



This article is distributed under the terms of the Creative Commons Attribution 4.0 license (<http://creativecommons.org/licenses/by/4.0/>) which permits adaptation, alteration, reproduction and distribution without further permission provided the original work is attributed. The derivative works do not need to be licensed on the same terms.

## RESEARCH ARTICLE

# An agnostic approach to gender patterns in parliamentary speech: a question of representation by topic and style

Klara Raiber<sup>ORCID</sup>, [klara.raiber@ru.nl](mailto:klara.raiber@ru.nl)

Niels Spierings<sup>ORCID</sup>, [niels.spierings@ru.nl](mailto:niels.spierings@ru.nl)

Radboud University Nijmegen, The Netherlands

By examining all speech in the 18th legislative period (2013–17) of the German Bundestag, including 6,598,831 words in 51,337 text segments, we compare women's and men's parliamentary speech. Our approach builds on the agnostic view on representation and follows a bottom-up approach, which avoids pre-set definitions of what is women's or men's language use. By analysing the frequencies of the most used words and keywords from semantic networks, we find four notable descriptive patterns. First, female members of parliament tended to talk more about stereotypical 'feminine' policy issues like, for instance, contraception. Second, female members of parliament put people more central in their language, while male members of parliament focused more on Germany as a country. Third, women focused more on procedures than men. Lastly, female members of parliament used a politer language style, for instance, by thanking others, more than male members of parliament.

**Key words** gender • politics • text analysis • semantic networks • parliamentary speech • representation

### Key messages

- Using an agnostic view on representation has been shown to be useful in detecting gendered patterns.
- Gendered patterns can be found in 'what' and 'how' members of parliament talk.
- Women used a more polite style, focused more on 'feminine' topics, put people central and made more active use of procedures.
- Men concentrated on the country and finances, and made use of content-related, rather than procedures-related, language.

To cite this article: Raiber, K. and Spierings, N. (2022) An agnostic approach to gender patterns in parliamentary speech: a question of representation by topic and style, *European Journal of Politics and Gender*, 5(3): 361–381, DOI: 10.1332/251510821X16539489608628

## Introduction

A growing literature in the field of politics and gender focuses on the role of gendered speech and language as important aspects of political representation, particularly as a performative act and symbolism (Piscopo, 2011). Empirically, and linked to descriptive and substantive representation, the literature on gender differences in speech in parliament focuses on time talked and topics discussed. While conclusions vary on whether women are more present in terms of the amount of speech, female members of parliament (MPs) across contexts do talk more about stereotypically ‘feminine’ policy fields (for example, women’s rights and family and social policies) and less about stereotypically ‘masculine’ topics (for example, ‘high politics’ like security issues and international politics) (Osborn and Mendez, 2010; Bäck et al, 2014; Wang, 2014; Clayton et al, 2017).

In this study, we enrich this literature by applying an agnostic, bottom-up approach to analysing gendered word use in parliamentary speech. In doing so, we draw on Celis et al’s (2014) path-breaking study on representative claims, which described an agnostic view as avoiding pre-set definitions of what women’s interests are and, instead, letting women present these themselves. First, translating this approach to parliamentary speech allows us to see whether differences in the topics discussed by male and female MPs overlap with the outcomes of studies that define feminine and masculine topics beforehand. Second, we go beyond speaking time and the substantive topics addressed by analysing word use more broadly, which allows us to uncover gendered patterns in style and form.

Following from this, we acknowledge that gender plays a complex, and partly unforeseen, role in parliamentary language. The choice of words and the language structure used might matter for the representation of women in politics and gendered politics more generally. We take a more descriptive discursive approach to draw out patterns, followed by a discussion of how these overlap with, and add to, the existing knowledge of gendered parliamentary speech. Consequently, we transfer our results to larger debates about women’s participation and representation in politics. Empirically our focus is on all words spoken in the Bundestag (federal parliament) in the 18th legislative period (2013–17), including, for instance, speeches, talks and questions. At that time, Angela Merkel was chancellor and 37 per cent of the MPs were women (the highest percentage of women in the history of the Bundestag), meaning a critical mass of female MPs existed (Dahlerup and Leijenaar, 2013).

In total, the corpus of text consists of 6,598,831 words in 51,337 text segments. For this corpus, we calculated word frequencies for the most used words and the words only used by women or men. Furthermore, we identified keywords based on the underlying semantic networks and hub centrality scores (Kleinberg, 1999). Based on this, we reveal gendered patterns in the representation of female and male MPs. Acknowledging that found patterns between male and female MPs’ speech might be rooted in positional or party differences, we also assess whether found differences hold across parties, differ between MPs with and without a leadership position, or are driven by specific individuals.

## Theoretical background

### *Representation*

Parliamentary speech is a form of performance via which women are present in politics. Classically, the study of parliamentary speech is approached from a

representation angle – a practice we follow. Women’s representation is generally conceptualised along four dimensions: (1) the extent to which women are allowed to participate in decision making (formal representation); (2) the extent to which women are partaking in politics (descriptive); (3) the extent to which women’s interests are part of the political decision making (substantive); and (4) how women are portrayed in politics (symbolic) (Pitkin, 1967). Translated to speech this involves: (1) whether women are allowed to talk in parliament; (2) how much they talk; (3) what women talk about; and (4) whether they talk in specific ways.

The focus in the representation literature has been on such questions as the impact of quotas and whether the presence of female MPs leads to different agendas and decisions (Wang, 2014; Clayton et al, 2017). Now, more research focuses on parliamentary speech, with research looking at the number of debates women are participating in, finding that women are taking up less speech time compared to men (Bäck et al, 2021). Other research concentrates on gender differences in interruptions of speeches, finding that women are more interrupted (Vera and Vidal, 2021); however, in the case of the German Bundestag, interruptions did not influence the engagement of female MPs (Och, 2020). Others focus on whether parliaments debate topics stereotypically assigned to women, so-often called ‘women’s or feminine topics’, such as women’s rights, family(-planning) policies and social policies broadly (Osborn and Mendez, 2010), while others focus on output, like laws approved and budgets allotted to ‘feminine policy fields’ (Mackay, 2010).

More recently, and stemming from the study of women’s representation in conservative parties, a new perspective has been added: ‘remaining agnostic and thus avoiding a priori definitions’ (Celis et al, 2014: 164). This approach focuses on which issues are brought up by the actors, as well as the views on these matters. Celis and colleagues (2014) do not pre-set which normative position is a priori in the interest of women; rather, it is about actors making claims in the name of women. This is an innovative approach, as it provides a wider understanding of women’s political representation that deviates from, and adds to, the classical approach in the representation literature. In this new take, substantive representation is studied bottom-up, from an agnostic perspective.

Our conceptual-theoretical contribution is that we translate this perspective to language use. Similar to studies on substantive representation, studies of gender and parliamentary speech tend to use pre-set word lists of topics considered feminine or concerning women’s policy fields (Osborn and Mendez, 2010; Piscopo, 2011; Clayton et al, 2017). Previous literature did not allow for detecting gendered patterns of language use that were not part of the pre-set gendered classifications, for instance, because they are relatively new or have not yet been theorised and thus studied empirically. Theoretically and analytically, we argue more broadly that it is important to also assess parliamentary speech and the genderedness of language use in a bottom-up way in order to understand the complexities of its genderedness.

### *Gender and (political) language*

Language is a social act. Based on fixed characteristics and social roles, individuals display themselves, evaluate a situation and determine how to act (Goffman, 1990). Previous experiences and socially constructed stereotypes feed into such (partly subconscious) decisions (Postl, 1991), with the individuals’ interest being to respond

to the audience ‘appropriately’ (Goffman, 1990). Consequently, individuals are socially rewarded and thus socialised to choose forms of expression, including their language (Wiley et al, 2012). Language, more specifically, is a system of internal rules that people speaking a particular language subconsciously know (De Saussure, 2011). By using language, collective habits within society become possible, as it enables groups to communicate in a comprehensive manner (De Saussure, 2011). Hence, language in itself is an active form of social behaviour and can be influenced by social categories.

Influences of gendered constructs can be found in many social interactions, yet it also intersects with other social categories like age, race, ethnicity, class and so on. In this study, we will not be able to systematically delve into the complexity of intersectionality,<sup>1</sup> but it is important to note and acknowledge this for at least two reasons: first, to stress the applicability of our approach to such bottom-up analysis; and, second, to flag that our results in terms of the gendered patterns uncovered should be considered in the context studied, implying that they mainly refer to gendered differences among majority-ethnic and cisgendered MPs. As they are by far the most numerous in German, and European, politics, it is their parliamentary speech that dominates the patterns we will find.

Gender greatly matters for language, and vice versa, but this does not mean that there are parts of language exclusive to one sex or gender; in contrast, language is non-exclusive (Ochs, 1992). Moreover, this means that gender ideologies and roles are socialised and sustained to a great extent by language use as one of the major symbolic systems of society (Ochs, 1992; Sunderland, 2004). Parliamentary speech is a specific form of language use where the politicians openly disclose their opinions and standpoints, sending signals to their electorate, party members and the media (Bäck et al, 2021), which also partly signifies how women and men are represented by their elected politicians (Sauntson, 2020).

We distinguish two dimensions along which we expect gendered patterns to appear in parliamentary speech: ‘what’ and ‘how’. First, ‘what’ refers to the question of what is talked about. Previous studies found that women talk more about ‘feminine issues’ (for example, emancipation and family and social policies) and less about ‘masculine issues’ (for example, industry, economy and foreign policy) (Osborn and Mendez, 2010; Bäck et al, 2014; Clayton et al, 2017). Moreover, it is suggested that this difference is (partly) related to left-wing parties generally paying more attention to feminine issues and also having more female MPs,<sup>2</sup> as well as women being more likely to be committee members on these topics (Bolzendahl, 2014). Similarly, men are generally more likely to be political leaders, and leaders tend to talk more about ‘high politics’ (Eagly and Karau, 2002; Krook and O’Brien, 2012).

Second, ‘how’ refers to how gender shapes the style and form of language, as manifested in this study through word use beyond mere topical words. Women might adjust the way they speak to social norms, suggesting that women will also present themselves as more feminine in style, for instance, being more tentative and less forceful (Carli, 1990; Eagly and Karau, 2002). Some instances hereof are also found in the literature on gender and political leadership (for example, Yu, 2014; Gleason, 2020), and this again partly links to which party women stand for (see, for example, Meret et al, 2016).

Based on the literature discussed earlier, we do consider patterns in *and beyond* the substantive words used. We expect that our analysis can reveal – without predefining – similar patterns found in previous research, with women focusing

more on stereotypically ‘women’s issues’ and men more on ‘hard politics’, whereas the style will similarly differ, with women using a more ‘tentative’ and men a more ‘aggressive’ style. At the same time, we explicitly go beyond testing such expected patterns of difference.

### *An agnostic perspective on gendered language in politics*

We will apply a perspective that sets out to bring to the surface some of the most prevalent gender patterns in parliamentary speech. This approach can be best characterised as: (1) bottom-up, that is, starting by analysing which words are used most by women and men, and which words are central in the speech, without pre-selection; (2) agnostic, that is, with no predetermination on what is a feminine or masculine use of language; and (3) explorative, that is, taking the whole corpus of speech in a certain context of current-day politics (18th legislative period in Germany [more on this later]) and analysing how central and frequently used words differ between women and men in terms of topics, word types and word connections.

Although we take a bottom-up, agnostic and explorative approach, we do need to set four core demarcations, and we prefer to do so explicitly to position this article more clearly. First, our analyses are limited to a certain setting: the 18th German Bundestag. In the conclusion, we discuss how this feeds into studies taking a similar approach or those expanding on and testing our findings in other contexts. Secondly, language is a complex phenomenon. We will not claim to be comprehensive; rather, this study intends to shed more light on gendered language use in politics in the parliamentary speech literature. Related to this, we only consider the transcript version of the spoken word. We acknowledge that speech is more than the transcript of spoken words, also including body movement, the intensity of emotion and gesture (Rai et al, 2021). Next, we recognise that by pointing out gendered patterns, there is a risk of reinforcing gender stereotypes. This is not our intention, and we want to highlight that it is more about gendered patterns in how male and female MPs represent themselves in a public setting. With that, we do not want to claim that the patterns found are a signal of gender; rather, they are embedded in a more complex system. Thereby our results should be understood for what they are: differences in terms of averages that neither signify intrinsic gender differences nor deny that there are significant intra-group differences among women as a socially category. By making this explicit, we hope to prevent simplistic interpretations of our results. Lastly, the approach we take is interpretative and therefore represents the reading and interpretation of the authors. However, our text analysis and interpretations are not taking place in an academic void, but embedded in and built on the existing politics and gender literature.

## **Data and methods**

### *Case and context: the German Bundestag*

We focus on the 18th legislative period of the German Bundestag (2013–17). In this period, four parliamentary groups are represented: the Christian-democratic conservative CDU/CSU, with 311 seats (49 per cent); the social-democratic SPD, with 193 seats (31 per cent), the left-wing Die Linke, with 64 seats (10 per cent);

and the Bündnis 90/Die Grünen green party, with 63 seats (10 per cent) (Linn and Sobolewski, 2015). The CDU/CSU and SPD formed the government in the *Große Koalition* (grand coalition).

With 37 per cent women, the 18th Bundestag presents the period with the highest proportion of women in the history of the German Bundestag. In the 18th Bundestag, women held 25 per cent of the CDU/CSU seats, 41 per cent of the SPD seats and 56 per cent for both Die Linke and Bündnis 90/Die Grünen (Holzapfel, 2013).

Speech in the German Bundestag is centred around concrete bills (for example, arguing for and against bills and voting on bills). In this light, the Bundestag is characterised as a ‘working-style parliament’, in which the power lies in committees that are working on the bills (Koss, 2018). Consequently, members of committees related to the bills discussed have a higher likelihood of talking in the Bundestag and thus influence speech more. Furthermore, party leadership determines who the speakers on different topics are. This selection is political, and the distribution of spokespersons over topics is gendered, also because the expertise of politicians is gendered (Krook and O’Brien, 2012).

The discussions in the Bundestag are led by the (vice-)presidents of the Bundestag (Linn and Sobolewski, 2015). In the 18th period, the division was of four women and three men.

## Data

We base our analyses on the complete corpus of political speech from the 18th German Bundestag, being all 245 protocols of this legislative period, which lasted from October 2013 to October 2017. The major advantages of these data are that we have full information on what is said in the Bundestag and that we can match these data to individual characteristics, such as sex, party and leadership positions in the Bundestag. Another advantage is that all politicians are in a similar situation and speak the same language, which presents a specific but controlled environment.

All Bundestag protocols, including all words spoken, are available online. The speech data, provided as HTML files, were read into the R statistical package. All additional information that is not speech data, for instance, attendance lists, was deleted from the data. To divide the complete protocols into text fragments classified by person and time, all patterns indicating a new person speaking had to be defined (for example, ‘Angela Merkel (CDU/CSU):’ or ‘Angela Merkel, Bundeskanzlerin:’). By applying pattern recognition of the R *quanteda* package (Benoit et al, 2018), 51,337 text segments were identified.

Heckling (short comments from the listening MPs) was excluded from our analysis given our focus on the official and intentionally provided communication. Next, all text was set to lower case to make sure the same words were not counted separately.<sup>3</sup> Applying the *tm* package in R (Feinerer and Hornik, 2018), predefined stop words, numbers, dates, punctuation, titles (for example, ‘*dr.*’) and the names of the members were excluded from the final data. Words were not stemmed to get a more detailed view of the word use by differentiating between several forms of words, such as the female or male form of a word (for example, ‘*Kollege*’ versus ‘*Kollegin*’).<sup>4</sup>

Details on the members of the German Bundestag, including the register data on whether an MP is a woman or a man, are available online as an HTML file. This information was matched to the text. For the 18th legislative period, this means we



have information on 247 women and 415 men. These numbers comprise the 658 members of the German Bundestag, three female ministers and one male minister (ministers do not have to be voted into the Bundestag but can be MPs).

The data are analysed in German. For matters of presentation, words are translated. All translations are made by the first author with the help of a German political scientist and translation websites. Some words can have several translations depending on the context. If so, the most fitting translation was chosen.

### *Method*

We chose two analytical approaches that particularly fit our agnostic approach. First, we compare word frequencies, focusing on the most frequently used words by men and women, as well as the words only used by women or men. Second, because language is also about how words are combined to create communication, we built semantic networks from the speech data. The advantage of this approach is that it keeps the structure of language and how the words are related to each other (Rule et al, 2015). Via the co-occurrence approach, we connect words ('nodes') by ties when they are used together in a seven-word window.<sup>5</sup> Semantic networks help to identify keywords based on the hub centrality scores of the words. A high hub score means that a word is connected to many important words, which is measured by including an influence weight (Kleinberg, 1999). We compare these scores for men and women.

To assess whether the results are driven by individual politicians, we also calculated the word frequencies and hub scores for each politician separately. Moreover, we split the analysis by party membership and leadership position in the Bundestag to obtain a better grasp of the underlying dynamics of the patterns. Leadership positions included (vice-)presidents, ministers, the chancellor, committee chairs and state secretaries ( $N = 99$ ; 15.4 per cent).

Applying these two steps, we deviate from more standard dictionary-based methods because those require predefined patterns and (gender) classifications, which goes against our agnostic theoretical approach. Similarly, regression-based analyses focusing on explaining specific outcomes based on formal position of party affiliation do not align with our core question, as it requires a (top-down) focus on a specific word or word type; however, this might be a logical follow-up step for future work, for instance, focusing on the patterns we lay bare that have not yet been highlighted clearly in the existing literature.

### *Sample characteristics*

In our data, only seven women and 12 men did not talk at all. The others produced 51,337 text segments in total, of which 25,989 are ascribed to men and 25,348 to women. The text segments are thus divided nearly equally between men and women, which is rather surprising, considering that men comprise 63 per cent of the speakers. Still, men speak more in total because they use more words in their text segments. They use 3,987,488 words in total, with 162,210 different words.<sup>6</sup> Women use only 2,611,343 words in total but 123,172 different words. Put differently, 60 per cent of the words come from men, which roughly equals their share among speakers.

Women use each word 21.2 times on average and men 24.6 times on average, which means that women use a higher variety of words in relation to their overall

number of words compared to men. Men, nevertheless, use more words in general and are therefore more likely to use the same words more frequently. Among both men and women, 25 per cent of the words are only used once. Also, the median is 2 for both women and men, meaning that most words are used only twice. The third quartile is at five words for both sexes, indicating that 75 per cent of the words are used five times or less frequently. The last quartile indicates the most used words. Both distributions are thus extremely skewed, meaning that a lot of words are used only a few times compared to a few words used very often.

## Results

We subsequently present the results for the most frequently used words (see Table 1 and Figures 1–2), the networks of the 50 most co-occurring words (see Figures 3–4; see also Figures A4–A5 in the Online Appendix for the German-language networks<sup>7</sup>) and the words with the highest hub scores (see Figures 5–6). For the hub scores (see Figures 5–6), we excluded the forms of addressing ‘dear colleagues’ (*‘liebe Kollegen/Kolleginnen’*) and ‘dear ladies/gentlemen’ (*‘sehr geehrte Damen/Herren’*). Forms of addressing are central in parliamentary speech because many text segments include a greeting and then address the topic at hand, basically connecting to all topics, which is why we excluded those. All results are presented for women and men separately, and we provide a step-by-step comparison.

### Word use

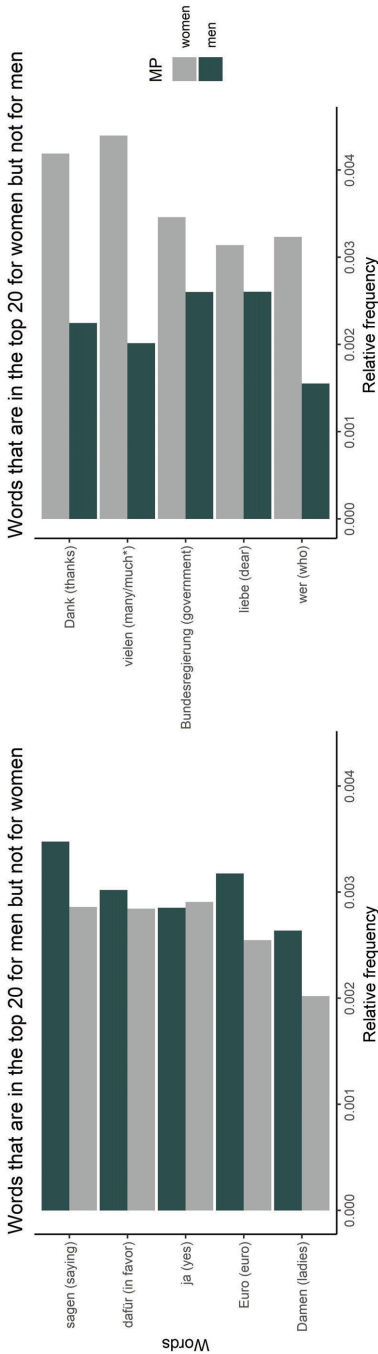
Of the most frequently used words by men and women, 15 words were in the top 20 of both. Figure 1 lists the words (including their frequency) that were *not* in both top lists. Overall, women tended to thank more by using the words *‘vielen’* and *‘Dank’* (‘thank you very much’); *‘Dank’* was the sixth most frequently used word by women and 27th by men. Similar patterns were found across parties: women from all parliamentary groups used *‘Dank’* very frequently; in no group did men have *‘Dank’* in their top 20. Also, women without leadership positions thanked more compared to men with or without leadership positions (see Figures A1–A3 in the Online Appendix).

Zooming in on the 15 words found in both men’s and women’s top 20 (see Figure 2) shows that women made, on average, more use of *‘Menschen’* (‘people’), *‘Kollegen/Kolleginnen’* (‘colleagues’), *‘Herr’* (‘Mr’) and *‘Frau’* (‘Mrs’). This means that women tended to refer relatively more often to people than did men. This pattern holds across parties, except for the SPD (see Figure A1 in the Online Appendix). Men, in contrast, referred far more to *‘Deutschland’* (‘Germany’), which indicates a stronger focus on the country. This pattern holds across parties (see Figure A1 in the Online Appendix) and is particularly strong for men without leadership positions (see Figure A3 in the Online Appendix).

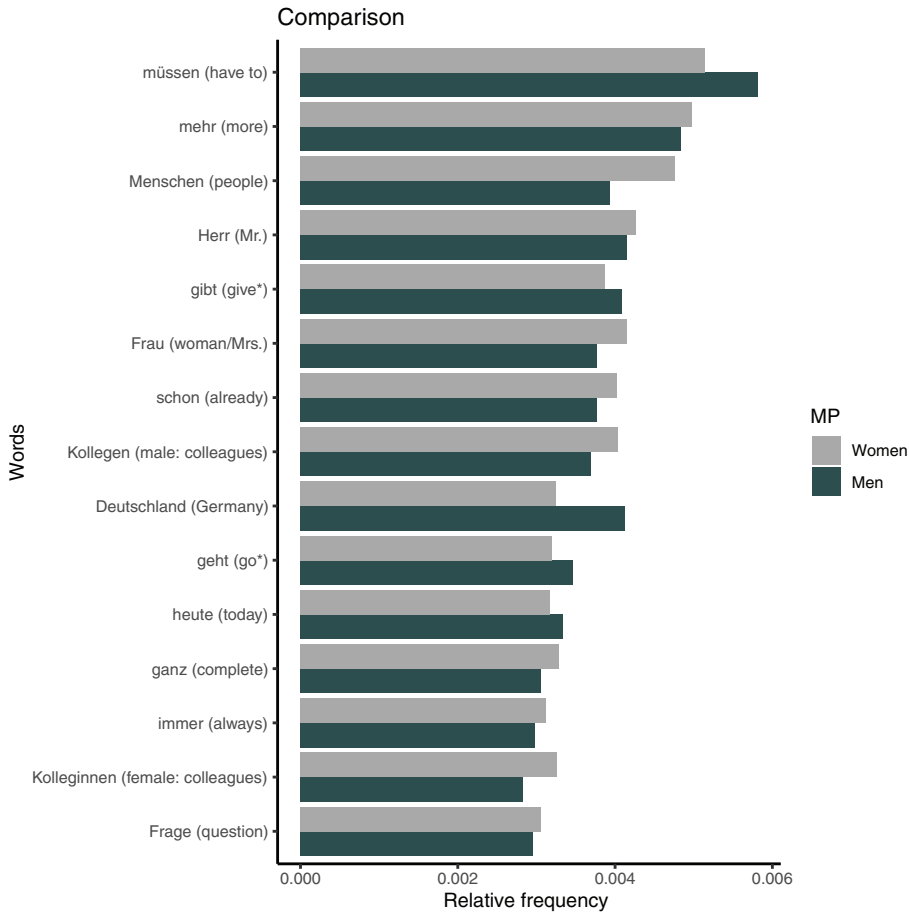
Furthermore, the word *‘Euro’* was used more by men, also those not in leadership positions and across parties. *‘Euro’* was the 13th most used word among men and only the 27th most frequently used word for women (see Figure 1). This difference was exemplary of a larger pattern that surfaces when listing the words used only by either men or women (see Table 1). Men focused more on finance and economics, with words used only by men like *‘Schuldentragfähigkeit’* (‘debt sustainability’), *‘Asian*



**Figure 1:** Words that are among the 20 most often used words of men but not in the 20 most often used words of women (right panel), and words that are among the 20 most often used words of men but not in the 20 most often used words of women (left panel)



**Figure 2:** The 15 overlapping words from the 20 most frequent words per sex



Notes: Relative frequency: times used divided by the total number of words. \* Word is not in its infinitive form.

Infrastructure Investment Bank' (AIIB), 'Luftverkehrswirtschaft' ('aviation industry'), 'Markenamt' ('Trademark Office') and 'Haushaltsausgleich' ('budget balance').

Women's unique words were more related to energy, environment and labour, and those words were used by multiple women from different parties. Moreover, some of the words women used more were also directly related to topics stereotypically addressed by female MPs (Wängnerud, 2009; Celis et al, 2014). For instance, 'Ulipristalacetat' (the medical term for the morning-after pill), 'Sorgearbeit' ('care work') and 'sexistische' ('sexist'\*<sup>8</sup>) were exclusively used by women. Again, these patterns hold across parties (see Table A1 in the Online Appendix), for instance, with women having referred more to contraception and men having referred more to finance and economics.

Earlier, we addressed patterns that are potentially driven by individual MPs. Particularly influential were the four women vice-presidents of the German Bundestag: Petra Pau (Die Linke), Claudia Roth (Bündnis 90/Die Grünen), Edelgard Bulmahn (SPD) and Ulla Schmidt (SPD).<sup>9</sup> These women vice-presidents were responsible for 18 per cent of the spoken corpus of women, as compared to the three male

**Table 1:** The 20 most frequently used words by one sex only

<b>Female MPs only</b>			
<b>Words</b>	<b>Translation</b>	<b>Frequency</b>	<b>Politicians</b>
Umgruppierungen	regrouping	43	1
BGG	law: equal treatment of disabled people	21	7
Gebotsverfahren	bidding process	21	6
Tierärztin	female form for veterinarian	21	4
Rezeptfreiheit	non-prescription status	20	9
Lesbos	Lesbos (Greek island)	19	8
Ausbaumengen	quantity for development	17	7
Sexistische	sexist*	17	8
Hochwertungsfaktor	upgrade factor	16	3
Klimapolitikerin	female form of climate politician	16	3
Sorgearbeit	care work	16	8
Ulipristalacetat	ulipristal acetate (morning-after pill)	16	4
Energiebedarfen	energy demand	15	1
Gesundheitsministeriums	Health Ministry*	15	12
Pelztierhaltung	fur farming	15	5
Einspeisevergütungssysteme	compensation for electricity fed into the public grid*	14	5
Militärseelsorge	military counselling	14	4
Minderausbau	minimal extension (insufficiently built building)	14	6
Zusatztagesordnungspunkt	additional item of the agenda	14	2
SAPV	specialised outpatient palliative care	13	3
<b>Male MPs only</b>			
<b>Words</b>	<b>Translation</b>	<b>Frequency</b>	<b>Politicians</b>
Überwiesene	transferred	87	3
Schuldentragfähigkeit	debt sustainability	45	20
Stasiunterlagenbehörde	Stasi Record Agency	31	10
Luftverkehrswirtschaft	aviation industry	30	9
AIIB	Asian Infrastructure Investment Bank	29	4
Markenamt	Trademark Office	28	12
Bemautung	process of levelling road tolls	26	9
Rentenversicherungsbeitrag	pension contribution	26	5
Vermiedenen	avoided	24	11
Bepsinitiative	base erosion and profit-shifting initiative	23	11
EMVG	law on electromagnetic compatibility	23	4
Haushaltsausgleich	balanced budget	22	11
Regionalbanken	regional banks	22	3
Spezialdienste	special services	22	8
ATD	anti-terror database	21	2
Binnenwirtschaft	domestic economy	21	7
Immobilienblase	real estate bubble	21	11
Gründerszene	start-up scene	20	12
Investitionslinie	return of investment	20	5
Peres	a name	20	3

Note: \* Word is not in its infinitive form.

(vice-)presidents, who only contributed 7 per cent of the male MPs' word use. Ulla Schmidt, for instance, was responsible for 23.27 per cent of the time the word '*Dank*' ('thanks') was used by women, with Claudia Roth contributing another 17.79 per cent. Similarly, words that were influenced by these women were forms of addressing like 'Mr', 'Mrs' and 'colleagues'. Among men, the same words were used the most frequently by President Norbert Lammert (CDU) and Vice-Presidents Peter Hintze (CDU) and Johannes Singhammer (CSU). However, the impact of these presidents among the male parliament members was, on average, less strong because the male (vice-)presidents talked less in relation to all men. The results (see Figure A2 in the Online Appendix) show that after excluding the vice-presidents' words, thanking ('*vielen*' and '*Dank*') was still on average more frequently done by women than by men.

Regarding specific topics, some words (see Table 1) were used mainly by one or a few politicians, such as '*Bemautung*' ('toll road charges') (by Alexander Dobrindt, CSU Minister of Transport and Digital Infrastructure), '*Markenamt*' ('Trade Office') (by Dennis Rohde, Committee on Consumer Protection) and '*Haushaltsausgleich*' and '*Schulden tragfähigkeit*' ('budget balance' and 'debt sustainability', respectively) (by Wolfgang Schäuble, CDU Minister of Finance). At the same time, words like 'debt sustainability' were used by 19 male MPs, and the overall pattern of men focusing more on finance and economics remained even after accounting for this.

### *Semantic networks*

The networks of the 50 most co-occurring words for women and men (see Figures 3 and 4) substantiate some of the patterns that surfaced when analysing the word-use frequencies. One of the most notable graphical differences is that in the female MPs' network, words on parliamentary voting were a close cluster rather separate from the rest of the network (see Figure A6 in the Online Appendix without the vice-president), while in the men's network, no similar pattern was visible. Second, in the network of the female MPs, the word '*Menschen*' ('people') was linked to '*Deutschland*' ('Germany'), '*Frau*' ('woman'), '*Kinder*' ('children') and '*Flüchtlinge*' ('refugees'); in the male MPs' network, the word '*Menschen*' ('people') was more strongly connected to verbs like '*müssen*' ('have to') and '*gibt*' ('give'), as well as to 'Euro' and '*Millionen*' ('millions').

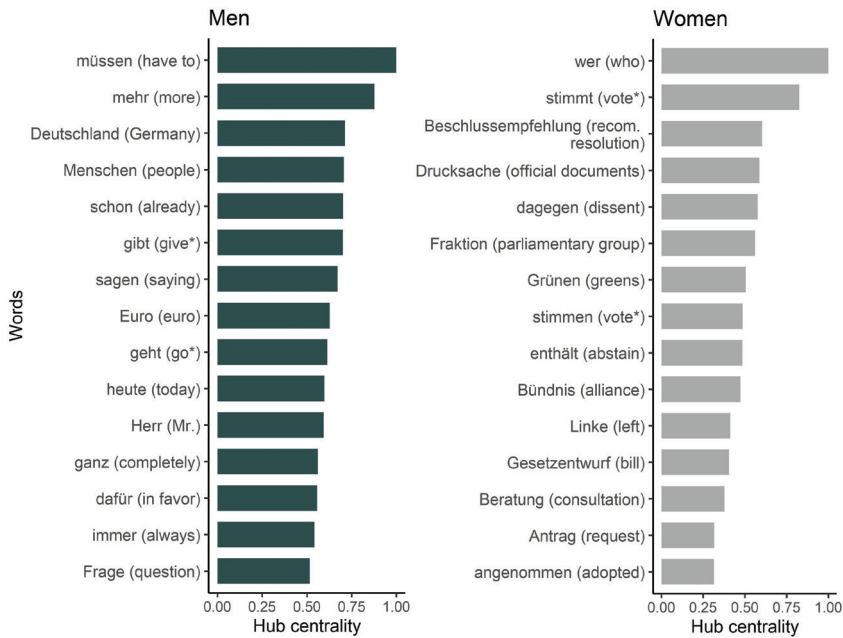
### *Hub scores*

Lastly, we look at the high hub score, meaning that a word with a higher score is more central to the speech of women and men in parliament (see Figure 5). '*Müssen*' ('have to') was the most influential word for men, following the words '*mehr*' ('more'), '*Deutschland*' ('Germany'), '*schon*' ('already'), '*gibt*' ('give') and '*Menschen*' ('people'). Women's words with high hub scores were words regarding parliamentary voting, bills, parties, fractions and formalities. Figure 6, the networks without the female (vice-)presidents, shows that these differences between the language networks for women and men were partly, *but not fully*, due to the formal vice-president positions of women in the Bundestag, as the hub scores become more similar after accounting for this. Thus, overall, for female MPs, the keywords are more process oriented, whereas for male MPs the speeches were related to such topics as Germany, people or Euro.

Looking at words' hub scores per individual, the words '*mehr*' ('more'), '*müssen*' ('have to') and '*Menschen*' ('people') had high hub scores for most women. For the

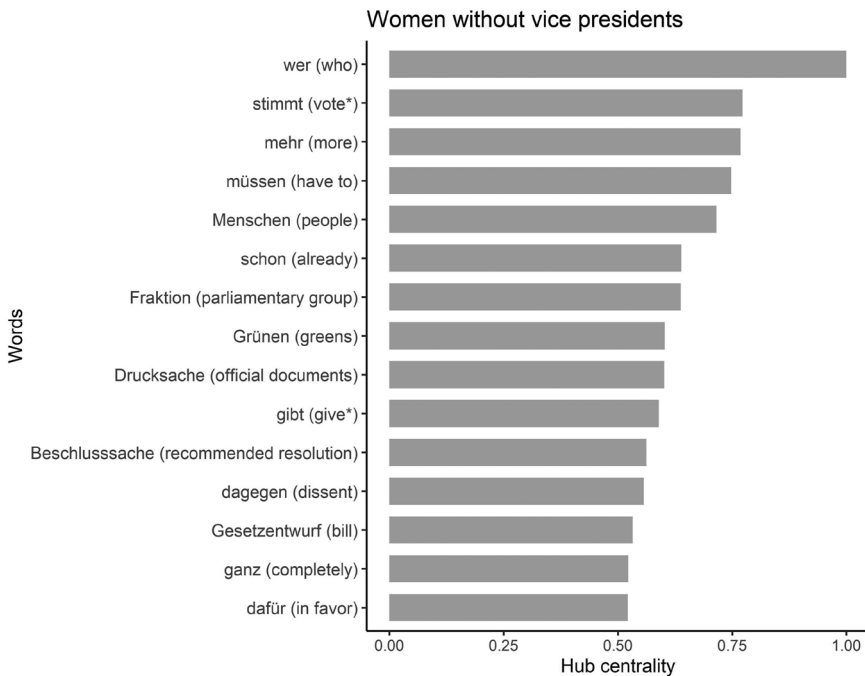


**Figure 5:** Words with the highest hub scores for women and men separately



Notes: The words for addressing are excluded from this analysis. \* Word is not in its infinitive form.

**Figure 6:** Hub scores for women after excluding the female vice-presidents and forms of addressing



Note: \* Word is not in its infinitive form.



case of voting, this looks different: only the female vice-presidents had *‘wer’* (‘who’) as their highest hub centrality score; however, none of the women had *‘stimmt’* (‘vote’\*) as the word with the highest hub score. Again, the female vice-presidents seem to be influential to some extent.

Splitting the analysis by party or leadership position (see Figures A7–A8 in the Online Appendix) shows that especially women from left-wing parties (SPD, Die Linke and Die Grünen) had procedures central in their language, while women from the CDU/CSU focused more on substantial topics similar to men from all parliamentary groups (see Figure A8 in the Online Appendix). Noteworthy is that women from the most men-dominated party, the CDU/CSU, spoke most similarly to their male colleagues in the CDU/CSU.

The focus on finance and the economy among men was relatively stable. Across parties, men had *‘Euro’* more central compared to their female counterparts. This difference was also clear among MPs without a leadership position. Among those with a leadership position, the top words were all procedural, but if we go down the list, we find for men that the first substantive central word was *‘Wirtschaft’* (‘economy’) as their 46th most central word, with a hub score of 0.14, while among women, *‘Wirtschaft’* was also the first substantive word, though at position 78 in the lists, with a hub score of 0.04.

Lastly, regarding the difference between a focus on *‘Menschen’* (‘people’) versus *‘Deutschland’* (‘Germany’), we see that women of the CDU/CSU and women of Die Linke/Die Grünen had *‘Menschen’* (‘people’) more central than Germany in their language compared to men. The differences were less pronounced for the Die Linke/Die Grünen. For the SPD, we find (similar to the results of the frequently used words in Figure 4) that *‘Menschen’* (‘people’) and *‘Deutschland’* (‘Germany’) were nearly similar in importance for women and men, with men having *‘Menschen’* as a slightly more dominant keyword. While the exact pattern thus differs somewhat across parties, each of these observations fits the overall pattern: men referred more to Germany and women had people more central.

### Summarising the patterns

Overall, the word-use data and the keywords analysis of our sample show similar patterns between men’s and women’s speech, which leads us to four observations. First, some patterns were tied around stereotypical differences in substantive representation, with men focusing more on ‘general issues’ like finance and economics, and women focusing more on so-called ‘women’s issues’, such as contraception. Second, there were gendered patterns in referencing, whereby women tended to focus more on people and individuals, while men referred more to the country. Third, there seem to be stylistic or rhetorical differences, whereby women MPs were more polite and ‘thanked’ others more compared to men, who, on average, thanked less. Fourth, and relatedly, among women, procedural language was more central, apart from the thanking and the leadership position of the female vice-president as well, while men focused more on content-related speech. Additionally, some differences found were directly related to the parliamentary groups (for instance, the stress on and connections to ‘people’, and women and men from the CDU/CSU speaking most similarly) or the formal leadership position of men and women in the Bundestag, particularly the vice-presidency, but the overall patterns were stable across leadership positions and parties.

## Conclusion

Language is a manifestation as well as a socialising factor in (re)producing gender roles in and outside of politics (Liu et al, 2018). Not surprisingly, speech has received considerable attention in the literature on political representation, mostly in terms of the gendered patterns in the amount of speech and the topics addressed. In line with the new agnostic perspective on representation (Celis et al, 2014), this study contributes to that literature, analysing gendered language use in a bottom-up way: we did not predefine what a feminine or masculine style of language use is, but worked from the words used by female and male MPs in the German Bundestag (18th legislative period). This approach allowed us to assess and deepen existing insights into the topics addressed by women and men, as well as lay bare new topical and symbolic patterns in how gender is reproduced. Particularly the latter step goes well beyond the substantive representation dimension; it generates new theoretical insights and provides potential novel answers for running debates in the broader politics and gender literature. Our analyses laid bare four main contributions.

First, in line with the widely found substantive representation literature, our analyses show that women addressed ‘feminine’ policy issues more, while men, on average, focused less on these issues (Kathlene, 1994; Osborn and Mendez, 2010; Bäck et al, 2014; Clayton et al, 2017). Most notably, some specific words related to contraception were only mentioned by women, and men talked much more about economics and finance, which holds across parties. These gendered patterns in topics were partly a function of differences in areas of expertise (Krook and O’Brien, 2012), but at the same time, they were part of the reproduction circle in which women talked about feminine topics more and masculine topics fewer. Consequently, this might shape how women and men were represented politically. For instance, in a country with a female chancellor and relatively high descriptive representation, topics remain gendered, which suggests that some topics might not be part of the political vocabulary if women were not (substantially) present in parliament.

A closer look at our results for economy and finance shows that they not only confirm existing insights, but also generate new ones: while macroeconomics and finance are generally considered masculine ‘hard politics’, some of the economics topics used by male MPs, such as pensions, pertained more to the domain of welfare and labour, which are often considered to be part of ‘soft politics’ (Reynolds, 1998; Bäck et al, 2014). Similarly, energy politics is classically seen as masculine ‘hard politics’ (Bäck et al, 2014) but did not show up as such in our analyses (if anything, more traces of it were found in women’s speech). For both these examples, we can theorise that the frames have shifted in those debates. In times of neoliberalism, social policies might have become more and more tied up to finance and macroeconomics in the politics of retrenchment, and energy politics might have shifted towards being a major element in the debate about environmental policies and sustainability. To understand the gendered processes of representation, we thus also need to theorise how policy domains are framed and shift over time.

Second, a core consistent difference we found was that female MPs put *people* more central, while male MPs focused more on *Germany* as a country, and if men talked about people, they tended to connect it to the country as an entity. One way to interpret this difference is to consider this a difference in the subject of care that is highlighted, whereby women seem to take a more social perspective compared to men, with a focus on the ‘nation’. This interpretation suggests that it might be useful to use a theoretical lens of subjects of care in understanding how politicians frame

(largely identical) policies differently. In turn, this framing can have a multitude of consequences in terms of reception, impact and interpretation, which deserve more attention in follow-up research.

Third, the formal leadership positions of male and female MPs mattered in our data. Relatively more women held chairing positions, and this influenced the debates and results. However, even after accounting for this, we found that women focused more on procedures than men. These results generate at least two important implications and follow-up questions. For one, the Bundestag is a so-called ‘working parliament’, whereby procedures are important for being an effective legislator (Koss, 2018). That women tend to focus more on procedures is interesting in this respect and our results raise the question of whether (German) female MPs might be more effective legislators than their male counterparts in terms of passing legislation. Second, and directly related, political media logic dictates that politicians want to be portrayed by news broadcasts and front pages, and that journalists focus on conflictual speech. The potential downside of women’s relatively strong focus on procedures might explain why female politicians are under-represented descriptively in the media (Ette, 2017), which, in turn, reproduces gendered stereotypes of politicians being male and politics conflictual. Moreover, it is exactly such a ‘masculine style’ of politics that, in turn, deters women from engaging in politics (Preece and Stoddard, 2015).

Fourth and lastly, as part of the procedural focus, though also highlighting a mode of politics, we found that male MPs thanked less compared to women. This might signify that women conduct more polite and men more aggressive politics, as also found by Kathlene (1994). Of course, this is just one explanation, whereas alternatives might be offered (for example, the use of ‘thank you’ as a form to dismiss others) because there is never a perfect correlation between a linguistic form (in this case, a lexical item) and only one function (politeness). We exemplarily checked if ‘thank you’ was used to be polite but future research is invited to check this in a more structured form. The indicated style variation might explain gender gaps in voting and participation in politics, and make men more likely to vote for and participate in populist radical right parties (Spierings and Zaslove, 2015), and again because media tend to conceptualise politics in terms of conflict and clashes, men might be considered more ‘newsworthy’.

Earlier, we described the main findings and showed how the results from an agnostic, bottom-up and explorative approach can generate important new insights into gender dynamics in politics. Gendered patterns in parliamentary speech go beyond the mere topics discussed and are interlinked with media attention, political participation and policy effectiveness. However, our findings are derived from a specific context, including the specifics of the German language, and from the most central and frequently used words therein, which introduces limitations that should be considered when assessing our discussion of the preceding results. The context dictates that those social categories that are over-represented in parliament shape the results most (for example, majority ethnic groups). It would be worthwhile to replicate our analyses for parliaments in different countries, languages and times, or by pooling parliaments, as this might help to generate explanatory theories on the origin of variation in gendered speech differences and the intersectionality thereof.

We do not want to claim that our approach is superior to approaches working with pre-set operational definitions for masculinity and femininity. We consider these

approaches complementary. An important next step could be to develop coding schemes based on our findings that can be used to build dependent variables to make multivariate testing possible. Such techniques would allow for controlling for such characteristics as tenure, seniority and various leadership positions within the party. We have already assessed influences by parliamentary group, of specific individuals and of holding formal positions, but such a multivariate approach allows for more complex assessments, such as establishing how gender differences vary by generation, seniority, domain, ethnicity and political system.

The goal of this study was to lay bare gendered patterns in representation in ways that were not detected before, which turned out to include male MPs who focused on the country, while female MPs focused, on average, more on people and talked more in procedural ways, also thanking others more. These patterns are not set in stone, but they are important, empirically grounded suggestions for creating a better understanding of how gender and language are intertwined in creating social and political relationships.

### ORCID iDs

Klara Raiber  <https://orcid.org/0000-0002-9326-8246>

Niels Spierings  <https://orcid.org/0000-0002-3116-3262>

### Notes

- <sup>1</sup> Practically speaking, given our quantitative approach, we would have needed more (clearly defined) information on the MPs with groups that are sufficient in terms of their numbers to quantitatively assess the speech patterns as we did. In this respect, it is noteworthy that there were not many minority-ethnic MPs.
- <sup>2</sup> Women being more likely to be MPs for a left-wing party does not mean that left-wing partisanship is the determining factor; it is part of the larger causal scheme of reproducing gendered norms and representation. Women are likely to feel more attracted to these parties because of these differences in substance and style.
- <sup>3</sup> For the presentation of the results, we capitalised the nouns again.
- <sup>4</sup> Stemming would mean only keeping the main part of a word. German is a language where the affixes following the stem are adapted to the gender, number and cases.
- <sup>5</sup> Seven words are the median length of the sentences. Setting the window to six or eight words does not change the results meaningfully.
- <sup>6</sup> The high number of words used can be explained by the fact that we did not stem the words.
- <sup>7</sup> The Online Appendix is available at: <https://doi.org/10.6084/m9.figshare.19786969>
- <sup>8</sup> We mark translated words that are not in their infinitive with an asterisk.
- <sup>9</sup> Michaela Noll is not mentioned here because she became vice-president shortly before the end of the legislative period. If we exclude her, the conclusions would remain the same. Michaela Noll is included in the group with a leadership position.

### Acknowledgements

This article is partly based on the Master's thesis of Klara Raiber at the University of Mannheim. We thank Henning Hillmann for his great supervision, input, and ideas that contributed to this article. We additionally thank Manuel Neumann for his valuable feedback and his help with the translations.

### Author biographies

**Klara Raiber** is a PhD candidate in Sociology at Radboud University in Nijmegen, the Netherlands, and the SCOOP programme. Her research focuses on gender, representation and family and work using longitudinal data and/or text-analysis methods. This article is based on her master's thesis at the University of Mannheim.

**Niels Spierings** is Associate Professor in Sociology at Radboud University, Nijmegen, the Netherlands. His work focuses on issues of inclusion and exclusion, spanning and connecting topics like voting behaviour, political participation, Islam, migration and integration, support for LGBTIQ+ rights and gender equality, social media, and populism.

### Conflict of interest

The authors declare that there is no conflict of interest.

### References

- Bäck, H., Debus, M. and Müller, J. (2014) Who takes the parliamentary floor? The role of gender in speech-making in the Swedish Riksdag, *Political Research Quarterly*, 67(3): 504–18.
- Bäck, H., Debus, M. and Fernandes, J.M. (2021) *The Politics of Legislative Debates*, Oxford: Oxford University Press.
- Benoit, K., Watanabe, K., Wang, H., Nulty, P., Obeng, A., Müller, S. and Matsuo, A. (2018) Quanteda: an R package for the quantitative analysis of textual data, *Journal of Open Source Software*, 3(30): 774. doi: [10.21105/joss.00774](https://doi.org/10.21105/joss.00774)
- Bolzendahl, C. (2014) Opportunities and expectations: the gendered organization of legislative committees in Germany, Sweden, and the United States, *Gender & Society*, 28(6): 847–76. doi: [10.1177/0891243214542429](https://doi.org/10.1177/0891243214542429)
- Carli, L.L. (1990) Gender, language, and influence, *Journal of Personality and Social Psychology*, 59(5): 941–51. doi: [10.1037/0022-3514.59.5.941](https://doi.org/10.1037/0022-3514.59.5.941)
- Celis, K., Childs, S., Kantola, J. and Krook, M.L. (2014) Constituting women's interests through representative claims, *Politics & Gender*, 10(2): 149–74.
- Clayton, A., Josefsson, C. and Wang, V. (2017) Quotas and women's substantive representation: evidence from a content analysis of Ugandan plenary debates, *Politics & Gender*, 13(2): 276–304.
- Dahlerup, D. and Leijenaar, M. (2013) *Breaking Male Dominance in Old Democracies*, Oxford: Oxford University Press.
- De Saussure, F. (2011) *Grundfragen der Allgemeinen Sprachwissenschaft*, Berlin: De Gruyter.
- Eagly, A.H. and Karau, S.J. (2002) Role congruity theory of prejudice toward female leaders, *Psychological Review*, 109(3): 573–98. doi: [10.1037/0033-295X.109.3.573](https://doi.org/10.1037/0033-295X.109.3.573)
- Ette, M. (2017) Where are the women? Evaluating visibility of Nigerian female politicians in news media space, *Gender, Place & Culture*, 24(10): 1480–97. doi: [10.1080/0966369X.2017.1387104](https://doi.org/10.1080/0966369X.2017.1387104)
- Feinerer, I. and Hornik, K. (2018) tm: text mining package: R package version 0.7–6. <https://CRAN.R-project.org/package=tm>
- Gleason, S.A. (2020) Beyond mere presence: gender norms in oral arguments at the US Supreme Court, *Political Research Quarterly*, 73(3): 596–608. doi: [10.1177/1065912919847001](https://doi.org/10.1177/1065912919847001)
- Goffman, E. (1990) *The Presentation of Self in Everyday Life*, New York: Doubleday.

- Holzapfel, A. (2013) *Vorabauflage Kürschners Volkshandbuch Deutscher Bundestag – 18. Wahlperiode*, Rheinbreitbach: Neue Darmstädter Verlagsanstalt.
- Kathlene, L. (1994) Power and influence in state legislative policymaking: the interaction of gender and position in committee hearing debates, *American Political Science Review*, 88(3): 560–76. doi: [10.2307/2944795](https://doi.org/10.2307/2944795)
- Kleinberg, J.M. (1999) Hubs, authorities, and communities, *ACM Computing Surveys (CSUR)*, 31(4es): 5. doi: [10.1145/345966.345982](https://doi.org/10.1145/345966.345982)
- Koss, M. (2018) *Parliaments in Time: The Evolution of Legislative Democracy in Western Europe, 1866–2015*, 1st edn, Oxford: Oxford University Press.
- Krook, M.L. and O’Brien, D.Z. (2012) All the president’s men? The appointment of female cabinet ministers worldwide, *The Journal of Politics*, 74(3): 840–55. doi: [10.1017/S0022381612000382](https://doi.org/10.1017/S0022381612000382)
- Linn, S. and Sobolewski, F. (2015) *The German Bundestag: Functions and Procedures: Organization and Working Methods: The Legislation of the Federation*, Rheinbreitbach: Kürschners Politikkontakte.
- Liu, A.H., Shair-Rosenfield, S., Vance, L.R. and Csata, Z. (2018) Linguistic origins of gender equality and women’s rights, *Gender & Society*, 32(1): 82–108. doi: [10.1177/0891243217741428](https://doi.org/10.1177/0891243217741428)
- Mackay, F. (2010) Gendering constitutional change and policy outcomes: substantive representation and domestic violence policy in Scotland, *Policy & Politics*, 38(3): 369–88.
- Meret, S., Siim, B. and Pingaud, E. (2016) Men’s parties with women leaders: a comparative study of the right-wing populist leaders Pia Kjaersgaard, Marine Le Pen and Siv Jensen, *Understanding the Populist Shift*, London: Routledge, pp 122–49.
- Och, M. (2020) Maninterrupting in the German Bundestag: gendered opposition to female members of parliament?, *Politics & Gender*, 16(2): 388–408.
- Ochs, E. (1992) Indexing gender, in J. Irvine, B. Schieffelin, C. Series, M.H. Goodwin, J. Kuipers, D. Kulick, J. Lucy and E. Ochs (eds) *Rethinking Context: Language as an Interactive Phenomenon*, Cambridge: Cambridge University Press, pp 335–59.
- Osborn, T. and Mendez, J.M. (2010) Speaking as women: women and floor speeches in the Senate, *Journal of Women, Politics & Policy*, 31(1): 1–21. doi: [10.1080/15544770903501384](https://doi.org/10.1080/15544770903501384)
- Piscopo, J.M. (2011) Rethinking descriptive representation: rendering women in legislative debates, *Parliamentary Affairs*, 64(3): 448–72. doi: [10.1093/pa/gsq061](https://doi.org/10.1093/pa/gsq061)
- Pitkin, H.F. (1967) *The Concept of Representation*, Berkeley and Los Angeles, CA: University of California Press.
- Postl, G. (1991) *Weibliches Sprechen: Ffeministische Entwürfe zu Sprache & Geschlecht*, Wien: Passagen.
- Preece, J. and Stoddard, O. (2015) Why women don’t run: experimental evidence on gender differences in political competition aversion, *Journal of Economic Behavior & Organization*, 117: 296–308. doi: [10.1016/j.jebo.2015.04.019](https://doi.org/10.1016/j.jebo.2015.04.019)
- Rai, S.M., Gluhovic, M., Jestrovic, S. and Saward, M. (2021) *The Oxford Handbook of Politics and Performance*, Oxford: Oxford Handbooks.
- Reynolds, A. (1998) Women in the legislatures and executives of the world: knocking at the highest glass ceiling, *World Politics*, 51: 547. doi: [10.1017/S0043887100009254](https://doi.org/10.1017/S0043887100009254)
- Rule, A., Cointet, J.P. and Bearman, P.S. (2015) Lexical shifts, substantive changes, and continuity in State of the Union discourse, 1790–2014, *Proceedings of the National Academy of Sciences*, 112(35): 10837–44. doi: [10.1073/pnas.1512221112](https://doi.org/10.1073/pnas.1512221112)



- Sauntson, H. (2020) *Researching Language, Gender and Sexuality: A Student Guide*, London and New York: Routledge and Taylor & Francis Group.
- Spierings, N. and Zaslove, A. (2015) Conclusion: dividing the populist radical Right between 'liberal nativism' and traditional conceptions of gender, *Patterns of Prejudice*, 49(1–2): 163–73. doi: [10.1080/0031322X.2015.1024466](https://doi.org/10.1080/0031322X.2015.1024466)
- Sunderland, J. (2004) *Gendered Discourses*, London: Palgrave Macmillan.
- Vera, S.V. and Vidal, A.G. (2021) The politics of interruptions: gendered disruptions of legislative speeches, *The Journal of Politics*, 84(3), doi: [10.1086/717083](https://doi.org/10.1086/717083): 717083.
- Wang, V. (2014) Tracing gender differences in parliamentary debates: a growth curve analysis of Ugandan MPs' activity levels in plenary sessions, 1998–2008, *Representation*, 50(3): 365–77. doi: [10.1080/00344893.2014.951234](https://doi.org/10.1080/00344893.2014.951234)
- Wängnerud, L. (2009) Women in parliaments: descriptive and substantive representation, *Annual Review of Political Science*, 12(1): 51–69.
- Wiley, S., Philogène, G. and Revenson, T.A. (2012) *Social Categories in Everyday Experience*, Washington, DC: American Psychological Association.
- Yu, B. (2014) Language and gender in congressional speech, *Literary and Linguistic Computing*, 29(1): 118–32. doi: [10.1093/llc/fqs073](https://doi.org/10.1093/llc/fqs073)