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Slovak MPs' response to the 2022 Russian invasion of Ukraine in light of conspiracy theories and the polarization of political discourse

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The 2022 Russian invasion of Ukraine received widespread international condemnation. In Slovakia, the invasion became a subject of much political discussion with large number of MPs openly advocating Russian interests. This study investigates Slovak political discourse on Facebook in the weeks before and after the invasion began. We examine the discourse through the lens of Discourse Network Analysis, combining qualitative content analysis of MPs' Facebook posts with quantitative bipartite social network analysis. During the two weeks, we retrieved all ($n = 1880$) posts from all ($n = 117$) MPs who had an active public Facebook page. We manually coded all posts and created a bipartite discourse network consisting of MPs connected to each other via shared discourse codes in two timepoints. We performed a series of exploratory analyses that identified the content of the political discourse, the structure of the political discourse network, and the mechanisms driving the change of the political discourse network. Our results show that the invasion dramatically changed political discourse in Slovakia, with the domestic coalition-opposition struggles losing prominence among the invasion-related topics. The structure of the political discourse network showed a strong coalition-opposition split. While coalition MPs had largely pro-Ukrainian sentiments, opposition MPs largely communicated pro-Russian propaganda. A cluster of opposition MPs consistently spread conspiracy theories both before and after the invasion began, supporting a "conspiracy singularity" theory—the tendency of actors to spread multiple different conspiracy theories and interconnect various conspiracy theories into one overarching narrative. The change of the discourse network at the beginning of the invasion was largely driven by the agenda setting of several parties, agenda reinforcement, and increasing political polarization. We discuss our findings in relation to the previous research on the spread of conspiracy theories among politicians and the polarization of political discourse during the invasion, and we suggest implications for future research.

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Introduction

In the days following the 24 February, 2022 Russian invasion of Ukraine, the invasion received widespread international condemnation from virtually all prominent intergovernmental organizations except for the United Nations Security Council, where Russia vetoed the condemnation resolution (Cavandoli and Wilson, 2022). Particularly in EU-member countries, the invasion was met with condemnation across the political spectrum, with political parties otherwise often aligned with Russian interests and pro-Russian rhetoric openly standing up against the invasion as well (Albertazzi et al., 2022). However, in Slovakia—a country deeply rooted in Western economic and security structures—the invasion became a subject of much political discussion with a large number of MPs openly advocating Russian interests and a quarter of MPs not supporting the condemnation resolution in the Slovak National Council (Resolution No. 920/2022). This makes Slovakia a unique case among EU-member countries when a significant proportion of the national parliament opposed the common European stand.

The contentious discourse of the Slovak MPs did not occur by accident. This study is situated in the wider context of emerging studies on political polarization and the spread of conspiracy theories during the invasion. In both Italy (Bordignon et al., 2022) and Finland (Xia et al., 2022), there was a decrease in pro-/anti-NATO political polarization following the invasion, with many formerly anti-NATO parties undergoing a rapid repositioning. The authors argue that the depolarization occurred as a result of an external threat increasing internal cohesion. The spread of conspiracy theories in Europe, on the other hand, persisted. Russian state propaganda was disseminating an array of narratives justifying the invasion. The narratives blamed NATO for the invasion, and were spread across social media including Facebook, Twitter, and Reddit. The narratives were then shared by various local actors in the European countries (Alieva et al., 2022; Hanley et al., 2022; Marušiak, 2023). A narrative about a US-backed biological weapons lab being built in Ukraine gained prominence on Twitter in the days following the invasion (Pohl et al., 2023). In Serbia, Bosnia and Hercegovina, Bulgaria, (Răducu and Hercigonja, 2023) and Romania (Pop, 2022), many pro-Russian online sources continued spreading narratives blaming NATO for the Russian invasion. In Finland, the same parties involved in spreading COVID vaccine conspiracy theories before the invasion continued to spread anti-NATO narratives and conspiracies during the invasion (Xia et al. 2022). The tendency of actors to spread multiple different conspiracy theories and interconnect various conspiracy theories into one overarching narrative has been called "conspiracy singularity" (Merlan, 2020), with emerging research providing evidence of this phenomenon's existence (Murru, 2022; Tuters and Willaert, 2022). A study by Terracciano (2023) comparing the conspiracy theories related to COVID and the Russian invasion disseminated on QAnon-supporter Telegram channels upheld the "conspiracy singularity" theory. It provided a sociolinguistic perspective on the mechanisms leading to singularity in conspiracy theories, showing that theories related to both COVID and the Russian invasion were based on rewriting the chain of causality and using figurative reasoning with metaphors. This enabled the idea of shared secrecy among the propagators of conspiracy theories.

We focus on political discourse, however, not in parliamentary debate, but in the online space. We analyse posts on Facebook, which is one of the most frequently used venues for politicians to communicate with their audiences directly in Slovakia. There is little to no moderation of Facebook and communication is immediate (Tasente, 2020). Thus, in times of crises, Facebook posts capture immediate positions of the actors.

This study therefore investigates Slovak political discourse on Facebook in the week immediately preceding and in the week immediately following the invasion. We see the discourse through the lens of Discourse Network Analysis, combining qualitative content analysis of MPs' Facebook posts with quantitative bipartite social network analysis to measure the discourse properties (Leifeld, 2013; 2016). We draw from the discourse of the individual MPs, but we analyse the structure of the discourse comprising the MPs and the connections between the MPs representing shared discourses. We approach the problems of the political discourse in Slovakia in an exploratory manner. We study the *content* of the discourse—what was being said—the *structure* of the discourse—who was saying it and what the connections between the individual MPs were—and the *mechanisms* driving the change of the discourse following the invasion. We address the following research questions:

RQ1: What was the content of the political discourse in Slovakia in the week before and the week after the invasion?

RQ2: What did the structure of the political discourse network look like the week before and the week after the invasion?

RQ3: What mechanisms drove the change of the political discourse network in Slovakia at the beginning of the invasion?

Localizing Slovakia

Slovakia is an East-Central European country bordering Ukraine, a former part of the Eastern Bloc, but presently integrated within all major Western structures. Slovakia was formed in 1993 following the dissolution of Czechoslovakia and has since undergone a transition from an authoritarian regime to a consolidated democracy (Haydanka, 2021; Szomolanyi, 2004). The country is now a part of the North Atlantic Treaty Organization (NATO), the European Union (EU) including the Eurozone and the Schengen Area, and the Organisation for Economic Co-operation and Development (OECD). Slovakia is recognized as an advanced (International Monetary Fund, 2022) high-income economy (World Bank, 2021) with a very high Human Development Index (United Nations Development Programme, 2023).

Despite having a formally pro-Western and pro-democratic political system, the values and opinions of Slovak society have not always reflected this. Slovakia has long been ranked among the EU countries with the lowest citizen satisfaction in the level of democracy and the lowest trust in the national government (European Commission, 2022). Moreover, compared to other EU countries, Slovaks were among those with the highest tendencies to believe in conspiracy theories (European Commission, 2021) and 53% of the adult Slovak population was found to believe in conspiracy theories (Hajdu et al., 2018). Slovakia was further found to be highly vulnerable to Russian disinformation and propaganda with widespread Pan-Slavist and anti-Western sentiments (Marušiak, 2023) and 78% of the adult Slovak population perceiving Russia as Slovakia's Slavic brother (GLOBSEC, 2021). The strong anti-Western sentiments have often been linked to massive disinformation and conspiracy theory campaigns originating from Russia, as Slovakia has been one of the target countries for Russian hybrid warfare since the Ukrainian Revolution of Dignity in February 2014 and the following Russo-Ukrainian War (Čižik, 2017; Marušiak, 2023).

The recent history of Slovakia immediately preceding the Russian invasion of Ukraine was marked by societal and political turmoil. During the four years preceding the invasion, Slovakia had four different PMs and experienced unprecedented demonstrations following the murder of investigative journalist Ján Kuciak and his fiancée Martina Kušnírová. Slovakia then experienced very stringent COVID restrictions in 2020

(Hale et al., 2021) and one of the one of the world's highest per-capita COVID-related death rates in 2021 (World Health Organization, 2023). In reaction to the massive COVID spread, in February 2021, the then-prime minister Igor Matovič secured a deal to purchase Sputnik V vaccine from Russia, with Slovakia becoming the second EU-member state to procure the vaccine despite the vaccine lacking approval from the European Medicines Agency. The PM's step was criticized by several members of his own Cabinet as an irresponsible act, lacking consultations with the rest of the Cabinet members, and helping Russian propaganda (Klingová, 2022). The controversy sparked a coalition crisis with Igor Matovič forced to resign as PM to save the governing coalition (Láštic, 2022).

The political landscape in Slovakia is highly fragmented, marked by the instability of political parties, and dominated by populist parties. In the most recent elections preceding the Russian invasion of Ukraine—in February 2020—six parties were elected into the 150-seat National Council—with an average party age of nine years. Within a year of the last general elections—when the invasion started—the original six parties in the Council had already split into eleven different parties and three unaffiliated MPs. Table 1 shows the composition of the Council as of 24 February 2022. We now briefly outline the Council's composition and the parliamentary parties, with a detailed description of each party available as Supplementary Table S1.

The **coalition** consisted of four parties—OĽaNO, SaS, SME RODINA, and ZA ĽUDÍ. OĽaNO won most of the seats in the 2020 general elections with a strong anti-corruption campaign; the party is, however, to a large degree populist, anti-establishment, (Dudinská et al., 2021; Gyárfášová, 2018) and business-firm (Marušiak, 2017). SaS is a liberal, right-wing, and mildly Eurosceptic party (Kralikova et al., 2020). The SME RODINA party is conservative, populist, anti-establishment (Dudinská et al., 2021), business-firm (Marušiak, 2017), and mildly Eurosceptic (Kralikova et al., 2020). ZA ĽUDÍ is a centrist party (Marušiak, 2017), which underwent dramatic fragmentation as most of the MPs originally elected for ZA ĽUDÍ had joined SaS by the time the invasion began. The **opposition** consisted of seven parties – SMER-SD, HLAS-SD, ĽSNS, Republika, ŽIVOT, PS, Spolu—and three unaffiliated MPs. SMER-SD is a populist (Marušiak, 2017) party with strong focus on nationalistic, conservative, anti-liberal rhetoric and spreads anti-Soros conspiracy theories (Plenta, 2020). Ľuboš Blaha—a prominent party member—has been called

a top pro-Russian propaganda source in Slovakia (Trnka, 2022). The party is led by three-time prime minister Robert Fico. HLAS-SD is a populist and catch-all breakaway party of SMER-SD (Gális, 2020) led by another former prime minister—Peter Pellegrini. ĽSNS is a neo-Nazi, anti-NATO, anti-establishment (Gyárfášová, 2018), and right-wing extremist (Marušiak, 2017) party openly praising Jozef Tiso—the president of the Slovak State—a client state of Nazi Germany. Several members of the party have been identified as influential pro-Russian propaganda sources (Trnka, 2022). Republika and ŽIVOT are both breakaway parties of ĽSNS. Like members of ĽSNS, several members of Republika and ŽIVOT were identified as influential pro-Russian propaganda sources (Trnka, 2022). PS—a social liberal progressive party—and Spolu—a centrist party (Dudinská et al., 2021)—are opposition parties with one MP each.

It has been argued that due to the fragmented and underdeveloped partisan electoral system, unclear ideological profiles of political parties, and weak partisan identification, Slovak society is highly susceptible to elite cues. Slovaks were found to base their voting decisions strongly on leader evaluations. The evaluations of Slovak leaders were found to be influenced more by the strong branding of political leaders and their personal opinions, rather than ideological proximity to these leaders (Gyárfášová and Hlatky, 2023). Slovak voters were also found to react strongly to cues from political elites regarding European migration policies (Hlatky, 2023). On an individual level, it was found that conspiratorial thinking among Slovaks is linked to their support for anti-Western parties, which are actively spreading conspiracy cues (Onderco and Stoeckel, 2023).

Discourse Network Analysis as a tool for disentangling parties' agendas

Discourse is a concept with many definitions, but its essential component is the language-power nexus (Hajer and Laws, 2008). Hajer (1993) sees it as a grouping of ideas, concepts, and categories through which a phenomenon is given meaning, shaping the context in which the phenomenon is understood. Discourse is then a shared interpretation of how actors understand the world around them, while at the same time structuring individual or collective action (Leifeld & Haunss, 2012). Actors use social constructs to advance a particular understanding of a phenomenon and construct and re-construct its shared understanding,

Table 1 Basic characteristics of the sample.

	MPs in the National Council	MPs in our sample N (% of all MPs)	Avg. pre-invasion posts per MP M (SD)	Avg. post-invasion posts per MP M (SD)	Change
	150	117 (78.00%)	7.34 (8.3)	8.73 (8.02)	+1.4 (19.2%)
Female	32	27 (84.36%)	4.78 (3.73)	8.93 (5.29)	+4.15 (86.82%)
Male	118	90 (76.27%)	8.11 (8.79)	8.67 (9.04)	+0.56 (6.85%)
Coalition	91	72 (79.12%)	7.03 (6.90)	9.94 (9.18)	+2.92 (41.50%)
OĽaNO	50	37 (74.00%)	7.43 (7.12)	10.43 (8.66)	+3.00 (40.36%)
SaS	19	17 (89.47%)	9.18 (7.33)	11.82 (12.41)	+2.65 (28.85%)
SME RODINA	17	14 (82.35%)	2.50 (2.71)	5.00 (4.33)	+2.50 (100.00%)
ZA ĽUDÍ	5	4 (80.00%)	10.00 (8.08)	14.75 (4.92)	+4.75 (47.50%)
opposition	59	45 (76.27%)	7.84 (9.62)	6.78 (6.28)	−1.07 (13.60%)
SMER-SD	27	13 (48.15%)	6.00 (2.82)	6.23 (4.51)	+0.23 (3.85%)
HLAS-SD	11	11 (100.00%)	7.27 (4.96)	3.91 (3.30)	−3.36 (46.25%)
ĽSNS	8	8 (100.00%)	2.25 (2.19)	3.38 (1.51)	+1.13 (50.00%)
Republika	5	5 (100.00%)	9.80 (5.45)	9.20 (5.81)	−0.60 (6.12%)
ŽIVOT	3	3 (100.00%)	16.00 (9.54)	16.00 (14.18)	no change
PS	1	1 (100.00%)	7.00 (n/a)	11.00 (n/a)	+4.00 (57.14%)
Spolu	1	1 (100.00%)	5.00 (n/a)	9.00 (n/a)	+4.00 (80.00%)
Unaffiliated	3	3 (100.00%)	22.67 (33.23)	13.33 (10.21)	−9.33 (41.18%)

solidifying or challenging it. Such ability is associated with power, and, ultimately, with the ability to influence how the political agenda on a phenomenon is set. Hence, there are so-called discursive struggles that play out in any given discourse. The control of the discourse then makes certain courses of political action logical, while others are seen as not viable at all.

Discourse Network Analysis (DNA) is an approach to textual data combining qualitative content analysis with quantitative social network analysis, which allows the operationalization of discourse in a more specific way. In a traditional critical discourse analysis, power to set understanding is assumed to be the central organizational principle. The discourse is thus comprised not only of the (1) content of speech acts, but also (2) specific conditions that mediated their emergence and (3) the wider social context in which these speech acts occurred (Fairclough et al., 2011). DNA follows the idea of power behind the discourse emergence, but the power generating the discourse is seen as a product of interactions (discursive struggles) of actors over certain social constructs (content of the discourse). These interactions can then be captured as a network, where constructs are tied to the actors uttering them. The emergent structure allows us to investigate content and actors together with their positions. Actors or constructs that are at the centre of such a network can then be considered the most influential for the policy process, while actors on the periphery of the network are likely not influential at all (Leifeld, 2013; 2016). The approach of DNA is thus narrower and more focused than the traditional critical discourse analysis (Fairclough, 1993; Fairclough et al., 2011), while it retains its essential parts. It allows for a more formal examination of the discourse through concepts and tools of social network analysis (Leifeld, 2016), where power and influence have been studied extensively as properties of relations among network members (Rinscheid, 2020). In addition to that, the network operationalization of the discourse then allows for a dynamic perspective, where discourse networks evolve over time or through critical events (Leifeld, 2013) such as the onset of a war. It allows the political discourse to be seen as dynamic, relational, filled with uncertainty over policies, path-dependent on previous ideas and positions of actors, polarized, includes learning processes, and never in equilibrium (Leifeld, 2014).

As DNA builds on content analysis, it first allows us to explore and describe what content is prevalent and how different contents may be interconnected by looking at what contents co-occur (Krippendorff, 2013). Second, as DNA builds on social network analysis, it maps the structure of the connections between the actors and the content the actors use. DNA identifies what actors spread what content and identifies which actors are interconnected by looking at contents shared between the individual actors. The network approach allows the latent connections between the actors to be explored based on the shared content, which the actors themselves may not be willing to disclose (Steinfeld, 2016). Third, DNA allows us to harness advances in inferential social network analysis to test a whole set of expectations over processes that drive formation, maintenance or change of the discourse, expressed through micro mechanisms—driving forces behind the emergence of the network structure (Stadfeld and Amati, 2021). First, it allows us to identify the policy agenda-setting process (Kingdon, 1995; Leifeld, 2014; McCombs and Shaw, 1993) in two ways—(1) which agendas are being set, by modelling the popularity of the topics, and (2) which actors are the agenda setters, by modelling the activity of the MPs based on their party affiliation. Similarly, we can identify the process of agenda reinforcement by looking at the tendency of actors to discuss the topics that are already popular and the tendency of MPs who already discuss a lot of topics to discuss them even more—a process that Leifeld (2014) understands as

path-dependency as it reflects a tendency of actors to be self-consistent over time—but is ultimately driven by the assumption of popularity (Merton, 1968). Moreover, DNA allows us to identify the polarization of political discourse by looking at the tendency of MPs to communicate the same topics as other MPs with the same party affiliation, with polarization being one of the very core features of policy discourse (Fisher et al., 2013; Hajer, 1993; Leifeld, 2014; Sabatier, 1988).

The idea of linking DNA with inferential methods is not new (Leifeld, 2014), but its combination with social network models has emerged only recently (Leifeld, 2020). It was soon shown to be suitable to investigate both parliamentarians (Wonka and Haunss, 2020) and the formation of discursive mechanisms in political discourse (Haunss and Hollway, 2022). We build upon this emerging work by studying a specific case of Slovakia in response to a global security crisis caused by the Russian invasion of Ukraine.

Data and methods
Sample. Our sample comprises all MPs of the National Council of the Slovak Republic and all their posts on their public Facebook pages in the week before (17.2.–23.2.2022) and the week after the invasion (24.2.–2.3.2022). Out of the total number of 150 MPs in the National Council, 117 MPs (78.0%) had active public Facebook pages during the period of data collection. We included only MPs' public Facebook pages with all content available to anyone on the Internet—not private profiles, even if their contents were public. Table 1 shows basic characteristics of our sample compared to the whole National Council. We retrieved a total of 1880 posts—859 posts from the week pre-invasion and 1021 posts from the week post-Invasion—from the 117 MPs with active public Facebook pages. In addition to retrieving the individual MPs' data on coalition/opposition affiliation and party membership, we retrieved data on their memberships in 19 Council Committees and their number of followers on Facebook at the end of the week after the invasion (2.3.2022).

Retrieval of MPs' Facebook statuses. Once we identified MPs' public Facebook pages, we retrieved all types of posts from their timelines including text, video, pictures, or any combinations thereof in the week before and the week after the invasion. Two authors of this study retrieved them manually—page by page—at the end of the week after the invasion (2.3.2022).

Coding the statuses. The first step of the coding aimed to reduce the content of the political discourse of the individual MPs into discourse codes comparable between the MPs. We undertook a qualitative thematic content analysis (Bowen, 2009), the aim of which was to inductively find out which topics appear in the MPs' Facebook posts and whether it was possible to organize individual topics into larger thematic units (categories). Two of the authors coded all posts from several MPs using inductive open coding. Each of the two authors created a codebook of recurring codes with the name of code, definition, and example (each list contained approximately 100 codes).

In the second step, following a discussion and an agreement between the two coders, we created a final codebook with 120 codes along with 11 categories of codes; (pro-Ukraine, pro-Russia, pro-NATO, anti-NATO, Slovak neutrality, anti-opposition, anti-coalition, pro-president, anti-president, pro-Chief Prosecutor, and anti-Chief Prosecutor)—each code belonging to one category except for 20 miscellaneous codes not included in any of the categories—each category containing on average nine codes.

The third step consisted of deductive coding. Once the final codebook was created, the two authors of this study double-coded 10% of the MPs' posts applying one or more codes to each post. We calculated inter-rater reliability with Krippendorff's Alpha (Hayes and Krippendorff, 2007; Krippendorff, 2011) in *R* package *icr* (Staudt and L'Ecuyer, 2020). Krippendorff's Alpha was at 0.88 with SD = 0.02 suggesting high inter-rater reliability. The codebook with the descriptions of the individual codes is available as Supplementary Table S2.

Constructing bipartite networks. Following the coding process, we constructed two bipartite discourse networks—one for the week before the invasion, one for the week after. The networks consisted of nodes and ties between the nodes. We had two separate sets of nodes—one set representing the individual MPs and the other set representing the discourse codes. Ties were undirected and weighted representing the number of times a given MP used a given discourse code in the week. The adjacency matrices representing the bipartite networks are available as Supplementary Table S3.

Analysing the content. To address the RQ1 and explore the content of the political discourse in Slovakia, we calculated discourse codes' popularity by the number of times they were used in each week. We define popularity as the absolute number of times a discourse code was used. In network terms, the metrics equals weighted degree centrality. We also calculated the same metrics for the aggregate twelve discourse code categories.

Analysing the structure. To address the RQ2 and analyse the structure of the discourse network, we visualized the MPs' pre- and post-invasion discourse networks in *Gephi* (Bastian et al., 2009). We used *ForceAtlas2* layout (Jacomy et al., 2014)—a force-directed layout aiming to intuitively spatialize the network and help its interpretation. Subsequently, we dichotomized the network by considering all ties as unweighted—the dichotomization was necessary due to the measures being undefined for weighted bipartite data—and we calculated the following bipartite network measures using the migraph package in R (Hollway, 2021). The *Jaccard coefficient* is the proportion of ties that are present in both time points to the number of ties present in at least one time point to measure the change in the network between the two weeks; *density* represents the proportion of the number of observed ties to the number of all the possible ties (i.e., pairs between MPs and discourse codes); *centralization of degrees* (that is, the number of ties each node has) represents the proportion of the observed concentration of degrees to their maximum possible value—calculated separately for the MPs and for the discourse codes; and *equivalency* represents the proportion of the number of complete four-cycles ("squares") to the number of paths of length three (i.e., open four-cycles) and indicates the amount of closure (transitivity) in bipartite data. All these measures range between 0 and 1 with higher values indicating a more stable, dense, centralized, or transitive network, respectively.

Analysing the mechanisms of change. To address the RQ3 and test the mechanisms that drove the change from the week before to the week after the invasion in the discourse network, we used stochastic actor-oriented models for bipartite data (SAOM) (Koskinen and Edling, 2012; Snijders et al., 2010; 2013). In SAOM, the change is assumed to be the result of small incremental changes that actors make about their outgoing ties. What changes they make is determined by the objective function, which contains the modelled effects capturing the hypothesized mechanisms, while how often they get to make these changes is determined by the rate function. In bipartite networks, the agency is only in one of the modes—in our case, the MPs—and thus only the choices of the MPs to use the discourse codes are simulated. The simulations are used to obtain the parameter estimates and their standard errors. The resulting parameter estimates are in log odds—much like in logistic regression. Their positive values indicate that when the network configurations embodied by the given parameter are attractive for the actors they are more likely to create or maintain ties embedded within them, whereas negative values indicate the opposite. The parameter estimates that are at least twice as large as their corresponding standard errors are seen as statistically significantly different from zero.

In our model, we included the following effects listed in Table 2. First, there are six effects representing endogenous network mechanisms. The outdegree effect is the intercept of the model denoting the baseline propensity of the MPs to discuss discourse codes regardless of any attributes. The basic rate parameter effect models the average amount of opportunity an actor has for changing their ties. The indegree popularity effect captures the tendency of actors to discuss the discourse codes that are already popular, and the outdegree activity effect represents the tendency of MPs who already use a lot of discourse codes to discuss even more. These two effects thus model the tie accumulation mechanisms capturing the mechanism of agenda reinforcement. The outgoing isolate effect is a control for the number of inactive MPs. The 4-cycles effect models the MPs' tendency towards bipartite closure, i.e., the tendency of two MPs who share

Table 2 Included SAOM effects.

RSiena effect	Mechanism	Interpretation
Endogenous network mechanisms		
Outdegree (density)	Tie formation	Tendency of MPs to use discourse codes – model intercept
Basic rate parameter	—	Average opportunity for tie change per each MP
Indegree - popularity (sqrt)	Incoming tie accumulation	Tendency of MPs to concentrate discussion around popular discourse codes
Outdegree - activity (sqrt)	Outgoing tie accumulation	Tendency of highly active MPs to discuss even more discourse codes
Out-isolate	Inactivity	Tendency of MPs not to discuss any discourse codes
4-cycles	Bipartite closure	Tendency of MPs to close open 4-cycles – two MPs discussing the same two discourse codes
Attribute-based network mechanisms		
[attribute] ego	Attribute-based activity	Tendency of MPs with a given attribute (gender, party, no. of committees) to discuss more discourse codes
[attribute] alt. in dist. 2	Bipartite homophily	Tendency of MPs sharing a given attribute (gender, party, no. of followers) to discuss the same discourse codes
[attribute] alter	Attribute-based popularity	Tendency of discourse codes with a given attribute (belonging to a given category) to be discussed by more MPs

common discourse codes to also share another. The remaining effects relate to the individual attributes of MPs. The ego effects capture the activity of MPs based on their gender, party membership, number of followers on Facebook, and number of committees to which they belong. With the ego effects, we can identify the agenda setters. The alter in distance 2 effects capture homophily in bipartite networks among MPs based on the same attributes. In essence, these effects capture indirect homophily as a tendency of MPs who share the given attribute to use the same discourse codes and hence discuss the same topics. With the alter in distance 2 effects, we can capture the polarization of discourse. Finally, the alter effects capture the popularity of the individual discourse codes based on their category (as explained in the *Coding the statuses* subsection) capturing which agendas are being set.

Since there was a lot of change between the two time-points in our data, it was difficult to obtain a converged model in one estimation run. Instead, we first estimated a model close to convergence and used it as a starting point in the second estimation run, which we conducted with more simulations than usual and using multiple CPU cores (Ripley et al., 2021; Ch. 6). We report this model, as it displays adequate convergence, and it also fits our data very well in terms of outdegree distribution and shows only minor signs of misfit in terms of indegree distribution. The goodness of fit results are available as Supplementary Figure S1. The model was fitted using *RSiena* package in *R* (Ripley et al., 2021). The analytical code is available as Supplementary Code S1.

Results
What was the content of the political discourse in Slovakia the week before and the week after the invasion? While the content of the political discourse in Slovakia pre-invasion was dominated by domestic affairs, post-invasion, the discourse was dominated by invasion-related topics. Figure 1 shows the absolute frequencies of the discourse code categories by the number of times they were used the weeks pre- and post-invasion. Pre-invasion, the most frequently used categories of discourse codes were *anti-coalition* and *anti-opposition*, suggesting strong focus of MPs to communicate coalition-opposition struggles. Post-invasion, codes from both the *anti-coalition* and *anti-opposition* categories were used less, while the codes from the *pro-Ukraine* category became most prominent. While the increase in *pro-Ukraine* discourse is the most prominent among the Slovak MPs, simultaneously, there was a steep increase in both *anti-NATO, Slovak neutrality*, and *pro-Russia* codes. The disaggregated frequencies of the individual discourse codes are available in Supplementary Table S2.

What did the structure of the political discourse network look like the week before and the week after the invasion? The structure of the discourse network of Slovak MPs underwent dramatic changes on the verge of the invasion and showed a strong coalition-opposition split. Table 3 shows basic network descriptors. Low Jaccard coefficient means that the post-invasion network had little overlap with the pre-invasion network. In the post-invasion week, the network density increased, meaning that MPs used more discourse codes. Centralization of degrees of MPs decreased, while centralization of degrees of discourse codes increased suggesting that, post-invasion, more MPs were using a smaller number of highly popular discourse codes more often. Equivalency increased as well, suggesting that the discourse had become more interconnected and closed.

Figure 2 shows the structure of the network pre- and post-invasion. A high-resolution version of the figure is available as Supplementary Figure S2. Pre-invasion, the MPs on the left form a relatively homogenous group of predominantly coalition MPs

frequencies of the discourse codes categories
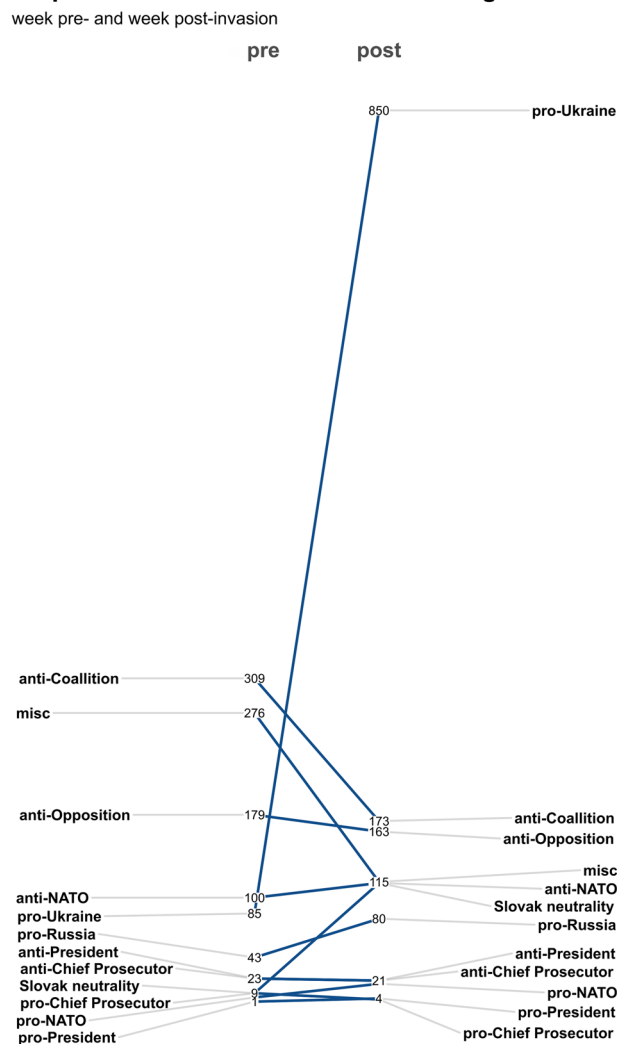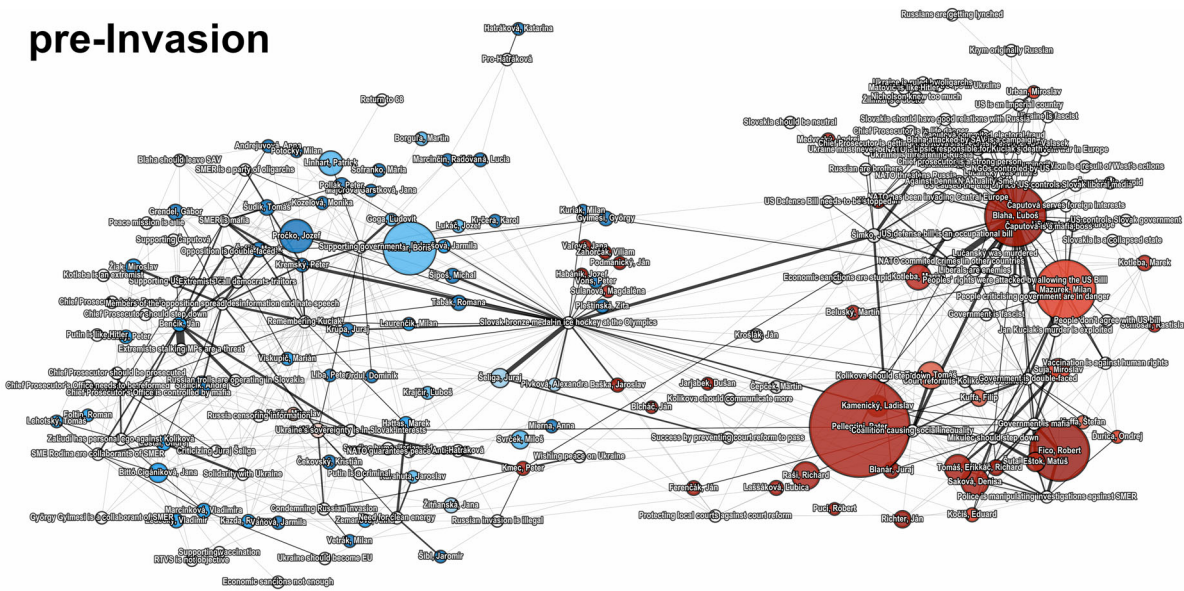week pre- and week post-invasion

Fig. 1 Frequencies of the discourse codes categories. The chart shows absolute values of frequencies of the discourse codes categories used by the MPs 1 week pre- (left) and 1 week post- (right) invasion.
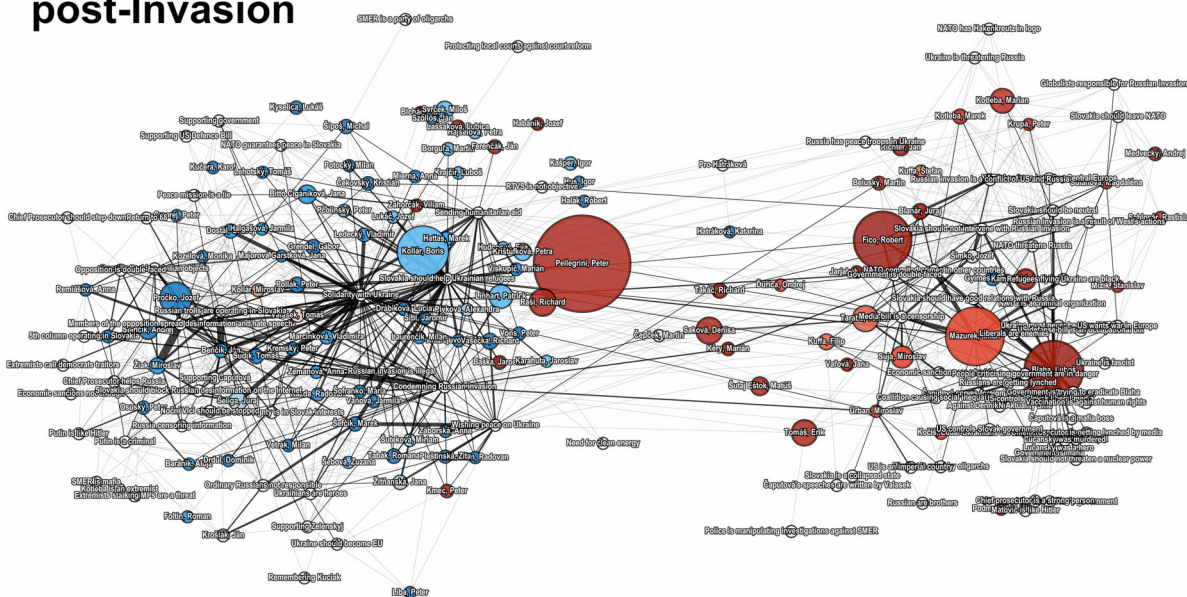
Table 3 Network descriptive statistics.

	Pre-invasion	Post-invasion	Change
Jaccard coefficient	0.13		n/a
Network density	0.05	0.06	+0.02 (40.74%)
Centralization of degrees			
MPs	0.42	0.26	−0.16 (39.05%)
Discourse codes	0.48	0.65	+0.17 (36.21%)
Equivalency	0.25	0.34	+0.09 (37.20%)

with many of them communicating *pro-Ukraine* discourse codes (e.g., *Ukraine's sovereignty is in the Slovak interest*) and discourse codes aimed at drawing attention to Russian disinformation (e.g., *Russian trolls are operating in Slovakia*). Apart from the codes relating to Ukraine and Russia, the coalition MPs largely communicated a *Remembering Kuciak* code and *pro-NATO* (e.g., *NATO guarantees peace in Slovakia*) and *anti-Chief Prosecutor* (e.g., *Chief Prosecutor should be prosecuted*) codes. Two codes—*bronze medal at the Olympics* and *wishing peace on Ukraine* are in the middle of the network as they were communicated by both

Fig. 2 Bipartite discourse networks of MPs, pre- and post-invasion. The network graphs show links between the MPs and the discourse codes they used 1 week pre- (top) and 1 week post- (bottom) invasion.

coalition and opposition MPs. The MPs on the right form a homogenous group of major opposition parties, with many of them communicating *pro-Russia* (e.g., *Ukraine is fascist*), *anti-NATO* (e.g., *NATO committed crimes in other countries*), and *anti-*

coalition codes (*government is two-faced*). Many opposition MPs —especially those from SMER-SD, ĽSNS, and Republika—focused heavily on expressing their discontent with the US Defense Bill (e.g., *US Defense Bill is an occupational bill*). In contrast to the

coalition, the opposition often employed the *Ján Kuciak's death is exploited* code suggesting the anniversary was being politicized. Post-invasion, the discourse network retained its division into two parts, however, discourse of HLAS-SD's MPs shifted and started resembling the discourse of the coalition more closely than that of the opposition. Discourse among coalition MPs was dominated by the *pro-Ukraine* codes (e.g., *solidarity with Ukraine*), while the discourse of the major opposition parties (excluding HLAS-SD) was dominated by the codes promoting *Slovak neutrality* (e.g., *Slovakia should not intervene in the Russian invasion*), *anti-NATO* (e.g., *NATO threatens Russia*), and *pro-Russia* codes (e.g., *economic sanctions are stupid*).

The same SMER-SD, ĽSNS, and Republika MPs communicating the narratives of Russian propaganda justifying Russian's claims to Ukraine pre-invasion (e.g., *NATO threatens Russia* and *Ukrainians are killing Russian minority*) spread COVID vaccine disinformation (e.g., *vaccination is against human rights*) and narratives suggesting the Slovak government is controlled by foreign actors (e.g., *US controls Slovak government*). Post-invasion, the same MPs then communicated the narratives justifying the Russian invasion (e.g., *Russian invasion is a result of West's actions*), calling for *Slovak neutrality* (e.g., *Russian invasion is a conflict of US and Russia*), and employed a whataboutism drawing attention away from the Russian invasion to NATO's actions in the past (*NATO committed crimes in other countries*).

What mechanisms drove the change of the political discourse network in Slovakia at the beginning of the invasion? To address the RQ3, we interpret the SAOM results (Table 4).

Starting with the endogenous network effects, we see both of the effects related to accumulation of ties—indegree popularity and outdegree activity—being statistically significant and positive. This indicates that agenda reinforcement was one of the mechanisms driving the change of the network—the MPs who had already discussed a lot of topics were more likely to discuss further topics, and that the topics which had already been very popular (discussed by many MPs) had a higher likelihood of being discussed by even more MPs. The effect representing the change in transitivity—4-cycles—is not significant, suggesting that, when controlling for other effects, transitivity did not play a role in the changes the network underwent.

In terms of the activity of the MPs based on their attributes (captured by the ego effects), we see several statistically significant effects. First, the positive and significant effects for the OĽaNO, SaS, SMER-SD, ĽSNS, and Republika parties indicate that members of these parties became the agenda setters the week after the invasion as they became more active in the network compared to the reference category (independent MPs) with the strongest effects for MPs from ĽSNS and Republika. On the other hand, MPs of the SME RODINA, ZA ĽUDÍ, HLAS-SD, and ŽIVOT parties did not become more active. There is also the effect of gender activity (with men as the reference category) on the verge of statistical significance, which means that, compared to men, there was a mild tendency of women to become more active in the discourse. The null effect of the ego effect for the number of committees suggests that there was no relationship between the MPs' activity and the number of parliamentary committees they were part of.

The homophily based on party membership is represented by the alter in distance 2 effects. MPs of the same parties who became more active post-invasion (OĽaNO, SaS, SMER-SD, ĽSNS, and Republika) also became more homophilous—the discourse of the MPs became more similar to the discourse of the MPs from within the same parties—even if we control for their already significant increased activity in the network. Considering the facts that most parties had a positive homophily effect and

Table 4 SAOM results.			
	Estimate	**SE**	**t-ratio**
Endogenous network mechanisms			
Outdegree (density)	**−4.17**	**0.26**	−0.01
Basic rate parameter	**32.71**	**2.60**	0.04
Indegree – popularity (sqrt)	**0.46**	**0.05**	−0.01
Outdegree – activity (sqrt)	**0.24**	**0.04**	−0.01
Out-isolate	0.76	1.00	−0.05
4-cycles (MPs)	0.00	0.00	−0.02
MPs' activity			
Gender ego	0.29	0.16	0.07
No. of committees ego	−0.00	0.05	0.00
Coalition			
OĽaNO ego	**0.32**	**0.12**	0.03
SaS ego	**0.52**	**0.15**	0.02
SME RODINA ego	0.37	0.77	−0.03
ZA ĽUDÍ ego	−0.32	1.47	0.03
Opposition			
SMER-SD ego	**0.54**	**0.14**	−0.01
HLAS-SD ego	0.45	0.65	−0.05
ĽSNS ego	**1.73**	**0.22**	−0.05
Republika ego	**1.23**	**0.21**	0.03
ŽIVOT ego	1.05	0.74	−0.04
MPs' homophily			
Gender alt. in dist. 2	**0.59**	**0.24**	−0.09
No. of followers alt. in dist. 2	−0.34	0.29	0.01
Coalition			
OĽaNO alt. in dist. 2	**0.91**	**0.14**	−0.03
SaS alt. in dist. 2	**0.69**	**0.17**	−0.02
SME RODINA alt. in dist. 2	0.85	0.84	0.00
ZA ĽUDÍ alt. in dist. 2	−0.64	1.53	−0.03
opposition			
SMER-SD alt. in dist. 2	**0.93**	**0.15**	0.04
HLAS-SD alt. in dist. 2	0.96	0.72	0.04
ĽSNS alt. in dist. 2	**1.91**	**0.24**	0.03
Republika alt. in dist. 2	**1.09**	**0.21**	−0.04
ŽIVOT alt. in dist. 2	1.05	0.81	0.06
Discourse codes' popularity			
Pro-Ukraine alter	**1.08**	**0.13**	0.04
Pro-Russia alter	**0.53**	**0.15**	−0.01
Pro-NATO alter	**0.78**	**0.20**	0.014
Anti-NATO alter	**0.64**	**0.14**	−0.04
Slovak neutrality alter	**0.95**	**0.17**	−0.03
Anti-opposition alter	**0.39**	**0.13**	−0.08
Anti-coalition alter	0.28	0.14	−0.05
Anti-president alter	0.12	0.27	−0.01
Pro-Chief Prosecutor alter	−0.79	0.46	−0.03
Anti-Chief Prosecutor alter	0.33	0.21	−0.05

bold indicates p < 0.05; t-ratios are t-ratios for convergence.

none of the parties had a negative homophily effect, we interpret this as a rise in polarization of the political discourse. The positive homophily effect was present in both coalition and opposition parties, meaning that the parties from the coalition and the opposition each started communicating their own shared sets of discourse codes. The effect of gender homophily is also statistically significant indicating that women and men each tended to use their own shared sets of discourse codes.

SAOM results further confirm findings from the descriptive analysis suggesting that the invasion led to MPs' agendas being focused on invasion-related topics. Discourse codes from six categories became statistically significantly more popular. All these categories related to the invasion (*pro-Ukraine, pro-Russia, pro-NATO, anti-NATO,* and *Slovak neutrality*) are positive and statistically significant, while null effect is found for other categories with the exception of the *anti-opposition* category.

Discussion and conclusion

Our results show that the Russian invasion of Ukraine dramatically changed political discourse in Slovakia with the domestic coalition-opposition struggles losing prominence among the invasion-related topics. The content of the discourse at the beginning of the invasion was mostly supportive of the Ukrainian case; however, a large amount of discourse echoed Russian state propaganda narratives. The content of the discourse reflects the unwillingness of a quarter of the MPs to support the condemnation resolution in the Slovak National Council.

The structure of the political discourse network showed a strong coalition-opposition split. While coalition MPs had largely pro-Ukrainian sentiments, opposition MPs largely communicated pro-Russian propaganda. MPs of SMER-SD, ĽSNS, and Republika parties further formed a cluster justifying Russia's claims on Ukraine while at the same time spreading COVID vaccine conspiracy theories, suggesting the Slovak government is controlled by foreign actors, calling for Slovak neutrality, and accusing NATO of committing crimes in the past. Our findings therefore mirror findings from Finland (Xia et al., 2022) where parties spreading COVID vaccine conspiracy theories also spread anti-NATO narratives. Our results further support the "conspiracy singularity" theory (Merlan, 2020; Murru, 2022; Terracciano, 2023; Tuters and Willaert, 2022). Those MPs involved in spreading conspiracy theories of one type also interconnected them with other conspiracy theories, thus merging different conspiracy theories into one overarching narrative.

The change of the discourse network at the beginning of the invasion was largely driven by agenda setting of several parties, agenda reinforcement, and rising political polarization. Among the opposition parties, MPs of the SMER-SD, ĽSNS, and Republika were the main agenda setters—the MPs forming the cluster justifying Russian's claims to Ukraine along with spreading the array of conspiracy theories. This suggests that the opposition's discourse was dominated by the Russian propaganda spread by parties previously identified as prominent Russian propaganda sources (Trnka, 2022). Interestingly, SMER-SD is a self-described leftist party while ĽSNS and Republika are openly far-right. While the three parties do not publicly collaborate, their shared discourses suggest the three parties share views on many domestic and foreign affairs—the party's official ideology itself might therefore not be the decisive factor in political discourse employed—rather, it might be the parties' shared positioning at the extreme ends of the political spectrum. Agenda reinforcement played another significant role in the change of the discourse network as a small number of very popular topics were communicated by a large number of MPs. The agenda reinforcement came together with rising polarization of political discourse – the cluster of opposition MPs from SMER-SD, ĽSNS, and Republika parties along with coalition MPs from OĽaNO and SaS employed the same codes within each of the parties. Our findings stand in contrast to findings from Italy (Bordignon et al., 2022) and Finland (Xia et al., 2022), where political polarization following the invasion decreased. While in both Italy and Finland many parties previously spreading pro-Russian propaganda underwent rapid repositioning, in Slovakia, the only party undergoing repositioning was HLAS-SD, which was, however, not a prominent spreader of pro-Russian propaganda prior to the invasion. Compared to Italy and Finland, we see a different dynamic—Slovak parties involved in spreading Russian propaganda before the invasion continued to spread Russian propaganda and with even higher intensity.

Why then, when a huge societal crisis took place, were the Slovak MPs unable to unite and take a common stand as was the case in other European countries? The obvious explanation for the heavily polarized political discourse is a heavily fragmented society that had experienced crisis after crisis in the years leading up to the invasion resulting in the lowest level of trust in the national government in the EU. Another explanation is that Slovak politics are marked by a gulf between the coalition and the opposition parties so deep that whatever new situation arises, the parties will perceive it through the prism of their long-term fortified positions, including a situation that was able to unite political representation elsewhere. Based on the research about the influence of elite cues on Slovak society (Gyárfášová and Hlatky, 2023; Hlatky, 2023; Onderco and Stoeckel, 2023), we hypothesize that as the Slovak political elites have failed to unify or at least maintain the same level of political discourse polarization during another significant crisis in Slovakia, it will negatively affect Slovak society with more fragmentation and greater vulnerability to foreign interventions.

Limitations. Our study has several limitations. We consider the two-week timeframe of our analysis the biggest limitation of our study. Although two time points are sufficient for SAOM analysis and one week is sufficient time for MPs to take a stand on ongoing events, it limited our ability to observe mechanisms influencing political discourse in Slovakia over a long term. Furthermore, since we did not incorporate data from the months before the invasion, we were unable to compare the observed political discourse in Slovakia at the beginning of the invasion with political discourse during other significant past events, such as the COVID pandemic or the murder of Ján Kuciak and Martina Kušníková. Unfortunately, extending our analysis beyond the two weeks was rendered impossible due to the huge workload required for the manual coding of the statuses. Recent advancements in artificial intelligence might, in future research, allow for the substitution of manual coding of statuses with automated algorithms, thus enabling a much broader analysis with significantly reduced coding workload (Rathje et al., 2023). Another limitation of our study arises from the manual data collection at a single time point: the week after the invasion began. It's possible that some posts published by the MPs were deleted for various reasons. Consequently, our analysis may have missed parts of the political discourse that were deleted by the time we retrieved the statuses.

Implications. Our results point to some questions that might be worth exploring in future research. First, we find that the same MPs who were communicating conspiracy theories before the invasion continued spreading different, invasion-related conspiracy theories during the invasion. Does that mean that when a politician becomes a spreader of conspiracy theories, they will continue spreading conspiracy theories whatever crisis the country experiences, adjusted to the prevailing situation? Second, we find that during the invasion, the MPs did not take a unified stand; instead, the discourse polarized even more. Does this mean that when political polarization in a country is very high, the parties will no longer take stands according to their values, but rather keep opposing the positions of their political rivals even when facing external threat? Our results suggest that the answer to both questions is "yes" and a conspirative and polarized political scene may jeopardize a country's position on principal foreign affairs.

Data availability

The dataset generated and analysed during the current study as well as the supplementary materials are available in the Humanities & Social Sciences Communications Dataverse repository at https://doi.org/10.7910/DVN/3SDIVL.

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Author contributions

TL: conceptualisation, research design, data collection, coding, visualisation, data analysis, writing and revising the paper. TD: research design, data analysis, writing and revising the paper. BN: data collection, coding, writing and revising the paper. LL: conceptualisation, writing and revising the paper. MV: conceptualisation, research design.

Competing interests

The authors declare no competing interests.

Ethical approval

We did not seek ethical approval as we analysed data made public by the original creators of the data—public posts from MPs. To address the ethical issues involved with this project, we consulted the Association of Internet Researchers' *Internet Research: Ethical Guidelines 3.0* (Franzke et al. 2020). In line with these guidelines, at each step of the research, we tried to minimize the potential harm and risks to the subjects while maintaining the informative value of our report—including not storing and sharing the exact texts of the individual posts once they were coded and not including any communication by MPs that could under any circumstances be considered private.

Informed consent

We did not seek informed consent from the participants as the data we collected were public and we consider our research to be observational in the public space. Our data were public in the broadest definition—the data were available on public social media pages available to anyone, the participants were public personas, and the posts were created with a clear intention of making them public (Willis, 2019).

Additional information

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