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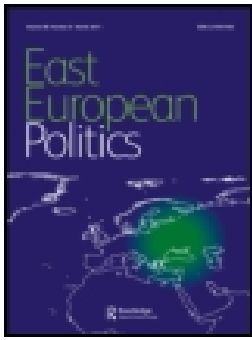
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“Popular tribunes” and their agendas: topic modelling Slovak presidents’ speeches 1993–2020

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ABSTRACT

Since its birth as an independent republic in 1993, Slovakia has been served by five different presidents. Due to limited competences, the presidents’ have often relied on political speech as their principal tool to influence political developments. However, text as a source of data has been largely neglected in existing scholarship on Central European presidents. In this exploratory study, I classify the content of presidential speeches using a topic model and analyse topical patterns over time and across different presidents. I find that topical variation can provide useful insights into relevant issues such as agenda shifts or intra-executive conflict.

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A famous picture captures Vladimír Mečiar and Václav Klaus, jackets off, in intense discussion under a tree at Villa Tugendhat in Brno over the final details of splitting Czechoslovakia into two sovereign states. Six days later, the Slovak parliament (formally “National Council”), adopted by 114 votes for to 16 against the Constitution of the Slovak Republic (the Constitution). On 1 January 1993, the Slovak Republic was officially born.

The new constitution concentrated most of the power in the hands of the government which was determined on the basis of a parliamentary majority. Nonetheless, the constitution also envisaged the continuation of the office of president (Malová 2001; Bealey 1995). The most important powers of the president concern the appointment of the prime minister (subject to a vote), cabinet members and judges, and the possibility to veto legislation which then requires an absolute majority (> 75 votes) to override (Horváth 2017; Láštík 2014).

The role of the president in Slovakia and elsewhere in Central Europe has been mainly studied in light of the relationship with the prime minister (Brunclík and Kubát 2018; Baylis 1996; Krouwel 2003; Sedelius and Ekman 2010; Schleiter and Morgan-Jones 2010; Köker 2014). Much of this interest stemmed from attempts to establish the concept of “semi-presidentialism” in the political science mainstream (Duverger 1980; Elgie 1999; Siaroff 2003). The most recent contribution, by Brunclík and Kubát (2018), emphasises the importance of presidential powers over election method for regime classification, which leads the authors to categorise Central European states, including Slovakia, as parliamentary regimes.

What most of the extant studies have in common is that empirically they focus on the extent of formal and informal presidential competences, electoral mandate or exercise of

veto powers. This is wholly legitimate, as these are the most important aspects of the presidency. However, there is scope to expand our understanding of presidential politics by venturing towards what presidents talk about while in office.

In this study I analyse the speeches of Slovak presidents using quantitative text tools, modelling the prevalence of key topics in the entire corpus of speeches between 1993 and 2020. I turn to this source of data not only because it is underexplored but also because we have reason to believe that what presidents say is politically relevant and not merely cheap talk. Several scholars have highlighted the popular legitimacy of presidents in parliamentary systems as a potential source of power, and therefore conflict, vis-à-vis the government (Baylis 1996; Beliaev 2006; Köker 2014). Baylis (1996, 308) described Central European presidents as “popular tribunes” with legitimacy to directly represent the nation in high politics, seemingly unencumbered by the party-political system.¹ From this standpoint, presidential speeches are one of the main tools for these popular tribunes to convert their popularity and prestige into influence over policy (Baylis 1996, 306).

Moreover, as argued by Sedelius and Ekman (2010, 511), criticising governments is a “rewarding strategy” for presidents under intra-executive conflict. In parliamentary systems, the president, therefore, contributes to government instability by leaning on their popular legitimacy. Intra-executive conflict should be more likely in the first place when the president has fewer constitutional powers relating to the appointment and dismissal of the government, as is the case in Slovakia, because the cabinet is argued to have a tendency to gravitate towards the preferences of the parliament rather than the formally weaker president (510). On the contrary, the likelihood of conflicts should be lower when the president and cabinet are ideologically proximate (Protsyk 2006, 223).

This article proceeds by first situating each of the five Slovak presidents into their historical-political context. I expect the defining aspects of their presidencies, notably issues over which they clashed with prime ministers, to bear on the content of in the speeches and to, therefore, aid the interpretation of the topic modelling results. Next, I present the basic properties of the textual corpus collated for this study and the pre-processing steps necessary for applying quantitative text methods. Subsequently, I describe in simple terms the topic modelling approach used (non-negative matrix factorisation) to extract a latent structure from the text data. In the results section, I show how the corpus is classified by the model into twenty topics and their variation over time and across presidents. I then discuss the findings, focusing on topics that strongly discriminate among the presidents and are of relevance to the debate about the role of presidents in parliamentary/semi-presidential regimes.

Presidents in historical-political context

The freshly formed Slovak Republic began life without a president but with an established government consisting of HZDS and SNS as junior partner which together held 89 seats in the parliament. The prime minister, Vladimír Mečiar, earmarked the first deputy minister, Roman Kováč of HZDS, to become the first Slovak president.

In accordance with the 1992 Constitution, the president was to be elected for a period of five years in a secret parliamentary vote by a three fifths majority (90 out of 150). Four of the five parties represented in the parliament at the time put forward a candidate for the

first election round taking place on 26 January 1993. Roman Kováč claimed 69 votes in the first round and 78 in the second, held the next day, where he faced-off against the left's Milan Ftáčnik, but ultimately failed to summon the required supermajority on either occasion.

Although in principle HZDS commanded 74 parliamentary seats, the party suffered from internal divisions between a moderate wing centred around Michal Kováč and the increasingly authoritarian and corrupt Mečiar (Haughton 2003). Ivan Lexa, Mečiar's closest collaborator inside HZDS, was alleged to have campaigned among party members against Michal Kováč's nomination for president (Béres 2018). However, after the failure to elect Roman Kováč in January 1993, Mečiar was forced to let a candidate that was more acceptable to both the moderate wing of HZDS and opposition parties try to obtain sufficient support. Michal Kováč secured the presidency on 15 February 1993 with 106 votes, running unopposed.

From the first moment of his presidency, the hitherto latent animosity between Kováč and Mečiar took on increasingly sharper contours. Kováč initially backed and refused to fire Milan Kňažko, one of the leaders of the November 1989 revolution and a fellow moderate heading the Ministry of Foreign Affairs, whom Mečiar considered particularly insubordinate. Kováč gave in when Mečiar, then the most popular Slovak politician by some distance, threatened government resignation. In addition, Mečiar grew alarmed by the fact that Kováč surrounded himself with a cross-party rather than a HZDS-exclusive team (Jancura 2013). The conflict escalated further in November 1993 when the president refused to appoint Ivan Lexa Minister of Privatisation, which Mečiar pleaded for on the ground that the party coffers were empty and he needed Lexa to fill them up (Kováč 2010, 15).

Kováč would come to fight Mečiar every step of the way, including through the most gruesome period when the state apparatus ordered the kidnapping of Kováč's son. Kováč's HZDS membership was revoked by the party in 1994 after his famous "state of the republic" address in March moved enough parliamentarians to withdraw confidence in Mečiar's government in a prime example of the destabilising dynamic of intra-executive conflicts described by Sedelius and Ekman (2010). Mečiar also punished Kováč by sharply reducing the budget of the presidential office in 1995–1997, something other prime ministers at odds with their presidents did not resort to (see Figure 1).

Baylis argued that the combination of fewer powers and greater legitimacy enabled presidents to act as "popular tribunes" (308). His explanation drew heavily on Kováč's struggle against state capture perpetrated by Mečiar. Interestingly, Kováč's reputation as a popular tribune was seemingly unimpeded by the fact that his legitimacy was rooted in an indirect rather than direct democratic mandate. The case of Kováč illustrates more than any other Horváth's (2014, 85) claim that Slovaks associate the presidential office with "moral authority". The president is seen as embodying "shared values" which potentially elevates them above party politics into a symbol of statehood, or what Procházka (2019) calls a "father" (or presumably "mother" as the case may be).

Kováč was to be the first and last president to be elected by the parliament. After his mandate expired in 1998 the parliament failed to find a 90-MP-strong majority for any candidate in five successive attempts spanning five months during which Mečiar pardoned as acting president (from his position as prime minister) anyone linked to the kidnapping of Kováč's son (Fish 1999).

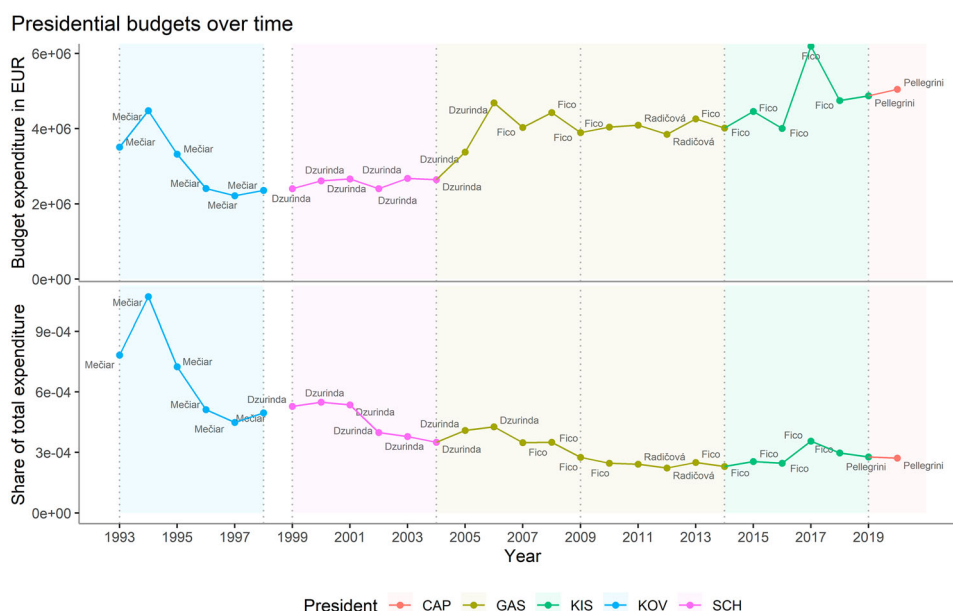


Figure 1. Yearly budgets of presidential offices over time.

Mečiar's reign was over soon after, however, and the coalition government led by Mikuláš Dzurinda decided to end the parliamentary deadlock over choosing the president by switching to a direct election (as part of a broader deal on government posts). The relevant constitutional amendment was largely shaped by fear of Mečiar ascending to the presidency. The direct election would have two rounds unless a candidate obtained fifty per cent of all possible votes (a particularly high threshold) to prevent vote fragmentation from inadvertently handing the office to Mečiar. The two most popular candidates in the first round would compete in a run-off. The five-year term was retained (renewable once) but the coalition made presidential amnesties conditional on government consent.

The government coalition agreed to support Rudolf Schuster, leader of the junior governing party SOP (Party of civic understanding), in the first direct presidential elections. Schuster was a popular mayor of Košice but also a former high-ranking communist politician, once of the central committee leadership in Slovakia. His communist past made him somewhat unpalatable to the Christian Democratic Movement (KDH) but in the end, he ran a comfortable winner of the first round in 1999 with 47.4 per cent of the vote (see Table 1). Riding anti-Mečiar sentiments that propelled Dzurinda to government the previous year, the democratic vote rallied behind Schuster in the second round as expected, and Mečiar was electorally beaten the second time in two years.

The most immediate policy change, which constituted a key pillar in the anti-Mečiar campaigns, was to break Slovakia's reputation as the "black hole of Europe". Both Dzurinda and Schuster heavily supported EU and NATO integration and pressed for Slovakia to be considered for enlargement along with other Visegrad Four countries whose illiberal moment was still yet to come. It was a political and diplomatic achievement of the new ruling class for Slovakia to be admitted to both EU and NATO by mid-2004.

Table 1. Overview of presidential election results.

President	Short	Age	1st round date	1st round	1st rank	2nd round	2nd round votes	2nd round turnout	2nd round versus	Inauguration date
Zuzana Čaputová	CAP	45	2019-03-16	40.6%	1	58.4%	1,056,582	41.8%	Šefčovič	2019-06-15
Andrej Kiska	KIS	51	2014-03-15	24.0%	2	59.4%	1,307,065	50.5%	Fico	2014-06-15
Ivan Gašparovič	GAS	68	2009-03-21	46.7%	1	55.5%	1,234,787	51.7%	Radičová	2009-06-15
Ivan Gašparovič	GAS	63	2004-04-03	22.3%	2	59.9%	1,079,592	43.5%	Mečiar	2004-06-15
Rudolf Schuster	SCH	65	1999-05-15	47.4%	1	57.2%	1,727,481	75.5%	Mečiar	1999-06-15
Michal Kováč*	KOV	62	1993-02-15	71.6%	1	-	-	-	-	1993-03-02

*Note: The first president, Michal Kováč, was elected by the parliament. All subsequent presidents were elected in direct national elections.

The Schuster-Dzurinda partnership was not equally cohesive on other issues. Whereas the second Dzurinda government was determined to enact pro-market reforms and contain budgetary expenditure on social and health policies, Schuster's leftist instincts led him to veto several laws and publicly take the side of trade unions in conflicts with ministers. Schuster's relationship with the government was at its worst in the run-up to the 2004 presidential elections when he supported the call for a referendum, to be held in parallel with the elections, seeking to overturn the government's health reforms.

Schuster sought re-election on the basis of Slovakia's foreign policy successes but like Kováč before him, was overlooked by voters in favour of non-incumbents. After five years in opposition, Vladimír Mečiar decided to give the presidency another shot, while the government supported Eduard Kukan, SDK's minister of foreign affairs. However, the first round of the 2004 presidential election brought a major upset after Kukan narrowly missed out (by 0.2 per cent) on the second spot ensuring progress into the second round (Rybář 2005). Instead it was Ivan Gašparovič, supported by the opposition SMER-SD (Direction Social Democracy), who would face the first-round winner Mečiar in the run-off. For the second time in a row the presidential elections therefore constituted a *de facto* referendum on Mečiarism. Whatever misgivings voters had about Dzurinda's policies, they were not willing to turn the clock back entirely, resulting in a comfortable majority for Gašparovič.

Nonetheless, Gašparovič was no stranger to Mečiar. He was one of the HZDS members who drafted the new constitution in 1992 and remained loyal to Mečiar during all the years of creeping authoritarianism when he was speaker of parliament. Gašparovič's ideological profile was not well-defined in the campaign but his past affiliation to HZDS and SMER support pointed towards a mix of social conservatism and welfare politics. In contrast, Kukan represented unambiguously the (mainly economic) liberal values of the 1998 pro-Western turn orchestrated by Dzurinda. His narrow failure, aided by KDH fielding their own candidate who split the centre-right vote, to reach the run-off – which he was poised to win – was a major setback for this generation of SDK reformers.

Although Gašparovič's election was obviously not to the prime minister's liking, no major conflicts erupted in the final, embattled years of Dzurinda's government. Still, the relationship between the two highest political offices was about to receive a significant boost when in 2006 SMER-SD won the parliamentary elections and formed a government with Mečiar (HZDS) and Slota (SNS). This marked the beginning of the Robert Fico era, who would go on to hold the office of prime minister for ten out of subsequent twelve years.

The presence of the ultranationalist Slota and return of Mečiar sparked fears that Slovakia would reverse the pro-Western course maintained since 1998. These have proven largely unfounded, as Fico steered the country towards membership of the Eurozone and uncontested adoption of the Lisbon Treaty (unlike, for example, in the Czech Republic). Similarly, many pro-business measures taken by the Dzurinda government remained in place and Fico's focus was more on increasing social spending. Several corruption scandals angered parts of the electorate but Dzurinda's record had been blemished on this front as well, fuelling a sentiment of "all politicians being the same".

Gašparovič sailed through his first term quietly and largely unscathed other than becoming known for his slips of tongue. His style was not confrontational and unlike his predecessors he did not clash with the prime minister. Indeed, although he formally ran for re-election as an independent in 2009, he was again predominantly backed by

the ruling SMER-SD, in addition to SNS and HZDS. The first round established him as firm favourite for re-election with a 46.7 per cent gain. In the run-off he beat SDKÚ candidate Iveta Radičová with 55.5 per cent of the vote and remains the only Slovak president to be re-elected. Campaign-wise, the second round was marked by what was termed by the media the “Hungarian card”. Gašparovič’s supporters, in particular from the nationalist SNS, promoted the false message that Radičová promised the Hungarian minority in Slovakia an autonomy status, while Slota called for voters to reject a candidate favoured by the Hungarians. Gašparovič and his campaign chief played down the Hungarian card and dismissed links to the fake news spread about Radičová despite reports of advertisement expenditure showing the contrary (SME 2009).

Whereas the first Gašparovič term (2004-2009) was probably the quietest presidential tenure, his actions during his second term courted more attention and controversy. From a constitutional point of view, the most serious conflict erupted over appointment of the general prosecutor. The 2010 parliamentary elections resulted in the return of a centre-right coalition government led by Iveta Radičová of SDKÚ-DS, which selected Jozef Čentéš to replace the outgoing Dobroslav Trnka. The parliamentary vote was heavily contested, as Radičová threatened to quit the government if Trnka was reappointed. On two attempts in December 2010, neither Čentéš nor Trnka received a parliamentary majority. As a consequence, the governing coalition opted to make the previously secret vote public, which required to break Gašparovič’s presidential veto. In the end, the vote was secret anyway, as the government tried to appease opposition MPs protesting the change in rules. On 17 June 2011 Čentéš was elected with 79 out of 80 votes with the opposition boycotting the voting.

Gašparovič refused to appoint Čentéš. According to Article 150, the president “appoints and dismisses” the general prosecutor “on a proposal of the [parliament]”. Gašparovič interpreted this provision as affording him discretion to delay or even refuse the appointment of the candidate selected by the parliament. He persisted with his non-appointment decision in the face of government pressure and complaints to the constitutional court for two years. Meanwhile, the governing coalition folded in a dramatic fashion over bailing out Greece and was replaced by single-party government by Fico’s SMER following a snap election landslide. SMER moved to fill the vacant general prosecutor seat with their own candidate and comfortably voted through Jaromír Čižnár whom Fico described as a “classmate and friend”. In July 2013, Gašparovič appointed Čižnár the general prosecutor. In December 2014, after many protracted, the constitutional court decided that Čentéš was wrongfully denied entry to the office and awarded 60,000 EUR in damages. The court did not overturn the appointment, however, and because Gašparovič’s term was over by then, the fine was paid by the next president, Andrej Kiska.

The election of Andrej Kiska in the Spring of 2014 was historical in two respects. First, he was the first candidate without a background in politics to even reach the second round. Previously, non-politicians running for president were always surpassed by establishment candidates from across the political spectrum. Second, he ran against and beat an incumbent prime minister, Robert Fico, in the run-off. As a former businessman and philanthropist, Kiska’s criticism of Fico’s record was unburdened by party politics at a time when traditional centre-right parties (notably SDKÚ and KDH) were still reeling from the 2012 government collapse.

To the surprise of few, Kiska and Fico spent much of their time in their respective offices of president and prime minister at loggerheads. Kiska had to accept defeat in the case of the general prosecutor at the start of his tenure, but it did not discourage him from fighting judicial appointments to the constitutional court. Somewhat ironically for Fico, Kiska relied on the same logic of broad interpretation of presidential discretion invoked by Gašparovič to block the appointment of the general prosecutor. Kiska initially refused to appoint three constitutional court judges proposed by the parliament in 2015, citing lack of qualifications. The president may have hoped for a change of government following parliamentary elections in 2016 but a weakened SMER has nonetheless managed to form a coalition under Fico's renewed leadership. Kiska even requested an opinion of the Venice Commission but following an unfavourable ruling by the constitutional court, he reluctantly filled the three vacant seats. Two appointees were SMER MPs.

Nonetheless, Kiska oversaw Fico's downfall in the aftermath of a major political crisis triggered by the murder of an investigative journalist and his fiancée in 2018. Mass protests and suspicion of links to organised crime forced Fico to resign as prime minister. He was replaced by the more moderate SMER deputy prime minister Peter Pellegrini as part of a wider reshuffle that also ended the terms of the long-time interior minister, Robert Kaliňák, and police president, Tibor Gašpar. From the outset of the crisis, Kiska ranked among SMER's harshest critics and influenced the government reshuffle by virtue of the presidential competences to select the prime minister-elect and appoint the government.

The crisis damaged SMER considerably and Fico decided to look for shelter at the constitutional court. The terms of nine (out of thirteen) judges were due to expire in 2019 and Fico intended to be among the new appointees, which would grant him the dignified exit from politics he was rumoured to seek. Public backlash, coalition tensions and electoral results scuppered Fico's judicial ambitions, however, along with a plan to pack the constitutional court with SMER and SNS allies. Kiska first appointed only three judges, including a new president of the court to prevent it from becoming dysfunctional and to ensure that a newly elected president could take oath from the president of the constitutional court as prescribed by the Constitution. The appointment process was subsequently completed by the new president, Zuzana Čaputová, as intended by Kiska, based on a more qualified pool of candidates than hoped for by SMER.

Čaputová was another political newcomer who succeeded in the presidential race. Prior to entering politics with the socially liberal Progressive Slovakia, she was a recognised environmental activist and non-profit lawyer. Even more than in previous elections, establishment politicians were set aside in favour of candidates with limited exposure to party politics. Čaputová owed her success in part to the stepping aside and endorsement of Robert Mistrík a scientist and entrepreneur who appealed to a similar segment of the electorate. After Fico's defeat in the 2014 presidential election, SMER struggled to find and persuade a viable candidate who could win the run-off, as all party members were too polarising to have a chance, particularly in the political context following Kuciak's murder. In the end they convinced Maroš Šefčovič, a career diplomat and at the time vice-president of the European Commission for energy. Although Šefčovič represented more conservative positions in the race, the second-round run-off offered a less polarising choice than any of the previous elections. This fact, as well as the resounding victory of

Čaputová in the first round, likely contributed to the lowest second-round turnout in the history (see [Table 1](#)).

Presidential speeches 1993–2020

Throughout all this time, presidents gave public speeches on a variety of issues and occasions, from commemorating historical events, through addressing the parliament, to appointing officials. I collect all available speeches publicly given by all presidents between 2 March 1993 and 1 May 2020. I source most speeches from the presidential website, including a digital archive of speeches made in the past. In the few cases when the speech was only available in audio or video form, I transcribed it into plain text.² Eleven speeches given in English were translated into Slovak to make the corpus single language.³ Each speech includes information about the authoring president, the date on which it was given and the place where it was given (Bratislava by default). All data is made available in a dedicated repository with open access.

In total, the sample contains 628 speeches ([Figure 2](#)) which undoubtedly underestimates the total number of public speeches given by the five Slovak presidents. Nonetheless, all major speeches, such as UN General Assembly addresses and New Year's speeches, are included.⁴ The sample is most deficient with respect to president

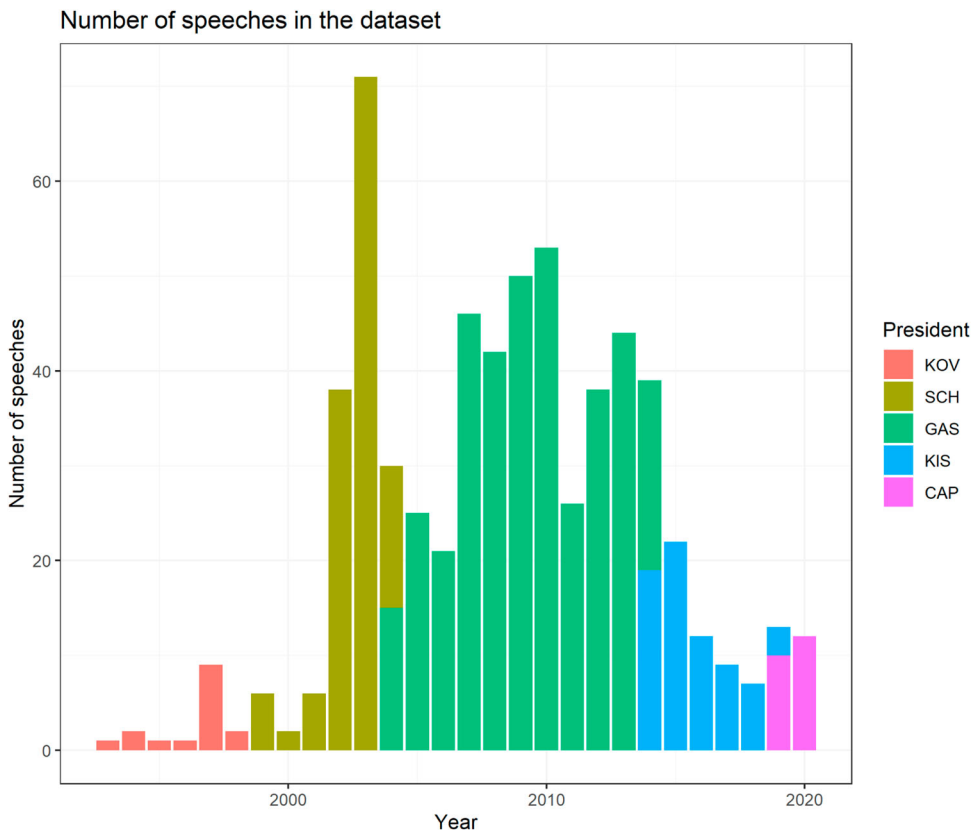


Figure 2. Number of speeches in the dataset.

Kováč whose speeches were more difficult to track down, because they were given prior to the onset of the digital age in Slovakia. The dataset is imbalanced for other reasons as well. President Schuster fell seriously ill in 2000 which limited his public appearances to a minimum. Presidents Kiska and Čaputová did not continue their predecessor's habit of publicising short, reception-opening speeches, which introduces a systematic discrepancy in the sample. All in all, the results of the quantitative text analysis will have to be interpreted with the knowledge that a select few topics will be underserved by missing data (Figure 3).

While some occasions call for longer speeches than others, the median speech length is relatively similar across presidents (around 750 words), with the exception of Kováč. His 1995 state of the republic address is at nearly 10 000 words by far the longest speech ever given by a president. The following analysis looks at a total of 613 983 words across 36 386 sentences ($\mu = 56.5$, $\sigma = 52.3$).

The plain text of the presidential addresses needs to be pre-processed and rearranged to be more statistically tractable. I follow standard pre-processing techniques associated with bag-of-words approaches. All text is converted to lowercase and all punctuation is removed, leaving us with only words. I subsequently delete uninformative and frequently occurring words (so-called "stopwords") such as "and", "or" and "is", as well merge

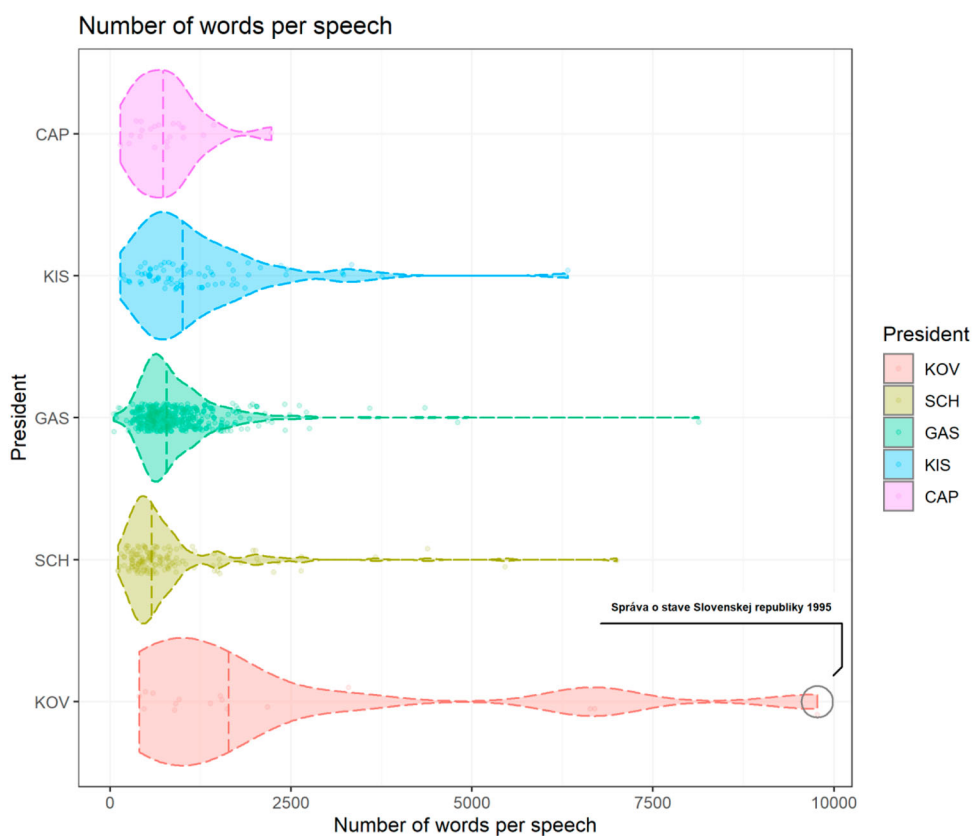


Figure 3. Number of words per speech.

common two- and three-word expressions into single terms to better preserve their fixed meaning (“european union” becomes “europeunion”). Counting the remaining words in each document yields a document-term matrix, most of whose cells are zero (the matrix is sparse). Additionally, I removed words which appeared less than twice in the entire corpus in order to make sure that extremely rare vocabulary (often words with typos) do not affect the results.

After perusing the preliminary results of the topic model, I noticed the model struggled with teasing apart a few different topics from very long documents. Variable length of documents is known to influence topic modelling and the interpretation of topics (Singhal et al. 1996). For this reason, I added another step to the pre-processing consisting of splitting all speeches into smaller chunks with an equal number of sentences.⁵ I selected $n=8$ but any number in the 5–10 range yielded comparable results. Sentences with fewer than 4 words were discarded for lacking enough information to warrant inclusion. From here the quasi-documents were reduced again to a document-term matrix as per usual. Only now each speech was made up of several document-chunks of similar sizes (Table 2).

Finally, I weight the word counts in the document-term matrix by the term frequency-inverse document frequency (*tf-idf*). This is a common technique employed to sharpen analytical focus on those words that are not merely the most frequent in a document but also more specific to it. For example, the term “slovakia” might be very common in document d_1 , but in a context where it appears in all documents, it will not be very helpful in classifying the topical content of d_1 . Following Manning, Raghavan, and Schütze (2008), the exact equation for calculating *tf-idf* for term t in document d is

$$tf-idf_{t,d} = tf_{t,d} \times \log_{10} \frac{N}{df_t}$$

The *tf-idf* values replace the term frequencies in the document-term matrix.

Topic modelling

Even though the corpus of presidential speeches is on the smaller side from the perspective of quantitative text analysis, it is large enough for it to take hundreds of hours to reliably classify its content. Several human coders would need to be employed to determine what each sentence is about and to do so with an uncertain coding scheme (Grimmer and Stewart 2013). While we have charted some expectations about what the presidents might talk about, we want to leave room for unexpected topics and patterns to emerge from the speeches.

Table 2. Illustration of document length equalisation.

	Court	Economy	Education	Europe	Health	Rights	Social	Wage	Total
Doc ₁	8	1	2	4	0	6	3	0	24
Doc ₂	0	2	3	0	0	1	1	2	9
Doc ₃	1	3	5	1	1	0	2	1	13
	Court	Economy	Education	Europe	Health	Rights	Social	Wage	Total
Doc ₁ Sentences1:8	3	0	1	1	0	3	0	0	8
Doc ₁ Sentences9:16	2	0	1	2	0	2	0	0	7
Doc ₂ Sentences1:8	0	2	1	0	0	0	1	2	7
Doc ₃ Sentences10:17	1	3	4	0	0	0	2	0	10

Topic modelling offers an efficient method for parsing text that would otherwise be impossible or prohibitively expensive to code. Using the document-term matrix, the method classifies frequently co-occurring words into topics but with the possibility of words belonging to several topics at once. Each document is then a mixture of topics, depending on the extent to which different topics are addressed.

Most topic models use machine learning models to estimate the probability of a word belonging to a topic and topics occurring in documents. The most well-known probabilistic topic model is Latent Dirichlet Allocation (LDA) which models topic-word and document-topic distributions with Dirichlet prior distributions (Blei, Ng, and Jordan 2003). More recently, non-negative matrix factorisation (NMF) has been developed as an alternative algorithm for topic modelling that is particularly efficient for low-rank decomposition (Greene and Cross 2017; Gillis 2014). One of its advantages is that it can deal with real and not just integer values, which makes *tf-idf* transformations an option (as opposed to vanilla LDA). At the same time, NMF leverages the fact that all values in the document-term matrix are non-negative (because a word cannot occur less than zero times) which improves performance compared to similar dimensionality reduction techniques such as singular value decomposition.

NMF is a viable algorithm for topic modelling because it implements the assumption we can approximately represent the extremely complex textual space from several hundred documents with a vocabulary of thousands of unique terms by a much smaller latent structure (topics). NMF does this by approximately factorising the document-term matrix V into two smaller matrices W and H :

$$V \approx W \times H$$

In topic modelling, if V is a $d \times t$ document-term matrix, W is the factorised $d \times k$ document-topic matrix and H the factorised $k \times t$ topic-term matrix. To solve the approximation we need to determine a priori the number of dimensions (topics) k into which the matrix V should be decomposed. Selecting the right k is a notoriously fraught question in topic modelling regardless of the implementation. Although several measures have been proposed for determining k computationally (Mimno and Lee 2014; Newman et al. 2010; O’Callaghan et al. 2015), the fact remains that resulting topics must ultimately be interpretable (Jacobs and Tschötschel 2019). Based on measures of topical coherence, I establish the range of best k values to be between 15 and 25. After iteratively examining models with different k I settle on 20 topics, but the modelling results are highly similar in the 15–25 range.⁶ With $k=20$ we obtain interpretable topics that are reasonably granular while having some temporal durability, so that the topics are not merely events (Quinn et al. 2010).

Results

Below I present the results of a topic model of all presidential speeches with the number of topics set at 20. I begin by looking at the lexical constitution of the topics (term-topic matrix H), on the basis of which I assign them descriptive labels (in English). Second, I examine the topic correlations as part of a network graph. Third, I study the document-topic proportions from matrix W in the context of temporal and between-president variation.

In Figure 4 we can see the topics generated by the NMF along with top five terms associated with each topic.⁷ Based on the descriptors, the topics are highly coherent and intuitively understandable. Presidential speeches address a variety of issues linked to the mandate of the president, from armed forces – the president is officially the commander-in-chief – to the judiciary. Six of the twenty topics are in some way linked to foreign, including EU, affairs. Although most of the top terms are descriptive, the association of “roma” and “problem” reveals also the predominant framing of minority discourse.

To give some illustrative context to the individual topics, we can look at documents with a high proportion of a given topic. For example, for the topic “social”, the document with the highest topic proportion (0.313) is a speech given by president Gašparovič on 17 May 2013 at meeting of the biggest metalworkers’ trade union in Slovakia. In it we can find among others the following passage:

An equally serious problem of global importance undermining the principle of social justice is the improper redistribution mechanism of the goods that society creates and the consequent income polarization (...) The pressure on profit parameters, accompanied by uncritical cost reductions at all costs, ultimately resulted in a reduction in the quality of life, unemployment, which in a way led to dehumanization of the economy and society and

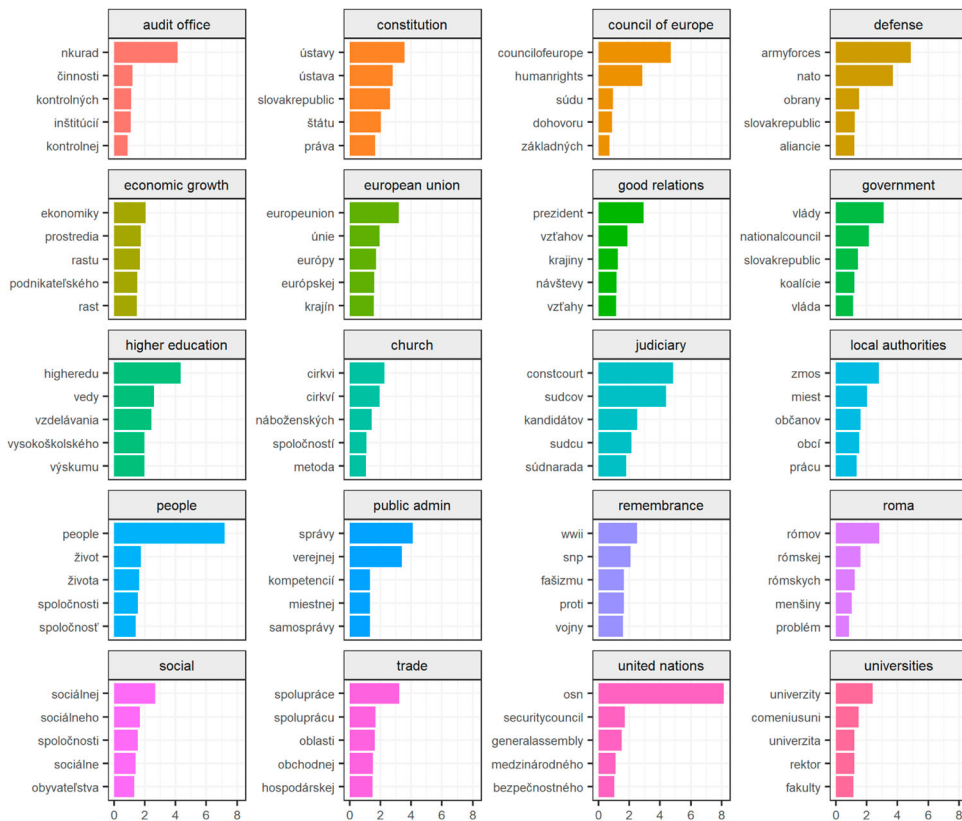


Figure 4. Top five descriptors of a term-topic matrix H for a $k = 20$ topic model.

a significant change in the relationship between economy, society and the functioning of the state as a social system.

This excerpt shows that one of the main narratives implied in the topic “social” is a critique of globalism and capitalism. Although other narratives are possible within the same topic, the second most “social” document also discusses social justice and the social dimension of market economics.⁸

As a second illustration, I turn to the topic “good relations”. The highest rated document (0.607) for this topical content is a toast by president Gašparovič during a dinner with Lithuanian president Valdas Adamkus:

It is my honor to be the first president of the Slovak Republic to be able to make an official visit to your beautiful country and see for yourself the richness of your culture, the diversity of traditions and undoubtedly the charming natural beauty (...) we have plentiful potential on both sides to develop our relations in all areas and at all levels to mutual satisfaction. I am also pleased that our relations are characterized by a spirit of friendship and mutual understanding, and that they naturally serve the good of both countries.

This topic thus seems to capture to a large extent toast and generally flattering language expressed during presidential visits. We would not expect to find much criticism or ideology here and indeed the excerpt consists of nothing but flattering words customary to official occasions.

In the next step, I examine how (dis)similar the topics are, which represents a way of verifying the robustness of the topic model. Topics such as “growth” and “trade” should be more similar than “church” and “defense”, for example. I calculate the cosine similarity between all topics as represented by vectors of terms from matrix *H*. [Figure 5](#) graphs these similarity values as a network, but for the sake of readability only values of at least 0.14 are shown.

In general, topic similarity is rather low, but that is to be expected when comparing vectors with over 25,000 dimensions (the size of the corpus vocabulary). The values capture the degree to which patterns of lexical usage of different topics resemble each other. Most importantly, the network, as the topic model at large, can be intuitively interpreted. “Higher education” is closest to “universities”, “judiciary” to “constitution” and “growth” to “trade”. Interesting to note are the similarities between “european union” and “defense”. Security integration through NATO (an important term in topic “defense”) is linked with the EU in presidential discourse, reflecting the fact that both enlargement processes were interconnected (Smith and Timmins 1999).

Next, I look at temporal and presidential variation in topic prevalence. It is only natural to expect presidents to focus on different topics, both for exogenous and endogenous reasons. Because terms are sequential, variation across presidents will automatically translate into temporal variation, although not perfectly so. In both cases, I estimate the effect of the variable – *year* and *president* respectively – on topic prevalence. The smoothed trend in [Figure 6](#) is achieved by fitting a cubic spline with nine degrees of freedom to the data.⁹

There are several interesting temporal patterns in the topic model. The last two presidents have significantly increased focus on the judiciary, in particular in the context of appointments to the constitutional court. On the contrary, concerns about the economy and growth have steadily declined since the 1990s, testifying perhaps to the improving economic situation enabling attention to shift towards other issues. The topical prevalence of the European Union has remained remarkably stable over time and dates back already

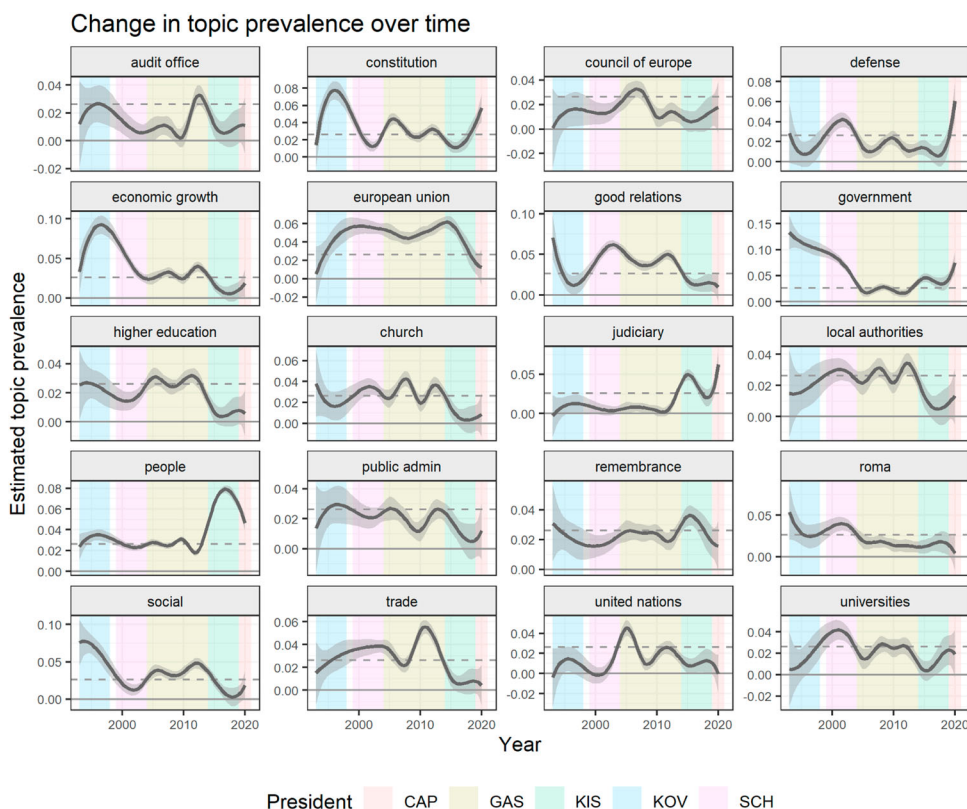


Figure 6. Temporal variation in topic prevalence. Note: The dotted line indicates the global mean.

way that the resulting principal components are orthogonal (uncorrelated) linear combinations of the input data, maximising total variance in the process. We obtain two matrices from PCA: the rotated coordinates of each president's position in the rotated space and a matrix of loadings which correspond to the weights needed to linearly decompose the original matrix into a lower-dimensional one.

The first two principal components explain 42 per cent and 25 per cent of total variance, respectively, which means one-third of variance is completely unaddressed in Figure 8. Along these two dimensions, we can observe that presidents Čaputová and Kiska appear close together, while Gašparovič and Schuster are located in a different quadrant. President Kováč's speeches resemble those of Kiska and Čaputová along the first dimension but not the second. Moreover, we can see which topics – representing the loadings – contribute most to the principal components. Čaputová's and Kiska's position is most distinctly influenced by their discussion of the judiciary and a people-oriented language. Kováč's speeches are defined by criticism of the government and concerns about economic growth and social considerations.

Discussion

The topic modelling results yield several interesting discussion points which contribute to our understanding of Slovak politics specifically and semi-presidential dynamics more

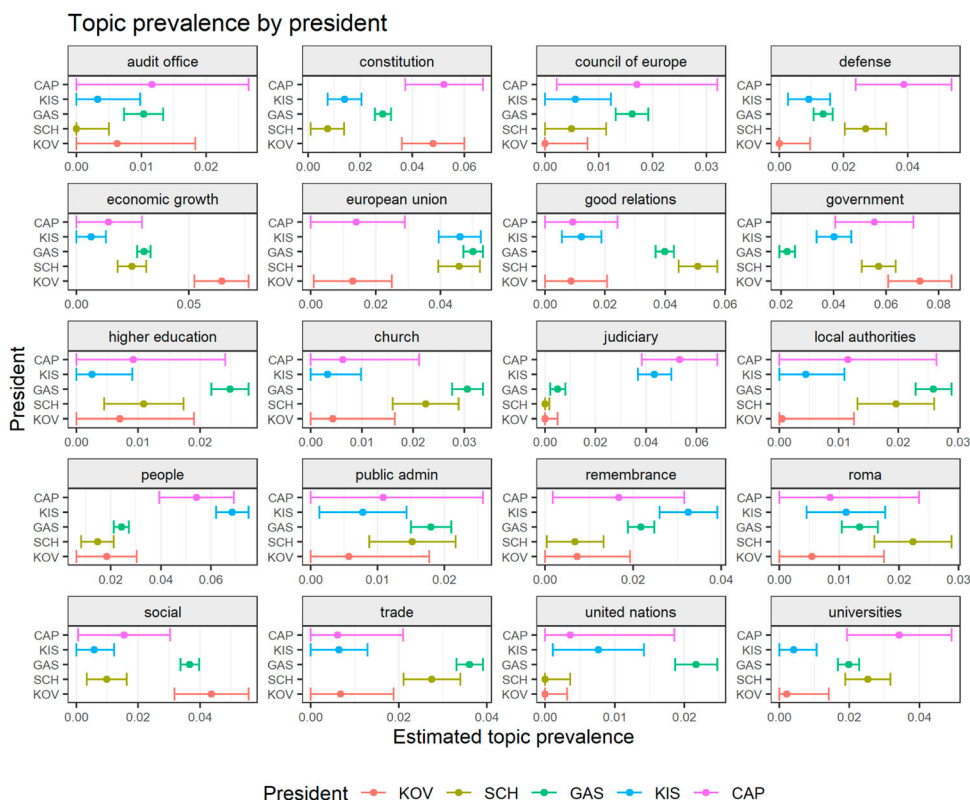


Figure 7. Topic prevalence by president.

generally. Due to space constraints, I focus on two themes emerging from the results. The first is the presidents' variable willingness to discuss and presumably criticise governments. The second are the distinctive features of the two most recent presidents, Zuzana Čaputová and Andrej Kiska, who were elected as political newcomers and seemingly altered presidential discourse.

Governments in presidents' speeches

Most pertinently for the study of semi-presidentialism, the dynamics between the government and the president come through in presidential addresses. We have seen already that both in terms of the temporal trend and across presidents, Gašparovič spoke the least about incumbent governments.¹⁰ In light of the political context sketched out above, the most plausible explanation for this pattern is that all other presidents have been to varying levels critical of the government, acting in their roles of "popular tribunes" which almost inevitably, in Baylis' view (Baylis 1996, 306), set them on a collision course with the government. Contrary to other presidents, Gašparovič's two terms in office coincided for the most part with coalition governments led by Robert Fico's SMER who were his main sponsors in both presidential elections. For 62.1 per cent of his 3650 days in office, Gašparovič's prime ministerial counterpart was Fico. In contrast, the other intra-executive relationships ranged from partially competitive (Dzurinda-Schuster),

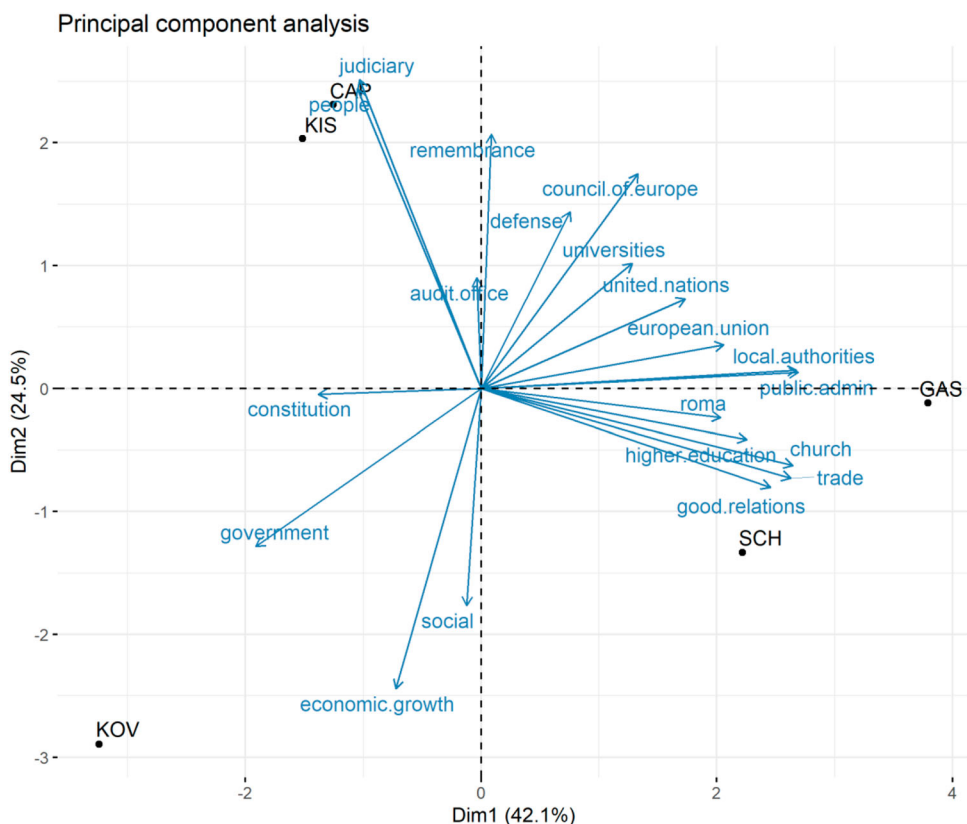


Figure 8. Principal component analysis of a president-topic prevalence matrix.

through adversarial (Fico-Kiska) to outright hostile (Mečiar-Kováč). Thus, the absence of intra-executive conflict during the long Fico-Gašparovič reign runs contrary to the theoretical premise put forward by Sedelius and Ekman (2010), namely that over time the preferences of weak presidents are increasingly ignored by the cabinet at the expense of the parliament, sparking public criticism by the president. Nonetheless, the rest of the temporal variation appears to lend support to this premise with respect to the other three premier-president relationships. Although we lack a reliable measure of ideological positions of all Slovak politicians, it is possible that Gašparovič relative reluctance to talk about the government could be explained by his comparatively greater ideological proximity to Fico's cabinets, as argued by Protsyk (2006, 223).

To corroborate the assertion that government-related vocabulary was used by presidents in a predominantly critical manner, I look at speeches by each president containing the highest proportion of the "government" topic. After the outgoing government approved "13th pensions" a few days before the 2020 parliamentary elections, president Čaputová adopted a critical tone despite signing the legislation:

I must begin my assessment by stating that, in the twenty-seven-year history of the Slovak Republic, it has not happened for the Government to submit to the National Council a bill of such essential importance so shortly before the end of the parliamentary term. (...) I consider the procedure chosen by the government and the parliamentary majority to be a

textbook example of how laws covering nearly 1.5 million people and financial costs of nearly half a billion euros per year should not be adopted.

President Kiska's highest "government" speech has a comparatively low proportion of this topic (0.26) and the criticism is less direct. It was given in response to a government reshuffle in November 2014 that included the stepping down of speaker of the parliament, Pavol Paška, who was implicated in embezzlement schemes in the public health sector. Kiska's criticism of the government was subtle: he spoke about political culture in the parliament and criticised the state of the public health and education systems but without pointing fingers.

In contrast to all other presidents, the top speech in this category by president Gašparovič contains no criticism whatsoever. It was given in July 2006 after the formation of the Fico I government:

I am very pleased that the election winner put together a government. I can say that our political scene is becoming standard and European. (...) I am very pleased that the whole process was carried out in line with the Constitution, in compliance with all written and unwritten laws and rules. (...) We should think positively and give the new government a chance to carry out its agenda, thereby giving ourselves a chance as well.

President Schuster's top "government" speech does not strictly contain any critical vocabulary but its meaning was highly confrontational and escalated a simmering conflict with the government. In February 2004 Schuster called a controversial (and possibly illegal) referendum on whether a snap election should be held later in the year (Malová and Rybář 2008). The referendum was to take place in parallel with the first round of the presidential election in which he was running for re-election. His argument for calling the referendum was based on the existence of a petition calling for an end to the Dzurinda II government. Schuster justified his action as implementing an "obligation to respect the opinion of over 550,000 citizens".

Finally, it is no surprise that in president Kováč's top document he criticises the government of Vladimír Mečiar. In the lengthiest document in the corpus, the 1995 state of the republic address, Kováč returns to the events of March 1994 when his speech triggered the fall of Mečiar's previous government and criticises the new coalition for being insufficiently consensual and behaving in a borderline undemocratic and illegal way.

The conclusion to be drawn here is that the topic model of presidential speeches picks up on the tumultuous relationships between Slovak presidents and prime ministers. The only exception to this dynamic was president Gašparovič whose general avoidance of this topic was compounded by a lack of criticism when he did speak about the government. These findings are in line with previous studies describing Gašparovič's style as non-confrontational and his speeches as vacuous and superficial (Paul and Kalinič 2011). But other than personal political style the broader factor at play here is a high degree of political alignment between the prime minister and president which broke the pattern of conflicts that both preceded and superseded Gašparovič's term.

New candidates, new agenda

The election of Andrej Kiska and Zuzana Čaputová installed a new class of politicians into the presidential palace. The political career of both started in the presidential race, prior to

which they gained prominence as successful representatives of civil society (and business in the case of Kiska). Both were significantly younger than their predecessors and unburdened with a communist or Mečiar-tainted past. Kiska and Čaputová represented a new kind of candidate.

The main takeaway from the topic model is that the chasm between the last two presidents and the ones before them, in particular Gašparovič and Schuster, translates into significant differences in political discourse. The topic model shows that two issues more than any other make Kiska and Čaputová distinct: the way they invoked the “people” in their speeches and an emphasis on the rule of law.

First, the topic model reveals that the topic “people” was twice to four times more prevalent in the speeches of Kiska and Čaputová than other presidents.¹¹ To understand what the classifier placed under this label I turn again to documents with the highest topical content. For Zuzana Čaputová the document in question is her inaugural address. In it, she delivers a message of tolerance:

We can express our attitude to otherness, different traditions, different experiences and different opinions without interfering with the freedom and dignity of others. Just remember that together we are part of the whole, part of the human family. It is enough not to forget to love thy neighbour, which is the basis of respect for diversity.

The manner in which Čaputová uses the words “people” and “human” are not akin to a populist invocation of “the people” against the elite (Mueller 2016). Instead, she references the shared humanity of all citizens in a message intended to bridge differences rather than divide.

We can find an even more radical discourse of humanity in the top-scoring speech of president Kiska:

(...) the reception of several hundred or even thousands of people fleeing war and violence would be in the power of Slovakia. I think it would also be acceptable to most of our citizens if we could explain such a decision to them calmly, accurately and together. (...) Slovakia became an object of ridicule of European and world media. It is as if people – and the value of a human being – disappeared from the Slovak position. (...) In my opinion, today and at any other time, politics must also have this humanistic dimension.

As mentioned previously, Kiska was one of a rare few politicians who suggested that Slovakia should grant asylum to several hundred or even thousand asylum seekers fleeing from Syria in 2015. In the midst of a borderline dehumanising political discourse (Lulle 2016), the president projected the message that asylum seekers should be perceived first of all as human beings.

Gašparovič’s top “people” speech also uses this word in a migratory context but the target of his critique is the false hope of consumerism at the time of the Arab Spring:

The consumer society does not have enough energy to understand the desperation and lack of prospects for millions of young people (...) We had to know that (...) after millions of young people in Africa and Asia learned about our consumer way of life, our living standards, that they would want to change their way of life or leave their country.

This speech does not exhibit the same degree of humanist rhetoric as the previous two. Gašparovič’s perspective here is that of a foreign policy analyst, although true to his more general preoccupation with social issues it includes criticism of lack of Western (consumer) understanding of poverty in Africa and Asia.

Despite his image of a popular mayor and a people's person, Schuster's speeches do not point to a significant usage of this word. The one with the highest proportional content of the "people" topic was given at the occasion of awarding state decorations:

From history, we know that our nation's journey to self-determination and full-fledged status among European states has not always been easy or straightforward. However, it was a great fortune for this country to have and have enough people whose credo was to pass on their knowledge and moral values in favour of Slovakia's interests.

If Gašparovič's preferred frame is social, Schuster's appears to be national, although this might be influenced by the occasion. In his narrative, people serve and contribute to the nation. The speech continues by likening the award recipient's contribution to that of Milan Rastislav Štefánik, one of the most revered Slovak historical figures.

President Kováč's speech in this category comments on the behaviour of people during the holocaust at the occasion of opening a vernissage of a holocaust survivor's paintings:

Above all it was all those people who were helping their persecuted fellows (...) putting their own life at risk to save many of them from certain death. These simple, unknown people have been and still are a living testimony that human good cannot be completely suppressed and destroyed even in the darkest times. (...)

Kováč's speech differs from Kiska's and Čaputová's in its historical orientation but otherwise invokes similar humanistic concepts. Overall, subtle shifts in how the presidents framed the "people" – as well as the more obvious increase in frequency over time – underline how Kiska and Čaputová brought a new way of talking to the people about the people, including during the tense moments of the 2015 refugee crisis.

The second major feature distinguishing Kiska's and Čaputová's terms is emphasis on rule of law issues, notably nominations to the constitutional court.¹² The fight over the composition of the constitutional court was a notable part of the Fico-Kiska antagonism and it touched on the interpretation of constitutional powers of the president vis-à-vis the parliament (which puts forward twice the number of candidates to be appointed by the president). The two latest presidents also made their views known on the composition of the judicial council (the judiciary's administrative body) when replacing previous appointees. On no other issue is the topic prevalence so different among the presidents than "judiciary".

With respect to the constitutional court, the political contestation described above plays out in the speeches. Whereas Kiska and Čaputová attempt to place additional demands on the process and the candidates in a bid to prevent court packing by the government – and are thus more critical in tone – Gašparovič's short interventions accompanying new appointments are comparatively banal. At a time when Slovak citizens were increasingly reckoning with corruption by taking to streets – a political wave that ultimately propelled the anti-corruption campaigner Matovič to premiership – Kiska and Čaputová utilised their mandate and reputation to cast unprecedented light on the judiciary, an institution deemed largely untrustworthy by Slovaks.

In contrast, the defining non-appointment of the Gašparovič era, that of the general prosecutor, is almost completely absent from the president's speeches. Whereas the conflict between SMER and Kiska and Čaputová respectively was actively played out in the open, with the latter two relying on public pressure to get SMER to back down from

their interests (such as appointing Fico to the constitutional court), Gašparovič did not mention his refusal to appoint the government's nominee in a speech until after that government, led by Ivetta Radičová, was replaced by Fico. Gašparovič only subsequently defended his actions in passing in two unrelated speeches in 2013 and 2014. In this respect, Gašparovič's communications strategy was completely different from the popular tribune model which on the contrary reasonably approximates the competitive behaviour of all other presidents with respect to "their" prime ministers. Instead of trying to harness the public pressure against the government, Gašparovič opted to stay silent and ride the storm out. This episode also highlights the limits of textual analysis, or more precisely the need for domain-specific knowledge – although the non-appointment of the general prosecutor represented one of the most serious constitutional crises, the topic model can only pick up on issues the presidents choose to speak about. The negative space needs to be filled in by the investigator drawing on other data sources.

Conclusion

In this article, I set out to explore political speeches of Slovak presidents. Presidents in Slovakia have been typically viewed through the prism of their relationship with the government in the context of Central European parliamentary or "semi-presidential" systems. Whereas most analyses focus on shifts in competences of the various constitutional actors, I was interested where, if at all, presidential speeches fit in light of the prevailing political narratives.

For the purpose of this study, I constructed a new dataset of presidential speeches spanning 27 years of the Slovak Republic's existence and five presidents. At the time of writing, the corpus contains 628 speeches which are made available alongside the manuscript in plain text. My study is for the most part exploratory, given the sparsity of systematic investigation of this data source, but I derive some expectations about presidential agendas with a cursory overview of the political context that the elected presidents inhabited.

To understand the overall content and evolution of what Slovak presidents talk about in their speeches, I run a topic model using non-negative matrix factorisation to reduce dozens of thousands of sentences into a 20-dimensional topical space. I subsequently examine various aspects of the topic model, including similarities between topics, interaction with other variables of interest and principal component analysis clustering showing which presidents focused on similar issues.

The contribution of this study is threefold. First, the topic model constitutes the first attempt at portraying the entirety of Slovak presidential speeches together. These results offer a novel perspective complementing existing studies most of which deploy a case-based method or focus on more formalistic data. Second, I show that the results of the topic model are relevant for unpacking the relationship between president and prime minister, which has been a primary preoccupation of scholarship on Central and Eastern European presidential politics. Presidential speeches contain evidence of presidents' relationships to the government, which seem to vary as a function of political alignment and personal style. In this regard, I find that only president Gašparovič did not conform to the "popular tribune" model of presidential politics, preferring non-confrontation in his speeches over attempts to mobilise the public against the government. It is notable that this theoretically relevant result emerges from the data "organically", using only

unsupervised topic modelling. Finally, the topic model points to presidents Kiska and Čaputová, two presidents with a civic rather than a political background, as distinct from previous presidents, especially Gašparovič and Schuster. Their emphasis on improving rule of law standards and culture in the country and their less instrumentalised framing of “people” represent a trend that breaks with the fifteen preceding years of presidential discourse.

While there is an abundance of quantitative and mixed-method research using text data in English, this is a relative-blind spot in Central Eastern European studies. One reason is undoubtedly linguistic. A cross-country comparative study would have to contend with different languages, which would likely require translation at some level. Nonetheless, if future research produces new corpora of political speech from across the region, further research avenues could be opened, such as embedding models capable of parsing political sentiment. There is much to be gained from leveraging the full gamut of methods and data available for understanding politics, even if we face more obstacles analysing texts in Slovak, Czech or Hungarian than in English.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes

1. Sedelius and Ekman (2010, 512) posit that in transitioning democracies, the personal authority of the office bearer is greater due to incomplete institutionalization.
2. These performances were still read outs of written speeches, delivered with few instances of misspeaking, so discrepancies between the original speech and the transcript should be minimal. Hesitations and distractions were not recorded in the transcript.
3. Because translation of some texts is liable to introduce bias into the corpus, it is not generally recommended. However, owing to the small proportion of translated texts (0.02%), I deemed the inclusion of these texts an acceptable trade-off between more data and less reliability. Removing them instead does not significantly affect the results.
4. An interesting way of extending the model would be to weight observations by importance or audience size of each speech. However, it is difficult to find suitable data that could operationalize this variable.
5. Sentences are a useful unit for this type of pre-processing, because we are less likely to introduce stray words about different topics than if the speeches were partitioned purely by number of words disregarding sentences completely.
6. Similarly, the results are not dramatically different when using LDA instead of NMF to estimate the word-topic coefficients and document-topic proportions.
7. English terms appear where a multi-word expression was collapsed into a single term (for example “westernbalkans”).
8. President Gašparovič’s address at the national union of employers, Bratislava, 26 April 2013.
9. Alternative smoothing algorithms, such as locally estimated scatterplot smoothing, yield similar trend lines.
10. Estimated topic prevalence ($\hat{\theta}$) for topic “government”: $\hat{\theta}_{CAP} = 0.055$, $\hat{\theta}_{KIS} = 0.040$, $\hat{\theta}_{GAS} = 0.021$, $\hat{\theta}_{SCH} = 0.058$, $\hat{\theta}_{KOV} = 0.072$. While topic prevalence and top word counts are not interchangeable measures, the latter might be more tangible for the reader. The proportion p of the word “government” in the vocabulary (frequency of all words used) of presidents is as follows: $p_{CAP} = 0.0043$, $p_{KIS} = 0.0041$, $p_{GAS} = 0.0027$, $p_{SCH} = 0.0058$, $p_{KOV} = 0.0060$.

11. $\hat{\theta}_{\text{people}}$: $\hat{\theta}_{\text{CAP}} = 0.054$, $\hat{\theta}_{\text{KIS}} = 0.069$, $\hat{\theta}_{\text{GAS}} = 0.023$, $\hat{\theta}_{\text{SCH}} = 0.013$, $\hat{\theta}_{\text{KOV}} = 0.019$. Proportion p of the word “people” in the vocabulary: $p_{\text{CAP}} = 0.006$, $p_{\text{KIS}} = 0.011$, $p_{\text{GAS}} = 0.003$, $p_{\text{SCH}} = 0.002$, $p_{\text{KOV}} = 0.003$.
12. $\hat{\theta}_{\text{judiciary}}$: $\hat{\theta}_{\text{CAP}} = 0.052$, $\hat{\theta}_{\text{KIS}} = 0.043$, $\hat{\theta}_{\text{GAS}} = 0.005$, $\hat{\theta}_{\text{SCH}} = 0.001$, $\hat{\theta}_{\text{KOV}} = 0.001$. Proportion p of the words “court” and “judicial” in the vocabulary: $p_{\text{CAP}} = 0.009$, $p_{\text{KIS}} = 0.007$, $p_{\text{GAS}} = 0.002$, $p_{\text{SCH}} = 0.002$, $p_{\text{KOV}} = 0.002$.

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