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Accommodation of Right-Wing Populist Rhetoric: Evidence From Parliamentary Speeches in Germany

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Abstract

We provide novel evidence on how right-wing (populist) rhetoric spreads. Using several thousand speeches from the German parliament, we show that exposure to politicians from the right-wing populist Alternative for Germany (AfD) leads mainstream politicians to adopt a more distinctively right-wing populist language. We measure similarity to right-wing populist rhetoric via cosine similarity to both parliamentary speeches by the AfD and extremist speeches at far-right rallies, as well as using a populist dictionary method. To induce individual-level variation in exposure to AfD politicians, we exploit a quasi-exogenous allocation rule for committee members in the German parliament. Comparing a politician with the highest to one with the lowest relative AfD exposure increases the cosine similarity to right-wing populist speech by 0.1 of a standard deviation. Our results seem specific to right-wing populism and suggest strategic motives related to local electoral competition behind rhetorical changes among individual politicians.

Keywords: Right-Wing Populism, AfD, Germany, Rhetoric, NLP

1 Introduction

Recent years have witnessed the electoral success of right-wing populist parties and politicians in Western democracies, including countries like Spain and Portugal that had previously not experienced the emergence of such parties (Alonso and Kaltwasser 2014, Mendes and Dennison 2020). Similarly, in Germany, the *Alternative für Deutschland* (AfD) has recently established itself as a serious right-wing populist contender. At least since the 2017 federal elections – in which the AfD entered the German *Bundestag* for the first time as the third-strongest party – it has established itself as an important player in the German political system. In local politics, the AfD has recorded major electoral victories by winning absolute majorities in district and mayoral elections. This raises the question how established political actors react to and deal with the rise of populist contenders on their right.

Existing research has shown how mainstream parties shift and accommodate their policy stances in response to right-wing populist parties, especially regarding immigration. In contrast, empirical studies on accommodation of individual politicians to right-wing populism are scarce. We fill this research gap by studying the reaction of incumbent politicians to the first-time entry of the AfD to the German federal parliament. We investigate how their political rhetoric is affected when confronted with right-wing populist colleagues. Using natural language processing techniques on several thousand parliamentary speeches, we construct different measures of rhetorical similarity to right-wing populism.

We argue that day-to-day exposure among political elites plays a key role in individual politicians' responses to right-wing populism. Exploiting a quasi-exogenous component in the allocation of parties to parliamentary committees allows us to analyze the causal effect of individual-level exposure to AfD politicians on rhetorical similarity to right-wing political speech.

Our main finding is that politicians who are relatively more exposed to AfD politicians use language more similar to right-wing rhetoric. More precisely, comparing a politician with the highest to one with the lowest relative AfD exposure increases the cosine similarity to right-wing speech by 0.1 of a standard deviation, an effect size comparable to the average distance between the main centre-left SPD and centre-right CDU/CSU parties. Our difference-in-differences approach allows us to estimate this effect *within* individual speakers, highlighting how politicians converge to AfD rhetoric in response to higher

exposure. This implies that direct contact and confrontation with right-wing populism might exert an accommodation effect on political language, even in a democracy that places a high social stigma on far-right ideology and rhetoric.

We corroborate our main result with two alternative measures of rhetorical similarity to right-wing populism: relatively higher AfD exposure makes politicians use language more similar to extra-parliamentary speeches by far-right AfD politician Björn Höcke. Furthermore, we find that speakers are more likely to use populist-specific phrases in their speeches as identified by a populist dictionary (Gründl 2022). Further evidence suggests that the effect is specific to exposure to right-wing populism and does not extend to any interaction with other politicians of different political ideologies.

Finally, we explore why politicians might adopt right-wing language in their publicly displayed speeches. We hypothesize that such language use follows strategic motives with respect to electoral support. Our results show that the effect of right-wing exposure on political rhetoric increases with the intensity of local competition with the AfD in a politician's electoral district. For different measures of constituency-level competition, a higher level of competition is associated with higher levels of rhetorical accommodation in plenary speeches. This provides evidence that in addition to exposure in parliament, strategic motives in the constituency of an MP might affect their rhetoric.

Several studies have shown how the electoral success of populism can increase the acceptability of extreme political rhetoric and erode social norms up to the point of fanning hate crimes (Albornoz, Bradley, and Sonderegger 2020, Bursztyn, Egorov, and Fiorin 2020, Hagemeister 2022, Müller and Schwarz 2023, Müller and Schwarz 2021, Romarri 2022, Schilter 2018). The strong connection between language and norms has been emphasized by Gentzkow, Shapiro, and Taddy (2019) who argue that changes in political rhetoric might contribute to differences in animus in the broader public. Consistent with this argument, Djourelova (2023) documents how even small differences in language can have a wide-ranging impact on political attitudes. Newman et al. (2021) show how explicitly inflammatory speech by political elites can have an emboldening effect on expressing prejudiced opinions among the general public.

Our setting allows us to study the spread of right-wing language *within* the political elite, potentially setting a precedent for the subsequent normalization and further dissemination to a wider audience.

This study is also embedded in the literature on strategic policy responses of mainstream parties to rising populism (Meguid 2005). Using text data from party manifestos,

Abou-Chadi (2014) shows that parties' strategic reactions differ vis-à-vis radical right and green contenders. When radical right parties gain electoral support, convergence to anti-immigration positions follows suit, while in contrast parties de-emphasize ecological issues in response to green competitors. Similarly, work by van Spanje (2010), Abou-Chadi and Krause (2020) and Habersack and Werner (2023) provide evidence for a contagious effect on anti-immigration stances of mainstream parties across Europe in response to radical right parties' appearance. While the study by Hjorth and Larsen (2020) demonstrates how accommodating strategies can be beneficial regarding electoral success for left-wing parties, other studies find inconclusive or conflicting results on the effectiveness of such accommodation to radical right parties (Bale et al. 2009, Dahlström and Sundell 2012, Krause, Cohen, and Abou-Chadi 2023, Spoon and Klüver 2020).

While much attention has been paid to strategic accommodation decisions by parties, the accommodating behavior of *individual* politicians who face newly emerging (populist right-wing) parties has not been thoroughly examined. One reason for this might be that due to the traditionally strong party discipline – especially in parliamentary systems across Europe – individual MPs might have less room for accommodating decisions in terms of voting behavior or the choice of policy platforms. Our study extends this literature by studying changes in the political rhetoric of individual politicians in parliamentary speeches.

Furthermore, we advance the existing literature on the effects of polarization and populism on parliamentary speech.[1] Previous studies of political speech have, among others, studied plenary debates in Sweden (Magnusson et al. 2018), the UK (Gurciullo et al. 2015), Norway (Fiva, Nedregård, and Øien 2021), or the European Parliament (Greene and Cross 2015). For Germany, Lewandowsky et al. (2021) and Atzpodien (2022) explore how the entry of the AfD to the Bundestag and state parliaments, respectively, affects issue-specific polarization in plenary debates, with only the latter finding evidence for an increase in polarization over immigration. Similarly, Breyer (2022) analyzes parliamentary speeches in Austria and Germany and finds that both mainstream and populist parties use more populist rhetoric when in opposition than when in government. Whereas most of these studies only provide correlational evidence, a notable exception is the work by Valentim and Widmann (2021) that exploits variation in the timing of elections when

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[1]This also relates to a body of research studying the effects of populism on party manifestos. Rooduijn, de Lange, and van der Brug (2012) analyze whether populism has contagious effects on party manifestos of non-populist parties in Western democracies finding that manifestos of mainstream parties have not become more populist.

AfD politicians enter German state parliaments. They find that politicians of other parties respond by using more positive, rather than negative, emotional rhetoric in their speeches.

Our study goes beyond existing approaches by exploiting a novel source of variation in individual-level exposure to right-wing politicians in parliament. This allows us to study within-speaker changes in political rhetoric in the same parliament and to shed light on the important role of day-to-day work interactions with right-wing colleagues. We go beyond sentiment analysis and party positions by employing both similarity and dictionary measures of distance to right-wing rhetoric.

Finally, our empirical approach adds to a rapidly growing literature studying large-scale text data combining methods from natural language processing with causal inference methods(Gentzkow, Kelly, and Taddy 2019, Gentzkow, Shapiro, and Taddy 2019, Hager and Hilbig 2020, Kelly et al. 2021, Widmer, Galletta, and Ash 2022, Wilkerson and Casas 2017). The addition of a novel source of variation due to a quasi-exogenous committee allocation rule may offer new research opportunities to study the effects of individual-level exposure to other politicians.

2   Right-Wing Populism in Germany

Since the re-establishment of parliamentary democracy, far-right parties have long only played a minor role in (West) German politics. At the federal level, no far-right or right-wing populist party had managed to cross the 5% electoral threshold for parliamentary representation in the German Bundestag.[2] In the federal election of 2013, a newly established right-wing party called *Alternative für Deutschland* (Alternative for Germany) fell just short of overcoming this threshold with 4.7% of the votes. Subsequently, the AfD continued to gain electoral support and established itself in several state parliaments, albeit undergoing an increasing radicalization and a strong shift to the right in the context of the 2015 European migration crisis. In the following federal election in 2017, the AfD received 12.6% of the votes and entered the Bundestag for the first time as the third largest parliamentary group and the strongest opposition party. The AfD re-entered the Bundestag with 10.3% of the votes in the 2021 election. Furthermore, the AfD is currently

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[2]At the state- and municipal-level, several radical right-wing parties (e.g., SRP, DVU, REP, NPD) had geographically and temporally limited electoral success.

(as of August 2023) represented in 14 of 16 German state parliaments and in the European Parliament.

Founded in early 2013 in the context of the European debt crisis as a socially conservative party with soft eurosceptic views (Arzheimer 2015), the AfD veered increasingly to the right of the political spectrum and evolved into a populist radical right-wing party with a distinctively anti-immigration, anti-refugee and anti-Islam platform (Arzheimer and Berning 2019). This ideological shift to the far-right also manifested itself in a significant change in the language used by the AfD in speeches, party manifestos and social media posts with an increasing usage of words related to Islam, migration and the nation/Germany (Cantoni, Hagemeister, and Westcott 2020). Parts of the AfD have also cooperated with the xenophobic PEGIDA ("Patriotic Europeans Against the Islamization of the Occident") movement that organizes anti-immigrant rallies. Prominent members of the AfD have held speeches at PEGIDA rallies, such as Björn Höcke, the de facto leader of the far-right faction within the AfD *Der Flügel"* ("The Wing") that had been under surveillance by the *Federal Office for the Protection of the Constitution* for being considered a "secured extreme right-wing threat against the free democratic constitutional order" (Bundesamt für Verfassungsschutz 2020). Although *"Der Flügel"* was officially dissolved in 2020, both the main federal party itself, several state-level associations of the AfD and the AfD's youth organization continue to be classified by domestic intelligence agencies as a "subject of extended investigation to verify a suspicion" for suspected right-wing extremism (Bundesamt für Verfassungsschutz 2023). Following the classifications of Hansen and Olsen (2018) and Arzheimer and Berning (2019), we argue that the AfD can be considered as a populist radical right party in the spirit of Mudde (2007). According to this definition, populism among Western far-right parties can be understood as politicizing the "pure people" against the "corrupt elite", reflecting a dichotomous understanding of society.

The success of the AfD raises the question how existing "traditional" parties and their politicians react to and deal with this new populist competitor on their right. Initially, after the entrance of the AfD to the Bundestag and the different state parliaments, all mainstream parties tried to emphasize the formation of a *cordon sanitaire* against the AfD with the exclusion of any formal cooperation.[3] As documented by Heinze (2022), increas-

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[3]For instance, the AfD has consistently been denied the election of a Bundestag vice-president from their ranks, a tradition where each parliamentary group historically receives at least one position. Despite presenting multiple candidates, none have won the necessary simple majority. Notably, these candidates have often received more votes than the AfD's own number of seats, hinting at an increased questioning of

ing signs of minor cooperation between established parties and the AfD as well as a turn toward *ad hoc toleration* could be observed at the municipal and the state level: while there has been no formation of official coalitions so far, mainstream parties have elected AfD candidates to parliamentary offices and debated motions by the AfD on a case-by-case basis. The arguably biggest violation of this non-cooperation policy happened in the federal state of Thuringia in February 2020, when Thomas Kemmerich from the liberal FDP was elected minister-president with the votes of the AfD and the conservative CDU. Kemmerich quickly had to step down amongst massive public outcry and resistance from the FDP and CDU federal leaderships. This exemplifies the increasing difficulties parties and individual politicians face in response to the sustained electoral success of the AfD. Especially in some East German states, where the AfD has managed to repeatedly score close to or more than 25% of the votes, the formation of government coalitions as well as the functioning of parliamentary routines become increasingly difficult.[4] This raises the question whether both parties and individual politicians might resort to an *accommodation* strategy towards the AfD.

3 Data

3.1 Parliamentary Speech Data

Our empirical analysis is based on the *Open Discourse* dataset by Richter et al. (2020), a corpus of parliamentary speeches in the German Bundestag. The dataset consists of all plenary protocols with the texts and metadata of speeches since the first session of the Bundestag in 1949. For our analysis, we choose a time window around the first-time entry of the AfD in the German Bundestag after the federal elections in 2017: our dataset contains all speeches of the 18th Bundestag between October 2013 and September 2017 and all speeches of the 19th Bundestag between October 2017 and December 2019.[5]

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this formal exclusion practice among some MPs from other parties.

[4]In the 2017 federal elections, the AfD received the second-largest vote share with 21.9% in East Germany (vs. 10.7% in West Germany), even coming out as the strongest party in the state of Saxony (27.0%).

[5]We exclude speeches after January 2020 until the end of the 19th Bundestag in September 2021, as this period was heavily influenced by the COVID-19 pandemic. Our empirical strategy critically hinges on direct and repeated personal contact between MPs in parliamentary committees. However, with the outbreak of the pandemic, the Bundestag changed its procedural rules to allow for the participation in committee sessions via electronic means of communication and reduced the necessary quorum of attending members from fifty percent to one quarter (Deutscher Bundestag 2020).

We perform several pre-processing steps in the following order: first, we exclude speeches by the President and Vice-Presidents of the Bundestag, the respective chairperson of the plenary sessions, or other speeches related to special functions, as they are likely to merely reflect administrative content. Second, we only keep speeches by speakers who are members of the Bundestag and were a member in at least one parliamentary committee during the analyzed period. This ensures a comparable setting for all analyzed speeches, since members of the government, members of parliament in special functions, and external speakers might systematically differ in how and about what they speak. Third, we correct several corpus-specific text issues: we remove punctuation including characters specific to the German language and the context (e.g., – used to denote speech breaks), digits, other numerical characters, and stopwords. Fourth, we lemmatize the remaining tokens. A more detailed description of all steps of data preparation and pre-processing, including the software packages employed, is provided in Appendix Section C.1. Our final dataset consists of 39,310 speeches held by 931 different speakers over the course of 57 months between October 2013 and December 2019.[6]

3.2   Committee Data

We gather data on Bundestag committees (*Bundestagsausschüsse*) from multiple sources: committee names and lists of committee members for the 18th Bundestag (2013-2017) and 19th Bundestag (2017-2021) were retrieved from the website of the Bundestag (Deutscher Bundestag 2022a). Data on committees in previous legislative periods were manually extracted from the "*Amtliches Handbuch des Deutschen Bundestages*" (Official Manual of the German Bundestag) (Deutscher Bundestag 1954-2017). Since the names of committees and their responsibilities for different policy areas might slightly change over legislative periods, we manually harmonized committees based on the committee names in the 19th Bundestag (2017-2021). Throughout our analyses, we only evaluate full membership in committees and disregard if MPs are deputy or stand-by members in committees as they do not regularly attend committee sessions.

We merge the information on committee membership – that is constant within a legislative period – to the main speech-level dataset via the name and party affiliation of a speaker. In addition to the information contained directly in the *Open Discourse* dataset of parliamentary speeches, we add constituency-level data on results in federal elections

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[6]Figure B1 in the Appendix shows the distribution of the speeches in our dataset over time and by party.

as well as which MPs stood as candidates in which electoral district obtained from Bundeswahlleiter (2022).

3.3 Measuring Similarity to Right-Wing Populist Rhetoric

Cosine Similarity Our preferred measure of the similarity of a speech to right-wing populist language is the standardized average cosine similarity to AfD speeches. More specifically, we construct the AfD cosine similarity score for speech i as the average over all pairwise cosine similarities of speech i with all AfD speeches $j \in J$

$$\text{AfD Cosine Similarity}_i = \frac{1}{J} \sum_{j=1}^{J} \frac{\sum_{k=1}^{K} a_k b_k}{\sqrt{\sum_{k=1}^{K} a_k^2 \sum_{k=1}^{K} b_k^2}} \tag{1}$$

where a_k and b_k are *term-frequency inverse-document-frequency* (tf-idf) weighted counts of word k in speeches i and j. We use tf-idf weighting and calculate tf-idf scores for each speech because words with particularly high frequencies or extremely low occurrence are usually not informative.[7] These scores take into account both the frequency of words within a given speech and the relative frequencies of words with respect to the overall corpus of speeches. The tf-idf weighted count of word k in speech i is given by

$$a_k = tf(i,k) \cdot idf(k) = \frac{f_{k,i}}{\sum_{k \in i} f_{k,i}} \cdot ln \frac{I}{|\{i \in I : k \in i\}|} \tag{2}$$

where $f_{k,i}$ is the frequency of word k in speech i and I is the total number of speeches. For ease of interpretation and comparison, we standardize the cosine similarity measure with mean zero and standard deviation one. As speeches differ in length, we also calculate cosine similarities to AfD speeches using different sample restrictions on the minimum number of terms of a speech.

Speeches at Far-Right Rallies As an alternative measure, we compute the average cosine similarity to speeches given by Björn Höcke at far-right rallies in 2015 and 2016.[8] Björn Höcke is the chairman of the AfD in the state of Thuringia and is the de facto leader

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[7]A more detailed description on the implementation can be found in Appendix Section C.2.

[8]The four speeches were held in Erfurt, Thuringia, on September 30, 2015, October 28, 2015, and January 13, 2016, as well as in Magdeburg, Saxony-Anhalt, on January 27, 2016, and have a length of 1,574, 2,432, 1,653, and 1,686 terms, respectively. Transcripts were retrieved from Enderstam (2020).

of the increasingly influential hard-line nationalist faction within the AfD. Höcke has repeatedly made headlines with multiple highly controversial statements which have been considered to exhibit racist and xenophobic views as well as elements of historical revisionism and fascism.

The speeches held by Höcke in 2015 focused on asylum policy and the contemporaneous large influx of refugees and how, according to Höcke, the government was actively trying to harm the German population. In the January 2016 speeches, Höcke additionally exploits for political purposes the events of the 2015 New Year's Eve sexual assaults in Cologne. In his speeches, Höcke uses patterns and elements of populism and nativism (Mudde and Kaltwasser 2018). Many statements entail that there is too much immigration to Germany posing a threat to the security and culture of native Germans. For example, Höcke claims that "we have hundreds of thousands of illegal immigrants in hiding, we have millions of Muslims living in non-integrated parallel societies" (January 13, 2016) or that "the millions of young men who are now being let in will also be legalized by the Germany abolitionists of the *Altparteien* ["old parties", derogatory term for established parties]" (September 30, 2015). In his speech on January 27, 2016, Höcke proclaims "we want to live according to our values and customs and norms, we want to preserve our culture, we do not want to go back to the Middle Ages, we want to keep our country!". Another important topic of his speeches is the purported antagonism between the established political elites and the German people. Overall, Höcke employs a radical and extremist language constituting a sharp departure from the established consensus on German political rhetoric.[9]

For each speech in our dataset, we calculate a measure of cosine similarity to the corpus of Höcke speeches using the same approach as for the similarity to AfD speeches described above in Equation (1). This measure is intended to approximate similarity to a clearly far-right and arguably more extreme populist rhetoric outside of the specific form and norms surrounding parliamentary speeches.

Populism Dictionary As our third measure of similarity to right-wing rhetoric, we construct a populism score from the German-language populism dictionary provided by Gründl (2022). This dictionary is based on distinctively populist rhetoric in German-speaking social media posts by politicians and parties and counts the sentences in which

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[9]The excessive use of words such as *"Volk"*, oftentimes linked to Nazi ideology and rhetoric, or derogatory terms such as *"Altparteien"* (old parties) or *"Asylorkan"* (asylum hurricane) provide other examples.

it identifies words or phrases which are considered as populist or point to populist rhetoric.[10] Again, we standardize the resulting outcome measure with mean zero and standard deviation one such that a higher relative number of sentences with populist phrases in a speech indicates a higher degree of populism. Of the 238 words and phrases contained in the dictionary, 98 appear in the analyzed corpus of parliamentary speeches. Among the most frequent phrases are for example *"sogenannt"* ("so-called", 4,696 appearances), *"Bürokrat"* ("bureaucrat", 513), or *"manipuliert"* ("manipulated", 141), but also more distinct words like *"undemokratisch* ("undemocratic", 82), *"Elite/Eliten"* ("elite/elites", 35) or *"Volksverräter"* ("traitor to the nation/people", 2) appear in our corpus. A full list of terms found in our corpus is provided in Appendix Section C.2, for the full list of dictionary items see Gründl (2022).

3.4 Validation

Next, we verify whether our similarity measures are able to accurately capture patterns of right-wing populist rhetoric. Figure 1 displays the average score by party for our three different measures of similarity to right-wing rhetoric. The upper panel of Figure 1 provides the party averages of the standardized average cosine similarity to the whole corpus of AfD speeches in the dataset. As expected, speeches by AfD MPs themselves have the highest cosine similarity compared to all other AfD speeches.[11] Regarding other parties, we can roughly differentiate two groups: first, speeches by conservative (CDU/CSU), social-democratic (SPD) and liberal (FDP) MPs are less similar to the AfD than AfD speeches themselves, with the CDU/CSU being closest. Second, the Left party and the Greens exhibit the greatest rhetorical dissimilarity from the AfD. This pattern is reassuring as it reflects the ideological spectrum within the Bundestag, ranging from right to left. For example, the CDU/CSU being closest and the Greens being farthest in terms of rhetorical similarity to the AfD is in line with how these parties associate or distance themselves from the far-right.

The middle panel of Figure 1 is analogous to the upper panel, now showing the average cosine similarity by party of MPs' speeches to the speeches by Björn Höcke. The results are similar, except that liberals and social democrats switch their positions. Again,

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[10]For more details on the construction of the populist dictionary measure, see Appendix Section C.2 and Gründl (2022).

[11]When calculating the cosine similarity of an individual AfD speech to all AfD speeches, we leave out the respective speech to avoid mechanically higher cosine similarities.

speakers from the Greens and the Left party are farthest away in rhetorical similarity to these rather extreme speeches.

Finally, the lower panel of Figure 1 displays the similarity to populist rhetoric based on the dictionary by Gründl (2022). The figure shows that MPs from the AfD are by far most likely to use such populist words in their speeches.[12] With respect to the other parties, the pattern differs from the previous figures: speeches from the Left party are less likely to use populist words but more so than the remaining other parties. This is plausible given that the Left party has been categorized by political scientists as a populist far-left party itself (Rooduijn et al. 2019). Overall, the observed pattern is in line with theoretical expectations and confirms that the populist dictionary approach is able to identify populist right-wing rhetoric.[13] Simultaneously, this shows that the populism dictionary approach deviates from our other cosine similarity-based measures and seems to capture another aspect of AfD rhetoric.

As shown in Appendix Figure B3, there is a large variation over time regarding how similar speeches are to right-wing rhetoric across our three measures, with most parties seemingly moving together in this aspect. This indicates important time-specific patterns in Bundestag speeches, e.g., topics more frequently discussed in a certain month. We therefore need to account for such time-specific variation in our empirical analysis which we address with the inclusion of month fixed effects and controls generated by a Latent Dirichlet Allocation (LDA) topic model.[14]

Finally, we analyze the correlation between our preferred measure of AfD cosine similarity and the other measures of similarity to right-wing rhetoric in Appendix Table A1. We find that both a higher cosine similarity to Höcke speeches and a higher number of words from the populist dictionary predict a higher cosine similarity to AfD speeches. This also holds when including speaker fixed effects, i.e., only comparing speech similarity measures within one speaker, as well as adding topic controls, month fixed effects and excluding speeches by AfD and FDP members (p<0.001 for all estimations).[15] Over-

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[12]In the non-standardized scale, the AfD scores a mean populist dictionary measure of 0.99 (sd=1.32), indicating that on average one sentence per speech contains a populist phrase. The values for the other parties are: Left (mean=0.55, sd=0.94), SPD (mean=0.39, sd=0.75), CDU/CSU (mean=0.39, sd=1.32), FDP (mean=0.36, sd=0.70) and Greens (mean=0.32, sd=0.69).

[13]Gründl (2022) finds that in texts from social media posts on Facebook and Twitter, the AfD, followed by the Left party, has the highest populist dictionary score. Reassuringly, we reproduce this ranking for our corpus of parliamentary speeches in the German Bundestag.

[14]Details on the topic modelling are provided in Section C.3 in the Appendix.

[15]We exclude FDP speeches as they were not represented in the Bundestag in our pre-treatment electoral period from 2013 to 2017.

all, the strong correlation between these three considerably differently constructed measures gives us confidence that we can validly identify similarity to right-wing or populist rhetoric.

4   Identification Strategy

According to our main hypothesis, the new presence of the AfD in the Bundestag and the active participation of right-wing populist politicians in parliamentary work might influence the language and rhetoric used by other politicians. However, simple comparisons of rhetorical similarity to the AfD across time or between parties are unlikely to identify the *causal* effect of exposure to the AfD due to several endogeneity concerns. For example, the salience of different topics, especially those related to right-wing electoral success such as migration, might change over time and could simultaneously drive rhetoric similarity measures. This would invalidate a simple comparison of speeches before and after the AfD's entry.

We overcome such concerns by exploiting variation in *individual-level* exposure to the AfD within parliamentary committees of the Bundestag (*Ausschüsse*). Using this novel source of variation has numerous advantages: conceptually, we study personal exposure to right-wing colleagues in repeated encounters in the context of the day-to-day work routine of members of parliament. We thereby focus on the impact of human interactions on language and political rhetoric. Regarding the empirical analysis, using this source of variation across different politicians *within* the same parliament allows us to hold several potential confounders constant that relate to the Bundestag overall. This is a particular advancement compared to other studies that have exploited variation *between* different parliaments regarding exposure to right-wing populists (Atzpodien 2022, Valentim and Widmann 2021).

In the following, we first provide a brief institutional description of the central role of committees for the functioning of the German Bundestag. Second, we describe the mechanism used for the allocation of committee seats to different parties in parliament. We show that this allocation mechanism yields arguably exogenous variation in party-level exposure to the AfD that we can exploit to study a potential individual-level accommodation effect of right-wing populism on political rhetoric.

FIGURE 1: SIMILARITY MEASURES BY PARTY
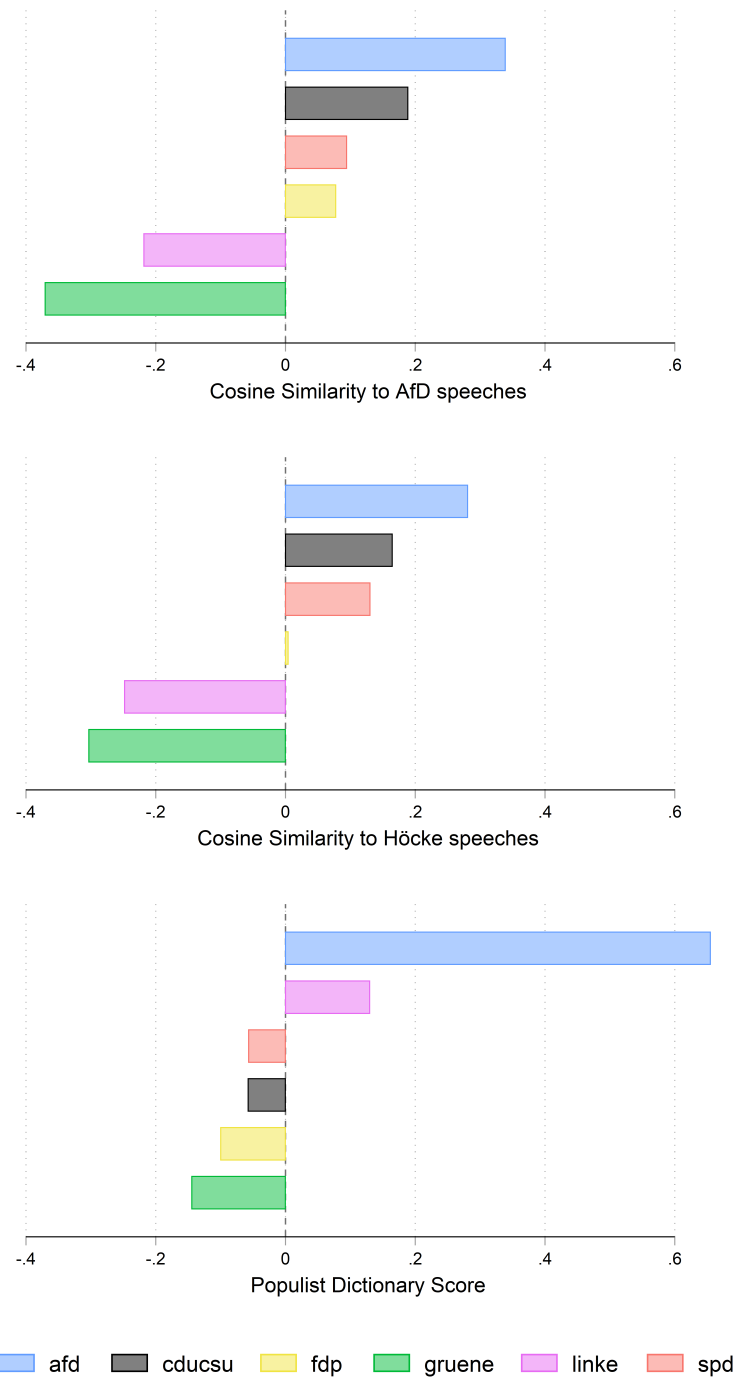
Notes: All outcome variables have been standardized with mean zero and standard deviation one. For the construction of each outcome, the sample was restricted to speeches with a minimum length of 100 terms.

4.1 Committees in the Bundestag

The Bundestag is the federal parliament of Germany and the only directly elected body on the national level. Elections take place every four years and the 598 nominal members of the Bundestag are elected by a mixed-member proportional representation voting system. Every voter has two votes: with the first vote, also called constituency vote, voters elect 299 MPs as the winners in single-member constituencies via simple majority. With the second vote, also called party list vote, the remaining MPs are elected from closed state-wide party lists in the German states. The share of second votes determines the share of seats a party receives in parliament. As parties may win more constituencies with the first vote than their second vote share would assign them, an allocation system adding compensatory seats (*Ausgleichsmandate*) to outweigh such surplus seats (*Überhangmandate*) makes the Bundestag typically larger than the 598 ordinary seats (2013 election: 631 MPs; 2017 election: 709 MPs).

The Bundestag is a committee-centered parliament in which most of the legislative work is done in specialized committees which prepare legislation proposals that are then submitted to the plenary for approval. Therefore, the time spent on debating, working and voting inside committees typically outweighs the time spent in plenary sessions.[16] Committees are therefore the central place for policy-making and inter-party political discussions and exchanges in the Bundestag.

Usually committee meetings are non-public and speech transcripts are not available.[17] In contrast, the plenary sessions of the Bundestag are the most visible arena of parliamentary work where members of parliament hold speeches that are livestreamed and transcribed. Hence, MPs are well aware that their speeches will be visible to other MPs, their party, as well as the media and voters. Both plenary sessions and committee meetings are typically held in the same week when the Bundestag is officially *"in session"* which occurs at least in 20 weeks per year. Usually, committee meetings are scheduled for Wednesday morning and plenary sessions are held on Wednesday afternoon (Deutscher Bundestag 2022b). This scheduling sequence gives us confidence that plenary speeches might at least partially be given in reaction to debates in the preceding committee meetings and, hence, might give room for exerting an influence on the rhetoric used by speakers.

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[16]There have been almost ten times as many committee meetings (38,731) as plenary sessions (4,106) from 1949 to 2017 (Feldkamp 2018, 214-216).

[17]Exceptions are public committee meetings due to a hearing that deviates from standard committee procedure. Committees gather information from external experts on certain legislative proposals, so the focus is on speeches given by invited experts and not on speeches given by MPs.

4.2 Allocation of Committee Seats

The size of committees, i.e., the number of members having full voting rights, is not fixed but depends on the importance of their respective policy agenda and the amount of legislative work involved. The different parties represented in the Bundestag jointly decide on the number and size of committees at the beginning of each legislative period. In the two legislative periods in our analysis, there exist 23 main committees in the 18th Bundestag (2013-17) with 14 to 46 members, while in the 19th Bundestag (2017-21) there are 24 main committees with 14 to 49 members.[18]

Once the absolute size of committees is established, seats are allocated to parties on the premise of ensuring proportional representation, i.e., the share of seats of a party in a given committee should equal the share of seats this party has in the Bundestag. As the number of available seats in a committee is finite and relatively low, a perfect proportional representation is typically not attainable and committee shares might deviate from the share of seats in the plenary. To ensure a fair representation and to avoid discrimination against smaller parties, the Bundestag uses the *Sainte-Laguë/Schepers* rule for the allocation of committee seats to parties.[19] The rule is based on the idea of iteratively calculating an allocation quotient from the following formula: for each party p and its already allocated number of seats s, an allocation quotient Q is calculated based on the share of the party's seats in parliament V:

$$Q_p = \frac{V_p}{2s_p + 1} \tag{3}$$

An iterative procedure starting with $s = 0$ for all parties allocates a seat to the party with the highest quotient. If more than one party has the highest quotient, the seat is randomly allocated to one party rather than the other. After the allocation of the seat, the quotient is recalculated. The process ends when all available seats in a committee have been allocated.

Figure 2 visualizes how the *Sainte-Laguë/Schepers* rule leads to plausibly exogenous variation in the share of seats assigned to a party, here for the example of the AfD. Panel (A) shows the allocated number of seats to all parties by the *Sainte-Laguë/Schepers* rule

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[18]Table A3 and Table A4 in the Appendix display the name and size of the committees in the 18th and 19th Bundestag, respectively, as well as the absolute number of seats assigned to each party in a given committee.

[19]The rule has been applied for the allocation of committee seats in the Bundestag since 1980.

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FIGURE 2: SAINTE-LAGUË/SCHEPERS RULE
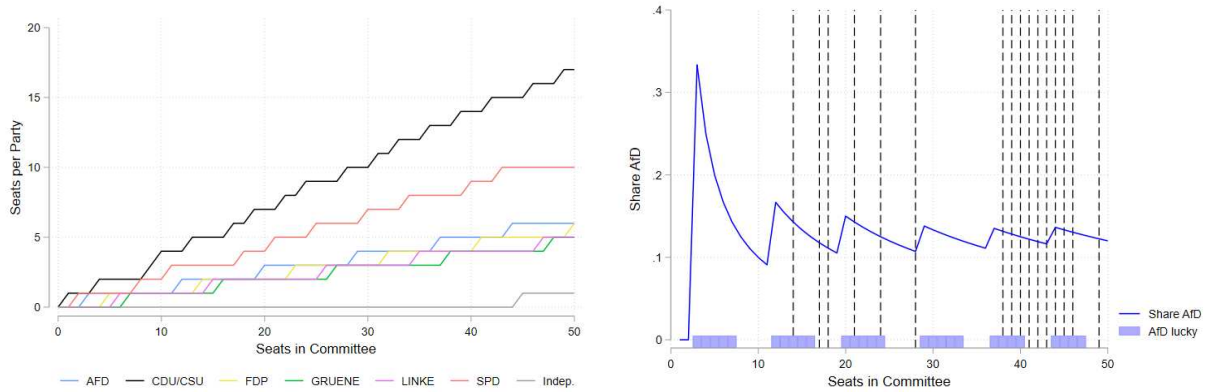
(A) ABSOLUTE NUMBER OF MEMBERS

(B) SHARE OF AfD MEMBERS
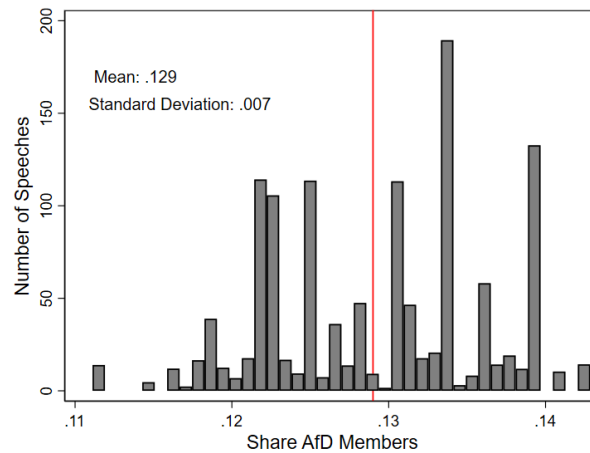
(C) DISTRIBUTION SHARE OF AfD MEMBERS

Panel (A) shows the absolute number of members for each party for different sizes of committees according to the *Sainte-Laguë/Schepers* rule for the 2017-2021 legislative period. Panel (B) shows the assigned share of AfD members based on the *Sainte-Laguë/Schepers* rule for different potential sizes of committees. Shaded ranges on x-axis indicate seat numbers for committees that are midpoints between seat numbers where the AfD gains an additional seat according to the *Sainte-Laguë/Schepers* rule. Dashed vertical lines indicate the total number of seats in existing committees. Panel (C) shows the distribution of the associated share of AfD committee members for all speeches in our sample held after September 2017.

based on different total committee sizes. Panel (B) visualizes the change in the allocated share of AfD members for differently sized committees. There are several distinct jumps in the share of AfD members when the marginal additional seat in a committee is allocated to the AfD. The dashed vertical lines indicate the number of seats in existing committees in the 2017-2021 legislative period. Hence, we can observe that there were committee sizes where the AfD was "lucky" in the sense of being overrepresented due to having just gained the next additional seat and in areas where the AfD was "unlucky", respectively. Panel (C) shows the actual distribution of speeches held after 2017 in our sample by the respective share of AfD members in a speaker's committees. Reassuringly, we find substantial variation in relative AfD exposure in our speech sample.[20]

The share of AfD members in a given committee of a certain size therefore arguably features an exogenous component.[21] Two politicians in committees of comparable size might therefore have a different relative exposure to far-right AfD politicians. For example, a politician represented in the *Digital Agenda* committee (with a total of 21 members) has to interact with three AfD colleagues, implying a relative share of 14.3% AfD members. In contrast, a politician in the *Culture and Media Affairs* committee (with a total of 18 members) faces only two AfD members in her committee meetings with a relatively lower share of 11.1% AfD members. Appendix Table A4 summarizes the distribution of AfD members across all Bundestag committees, exhibiting variation in the relative share of AfD members in committees of different size. For non-AfD politicians, this implies variation in the exposure to right-wing populist politicians and their ideology in their day-to-day parliamentary work. In the following, we exploit this variation to analyze the effect of this exposure on rhetorical similarity to right-wing populism in parliamentary speeches given by these politicians.

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[20]Note that the empirical mean of 12.97% of AfD committee members in our speech sample corresponds exactly to the relative share of the 92 AfD members among the 709 total Bundestag MPs.

[21]In the spirit of a regression discontinuity design, one could assume that politicians in committees are not able to manipulate the size of committees to be either just to the right or just to the left of a jump in the share of AfD members function. As shown in Figure B5 in the Appendix, relative committee sizes are considerably stable over time and there seems to be little movement in relative committee sizes between the 2013-2017 and 2017-2021 legislative periods in our data.

5 Results

5.1 Main Results

Our goal is to estimate the causal effect of individual exposure to radical right-wing AfD politicians on similarity to right-wing populist rhetoric. However, a simple comparison of the relative committee exposure to AfD members on speech similarity might suffer from selection bias. The committee allocation procedure leads to variation in the share of seats assigned to a party, and hence individual-level variation in exposure to the AfD. Yet, individual assignment of politicians to committees might still be endogenous. For example, parties could strategically select politicians for committees with relatively higher AfD presence due to individual characteristics such as ideological solidity or distance to right-wing populism. To address such endogeneity concerns, we exploit that our data comprises speeches before the AfD's entry into the Bundestag. We run a difference-in-differences regression comparing speeches of the *same* politicians before and after being differentially exposed to right-wing politicians. We estimate the following regression model:

$$Similarity_{ist} = \beta\, Share\, AfD\, Members_{s(i)} \times Post_t + X_i\gamma' + \delta_t + \phi_s + \epsilon_{ist} \qquad (4)$$

where $Similarity_{ist}$ is one of our measures of similarity to right-wing rhetoric for plenary speech i held by speaker s at time t. Our main explanatory variable $Share\, AfD\, Members_{s(i)}$ measures the share of AfD politicians among all full members of the committee of which politician s is a full member in the 19th Bundestag.[22] $Post_t$ is a dummy variable equal to 1 if speech i was held after the AfD's entry in September 2017. As can be seen in Appendix Figure B3, there is substantial variation over time in rhetorical similarity, for which we account by including month fixed effects δ_t as well as a vector x_i controlling for 20 topics generated by a Latent Dirichlet Allocation (LDA) topic model.[23] Crucially, we also include speaker fixed effects ϕ_s controlling for all time-invariant factors related to an individual speaker. The inclusion of this relatively demanding set of 437 speaker fixed effects should alleviate concerns relating to unobserved characteristics influencing political speech and selection into committees. Throughout all specifications,

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[22]If a politician is a full member in multiple committees, we assign her the average share of AfD members across all respective committees.

[23]Details on the topic modelling are provided in Section C.3 in the Appendix.

TABLE 1: MAIN RESULTS

	AfD Similarity	Höcke Similarity	Pop. Dictionary
	(1)	(2)	(3)
Share AfD × Post	3.356*	3.868***	4.194**
	(1.932)	(1.321)	(1.630)
Topic Controls	✓	✓	✓
Month FE	✓	✓	✓
Speaker FE	✓	✓	✓
Observations	17,383	17,383	17,383

Notes: Table reports coefficients and standard errors from linear regressions as laid out in Equation 4. The independent variable of interest is the interaction between the (average) share of AfD members of all committees in which a politician is a full member and an indicator whether the speech was recorded in the 19th German Bundestag (2017-2021). The dependent variables are as follows: (Column 1) the standardized average cosine similarity to AfD speeches after pre-processing and tf-idf vectorization; (Column 2) the standardized average cosine similarity to speeches by Björn Höcke after pre-processing and tf-idf vectorization; (Column 3) the standardized number of sentences with words from the German-language populist dictionary by Gründl (2022). Topic controls are derived from a 20-topic LDA model. The sample comprises plenary speeches by members of the German Bundestag held between October 2013 and December 2019 with a minimum length of 100 terms from parties that were represented throughout the whole period (CDU/CSU, SPD, The Left, and Alliance90/The Greens). Standard errors clustered at the committee times electoral period level are reported in parentheses: $* \, p < 0.10$, $** \, p < 0.05$, $*** \, p < 0.01$.

we cluster standard errors on the committee times electoral period level. Our main coefficient of interest is given by β: a positive coefficient would indicate that more AfD members in a given committee increase similarity to right-wing rhetoric. A negative effect would suggest that direct exposure to AfD politicians might lead members of other parties to rhetorically distinguish themselves more from right-wing speech.[24]

Table 1 presents our main results from estimating the regression specification as shown in Equation 4. Column (1) shows the effect on our preferred measure of rhetorical similarity, the standardized average cosine similarity to all AfD speeches, by comparing

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[24]Note that β is not mechanically driven by AfD speeches. AfD speeches will both feature a higher AfD cosine similarity and tend to come from politicians sitting in committees with high shares of AfD members. However, the difference-in-differences design with speaker fixed effects requires that speeches included in our analysis come from politicians who were present in both legislative periods, before and after AfD entry to the Bundestag. Thus, the speech sample excludes speeches from AfD politicians (as well as speeches by the FDP who also (re-)entered parliament in 2017).

speeches given by the *same* politicians before and after the entry of the AfD into the Bundestag. Furthermore, topic controls and month fixed effects assure that the estimated effect is not confounded by time- or topic-specific trends in plenary speeches. We obtain a positively estimated coefficient for β (p=0.084), implying an increase in similarity to AfD rhetoric with higher exposure to right-wing politicians. The magnitude of the effect is non-negligible: comparing a politician in a committee with the highest to one in a committee with the lowest relative AfD exposure (corresponding to an increase in the share of AfD members by 0.03 as indicated in Appendix Table A2) increases the AfD cosine similarity by 0.1 (3.356×0.03) standard deviations. To put this into perspective, this increase corresponds roughly to the 0.09 difference in the average standardized AfD cosine similarity between speakers of the center-left social democratic SPD and the center-right CDU/CSU as shown in the upper panel of Figure 1.

Alternative measures of rhetorical similarity to right-wing speech, yield comparable results: Column (2) shows a positive (p=0.004) effect of higher committee exposure to the AfD on the average cosine similarity to extra-parliamentary speeches held by extreme right-wing AfD politician Björn Höcke in the context of anti-immigration AfD rallies. Column (3) reports a positive effect (p=0.011) on the number of sentences with populist words as classified in the German-language populism dictionary by Gründl (2022). As all outcomes were standardized to allow for easier comparison of magnitudes, we can further note that the estimated effect sizes are reassuringly similar.

Taken together, our main results reported in Table 1 provide evidence for a accommodation effect of direct exposure to far right-wing politicians on using similar language in public speeches. Notably, this effect is visible *within* politicians who seem to adapt their rhetoric once they have to deal with more extreme right-wing politicians in their daily committee work after 2017. The change in language is not only detectable in similarity to rhetoric used by the AfD itself in parliamentary speeches, but also extends to arguably more extreme rhetoric, as showcased by the similarity to Höcke speeches, and the usage of distinctively populist vocabulary.

5.2 Robustness Checks

Next, we analyze whether politicians accommodate their language in general to *any* exposure and interaction with colleagues of a different ideology who use distinct rhetoric. We therefore extend our difference-in-differences framework to analyze potential accom-

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modation effects for all parties represented in the Bundestag. While the previous AfD and FDP exposure in committees was zero, for the other parties, our treatment now captures the *change* in relative committee exposure between electoral periods.

The main coefficients from this exercise are represented in Figure B4 and Table A5 in the Appendix. We find that relatively higher exposure to politicians of established parties does not lead MPs to adopt their rhetoric. This contributes to our assessment that the estimated accommodation effects seem to be specific to exposure to right-wing populism.

So far, we have only considered the relative presence of AfD members in parliamentary committees. One potential concern might be that our results are affected by the absolute size of committees. For example, while the variation in relative committee shares mechanically decreases with the size of committees (as can be seen in Figure 2), larger committees might also differ on other dimensions in general. In Appendix Table A6, we add the total number of committee members in the respective legislative period as an additional control variable to Equation 4. Our main estimated coefficients of relative AfD exposure on rhetorical similarity to right-wing populism remain unaffected.

In our baseline specification, we restricted our sample to speeches with a minimum length of 100 terms to select sufficiently long speeches which better captures distinctive right-wing rhetoric used by the AfD.[25] In Appendix Table A7 we repeat our main difference-in-differences analysis of Equation 4 for different minimum numbers of terms in a speech. Reassuringly, the estimated coefficients remain largely stable for all three employed rhetorical similarity measures. Only with no speech length restrictions – potentially containing many short (non-ideological) remarks – and when restricting our sample to contain mostly longer speeches – substantially reducing the sample size – do the estimated coefficients become smaller.

Further, to rule out that our results are driven by speeches having a very high degree of similarity to right-wing populist rhetoric, we reproduce our main results excluding the 90th percentile for all three similarity measures (see Appendix Table A8. We continue to find a positive effect of AfD exposure on rhetorical similarity across all measures.

TABLE 2: EFFECT HETEROGENEITIES BY ELECTORAL COMPETITION

	AfD Cosine Similarity							
	(1) Vote Share AfD	(2) Distance to AfD	(3) Margin over AfD	(4) Election Closeness	(5) Vote Share Not Winner	(6) PSFI	(7) ENEP	(8) No. Elected Competitors
Share AfD × Post	4.288** (1.959)	3.880** (1.719)	4.195** (1.947)	4.113** (1.880)	4.179** (1.935)	4.172** (1.952)	4.169** (1.974)	4.668** (1.994)
Post × Competition	-0.017 (0.261)	-0.731*** (0.209)	-0.352** (0.173)	-0.572** (0.255)	-0.505** (0.199)	-0.354** (0.176)	-0.288* (0.163)	-0.798*** (0.212)
Share AfD × Post × Competition	0.047 (2.048)	5.901*** (1.610)	2.647** (1.338)	4.439** (1.992)	3.860** (1.556)	2.666* (1.370)	2.122* (1.270)	6.389*** (1.627)
Topic Controls	✓	✓	✓	✓	✓	✓	✓	✓
Month FE	✓	✓	✓	✓	✓	✓	✓	✓
Speaker FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	16,236	16,236	16,236	16,236	16,236	16,236	16,236	16,236

Notes: Table reports coefficients and standard errors from linear regressions as laid out in Equation 5. The dependent variable is the standardized average cosine similarity to AfD speeches after pre-processing and tf-idf vectorization. *Share AfD* describes the (average) share of AfD members of all committees in which a politician is a full member in the in the 19th Bundestag (2017-2021). *Post* is an indicator variable equal to 1 if the speech was recorded in the 19th Bundestag (2017-2021). *Competition* is a placeholder for one of the following competition measures that are named in the respective column header: (1) *Vote Share AfD* measures the first vote share of the AfD (in percent) in an MP's electoral district in the 2017 federal election. (2) *Distance to AfD* measures the negative absolute distance of the MP's own first vote share to the AfD first vote share (in percentage points) in the 2017 federal election. (3) *Margin over AfD* measures the negative difference between the first vote share of the winning candidate and the AfD in the district of the speaker. (4) *Election Closeness* measures the negative difference between the winning and runner-up candidate in the district of the speaker. (5) *Vote Share Not Winner* is calculated as 100 minus the vote share of the winning candidate. (6) *PSFI* calculates the Party System Fractionalization Index (Rae 1968) as $1 - \sum_{i=1}^{N} p_i^2$ where p_i are the vote shares of all parties $i \in N$ that received at least one vote in the district. (7) *ENEP* calculates the Effective Number of Elected Parties based on Laakso and Taagepera (1979) as $1/\sum_{i=1}^{N} p_i^2$. (8) *No. Elected Competitors* measures the number of other MPs elected from the same district as the speaker in the 19th Bundestag. All competition measures have been standardized with mean 0 and standard deviation 1. Topic controls are derived from a 20-topic LDA model. The sample is restricted to plenary speeches held between October 2013 and December 2019 with a minimum length of 100 terms by speakers from parties that were represented throughout the whole period (CDU/CSU, SPD, Alliance90/The Greens, The Left). Standard errors clustered at the committee times electoral period level are reported in parentheses: $*$ $p < 0.10$, $**$ $p < 0.05$, $***$ $p < 0.01$.

5.3 Electoral Competition

Our results so far have shown that politicians adapt their own rhetoric in reaction to being directly exposed to newly arriving colleagues using a radically different right-wing language. In the following, we want to provide suggestive evidence *why* political actors might revert to such changes in their publicly displayed language use. In particular, we explore the role of electoral pressure and political competition in strategic changes of political rhetoric. Individual accommodation to right-wing speech might follow strategic motives with respect to political and electoral support: with increasing success of right-wing populism, politicians might be able to win support from the populists' electoral base by using a similar language. At the same time this can also lead to an alienation of the own traditional voter base. Electoral motives, such as the chance of re-election can be crucial factors in the choice of the accommodating strategy an individual politician employs (Downs 2001).

We test this conjecture by adding information on electoral results in the constituencies of Bundestag MPs and constructing different measures of the intensity of local electoral competition. [26] To empirically test for effect heterogeneities with respect to electoral competition, we adapt our baseline estimation strategy to a triple difference-in-differences framework in the following way:

$$
\begin{aligned}
Similarity_{ist} =& \beta_1 \, Share \, AfD \, Members_{s(i)} \times Post_t + \beta_2 \, Competition_{s(i)} \times Post_t + \\
& \beta_3 \, Share \, AfD \, Members_{s(i)} \times Post_t \times Competition_{s(i)} + \\
& X_i \gamma' + \delta_t + \phi_s + \epsilon_{ist}
\end{aligned}
\tag{5}
$$

where $Competition_{s(i)}$ is a measure of electoral competition in the electoral district of speaker s giving plenary speech i. All other variables are defined in the same way as described in Equation 4. Our main coefficient of interest is given by β_3 which tells us how the within-speaker effect of relative AfD exposure on rhetorical similarity differs by the degree of electoral competition $Competition_{s(i)}$.

Table 2 shows the results of estimating Equation 5 with our preferred outcome mea-

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[25] As can be seen in Appendix Figure B2, the more we restrict the sample to include longer speeches, the better the cosine similarity measure becomes at identifying AfD speeches and, hence, at capturing distinctive right-wing rhetoric.

[26] Not all MPs ran as candidates in local electoral districts. Some ran only as state-wide party list candidates. Hence, we cannot assign all speakers in our dataset to electoral districts leading to a slightly reduced number of observations.

sure of rhetorical similarity – standardized average cosine similarity to AfD speeches – on different measures of electoral competition.[27] Column (1) shows the effect of interacting our main treatment variable with the AfD's vote share in the speaker's electoral district from the 2017 federal election.[28] This arguably constitutes a measure of the *absolute* level of populist right-wing support at a local level. However, we do not find that this differentially explains within-speaker changes in political rhetoric towards the AfD.

We, therefore, employ measures that instead capture the *relative* strength of the AfD and the intensity of local competition with right-wing populists. In column (2), we use the absolute distance of the respective MP's own vote share to that of the AfD's local candidate.[29] Here we find that the shorter the distance to the AfD's vote share, the stronger the estimated effect of direct AfD exposure on political rhetoric. In terms of the magnitude interpretation discussed in Section 5.1, a one standard deviation decrease in distance to the AfD increases rhetorical similarity by 0.18 (5.901 × 0.03) of a standard deviation. In column (3), we calculate the margin of victory over the AfD, i.e., the vote share difference between the winning candidate and the AfD candidate in the district.[30] We find that a smaller margin of victory over the AfD, implying stronger competition with right-wing populism, increases the effect of AfD exposure on rhetorical similarity.

Next, we study several measures capturing the general degree of competition in an electoral district. Column (4) employs the (negative) difference between the winning and runner-up candidate as a measure of the closeness of a direct election, while in column (5), we instead calculate the joint vote share of all non-winning candidates. Furthermore, we use two standard measures of political fragmentation: in column (6), we calculate the *Party System Fractionalization Index* (PSFI) introduced by Rae (1968), while column (7) uses the *Effective Number of Electoral Parties* (ENEP) from Laakso and Taagepera (1979).[31] Across these different measures, we find that stronger local electoral competition is asso-

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[27]In Table 2, all interacted competition measures have been standardized with mean 0 and standard deviation 1 to ease interpretation and comparability.

[28]We use the share of first votes (constituency votes for individual candidates), as we are interested in the role of *local* electoral competition a specific candidate is facing. Results remain unchanged when instead using the share of second votes, i.e., votes for state-wide party lists instead of individual candidates.

[29]We construct all measures such that higher values imply stronger competition.

[30]If the AfD candidate won the district, the margin of victory is set to zero. Using an alternative definition, e.g., following Galasso and Nannicini (2011), that instead uses the distance between the AfD and the runner-up candidate in case of an AfD victory yields similar results.

[31]Both measures are based on a Herfindahl Index of concentration that computes the sum of squared vote shares p_i of all parties $i \in N$ that received at least one vote in the electoral district. The two measures are then defined as $PSFI = 1 - \sum_{i=1}^{N} p_i^2$ and $ENEP = \frac{1}{\sum_{i=1}^{N} p_i^2}$, respectively. In both cases, larger values indicate greater fragmentation and imply a higher degree of electoral competition.

ciated with an increase in the effect of exposure to right-wing populism on speech similarity.

Finally, following Frank and Stadelmann (2021), we calculate the number of elected competitors, i.e., other MPs elected from the same constituency.[32] We would expect this to increase competition as voters from one district are able to directly compare multiple MPs. Our estimated treatment effect of direct AfD exposure increases with the number of other MPs elected from the same district.

Overall, these results suggest that speakers seem to strategically adapt their political rhetoric to use more similar language to right-wing populism in response to higher electoral competition and pressure from the far-right.

6 Conclusion

The first-time entry of a right-wing populist party to the German Bundestag presented a novel situation for incumbent politicians, with respect to being personally in contact with far-right AfD politicians. We exploit quasi-exogenous variation in allocation of MPs to committees to generate individual-level variation in the intensity of such contact with the AfD. We show that higher exposure to the AfD has an accommodation effect on the language employed by mainstream politicians in terms of converging towards a more similar right-wing rhetoric. Our results are robust to different measures of rhetorical similarity and seem to be specific to right-wing populism. Furthermore, we find evidence that suggests strategic motives related to local electoral competition behind individual changes in political rhetoric.

A few words of caution are in order: the observed convergence in the usage of similar right-wing language does not necessarily imply that politicians also ideologically converge towards the AfD, i.e., become more right-wing populist themselves. Rather, our measures of rhetorical similarity – be they based on cosine similarity or a dictionary approach – capture how something is said (in terms of words used) and only to a certain extent what is meant (in terms of implied content). For example, we cannot fully rule out that politicians take up and cite phrases introduced by the AfD with another, or even opposite, political message intended. Still, our results clearly show how the novel and rather

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[32]Due to Germany's mixed-member proportional representation electoral system up to six MPs could be elected from the same district, as defeated candidates might win mandates via state-wide party lists.

extreme AfD rhetoric finds its way into parliament and spreads even among mainstream politicians. On the one hand, this implies that even in a setting were they do not hold any formal political power, right-wing populists can exert a certain agenda-setting power. On the other hand, regardless of any potential ideological convergence, previous research has highlighted that *"words have consequences"* and even minor changes in rhetoric can already lead to changes in the acceptability of social norms and behavior even beyond parliament (Bursztyn, Egorov, and Fiorin 2020, Djourelova 2023, Müller and Schwarz 2023, Müller and Schwarz 2021).

We see at least two interesting avenues for future research departing from these observations. First, while we have analyzed accommodation towards right-wing rhetoric within political elites, we know less about the effects of the novel and distinctively right-wing language used by the AfD in the Bundestag on the general public. This is especially relevant as the AfD seems to deliberately target a wider audience by diffusing content and video recordings from parliamentary speeches via social media. Indeed, the AfD has by far the largest number of followers on various social media platforms among all parties represented in the Bundestag. Second, while for our empirical analysis we have implicitly assumed that the AfD's own rhetoric remains constant at least in the short-run, it might be worthwhile to explore if and how right-wing populists themselves adopt their language when in regular contact with more moderate mainstream politicians.

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Supplementary Appendix: For Online Publication

A Additional Tables

TABLE A1: CORRELATION BETWEEN SIMILARITY MEASURES

	AfD Cosine Similarity					
	(1)	(2)	(3)	(4)	(5)	(6)
Höcke Cosine Similarity	0.809***	0.716***	0.738***			
	(0.006)	(0.014)	(0.013)			
Populist Dictionary Words				0.212***	0.106***	0.105***
				(0.007)	(0.005)	(0.006)
Topic Controls		✓	✓		✓	✓
Month FE		✓	✓		✓	✓
Speaker FE		✓	✓		✓	✓
Without AfD & FDP			✓			✓
Observations	28,998	25,803	22,662	28,998	25,803	22,662

Notes: Table reports coefficients and standard errors from linear regressions. The dependent variable is the standardized average cosine similarity to AfD speeches after pre-processing and tf-idf vectorization. The independent variables are the standardized average cosine similarity to speeches by Björn Höcke after pre-processing and tf-idf vectorization and the standardized number of sentences with words from the German-language populist dictionary by Gründl (2022). The sample comprises all speeches that were held in the German Bundestag between 2013 and 2019 with a minimum length of 100 terms. In columns (3) and (6) we exclude all speeches by members of the AfD, the FDP and non-affiliated members. In columns (2), (3), (5) and (6) standard errors are furthermore clustered on the committee times electoral period level. Robust standard errors reported in parentheses: $* \, p < 0.10, \, ** \, p < 0.05, \, * * * \, p < 0.01$.

	Mean	Std. Dev.	Min.	Max.	Obs.
PANEL A: *Similarity Measures*					
Avg. Cosine Similarity to AfD (min. 100 terms)	0.00	1.00	-2.61	5.68	29,120
Avg. Cosine Similarity to Höcke (min. 100 terms)	0.00	1.00	-2.08	7.79	29,120
Populist Dictionary Score (min. 100 terms)	-0.00	1.00	-0.52	17.36	28,998
PANEL B: *Speech Characteristics*					
No. Terms	450.30	370.56	1	4513	39,310
No. Sentences	30.85	25.57	0	387	39,310
PANEL C: *Party Shares*					
AfD	0.07	0.25	0.00	1.00	39,310
CDU/CSU	0.30	0.46	0.00	1.00	39,310
SPD	0.20	0.40	0.00	1.00	39,310
Greens	0.21	0.41	0.00	1.00	39,310
Left	0.16	0.37	0.00	1.00	39,310
FDP	0.06	0.23	0.00	1.00	39,310
Independent MPs	0.00	0.06	0.00	1.00	39,310
PANEL D: *Committee Shares by Party (19th Bundestag, 2017-21)*					
Share CDU/CSU Members (19th BT)	0.35	0.01	0.33	0.38	27,937
Share SPD Members (19th BT)	0.22	0.01	0.18	0.24	27,937
Share AfD Members (19th BT)	0.13	0.01	0.11	0.14	27,937
Share FDP Members (19th BT)	0.11	0.01	0.10	0.14	27,937
Share Left Members (19th BT)	0.10	0.01	0.07	0.12	27,937
Share Green Members (19th BT)	0.09	0.01	0.07	0.12	27,937
PANEL E: *Committee Shares by Party (18th Bundestag, 2013-17)*					
Share CDU/CSU Members (18th BT)	0.48	0.01	0.44	0.50	28,324
Share SPD Members (18th BT)	0.31	0.01	0.28	0.36	28,324
Share Left Members (18th BT)	0.10	0.01	0.07	0.13	28,324
Share Green Members (18th BT)	0.10	0.01	0.07	0.13	28,324
PANEL F: *Competition Measures*					
Vote Share AfD	11.41	5.28	4.48	36.81	33,679
Distance to AfD	-14.71	12.27	-49.41	-0.05	31,034
Margin over AfD	-25.53	9.20	-49.41	0.00	33,679
Closeness	-12.44	9.15	-40.97	-0.26	35,035
Share Not Winner	62.84	6.43	42.85	76.86	35,035
PSFI	0.76	0.04	0.62	0.83	35,035
ENEP	4.26	0.67	2.64	6.00	35,035
No. MdBs	2.03	1.06	0.00	5.00	33,813

Notes: Variables in Panels A and B vary on the speech level, variables in Panels C, D, E and F vary on the speaker level.

TABLE A3: COMMITTEES IN THE 18$^{\text{TH}}$ BUNDESTAG (2013-2017)

Committee Name	Total	CDU/CSU	SPD	Linke	Greens
Economic Affairs and Energy	46	22	14	5	5
Labour and Social Affairs	41	20	13	4	4
Budget	41	20	13	4	4
Transport	41	20	13	4	4
Legal Affairs and Consumer Protection	39	19	12	4	4
Finance	37	18	11	4	4
Foreign Affairs	37	18	11	4	4
Health	37	18	11	4	4
Internal Affairs and Community	37	18	11	4	4
Environment, Nature Conservation and Nuclear Safety	36	17	11	4	4
Family Affairs, Senior Citizens, Women and Youth	36	17	11	4	4
Education, Research and Technology Assessment	34	17	11	3	3
European Union Affairs	34	17	11	3	3
Food and Agriculture	34	17	11	3	3
Defence	32	16	10	3	3
Petitions	26	12	8	3	3
Economic Cooperation and Development	21	10	7	2	2
Culture and Media Affairs	18	9	5	2	2
Sports	18	9	5	2	2
Tourism	18	9	5	2	2
Digital Agenda	16	7	5	2	2
Human Rights and Humanitarian Aid	16	7	5	2	2
Elections, Immunity and the Rules of Procedure	14	7	5	1	1

Notes: The table provides the total number of committee members and the total number of committee seats allocated to the different parliamentary groups in the 18$^{\text{th}}$ Bundestag (2013-2017). We exclude several non-standard committees from our analysis: the committee on election audit (*Wahlprüfungsausschuss*) is excluded as it has the specific task of auditing whether the elections for the Bundestag and the European Parliament were conducted lawfully and without intervention. The committee meets substantially less often than other committees and consisted of only 9 members in both periods of interest. The mediation committee (*Vermittlungsausschuss*) is the common committee between the Bundestag and the Bundesrat, which is the parliamentary body representing the 16 German states at the federal level. Its main function is to mediate between the interests of the Bundestag and the Bundesrat in case of disagreement in the legislative process. As this committee consists of both members from the Bundestag and Bundesrat, we exclude it from our analysis. We also exclude the joint committee (*Gemeinsamer Ausschuss*) as its only function is to work as an emergency parliament in case of a state of defence and does not regularly meet. Furthermore, we exclude sub-committees (*Unterausschüsse*) that can be formed within the main committees, as well as investigative committees (*Untersuchungsauschuss*) that are temporarily formed *ad-hoc* to investigate specific cases of potential misconduct by the government. Finally, we also exclude the two temporary main committees (*Hauptausschuss*) that were formed for one month in 2013 and two months in 2017/18 as a stand-in committee until the constitution of the main committees while negotiations for the formation of a coalition government were on-going.

TABLE A4: COMMITTEES IN THE 19TH BUNDESTAG (2017-2021)

Committee Name	Total	CDU/CSU	SPD	AfD	FDP	Linke	Greens
Economic Affairs	49	17	11	6	5	5	5
Labour and Social Affairs	46	16	10	6	5	5	4
Foreign Affairs	45	16	10	6	5	4	4
Internal Affairs and Community	45	16	10	6	5	4	4
Budget	44	15	10	6	5	4	4
Legal Affairs and Consumer Protection	43	15	9	6	5	4	4
Transport	43	14	10	6	5	4	4
Education, Research and Technology Assessment	42	15	9	5	5	4	4
Finance	41	14	9	5	5	4	4
Health	41	14	9	5	5	4	4
Family Affairs, Senior Citizens, Women and Youth	40	14	9	5	4	4	4
Environment, Nature Conservation and Nuclear Safety	39	13	9	5	4	4	4
European Union Affairs	39	14	8	5	4	4	4
Food and Agriculture	38	13	8	5	4	4	4
Defence	36	12	8	5	4	4	3
Petitions	28	9	6	4	3	3	3
Economic Cooperation and Development	24	9	5	3	3	2	2
Housing, Urban Development, Building and Local Government	24	9	5	3	3	2	2
Digital Agenda	21	7	5	3	2	2	2
Culture and Media Affairs	18	6	4	2	2	2	2
Sports	18	6	4	2	2	2	2
Tourism	18	6	4	2	2	2	2
Human Rights and Humanitarian Aid	17	6	3	2	2	2	2
Elections, Immunity and the Rules of Procedure	14	5	3	2	2	1	1

Notes: The table provides the total number of committee members and the total number of committee seats allocated to the different parliamentary groups in the 19th Bundestag (2017-2021). We exclude several non-standard committees from our analysis: the committee on election audit (*Wahlprüfungsausschuss*) is excluded as it has the specific task of auditing whether the elections for the Bundestag and the European Parliament were conducted lawfully and without intervention. The committee meets substantially less often than other committees and consisted of only 9 members in both periods of interest. The mediation committee (*Vermittlungsausschuss*) is the common committee between the Bundestag and the Bundesrat, which is the parliamentary body representing the 16 German states at the federal level. Its main function is to mediate between the interests of the Bundestag and the Bundesrat in case of disagreement in the legislative process. As this committee consists of both members from the Bundestag and Bundesrat, we exclude it from our analysis. We also exclude the joint committee (*Gemeinsamer Ausschuss*) as its only function is to work as an emergency parliament in case of a state of defence and does not regularly meet. Furthermore, we exclude sub-committees (*Unterausschüsse*) that can be formed within the main committees, as well as investigative committees (*Untersuchungsauschuss*) that are temporarily formed *ad-hoc* to investigate specific cases of potential misconduct by the government. Finally, we also exclude the two temporary main committees (*Hauptausschuss*) that were formed for one month in 2013 and two months in 2017/18 as a stand-in committee until the constitution of the main committees while negotiations for the formation of a coalition government were on-going.

TABLE A5: FULL ACCOMMODATION EFFECTS

	Cosine Similarity to speeches by ...					
	(1) AfD	(2) FDP	(3) CDU/CSU	(4) SPD	(5) Greens	(6) Left
Share AfD × Post	3.356* (1.932)					
Share FDP × Post		3.411 (2.511)				
Share CDU/CSU × Post			0.079 (0.773)			
Share SPD × Post				-0.288 (1.070)		
Share Greens × Post					1.268 (1.305)	
Share Left × Post						-0.287 (1.047)
Topic Controls	✓	✓	✓	✓	✓	✓
Month FE	✓	✓	✓	✓	✓	✓
Speaker FE	✓	✓	✓	✓	✓	✓
Observations	17,383	17,383	14,688	17,322	17,689	18,285

Notes: Table reports coefficients and standard errors from linear regressions as laid out in Equation 4. The independent variable of interest is the interaction between the (average) share of respective party members of all committees in which a politician is a full member and an indicator whether the speech was recorded in the 19th German Bundestag (2017-2021). The dependent is the standardized average cosine similarity to speeches by members of the respective party after pre-processing and tf-idf vectorization. Topic controls are derived from a 20-topic LDA model. The sample comprises plenary speeches by members of the German Bundestag held between October 2013 and December 2019 with a minimum length of 100 terms from parties that were represented throughout the whole period (CDU/CSU, SPD, The Left, and Alliance90/The Greens), excluding members of the respective party. Standard errors clustered at the committee times electoral period level are reported in parentheses: $* p < 0.10$, $** p < 0.05$, $*** p < 0.01$.

	AfD Similarity	Höcke Similarity	Pop. Dictionary
	(1)	(2)	(3)
Share AfD × Post	3.780*	4.048***	3.856**
	(1.964)	(1.335)	(1.619)
Total Members	-0.003	-0.001	0.002
	(0.002)	(0.001)	(0.002)
Topic Controls	✓	✓	✓
Month FE	✓	✓	✓
Speaker FE	✓	✓	✓
Observations	17,383	17,383	17,383

Notes: Table reports coefficients and standard errors from linear regressions as laid out in Equation 4. *Share AfD x Post* is the interaction between the (average) share of AfD members of all committees in which a politician is a full member and an indicator whether the speech was recorded in the 19th German Bundestag (2017-2021). *Total Members* measures the (average) number of total committee members in which a politician is a full member in the respective electoral period. The dependent variables are as follows: (Column 1) the standardized average cosine similarity to AfD speeches after pre-processing and tf-idf vectorization; (Column 2) the standardized average cosine similarity to speeches by Björn Höcke after pre-processing and tf-idf vectorization; (Column 3) the standardized number of sentences with words from the German-language populist dictionary by Gründl (2022). Topic controls are derived from a 20-topic LDA model. The sample comprises plenary speeches by members of the German Bundestag held between October 2013 and December 2019 with a minimum length of 100 terms from parties that were represented throughout the whole period (CDU/CSU, SPD, The Left, and Alliance90/The Greens). Standard errors clustered at the committee times electoral period level are reported in parentheses: $* p < 0.10, ** p < 0.05, *** p < 0.01$.

TABLE A7: MINIMUM SPEECH LENGTH RESTRICTIONS

Minimum Terms	(1) 0	(2) 20	(3) 30	(4) 50	(5) 100	(6) 200	(7) 400	(8) 600
Panel A: [Std.] Cosine Similarity to AfD Speeches								
Share AfD × Post	2.423	4.374**	4.108**	3.828**	3.356*	2.800	0.796	1.521
	(1.946)	(1.924)	(1.753)	(1.783)	(1.932)	(1.791)	(2.098)	(2.621)
Observations	22,705	20,958	20,442	19,396	17,383	14,750	12,754	8,497
Panel B: [Std.] Cosine Similarity to Höcke Speeches								
Share AfD × Post	2.782*	4.128***	4.085***	3.896***	3.868***	3.633***	2.247	2.975
	(1.542)	(1.374)	(1.301)	(1.311)	(1.321)	(1.339)	(1.621)	(1.872)
Observations	22,705	20,958	20,442	19,396	17,383	14,750	12,754	8,497
Panel C: [Std.] Populist Dictionary Score								
Share AfD × Post	3.698***	4.192***	4.190***	4.379***	4.194**	4.869***	4.539**	5.395**
	(1.384)	(1.493)	(1.507)	(1.574)	(1.630)	(1.636)	(1.888)	(2.458)
Observations	23,216	20,958	20,442	19,396	17,383	14,750	12,754	8,497
Topic Controls	✓	✓	✓	✓	✓	✓	✓	✓
Month FE	✓	✓	✓	✓	✓	✓	✓	✓
Speaker FE	✓	✓	✓	✓	✓	✓	✓	✓

Notes: Table reports coefficients and standard errors from linear regressions as laid out in Equation 4. Across all panels, the independent variable of interest is the interaction between the (average) share of AfD members of all committees in which a politician is a full member and an indicator whether the speech was recorded in the 19th German Bundestag (2017-2021). The dependent variables are as follows: (Panel A) the standardized average cosine similarity to AfD speeches after pre-processing and tf-idf vectorization; (Panel B) the standardized average cosine similarity to speeches by Björn Höcke after pre-processing and tf-idf vectorization; (Panel C) the standardized number of sentences with words from the German-language populist dictionary by Gründl (2022). Throughout columns (1) to (8), the sample is restricted to speeches with a minimum number of terms as shown in the column head, which is the sample used to construct the respective outcome variables and standardize with mean zero and standard deviation one. Topic controls are derived from a 20-topic LDA model. The sample comprises plenary speeches by members of the German Bundestag held between October 2013 and December 2019 from parties that were represented throughout the whole period (CDU/CSU, SPD, The Left, and Alliance90/The Greens). Standard errors clustered at the committee times electoral period level are reported in parentheses: $* p < 0.10$, $** p < 0.05$, $*** p < 0.01$.

TABLE A8: EXCLUDE 90$^{\text{TH}}$ PERCENTILE

	AfD Similarity	Höcke Similarity	Pop. Dictionary
	(1)	(2)	(3)
Share AfD × Post	3.635*	3.342**	3.213*
	(1.945)	(1.616)	(1.935)
Topic Controls	✓	✓	✓
Month FE	✓	✓	✓
Speaker FE	✓	✓	✓
Observations	15,810	15,816	16,027

Notes: Table reports coefficients and standard errors from linear regressions as laid out in Equation 4. The independent variable of interest is the interaction between the (average) share of AfD members of all committees in which a politician is a full member and an indicator whether the speech was recorded in the 19$^{\text{th}}$ German Bundestag (2017-2021). The dependent variables are as follows: (Column 1) the standardized average cosine similarity to AfD speeches after pre-processing and tf-idf vectorization; (Column 2) the standardized average cosine similarity to speeches by Björn Höcke after pre-processing and tf-idf vectorization; (Column 3) the standardized number of sentences with words from the German-language populist dictionary by Gründl (2022). Topic controls are derived from a 20-topic LDA model. The sample comprises plenary speeches by members of the German Bundestag held between October 2013 and December 2019 with a minimum length of 100 terms from parties that were represented throughout the whole period (CDU/CSU, SPD, The Left, and Alliance90/The Greens). The 10 percent speeches with the highest score of the respective similarity measure are excluded from the sample. Standard errors clustered at the committee times electoral period level are reported in parentheses: $* \ p < 0.10, ** \ p < 0.05, *** \ p < 0.01$.

# B   Additional Figures
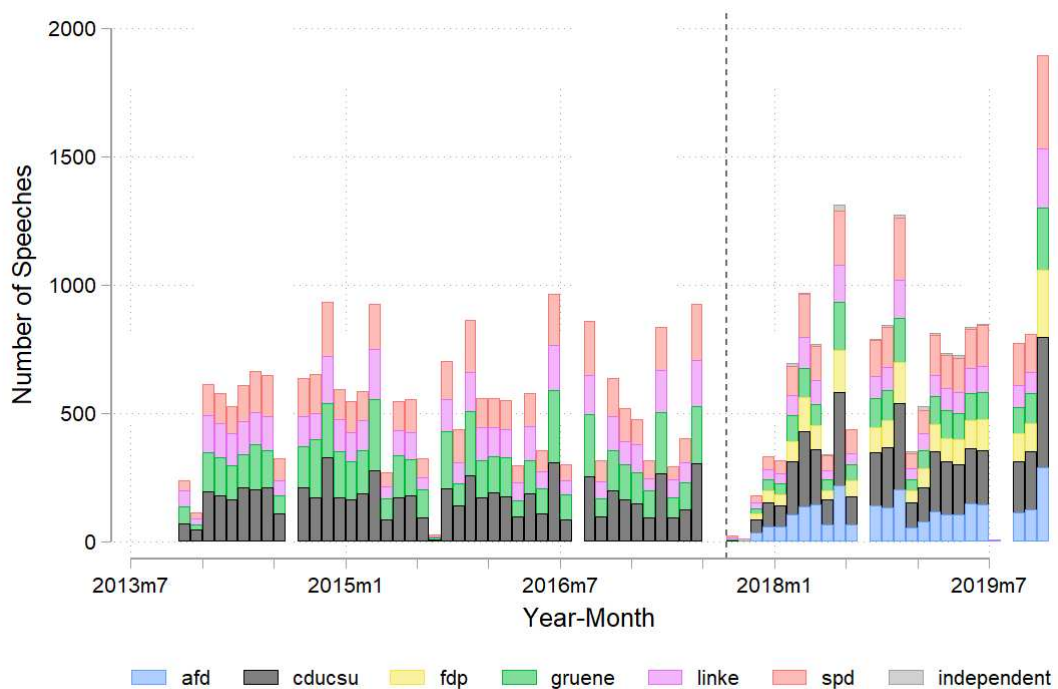
Notes: Figure shows distribution of all speeches in the German Bundestag between October 2013 and December 2019 aggregated by month and party affiliation of the speaker. "Independent" refers to non-affiliated MPs (*fraktionslos*) that do not belong to a parliamentary party group at the time of their speech.

## FIGURE B2: AfD COSINE SIMILARITY FOR DIFFERENT SPEECH LENGTHS
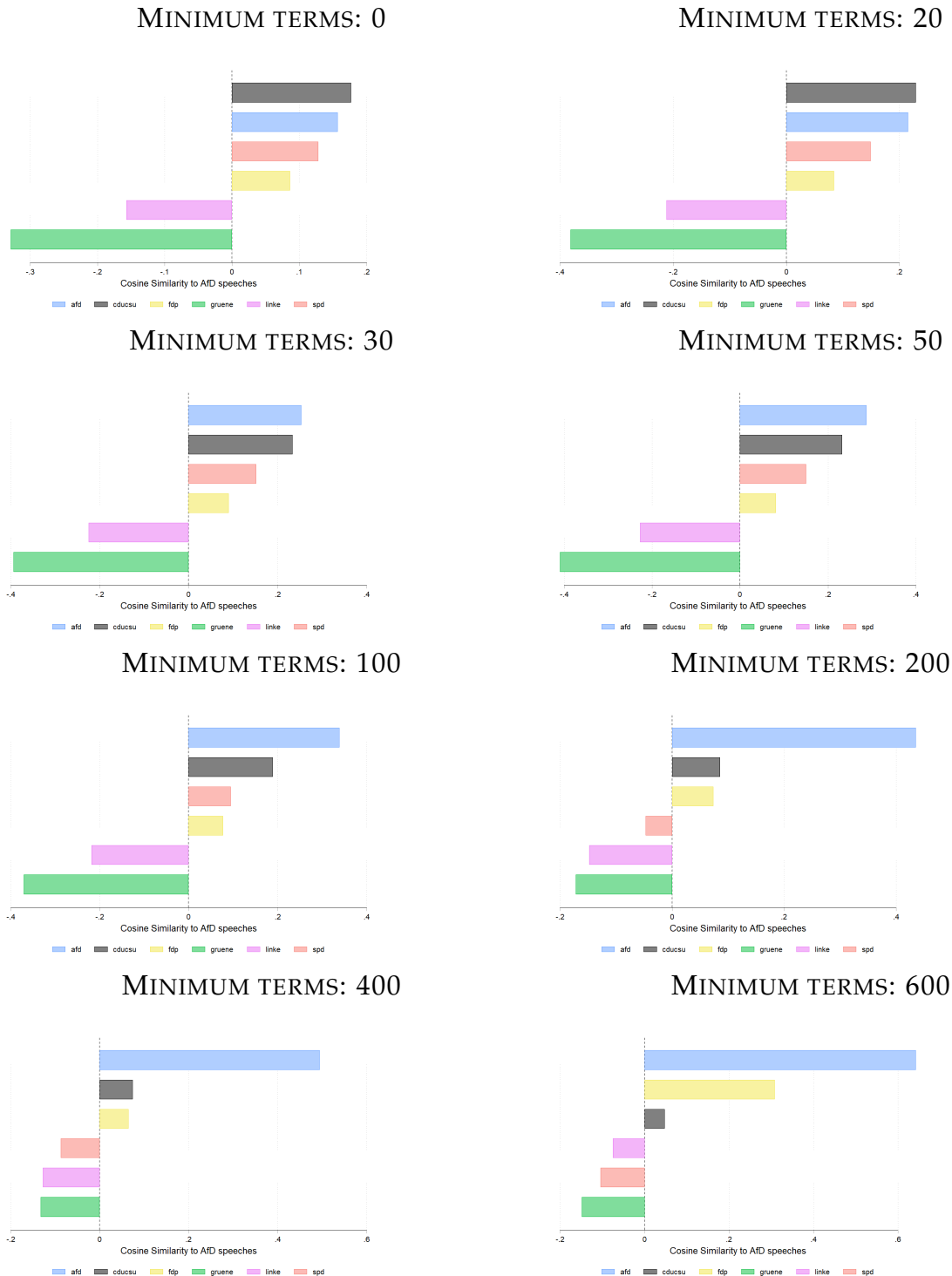
Notes: Graphs show the average standardized cosine similarity to AfD speeches for each party for different minimum terms restrictions on speeches. Sample includes all speeches in the German Bundestag between October 2013 and December 2019.
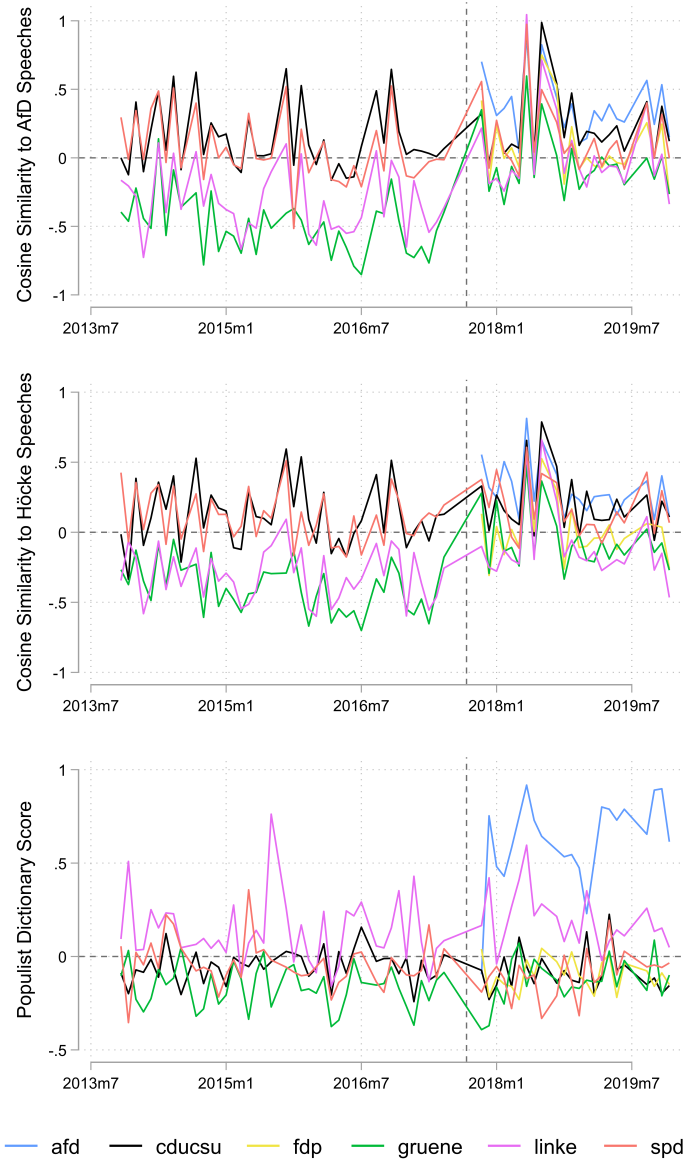
Notes: The upper panel displays the average standardized cosine similarity to AfD speeches in the Bundestag, the middle panel shows the average cosine similarity to Höcke speeches, while the lower panel shows the standardized scores from the populism dictionary provided by Gründl (2022). The lines display the party averages by month in which the speech was recorded, with the vertical dashed lines indicating the entry of the AfD in the Bundestag after the federal election in September 2017. Excludes months with few speeches (n<30) due to summer breaks and around change of legislative period (August 2015, September 2017, October 2017, July 2019). All outcome variables have been standardized with mean 0 and standard deviation 1. For the construction of each outcome, the sample was restricted to speeches with a minimum length of 100 terms.

FIGURE B4: GENERAL ACCOMMODATION EFFECTS
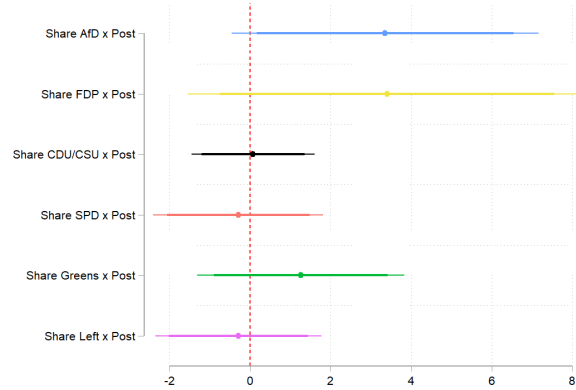
Notes: Figure shows coefficients and confidence intervals (90% & 95%) from separate linear regressions as laid out in Equation 4. The regression results are shown in Table A5. Each estimated coefficient corresponds to the interaction between the avg. share of party members in committees where a politician is a full member and an indicator whether a speech was held during the 19th Bundestag (2017-2021). The dependent variable is the std. avg. cosine similarity to speeches of that party after pre-processing and tf-idf vectorization. The sample comprises plenary speeches by MPs held between October 2013 and December 2019 (minimum length of 100 terms) from parties that were represented throughout the whole period (CDU/CSU, SPD, The Left, & Alliance90/The Greens), excluding members of the respective party. Standard errors clustered at the committee times electoral period level.

FIGURE B5: CHANGES IN RELATIVE COMMITTEE SIZES
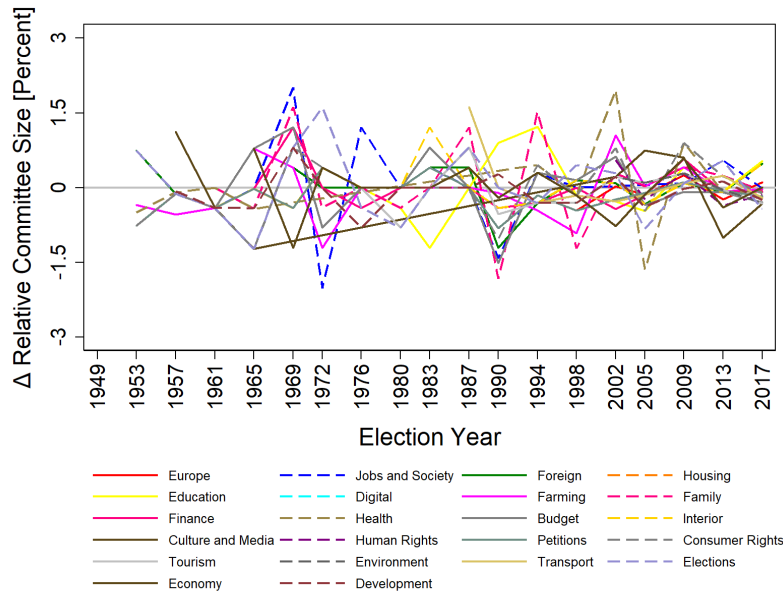
Notes: Graph shows percentage changes in relative committee sizes over time. Sizes are relative to the size of the Bundestag in the respective legislative period. The committees displayed are committees as in place of 2018. Committees were reshuffled and reorganized several times over time.

C   Technical Details

Our data management is mainly done in `python` (Van Rossum and Drake 1995) with some packages used in `R` (R Core Team 2022) if provided like that from the respective authors. To manage our workflow and allow for smooth integration of code from different languages we use `pytask` (Raabe 2020).

C.1   Pre-processing

As a first step of the pre-processing, we fix some regularly occurring errors in the raw text data where words were not separated by blanks. To fix these we use `language-tool-python`[33], the python wrapper of `LanguageTool`, an open-source grammar tool and spell checker. Next, we remove punctuation including German-specific and context-specific characters. We then remove stopwords and lemmatize the tokens. As the `nltk` database for German stopwords is considerably limited we use a more comprehensive set from https://github.com/solariz/german_stopwords. For the lemmatization we use the `Hanover Tagger` (Wartena 2019), a lemmatizer and POS tagger specifically designed for the German language. We refrain from stemming as it can lead to undesired oversimplification. Especially when thinking about inclusive language only using male or using both versions of a noun might matter. Also, Gründl (2022) points out, that stemming in a German context can lead to words becoming indistinguishable (e.g., Bürger (citizen), bürgen (to vouch), and Burg (castle)).

C.2   Similarity Measures

To obtain cosine similarity measures, we use the `TfidfVectorizer` package from the `scikit learn` (Pedregosa et al. 2011) module to create the tf-idf-matrix. Further, we `transform` the matrix to obtain an array for each speech. Data frame and matrix manipulations to calculate the averaged similarity scores to each party and Höcke are done with `pandas` (Wes McKinney 2010) and `numpy` (Harris et al. 2020).

For the populist dictionary scores we use the code provided by Gründl (2022)[34] and his `R` packages `popdictR` (Gründl 2020b), `multidictR` (Gründl 2020a) and `regexhelpeR`

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[33]https://pypi.org/project/language-tool-python/
[34]https://github.com/jogrue/popdictR

(Gründl 2020c). It processes the raw text on a sentence level and uses regular expression to identify populist words or phrases. It then counts the number of sentences containing populist content. A list of the dictionary entries found in the speeches can be found in Table C1.

C.3   Topic Modelling

We use gensim (Rehurek and Sojka 2011) and its LDA model for the LDA-Topic modelling. We prune at a 1% level. The derived topics and associated top 20 words translated to English and in German can be found in Table C2.

TABLE C1: POPULIST DICTIONARY ENTRIES FOLLOWING GRÜNDL (2022)

Anti-elitism

so-called/sogenannte (4,696)| to finance/finanzieren (2,080)| admit/zugeben (631)| bureaucrat/bürokrat (513)| to be ashamed/schämen (467)| to deceive/täuschen (465)| audacious/dreist (183)| corrupt/korrupt (155)| to manipulate/manipulieren (141)| circles/kreisen (140)| deception/täuschung (119)| mendacious/verlogen (74)| aloof/abgehoben (71)| to mock/verhöhnen (68)| erroneously/fälschlicherweise (66)| to lecture/belehren (65)| to fiddle/tricksen (63)| dishonest/unehrlich (63)| outrageous/unverschämt (59)| to patronize/bevormunden (58)| unworldly/weltfremd (47)| far from reality/realitätsfern (47)| greedy/gierig (42)| propaganda/propaganda (42)| arrogant/arrogant (41)| disaster/desaster (39)| ludicrous/aberwitzig (38)| technocrat/technokrat (37)| to presume to do/sich anmassen (37)| centralist/zentralisten (35)| centralistic/zentralistisch (35)| elite/elite (35)| presumptuous/anmaßend (33)| capitalist/kapitalist (31)| insanity/irrsinn (29)| encrusted/verkrustet (24)| indoctrination|instruction/belehrung (23)| lack of contact with reality/realitätsferne (23)| complacent/selbstgefällig (21)| ludicrous/wahnwitzig (21)| from above/von oben herab (19)| quixotic/lebensfremd (18)| banker/bänker (17)| dilettante/dilettantisch (17)| mafia/mafia (16)| absurdity/irrwitz (16)| speculator/spekulant (15)| out of touch with reality/realitätsfremd (14)| mob/pöbel (14)| complacent/selbstzufrieden (13)| arrogant/überheblich (12)| bosses/bosse (11)| fiddle/kungel (11)| to dare/erdreisten (9)| pedantic/oberlehrerhaft (7)| head teacher (in the meaning of a smart aleck)/oberlehrer (7)| at the expense of the Germans/zu lasten der deutschen (7)| opportunists/opportunisten (7)| to corrupt/korrumpieren (6)| remote from the people/bürgerfern (5)| disgrace/schande (4)| spineless/rückgratlos (3)| failing/versagend (3)| unprincipled/prinzipienlos (3)| haughty/hochmütig (2)| insatiable/nimmersatt (2)| remote from everyday life/lebensfern (2)| traitor to the nation/the people/volksverräter (2)| bigwig/bonze (2)| haggling/geschacher (1)| inane/hirnverbrannt (1)| pseudo-parties/pseudo-parteien (1)| government failure/staatsversagen (1)| stuck-up/hochnäsig (1)| establishment/establishment (1)| jet set/schickeria (1)|

Sovereignty

dictate/diktat (87)| undemocratic/undemokratisch (82)| anti-democratic/antidemokratisch (49)| allowed to say/sagen dürfen (35)| the citizens wish|want|demand/bürger fordern|möchten|mögen|verlangen|beanspruchen|wünschen (23)[35]| majority/mehrheit (10)| high-handed/selbstherrlich (9)| plebiscitary/plebiszitär (8)| the people demand|want|wish|/das volk will|fordert|möchte|mag|verlangt|beansprucht|wünscht (5)| for the|our people/für das|unser volk (2)| power-hungry/machtversessen (2)| party dictatorship/parteiendiktatur (1)| plebiscite/volksentscheid (1)|

People-centrism

tradition/tradition (150)| steadfast/standhaft (28)| average german/durchschnittlicher deutscher (1)| our citizens/unsere bürger (1)| working germans/arbeitende deutsche (1)|

Notes: All entries translated to English by the authors, original German version after the "/". The frequency of appearance is displayed in brackets behind the phrase. For better readability, the phrases were changed to their infinitives or non-declinated forms. The regex search patterns cover all different cases of declinations and conjugations for both singular and plural. An extensive list of regex expressions can be found in the online appendix of Gründl (2022). The categories are based on the populist ideology classification from Gründl (2022).

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[35]To avoid confusion and for better readability, four different versions with different syntax from the dictionary were combined into one.

Topic 1

european/europäisch | europe/europa | eu | china | union | russia/russland | together/gemeinsam | national | ukraine | interest/interesse | france/frankreich | cooperation/zusammenarbeit | russian/russisch | african/afrikanisch | level/ebene | partner | germany/deutschland | greece/griechenland | great britain/großbritannien | member state/mitgliedstaat

Topic 2

topic/thema | area/bereich | address/ansprechen | minister | point/punkt | recognition/erkenntnis | be interested in/interessieren | request/nachfrage | address/angehen | discuss/diskutieren | hundred thousand/hunderttausend | responsibility/zuständigkeit | evaluate/bewerten | warn/warnen | extension/ausweitung | clock/uhr | discuss/besprechen | affect/betreffen | keyword/stichwort | to be entitled to sth./zustehen

Topic 3

climate protection/klimaschutz | co | energy/energie | climate change/klimawandel | global | goal/ziel | ecological/ökologisch | renewable/erneuerbar | expansion/ausbau | reach/erreichen | energy revolution/energiewende | green/grün | globally/weltweit | amendment/novelle | percent/prozent | science/wissenschaft | paris | net/netz | international | measure/maßnahme

Topic 4

colleague/kollegin | dear/liebe | year/jahr | large/groß | accomplish/schaffen | important/wichtig | strong/stark | considerable/deutlich | together/gemeinsam | right/richtig | provide/stellen | cordial/herzlich | to care/sorgen | example/beispiel | goal/ziel | measure/maßnahme | good/gut | country/land | show/zeigen | support/unterstützen

Topic 5

company/unternehmen | investment/investition | economy/wirtschaft | germany/deutschland | to invest/investieren | social/sozial | development/entwicklung | economic/wirtschaftlich | employment/arbeitsplatz | region | future/zukunft | infrastructure/infrastruktur | to function/funktionieren | market/markt | innovation | competition/wettbewerb | industry/industrie | business/betrieb | percent/prozent | create/schaffen

Topic 6

security/sicherheit | firstly/erstens | secondly/zweitens | date/datum | net/netz | thirdly/drittens | it | police/polizei | control/kontrolle | pact/pakt | perpetrator/täter | communication/kommunikation | to function/funktionieren | federal office/bundesamt | dependent/abhängig | efficient/effizient | data protection/datenschutz | withdraw/entziehen | equipment/ausstattung | judiciary/justiz

Topic 7

soldier/soldat | german armed forces/bundeswehr | mission/einsatz | female soldiers/soldatinnen | turkey/türkei | peace/frieden | armed/bewaffnet | international | nato | security/sicherheit | nation | region | conflict/konflikt | war/krieg | military/militärisch | iran | foreign minister/außenminister | humanitarian/humanitär | united/vereinter | un

Topic 8

woman/frau | work/arbeit | nursing/pflege | social/sozial | pension/rente | parents/eltern | payment/leistung | income/einkommen | wage/lohn | labor market/arbeitsmarkt | employed/beschäftigt | employee/arbeitnehmer | age/alter | statutory/gesetzlich | man/mann | welfare state/sozialstaat | percent/prozent | basic income/grundsicherung | retiree/rentner | mother/mutter

TABLE C2: LDA TOPIC MODELLING – TOP 20 WORDS FOR EACH TOPIC (CONTINUED)

Topic 9

regulation/regelung ∣ procedure/verfahren ∣ case/fall ∣ rule/regel ∣ affected/betroffen ∣ legal/rechtlich ∣ authority/behörde ∣ possibility/möglichkeit ∣ present/vorliegend ∣ decision/entscheidung ∣ agriculture/landwirtschaft ∣ interest/interesse ∣ protection/schutz ∣ high/hoch ∣ person ∣ so-called/sogenannter ∣ public/öffentlich ∣ legal/gesetzlich ∣ basically/grundsätzlich ∣ substantial/erheblich

Topic 10

law/gesetz ∣ draft law/gesetzentwurf ∣ hearing/anhörung ∣ federal council/bundesrat ∣ abolition/abschaffung ∣ expert/experte ∣ brandenburg ∣ serious/seriös ∣ to consult/beraten ∣ state government/landesregierung ∣ consultation/beratung ∣ infer to from/entnehmen ∣ agree with/zustimmen ∣ consent/zustimmung ∣ contain/enthalten ∣ boss/chef ∣ to pass/verabschieden ∣ improvement/verbesserung ∣ parliamentary/parlamentarisch ∣ to introduce/einbringen

Topic 11

euro ∣ billion/milliarde ∣ year/jahr ∣ percent/prozent ∣ million ∣ money/geld ∣ country/land ∣ budget/haushalt ∣ federation/bund ∣ municipality/kommune ∣ funds/mittel ∣ to pay/zahlen ∣ costs/kosten ∣ additionally/zusätzlich ∣ minister(f.)/ministerin ∣ tax/steuer ∣ to increase/erhöhen ∣ disposal/verfügung ∣ city/stadt ∣ research/forschung

Topic 12

human/mensch ∣ life/leben ∣ country/land ∣ human right/menschenrecht ∣ refugee/flüchtling ∣ aid/hilfe ∣ to help/helfen ∣ poor/arm ∣ million ∣ perspective/perspektive ∣ group/gruppe ∣ affected/betroffen ∣ poverty/armut ∣ place/ort ∣ peaceful/friedlich ∣ situation ∣ safe/sicher ∣ city/stadt ∣ escape/flucht ∣ distress/not

Topic 13

question/frage ∣ to believe/glauben ∣ problem ∣ to know/wissen ∣ to speak/sprechen ∣ to talk/reden ∣ to lead/führen ∣ to put/stellen ∣ president/präsident ∣ correct/richtig ∣ year/jahr ∣ debate/debatte ∣ to mean/heißen ∣ to get/bekommen ∣ point/punkt ∣ wrong/falsch ∣ already/schon ∣ big/groß ∣ time/zeit ∣ house/haus

Topic 14

child/kind ∣ family/familie ∣ education/bildung ∣ school/schule ∣ training/weiterbildung ∣ bafög ∣ north rhine/nordrhein ∣ westphalia/westfalen ∣ university/hochschule ∣ disability/behinderung ∣ to learn/lernen ∣ specialist/fachkraft ∣ performance/leistung ∣ child benefit/kindergeld ∣ quality/qualität ∣ minister (f.)/ministerin ∣ chance ∣ qualification/qualifikation ∣daycare/kita ∣ trained/ausgebildet

Topic 15

afd ∣ cdu ∣ csu ∣ party/partei ∣ spd ∣ tax payer/steuerzahler ∣ fdp ∣ seehofer ∣ to govern/regieren ∣ credit/kredit ∣ bank ∣ to safe/retten ∣ to sign/unterscheiden ∣ bavaria/bayern ∣ election campaign/wahlkampf ∣ to defend/verteidigen ∣ tax money/steuergeld ∣ elections/wahlen ∣ capital/kapital ∣ interest/zins

Topic 16

germany/deutschland ∣ german/deutsch ∣ lady/dame ∣ citizen/bürger ∣ country/land ∣ state/staat ∣ political/politisch ∣ policy/politik ∣ president/präsident ∣ world/welt ∣ democracy/demokratie ∣ digital ∣ victim/opfer ∣ freedom/freiheit ∣ value/wert ∣ right/recht ∣ citizens (f.)/bürgerinnen ∣ to show/zeigen ∣ fight/kampf ∣ fear/angst

TABLE C2: LDA TOPIC MODELLING – TOP 20 WORDS FOR EACH TOPIC (CONTINUED)

Topic 17

request/antrag | fdp | german parliament/bundestag | parliamentary group/fraktion | green/grün | colleague (f.)/kollegin | spd | dear/liebe | parliament/parlament | leftist/linker | proposal/vorschlag | public/öffentlich | committee/ausschuß | to agree/zustimmen | parliamentary/parlamentarisch | votes/stimmen | debate/debatte | commission/kommission | president (f.)/präsidentin | delegated/abgeordnet

Topic 18

federal government/bundesregierung | finally/endlich | government/regierung | leftists/linke | greens/grüne | coalition/koalition | submit/vorlegen | change/änderung | to promise/versprechen | urgent/dringend | real/echt | to change/ändern | draft/entwurf | massive/massiv | to suffice/reichen | to wait/warten | to fail/scheitern | union | plan/vorhaben | reform

Topic 19

usa | contract/vertrag | negotiation/verhandlung | agreement/abkommen | us | to unite/vereinigen | evening/abend | american/amerikanisch | young people/jugendliche | relevant | recognisable/erkennbar | international | american/amerikaner | america/amerika | position/stellung | world/welt | trade/handel | to negotiate/verhandeln | state/staat | partner

Topic 20

report/bericht | supply/versorgung | information | complex/komplex | consensus/konsens | request/anfrage | restriction/einschränkung | template/vorlage | ensured/versichert | happy/glücklich | clarification/aufklärung | left-wing fraction/linksfraktion | answered/beantwortet | to inform/informieren | access/zugang | patient | digitization/digitalisierung | fund/kasse | ministry/ministerium | health insurance/krankenkasse

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