proceedings of the 6th Language & Technology Conference*. Poznań, p. 157–161.
- BARBARESI, A. (2018). A corpus of German political speeches from the 21st century. In: *Proceedings of the Eleventh International Conference on Language Resources and Evaluation (LREC 2018)*. Miyazaki: European Language Resources Association (ELRA), pp. 792–797, <<http://purl.org/corpus/german-speeches>> [2. 11. 2024].
- BARBARESI, A. (2019). *German Political Speeches Corpus (Version v4.2019) [Data set]*. Zenodo, <<https://zenodo.org/badge/DOI/10.5281/zenodo.3611246.svg>> [2. 11. 2024].
- CAP, P. (2006). *Legitimisation in Political Discourse: A Cross-Disciplinary Perspective on the Modern US War Rhetoric*. Newcastle: Cambridge Scholars Publishing.
- CHARTERIS-BLACK, J. (2005). *Politicians and Rhetoric: The Persuasive Power of Metaphor*. Basingstoke: Palgrave Macmillan. <https://doi.org/10.1057/9780230501706>
- FAIRCLOUGH, N. (1992). *Discourse and Social Change*. Cambridge: Polity Press.

- FOUCAULT, M. (1981). *The Order of Discourse*. In: YOUNG, R. (ed.). *Untying the Text: A Post-Structuralist Reader*. London: Routledge, pp. 51–78.
- GARG, N., SCHIEBINGER, L., JURAFSKY, D., ZOU, J. (2018). Word embeddings quantify 100 years of gender and ethnic stereotypes. In: *Proceedings of the National Academy of Sciences*, 115(16), E3635–E3644. <https://doi.org/10.1073/pnas.1720347115>
- GUMPERZ, J. J. (1982). *Discourse Strategies*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511611834>
- GRAMSCI, A. (1971). *Selections from the Prison Notebooks*. New York: International Publishers.
- HAMILTON, W. L., LESKOVEC, J., JURAFSKY, D. (2016). Diachronic Word Embeddings Reveal Statistical Laws of Semantic Change. In: *Proceedings of the 54th Annual Meeting of the Association for Computational Linguistics*. Berlin: Association for Computational Linguistics, pp. 1489–1501. <https://doi.org/10.18653/v1/P16-1141>
- KILGARRIFF, A., RYCHLY, P., SMRZ, P., TUGWELL, D. (2004). The Sketch Engine. *Proceedings of the 11<sup>th</sup> EURALEX International Congress*: pp. 105–116.
- KILGARRIFF, A. et al. (2014): The Sketch Engine: ten years on. *Lexicography*, 1: 7–36. <https://doi.org/10.1007/s40607-014-0009-9>
- LAKOFF, G. (2004). *Don't Think of an Elephant: Know Your Values and Frame the Debate: The Essential Guide for Progressives*. White River Junction: Chelsea Green Publishing.
- LACLAU, E., MOUFFE, C. (1985). *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics*. London: Verso.
- OPEN AI (2024). Available at <<https://chat.openai.com/chat>>.
- MOFFITT, B. (2016). *The Global Rise of Populism: Performance, Political Style, and Representation*. Stanford: Stanford University Press. <https://doi.org/10.1515/9780804799331>
- RANDOUR, F. et al. (2020). Twenty years of reasearch on political discourse: A systematic review and direction for future research. *Discourse and Society* 31(4), 428–443. <https://doi.org/10.1177/0957926520903526>
- SAUSSURE, F. DE (1916). *Course in General Linguistics*. La Salle: Open Court.
- SKETCH ENGINE: Available at <<https://www.sketchengine.eu/>>
- STUBBS, M. (1996). *Texts and Corpus Analysis: Computer-Assisted Studies of Language and Culture*. Oxford: Blackwell.
- TAYLOR, S., Přibáň, P., Pražák, O. (2021). Compare Words: Measuring semantic change in word usage in different corpora. *Software Impacts* (8), 100067.

- TÖRNBERG, P., TÖRNBERG, A. (2016). Combining CDA and topic modeling: Analyzing discursive connections between Islamophobia and anti-feminism on an online forum. *Discourse & Society*, 27(4), 401–422. <https://doi.org/10.1177/0957926516634546>
- VAN DIJK, T. A. (1997). *Discourse as Social Interaction*. London: Sage. [https://doi.org/10.1163/9789004484535\\_011](https://doi.org/10.1163/9789004484535_011)
- WODAK, R. (2001). *The Discourse of Politics in Action: Politics as Usual*. Basingstoke: Palgrave Macmillan.

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