Is rudeness the new normal of political interactions?

Political incivility in the online commentary sections in Hungary.

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Zoltán Kmetty, Eötvös Loránd University, Faculty of Social Sciences & Centre for Social Science, Centre of Excellence of the Hungarian Academy of Sciences <kmetty.zoltan@tatk.elte.hu>

Gabriella Szabó, Centre for Social Science, Centre of Excellence of the Hungarian Academy of Sciences <szabo.gabriella@tk.mta.hu>

Emese K. Molnár, Eötvös Loránd University, Faculty of Humanities, Department of Modern Hungarian Linguistics <emesekmolnar@gmail.com>

Abstract

This paper joins a growing literature on the topic of online incivility in politics. To better understand the distribution and the characteristics of disrespectful tonality in online political discussion, this study investigates a 34 months census of users' comments posted to the most popular online news media portals in Hungary between 2017 and 2019. Our total sample contains 17 581 659 comments. By concentrating on the strict sense of political incivilities such as name-calling, vulgarity, and swearing, we rely on a computational linguistics approach to evaluate the varieties and dynamics of incivility across time (election campaigns and in-between election times), platforms (Facebook and the Disqus), topics (comments posted to politics and business-related articles) and political orientation of the news media portals (pro-government and ones that are unsympathetic towards the current right wing government). The results of the dictionary-based content analysis show that incivility occurs frequently (cca. 30% of the total sample) regardless of the political orientation of the news portals. We also find that, contrary to popular perceptions, incivility has not become more intense in election campaign periods. While the platform makes real difference: significantly more name-calling, vulgarity, and swearing have been detected in the commentary sections provided by the Disqus system than on Facebook. The findings confirms the everyday impressions of rudeness in online politics: comments posted under political topics are far more uncivil that those which posted to business-related articles.

Keywords: content analysis, Hungary, online incivility, politics, text mining.

Introduction

Incivility has always been the part of citizens' political interactions and it is unlikely to disappear in the nearest future. But, it is now coupled with the apprehension that the harsh language of the online commentary culture is no longer a subcultural or marginal phenomenon, but increasingly becoming the mainstream way of talking about politics. Although the academic attention to online incivility in politics is growing, scholars disagree on the terminology and the measurements. Another problematic issue about the incivility studies is that the vast majority of evidence has been found in the United States. The negativity and disrespectful tone of voices in a digital platform are certainly relevant for non-American political context as well. It is partly because the U.S.'s radius of influence is actual and apparent in politics all across the globe. Especially in Hungary, the effects of the American style of politics is greater than it is suggested by the Americanization thesis of campaigning (e.g. engaging with political consultants, poll-driven campaigning and governance, personalization of politics, permanent and negative campaigning, mediated politics, etc. see: Holtz-Bacha, 2008, Mihályffy, 2009, Szabó and Kiss, 2012). In Hungary, it is claimed that the politics of hate and emotionally overwhelmed political style are directly imported from the U.S by the long term involvement of American experts (Braun, 2019). Moreover, it is also noted that the narratives of the American alt-right movement become the central part of the pro-government political discourse in Hungary (Lakatos, 2019). The vocalizing of rage, resentment, and feeling of annoyance in alt-right communications found somewhat analogous to the observation of the Hungarian online political commentary culture which might lead us to an escalating spiral of digital incivility in Hungary (B. Simon, 2019).

Notwithstanding the importance of the U.S. as the global trendsetter, studies highlight that the rude and visceral nature of discussion in politics is deeply contextual, country- and culture-specific intertwined with the political and media system incivility appears in (Mutz, 2015; Rains et al., 2017). In other words: incivility in politics varies across context, culture, and countries. There is now an increasing amount of researches that tests whether the uncivil political discourse is a contextual variable in assessing the effects of rudeness in European countries (see for example Theocharis et al., 2016; Otto et al., 2020; Stoll et al, 2020). Our knowledge is however surprisingly limited on the diversity and diffusion of uncivil content in online users' comments in Central and Eastern Europe.

We address this gap by providing a quantitative content analysis to map out the prevalence, the distribution and the characteristics of the uncivil written material in the user-

generated content in Hungary. We focus on the strict sense of political incivilities such as name-calling, vulgarity, and swearing. Our data is coming from the most read online news media portals with different political orientation in Hungary. We define keywords for all the three types of incivility and search for them within the comments on the news media portals' discussion sections (either on the Facebook pages of the sampled outlets or in the Disqus system). Our dictionary method is based on multiple rounds of linguistic analysis of detecting the most appropriate indicators to identify incivility as much as possible.

This study contributes to the existing body of knowledge of incivility research in diverse ways. At the empirical level, our data demonstrate that approximately every third users' comment contains at least one aspect of incivility which we interpret as evidence of the high concentration of name-calling, vulgarity, and swearing in the Hungarian online political discourses regardless of the political orientation of the news portals. Our data, however, do not support the claim that incivility has become more intense over time, especially during election campaigns. While, we prove that the platform makes difference: significantly more name-calling, vulgarity, and swearing have been detected in the commentary sections provided by the Disqus system than on Facebook. At the methodological level, we propose a computational linguistics' technique by using big data and computer-assisted textual analysis tools to investigate the user-generated contents of 17 581 659 comments in the commentary sections of news media portals either in the Disqus system or Facebook. At the theoretical level, our analysis illustrates the normalization process of uncivil messages in the online political discourses in Hungary. Inspired by the politeness theory, we focus on the swearing/cursing, obscenity, and name-calling, but we do not interpret them as verbal acts of rule-breaking, but rather a stylistic feature of the contemporary online commentary culture. Therefore, this study shifts the attention away from the norm violation concept by proposing the normalization thesis of incivility.

From norm violation approaches to the normalization of incivility

Recent studies on political incivility suggest that the academic community all across the world sees uncivil communication as a major political issue. Responding to this concern, a growing body of literature has been devoted to the prevalence of uncivil language, its roots, and its consequences. Despite all differences in methodological choices, researchers face challenges in finding a clear definition of incivility and often make arbitrary decisions in describing of what they count as uncivil political communication. There is a wide consensus that

understanding civility and incivility is difficult and providing settled definitions is nearly impossible (Herbst 2010: 12). It is because civility and incivility are complex, situational and contextual, therefore the definitions are always contestable, never fully accepted by all scholars and rarely relevant for all cases. Although scholarly conceptualizations of incivility are mostly focusing on the norm violations approach, there have been various suggestions on which violated civility norms constitute incivility.

To comprehend civility and incivility in politics, it is useful to go back to the etymology of the words. The linguistic origin of civility ties to closer communities and wider societies. The word derives from the Latin civitas, which means "city," especially in the sense of civic community. Civitas is the same word from which civilization comes. The assumption behind civility is that living in a community has a civilizing effect meaning the lives under certain norms. Civility is often considered as a standard of behavior that is based on shared beliefs about how group members should behave in a certain situation (Fehr and Fischbacher, 2004:185). Also, there is an inherent communicative nature of civility in politics: we can describe civil as courteous, polite, and well-mannered style of talking to each other. The etymology also reminds us about the normative concepts of citizenship: people ought to be engaged community members who can exchange political views in a constructive, inclusive, rational, critical, but in a respectful way (see also: Sapiro, 1999).

Sociological reflections to the civility problem emphasize that deviance, or norm violations, can be often easier to identify than the norm itself. For this reason, deviance frequently provides a benchmark to trace norms and norm-building practices. Like other injunctive norms, civility "specif[ies] what people approve and disapprove within the culture and motivate[s] action by promising social sanctions for normative or counter normative conduct" (Reno et al., 1993: 104). Norms of talking to each other about politics are mostly informal, so informal deviance from such standards are expected to result in social sanctions (such as confronting with perpetrators or exclude them from the conversation). We must mention that very few academic reflections have been made in relation to the citizens' perceptions of norms and norm violations in political discourses (except Stryker et al. 2016). We lack the in-depth analysis of what people consider as accepted style of political communication, what they label as bad manner and whether they sanction intolerable expressions or not (even by signaling that certain behavior is unacceptable for them).

Distinguishing between the levels of norm violation, Muddiman (2017) identifies public- and personal-level incivility. Public-level incivility is inspired by the deliberative democracy theory (Fishkin and Luskin, 2005; Gutmann&Thomson, 2004; Rawls, 1993).

Papacharissi has argued that incivility relates to violating norms of political and deliberative processes (2004). Deliberative approaches to democracy promote processes that emphasize public discussion and carefully weighing a comprehensive set of ideas (Fishkin & Luskin, 2005; Gastil, 2008). These norms can be violated in multiple ways - for instance, refusing to recognize that other views are legitimate (Uslaner, 1996: 8), putting forward political arguments in terms of private gain rather than the common good (Rawls, 1993). Again, Papacharissi lists how online commentary talks may deviate from deliberation, such as verbalizing threats to democracy, assigning stereotypes, intentionally spreading misinformation, and threatening others' rights to participate in the political process (2004: 267). From this perspective, civility and incivility have a substantive element which makes the operationalization and data collection extremely complicated and overloaded with arbitrary decisions of researchers. Furthermore, citizens' responses are less more observable when it comes to violating deliberative-communicative norms (see also Syndor 2019: 13-14).

Not all scholars have been persuaded by the benefits of public-level incivility concepts. The majority of the empirical investigations rely on the personal-level incivility concept which builds on politeness theory (Ben-Porath, 2010; Mutz, 2015). Within this approach, researchers conceptualize incivility as interactions in which people yell, name-call, swear, use insulting or aggressive languages, and otherwise communicate impolitely (Ben-Porath, 2010; Borah, 2014; Fridkin and Kenney, 2008; Mutz, 2015, Syndor, 2019). It is also demonstrated that the personal-level of incivility shapes the citizen's attitudes, cognition, and behavior. First exposure to incivility between politicians has been associated with the public's dissatisfaction with political institutions and negative attitudes towards politicians (Capella and Jamieson 1997; Brooks and Geer 2007). Second, online incivility between citizens in places like blogs and online forums can decrease open-mindedness, political trust (Mutz and Reeves, 2005), and efficacy (Borah 2012) and polarize individuals' views on a topic (Anderson et al. 2013; Lyons and Veenstra 2016). By contrast, Brooks and Geer find: "While uncivil messages in general—and uncivil trait-based messages in particular"—are usually seen by the public as being less fair, less informative, and less important than both their civil negative and positive counterparts, they are no more likely to lead to detrimental effects among the public. In fact, incivility appears to have some modest positive consequences for the political engagement and participation of the electorate (2007: 1). In a study of online comments, Coe and his colleagues (2014) found that uncivil comments were more likely to receive more reactions from readers in the form of approval ratings.

There is general agreement that uncivil discourse is emotionally arousing (Mutz, 2007). Moreover, being the target of uncivil remarks can elicit rude responses (Andersson and Pearson, 1999; Vasquez et al., 2013); reduce effective cognitive processing, productivity, and creativity (Porath and Erez, 2007, 2009; Rafaeli et al., 2012, 931). The uncivil messages, however, do not affect everyone equally or in the same direction. Citizens with a conflict-oriented personality (e.g. who enjoy conflicts) feel more positive emotions when they faced with political incivility and they are less likely to staying away from communicative situations which tend to be uncivil such as online commentary platform (Syndor, 2019). Also, harassment directly aimed at individuals, especially minorities and vulnerable groups, tends to make them more anxious for their safety and demobilize them (Henson et al. 2013; Hinduja and Patchin 2007; Munger 2016).

Despite the rich tradition of the effect studies of personal-level incivility, the problem is that this research tradition exists alongside with very limited data on the occurrence of incivility in real-life political discourse. Sobieraj and Berry (2011) conceptualize and measures one of the „dramatic types" of political incivility, which they term "outrage discourse. " (e.g. use of overgeneralizations, sensationalism, misleading or patently inaccurate information, ad hominem attacks, and partial truths about opponents). Scrutinizing political blogs, talk radio, and cable news programs in the US, the authors have demonstrated that outrage discourse is extensive, takes many different forms, and spans media formats. They also show that while outrage tactics are largely the same for the liberal and conservative platform, conservative ones use significantly more outrage speech than liberal fora.

The works of Coe and his associates and the authors like Sobieraj and Berry may provide us evidence about the main forms of incivility in political discussions, academic reflections are less elaborate on the justification about the labels of uncivil words and expressions. One might ask: on what basis a researcher define what counts as uncivil political communication and what does not?, who sets the discursive norms in the commentary platforms?, what if the labeled words and expressions are not perceived uncivil by the users?. The situational nature of incivility raises doubt whether it is possible to develop a general vocabulary for the norm violating words and expressions which work across different contexts and periods. Nasty languages have always been a part of citizens' talk about politics, but the rise of the Internet and social media, for example, made incivility more explicit in these days than it was visible in previous decades (Kamps, 2016; McLoughlin and Ward, 2017). The online platforms now offer a cloak of anonymity and limited contractions on citizens' ability to express their political opinion in a way they are usually doing in an intimate and interpersonal circumstance. We

propagate to investigate the normalization of incivility rather than focusing on norm violations in online political discourse. It is suggested that vulgarity and harsh languages can be tolerable in certain contexts, moreover Munger (2016) and Theocharis and his colleagues (2016) have established that incivility is occurring frequently during periods of vibrant political activity, such as around elections. Additionally, politics are considered a conflict-oriented activity in which disagreement is an everyday experience for those who are interested in public affairs and willing to participate in public discussions. It might be the case, we conclude, that the boundaries between acceptable and insulting language changes as time goes by or varies across different online commentary fora of news.

Measuring the online incivility in politics

We argue that incivility can be considered as a dynamically evolved phenomenon that is contextual and time-bound. To go beyond the norm violation type of assessments, this study also proposes a mixture of corpus and computational linguistics approach to evaluate not only the dynamics but the varieties of uncivil rhetoric in the online commentary fora of news media in Hungary. Accordingly, we adopt a definition which is coming from the politeness theory and describe incivility as "disrespectful discourse" (Jamieson et al., 2017: 206) and "uses of verbal aggression" towards the opponents to silence, derogate or delegitimize the conflicting political views (Hmielowskia et al., 2014: 1201). This broad conceptualization leads us to operationalize incivility in terms of three key dimensions, such as swearing/ cursing, obscenity and name-calling. We are nevertheless aware of the existence of other incivility dimensions, like aspersion and lying accusations, emotional display, misrepresentative exaggeration, mockery, conflagration, ideologically extremizing language, etc. For the purpose of the study, we focus on the three obvious and the most extreme formats of incivility. All are discussed and involved amongst the most common uncivil tone measurements in previous studies (see Mutz and Reeves, 2005; Brooks and Geer, 2007; Disbrow and Prentice, 2009; Thorson et al., 2010; Berry and Sobieraj, 2014; Coe et al, 2014; Gervais, 2014; Hwang, 2014).

Dimension	Definition	Examples
Swearing/ Cursing	Generally considered blasphemous, vulgar, or otherwise offensive. These are also called expletives, dirty words and profanities.	*A **bukott patkányok** nem győzik megsemmisíteni a terhelő dokumentumokat…* 'The **fallen rats** cannot destroy the incriminating documents.' ***Büdös bunkók** a liberálisok.* 'The liberals are **stinking yobs**.'

		*Örülj te **ostoba proli*** 'Be happy, you **stupid prole**' *Vonyíts **komcsifos**…* 'Yowl you **commie-shit**…' *A **kurva anyádat**, hát te egész nap itt vergődsz?* '**Motherfucker**, do you squirm here all day long?'
Obscenity	Four-letter words and particularly bodily practices, incl. expressions related to the digestive systems and sexual materials.	*Orbán most tényleg **beszart** tőle.* 'Orbán really **shits** in his pants now.' *Bármikor ide tévedek, minden cikk alatt **okádod a szarságodat**..* 'Whenever I get here, you **hurl your shit** under each article..' *Látom meg vagy sértődve, hogy nem a te szádba kerül a **lófasz**!* 'I see you offended that the **horse-cock** doesn't get in your mouth!'
Name-calling	It is characterized by words and context that makes the subject foolish, inept, hypocritical, deceitful and dangerous. Typical formats are adjective & proper names, lexical blending and nicknaming.	Ákos Hadházy as *félkegyelmű Hadházy* – 'half-witted Hadházy' Gergely Karácsony as *alkalmatlan Karácsony Gergely* – 'incompetent Gergely Karácsony' Ferenc Gyurcsány as Gyurcsótány: Gyurcsány & csótány – 'Gyurcsány & cockroach' Viktor Orbán as Viktátor: Viktor & diktátor – 'Victor & dictator' László Kövér as *Kövér Laca* – 'Leslie > Les Kövér' István Tarlós as *Tarlós Pista* – 'Stephen > Stevie Tarlós'

Table 1. Definitions and examples of dimensions of incivility.

We organize our investigation of incivility around the research questions and hypotheses as follows:

RQ1: How prevalent incivility is in the online commentary sections?

H1. The overall volume of incivility is above 20 percent.

Based on previous research results we assume, that incivility is prevalent in online commenting. Analysis of one major daily newspaper found incivility in >20% of its comments (Coe et al., 2014: 667). The most prevalent form of incivility was name-calling, which took

place in 14.0% of all comments. Other forms occurred less frequently: 3.0% of comments included vulgarity, 2.6% contained aspersions, 1.9% contained pejoratives about speech, and 1.7% referred to liars or lying (Coe et al., 2014: 668).

RQ2: Is there any difference between the Disqus and Facebook as two main online commentary platforms of news media outlets in terms of the volume of incivility?

H2. There is a platform effect, the level of incivility is lower in the case of Facebook, compared with the Disqus forums of news media portals.

As for RQ2 and H2, we expect significant dissimilarity. It is known that Facebook has a more rigorous content moderation policy, and also most of the users registered their real personal identity on Facebook. Hence, the proportion of uncivil comments is assumed to be lower on Facebook in comparison with the Disqus system.

RQ3: Is there any difference between the online comment sections of news media outlets which are sympathetic and those which are unsympathetic towards the current Hungarian government.

H3. There is a significant relationship between the volume of incivility and the political leaning of the news portals.

Drawing particularly on the work of Jamieson (1997, 2011) and Berry and Sobieraj (2014), we test whether the political leaning makes any difference in the usage of uncivil vocabulary. The above-mentioned studies suggest that vulgarity and insulting language is slightly more prevalent in right-leaning platforms. However, in Hungary, it is plausible to assume that the magnitude of incivility is higher in the online comment sections of news media outlets which are unsympathetic towards the current right-wing Hungarian government. We could also assume that users with divergent political opinions encounter each other in the online fora, therefore a high level of emotional arousal is expected. Since contradictory assumptions can be derived from the previous studies and experiences, we formulate a null hypothesis about the effect of political leaning.

RQ4: Is the volume of incivility in the online commentary sections significantly differ between political topics and non-political topics?

H4. The volume of incivility is higher in political related-topics in comparison with comments of business and service industry-related news media outlets.

Coe and his associates also examined incivility in relation to article topic. The results indicate that "hard news" topics appear to activate greater incivility. For example, articles about the economy, politics, law and order, taxes, and foreign affairs all received roughly one uncivil comment for every four comments posted. In contrast, articles about health, lifestyle, journalism, and technology were all considerably lower. The notable exception was sports, a lighter topic that nonetheless had the highest percentage of incivility (Coe et al., 2014: 669).

RQ5: Is the volume of incivility in the online commentary sections changes in time?

RQ5.a: Is the volume of incivility changing during the analyzed period?

RQ5.b: Is the volume of incivility in the online commentary sections significantly differ during election campaigns than during out-campaign periods?

H5a. The volume of incivility increased from 2017 to 2019.

H5b. We expect, that the volume of incivility is higher around election periods. The effect is stronger in the case of general elections, compared with local elections.

These are simple but nonetheless important questions to test the assumption of normalization thesis of incivility in politics. Also, with these questions, we reflect the commonly expressed concerns about incivility which are based on the assumption of its substantial presence and rising trends in public discourse. Previous work has been limited by the relatively short periods examined about the extent of uncivil interactions in specific cases, such as electoral campaigns when political interest and discussion is heightened (McLoughlin and Ward, 2017; Lee et al., 2020). Therefore, there is little evidence for or against the claim that the patterns of incivility differ from politically less intensive periods in-between elections. Our dataset involves online interactions between citizens for 34 months (2017, 2018 and 2019) which is enabling us to examine also politically calm and intensive periods. Using this longitudinal data, we will able to study the dynamics of incivility across lengthier time-spans. We assume that incivility is rising in Hungary between 2017 and 2019 because 2017 was a relatively calm year without major legislative or local elections. While 2018 and 2019 were the years of legislative elections (2018), European Parliamentary (May 2019) and local elections (October 2019). It is expected that the continuous campaigns in 2018 and 2019 increases the volume of swearing/cursing, obscenity, and name-calling. Specifically, a fortnight before the election days we anticipate temporary peaks of uncivil messages. Concerning the type of elections, the local elections are usually less heatedly debated at the country-level. If party politics play less role here, it is also plausible to assume that the tension would be lower in this case.

Data and methods

For testing our hypothesis we collected large amount of users' comments posted to articles about politics either via the Disqus system or on Facebook. To do so, we used the platform of SentiOne (www.sentione.hu) which is a social listening software. SentiOne gathers, indexes and analyses publicly available online contents starting with social media channels through blogs, forums and websites. The system collects data almost real-time, yet it has a historical database that can go back up to 3 years. Our data collection started from March, 2017 until the end of 2019. So it contains 34 months of political comments.

First, we selected those online outlets which are the most popular and influential ones in Hungary. We selected four pro-governmental sites (Origo.hu, 888.hu, Pestisracok.hu and Mandiner.hu) and four which are critical towards to current right-wing government (Index.hu, 444.hu, hvg.hu, 24.hu). The second step was to define those keywords, which help us to identify the politics related articles and posts. For this, we defined 32 keywords. The keywords were very diverse, from general politics related words (party, minister, politician, government), through more specialized keywords, as party names or names of important politicians (like Viktor Orbán the prime minister of Hungary). We download all the comments under those articles where any of these keywords appeared using the SentiOne platform. Most of the sites have two platforms to comment the articles. All of them have a Facebook page, where they share their articles. And most of them have a commentary system called Disqus for commenting, except the Index.hu. Origo.hu operated its Disqus forum until April 2017 and then closed it – so only two months of forum data available in their case. 24.hu closed the Disqus forum in January 2019 and from that time it only allows comments on the Facebook platform of the news media portal. The total number of comments in the database is 17 500 714. 62 percent of the comments come from the forums and the rest from the Facebook sites of the news outlets.

The second corpus which we used for control purposes, contained comments related to telecommunication companies. We collected all comments from year 2019, where any of the big telecommunication companies in Hungary (Vodafone, Telekom, Telenor, UPC, Digi), were mentioned. We used the SentiOne platform for this data collection too. The number of comments in this database is 80 945.

There are two major ways of comment classification – unsupervised dictionary based, and supervised based on training data. For the latter, we have to classify many comments to

create a training data set. As we did not have the resources for this, we chose the dictionary-based approach (see also Davidson et al, 2017). As there was no available incivility dictionary in the Hungarian language we had to create our own dictionary. We used a qualitative approach to create it. We selected two debated topics from recent political period, one related to the municipality election's of Budapest (Topic 1), and the other related to a political clash in the parliament between the prime minister and an independent member of the parliament, Ákos Hadházy (Topic 2). We chose a pro- (888.hu) and a critical site (444.hu) for the dictionary creation. First, three annotators independently read all the comments related to Topic 1, and coded the comments using a prior definition of the three incivility types. Based on the classification differences between the annotators, the coding scheme of incivility was modified. Topic 2 was annotated with the updated coding scheme, by two annotators. The intercoder reliability was 0,77 (Cohen's Kappa) between the two annotators. Then we extracted all the tokens (mostly unigrams) marked as uncivil in the annotated texts and evaluated them based on the experiences of the second annotation round, by the research team.

All over, 397 uncivil words were selected, most of them defined as swearing, and some of them are classified as name calling or obscenity. Using these words, we classified all the comments of a selected text which were not used in the dictionary creation and matched the results with a hand annotation by one of our annotators. The overall intercoder reliability (Cohen's Kappa) was 0.78 between the algorithm and the annotator. It was lower for the sub-categories, 0.62 for swearing, 0.74 for obscenity and 0.55 for name-calling. Name-calling seemed to be the hardest to capture, as people created an endless variation of names with a negative connotation. Based on the lower results of the sub-type classification we decided to use the joint incivility category in this paper. We also have to keep in mind, that this dictionary-based approach is certainly under-estimate the real level of incivility. In the test corpus the annotator classified 38.3 percent of the comments as uncivil, but this value was "only" 33.8 percent when the text classified by the algorithm. But we can assume this bias is independent of time and platform, so our hypothesis is valid to test.

Results

Overall level of incivility

The overall level of incivility was 29.4 percentage in the more than 17 million politics related comments. This is 10 percent higher compared what Coe and his colleagues found (Coe et al., 2014). This result confirms our hypothesis (H1), that incivility is prevalent in online

commentary section of the Hungarian news outlets. This means, more than 5 million comments contained at least one aspects of incivility between 2017 and 2019. This seems to be a really high number, and based on our preliminary tests, we can assume, this is an under estimation of the real value. The next table (table 2) summarizes the basic statistics of incivility for all the analysed sites by platform types.

		Number of posts	Percentage of incivility	lowest monthly value	highest monthly value
Pro	Origo - Facebook	468705	26,7%	23,2%	30,0%
	Origo - Disqus*	60704	39,7%	38,9%	42,8%
	PestiSracok - Facebook	968963	26,8%	22,9%	32,0%
	PestiSracok - Disqus	349261	38,2%	34,5%	51,2%
	Mandiner - Facebook	287719	25,7%	22,8%	31,5%
	Mandiner - Disqus	59332	30,7%	24,6%	38,6%
	888 - Facebook	697847	23,6%	19,5%	26,4%
	888 - Disqus	3490923	38,8%	33,4%	43,1%
Critical	Index - Facebook	1095801	24,4%	21,6%	28,3%
	HVG - Facebook	1233632	24,2%	22,0%	27,5%
	HVG - Disqus	2423384	35,4%	33,2%	37,2%
	444 - Facebook	962140	25,5%	23,0%	28,1%
	444 - Disqus	4083358	22,9%	21,0%	24,4%
	24.hu - Facebook	822917	23,2%	20,9%	25,7%
	24.hu - Disqus**	493920	38,3%	36,3%	41,3%

*Origo closed its Disqus forum in April, 2017.
**24.hu closed its Disqus forum in January , 2019.
Table 2. Level of incivility per outlets per platform.

The level of incivility varied heavily between the analysed outlets and platforms. The highest average value was 39.7% (Origo – Disqus platform), the lowest value was 22.9% (444 – Disqus platform). The difference is more than 15 percent between the two outlets. The lowest and the highest average value both came from a forum, so it seems, there was no platform effect. But if we analyse the results more thoroughly, we can see, that the level of incivility was overall higher in the forums compared to the Facebook pages in each outlet except 444. In some cases,

the difference was more than 15 percent between the platform types. We can accept the H2 hypothesis, about platform effect: the incivility level on Facebook was lower compared with the same outlet's Disqus forum. We can only make some assumptions regard this difference. Facebook more rigorous moderation policy could be one reason and social expectation could be other. On Facebook, users (mostly) register with their own identity, so obscene and vulgar comments might go against the social expectations of peers. But 444 is an outlier here. The explanation is quite clear in their case. They started to use a strict moderation from January 2016[1]. The result of this moderation is a much lower incivility level compared to other sites.

We assumed that there would be significant differences between pro-governmental and critical sites. If we analyze the big picture there is no clear difference between the two sides. Although Origo.hu's Disqus forum contained the highest level of incivility, but 24.hu followed it closely. In the case of Facebook sites, the order was also mixed. This is a rejection of the H3 hypothesis.
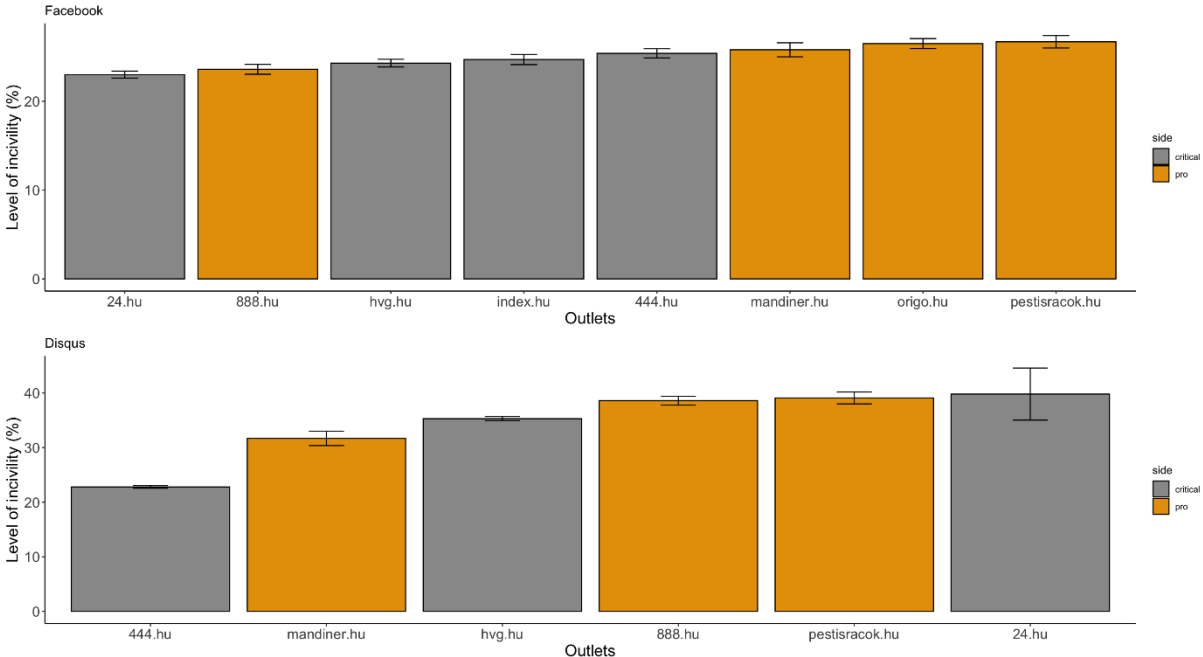

Figure 1. Average level of incivility by outlets and platforms with monthly level error bars.

The 30 percent of the overall value of incivility seems quite high. But this is the feature of the politics related comments, or its common in other types of topics? We assumed that volume of incivility is higher in politics related-topics in comparison with comments of

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[1] https://444.hu/2016/01/15/vita-van-vita-lesz-de-maskeppen (in Hungarian language)

business and service industry-related news media outlets. To answer this question, we compared our presented results, with a different corpus, which contains comments on telecommunication companies (see Figure 2).
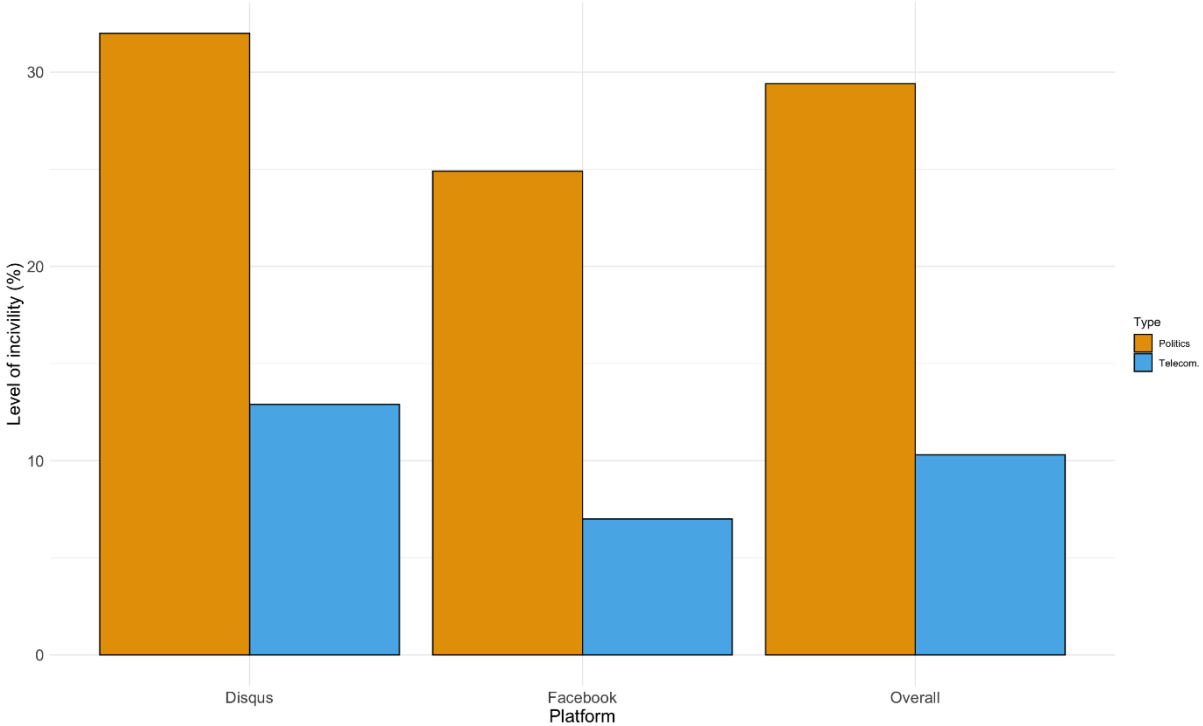

Figure 2. Average level of incivility by text type and platform.

The level of incivility was much lower in the control corpus. 10.3 percent of the posts contained any kind of Incivility. Name-calling is quite rare in telecommunications-related comments, but this doesn't not explain this big difference. We saw a strong platform effect in the case of politics related comments. The same holds for the control data. 7 percent of the Facebook posts contained incivility and 12.9 percent of the other comments. The difference between politics and telecommunication-related posts is really strong regard incivility that verifies our H4 hypothesis (see Coe et al., 2014 for similar results). We know from other studies, politics in Hungary have a really strong effect on everyday life (Kmetty-Tardos 2017). This high emotional involvement mirrors in politics-related comments too.

Temporal trends

To analyze the temporal trends, we created a database which contains the daily level of incivility. As the platform effect is very strong, we decided to analyze the Facebook and Disqus

comments separately. We fit a linear regression model, where the incivility level was the dependent variable. The preliminary analysis also showed, that different sites have different level of incivility. If the number of comments temporally varies between the sites, it could change the level of incivility. To control for this effect, we add the model the ratio of the comments by outlets. For all the outlets the sum of these values is 1. In order to avoid multicollinearity, we have to omit one outlet. We chose 444.hu for that contrast variable in both Facebook and Disqus data. To control for the seasonal effect, we add three dummy variables to the model that contained the date of comment: January-March, April-June, and July-September. We have two hypotheses regard the temporal variation of incivility. H5a assumes that the level of incivility has increased during the analysed period. To test this effect, we created a variable that shows the elapsed days from 01.03.2017. H5.b was about the possible effect of election to the level of incivility. General election was held at 8th of April, 2018 and the local election was held at 13th of October, 2019. We add two dummy variables to the model, that covers the period 2 weeks before and after the elections (overall 4 weeks). As the data is highly autoregressive, we calculated robust standard errors.

	Estimate (B)	Standardized Estimate	Robust standard error	P value
Intercept	0,22		0,00	
Trend	0,00	0,14	0,00	0,001
General election	-0,02	-0,10	0,00	0,000
Local election	0,01	0,13	0,00	0,000
origo.hu	0,15	0,17	0,02	0,000
24.hu	0,19	0,32	0,02	0,000
888.hu	0,16	0,65	0,01	0,000
hvg.hu	0,09	0,25	0,01	0,000
mandiner.hu	0,11	0,02	0,11	0,345
pestisracok.hu	0,42	0,31	0,04	0,000
444.hu				
Season: Jan-March	0,00	0,04	0,00	0,065
Season: April – June	0,00	-0,02	0,00	0,494
Season: July - September	0,00	-0,03	0,00	0,149
Season: October - December				

Adjusted R square	0,74

Table 3. Linear regression model, with robust standard errors. Dependent variable: daily incivility ratio in Disqus comments, N=1036.

The regression model on the daily ratio of incivility has a high explained variance – it is around 74 percent. This is mainly because the high explanatory power of media outlets. If we just use the outlets in the regression model, we can get a 0.70 adjusted R square. So, the additional effect of other variables is 4 percent. As there were no seasonal difference between the comments this 4 percent is the effect of our interest variables. The trend variable worked as we have expected, it has a positive value. The standardized estimate (Beta) was 0.14. Therefore, we conclude that the volume of incivility increased during the period. If we take a look at the individual dynamic of the different outlets, we understand better the cause of this rise (see figure 3). From the analysed outlets only 888.hu has a increasing trend. If we add the interaction effect of trend and 888.hu variables the significance level of trend variable goes above 0.05, while the interaction term is remaining significant[2]. The increase in the whole level of incivility is only because the increasing incivility in 888.hu. So here we can only partly accept our H5a hypothesis.
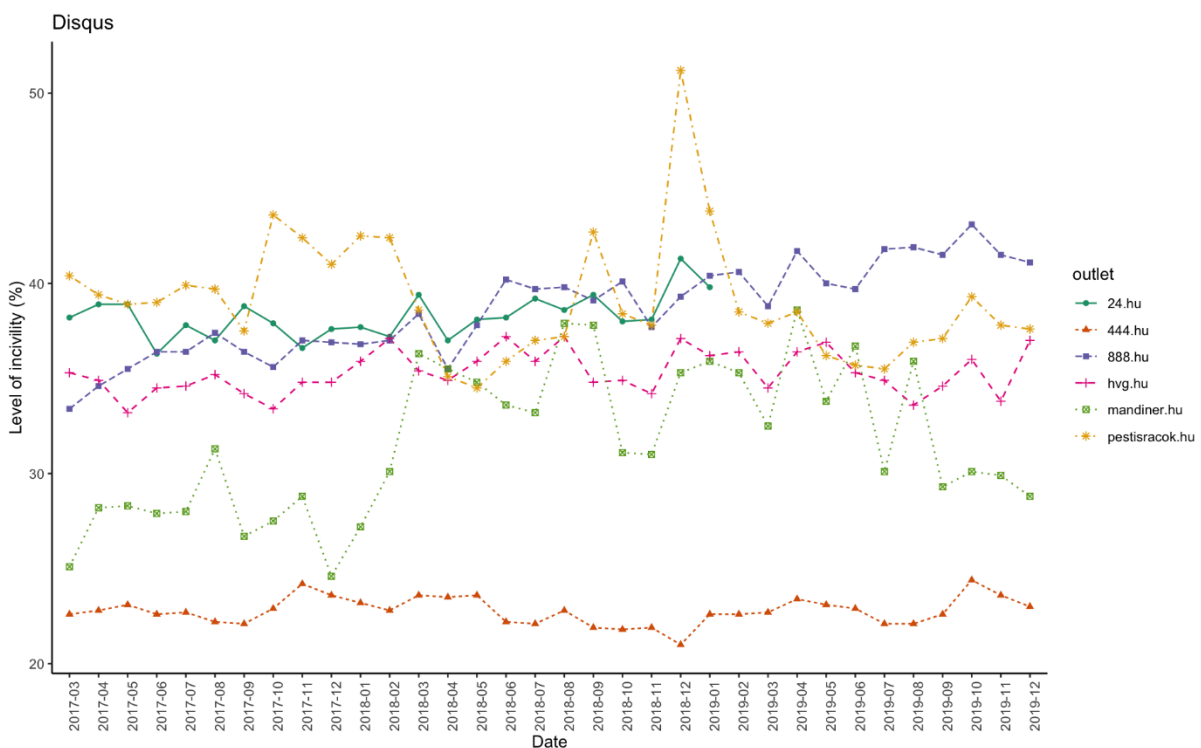

Figure 3. Monthly Average level of incivility by outlets – Disqus system.

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[2] Please note that this is not hold for other interaction terms.

The other two interest variables were also significant, but the direction of them was different. Around the general elections in Hungary, the incivility ratio was lower than in other periods. This is the opposite of what we have expected here. In the case of local elections, we find a positive estimate. It means that the incivility ratio was higher around this particular election. But overall the effect size is quite modest.

	Estimate (B)	Standardized Estimate	Robust standard error	P value
Intercept	0,27		0,01	
Trend	0,00	-0,53	0,00	0,000
General election	-0,01	-0,11	0,00	0,000
Local election	0,00	0,08	0,00	0,050
index.hu	0,01	0,03	0,01	0,465
origo.hu	0,05	0,12	0,02	0,007
24.hu	-0,02	-0,06	0,01	0,172
888.hu	0,00	-0,01	0,01	0,879
hvg.hu	-0,03	-0,08	0,01	0,054
mandiner.hu	0,03	0,03	0,03	0,286
pestisracok.hu	0,04	0,14	0,01	0,008
444.hu				
Season: Jan-March	-0,01	-0,11	0,00	0,002
Season: April – June	0,00	-0,10	0,00	0,009
Season: July - September	-0,01	-0,12	0,00	0,001
Season: October - December				
Adjusted R square	0,31			

Table 3. Linear regression model, with robust standard errors. Dependent variable: daily incivility ratio in Facebook comments, N=1036.

The model fitted on Facebook comments has much lower explanatory power, "only" 0.31 the adjusted R square. The additional r^2 effect of the variables above the outlets is 13 percent. Here we can find a small seasonal effect – compared to the October-November period, there is less incivility in the other periods of the year. The trend variable is significant here too, but with a strong negative estimate value. This means as we go forward the time, the incivility

ratio is decreasing. If we are looking into figure 4, we can see that the trend is similar for most of the outlets. This means a decrease is a general trend here. As we did not see the same in the case of Disqus comments, we can assume, this is mainly because of the stronger moderation policy by Facebook.
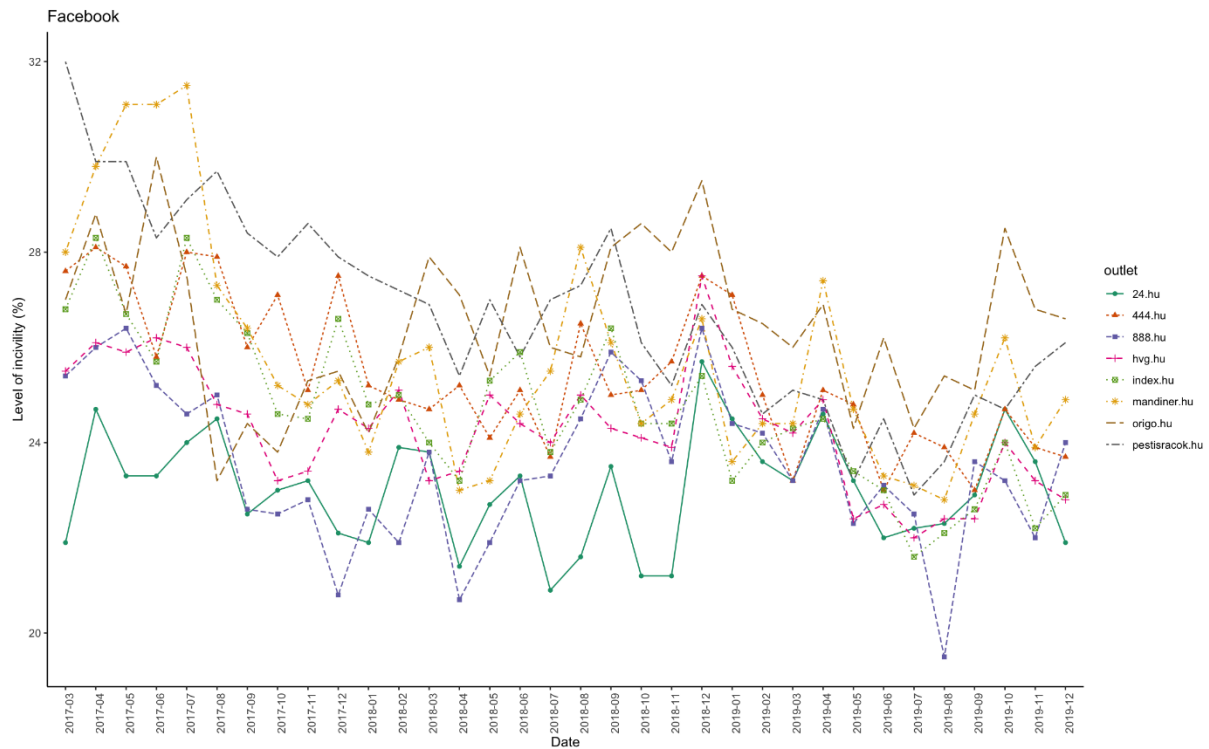

Figure 4. Monthly Average level of incivility by outlets – Facebook.

Election dummy variables were also significant and in the same way as in the previous model. The general election variable had negative effect on incivility, while the local election had a positive effect. The latter p value was around the limit of 0.05 value. So H5a hypothesis was rejected, such as H5b.

Conclusion and discussion

The goal of this study was to examine how online incivility evolves over time and varies across platforms by focusing on users' comments to the posts of news media portals which have clearly identifiable political orientations in Hungary between 2017 and 2019. To do so, we relied on big data approach to collect 17 581 659 comments altogether, and computational linguistics to develop a coding scheme for three indicators of incivility such as name-calling, obscenity and swearing.

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Our empirical findings contribute to the past debates in the literature related to the growing incivility: this analysis confirms that incivility occurs frequently in users' online conversations about political issues (RQ1). Somewhat similar to the U.S. context (see Coe et al. 2014), the Hungarian commentary culture can be considered as cruel and rude since approximately every third users' comments contain at least one element of incivility. We, however, challenge the conventional wisdom which says election campaigns provoke more visceral reactions since the incivility's prevalence is relatively constant in our sampled 34 months (RQ5). Interestingly enough, we did not find significant spikes during the elections' times. We may interpret this observation as a sign of the emerging editorial or social media moderation on user-generated content. We know from previous studies that some news media companies want to combat the incivility by introducing some kind of code of conduct, or even employing staff as moderators to remove comments which are labeled as offensive or harmful for the discussion (Santana, 2014; Manjoo, 2014, Seely, 2018), while others are reluctant to introduce any kind of censorship on users comments. Alternatively, it might be the case that the users invent new ways of expression of name-calling, obscenity and swearing to avoid editorial or social media moderations.

This study also supports previous findings that the frequency of incivility differs based on the platform of the news environment (RQ2). Our data suggest that the users are exposed to incivility to a greater extent on the commentary platforms which works with the Disqus system. On Facebook, we detected significantly less incivility. Such differences can be explained with the affordance of the platforms. Disqus allows anonymity which might decrease self-regulation and self-awareness and, in turn, increase more uninhibited in talking about politics (Syndor, 2019). In line with Santana's observation (2014), we draw attention to a large amount of incivility on Facebook as well. Therefore we argue that the removal of anonymity is not automatically cut down the uncivil comments, it however surely reduces the volume as we confirmed in our analysis.

Concerning the political leaning of the news media platform, we find no evidence to support the claim that users' comments posted to the commentary section of media outlets which are sympathetic towards the current Hungarian government are more uncivil than those which are posted to unsympathetic outlets (RQ3). While we detected significantly less name-calling, obscenity, and swearing in users' comments posted to the news media articles about business and telecommunication services (RQ4). These findings show that to certain extent incivility is a part of the online commentary culture in Hungary, but the topics make a real difference.

We interpret all of our results as evidence for the statement that incivility is the typical feature, the normalcy, of online interaction when it comes to talking about politics in Hungary. Although some news media portals wish to eliminate the derogatory contents from their websites, it seems that the users creatively, inventively and consistently apply uncivil messages in their Internet-based opinion exchanges across time and platforms. This observation reflects to the somewhat similar conclusion of the experiment of Antoci and his colleagues which demonstrates that the exposure to online rude language did not produce any effect on citizen's social trust because the respondents considered incivility as typical feature of social media (Antoci et al. 2019).

We are aware of limitations associated with dictionary-based method in the incivility research. The users' creativity, especially in blending, makes not only the moderators' job harder, but limit the validation of the our analytical toolkit. First, we cannot claim that our dictionary is complete, therefore it is very much likely that our study underestimates the diffusion of incivility as it is in the real online discussion situations. Second, besides the completeness problem, our dictionary-based method will never be able to detect whether the indicator words are used in an insulting or aggressive way. It can happen that the user only quotes what another user's posted or mention the expression of name-calling, obscenity and swearing to indicate his/her annoyance of incivility. Such bias is certainly problematic which needs more complex text mining methods to apply in the future, such as neural network based word embedding models.

The roots and the impact of political incivility are also beyond the scope of our analysis, therefore we call for further empirical investigation which assesses such normalcy of online incivility from the perspective of users' motivation: do the commentators accept the high level of name-calling, obscenity, and swearing?; why they use uncivil expressions?; do the use of incivility/exposure to incivility impact the offline political behavior of the active members of the commentary sections of news media portals?, etc.

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