



Agenda divergence in a developing conflict: Quantitative evidence from Ukrainian and Russian TV newsfeeds

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Olessia Koltsova and Sergei Pashakhin 

National Research University Higher School of Economics, St Petersburg, Russia

Abstract

Although conflict representation in media has been widely studied, few attempts have been made to perform large-scale comparisons of agendas in the media of conflicting parties, especially for armed country-level confrontations. In this article, the authors introduce quantitative evidence of agenda divergence between the media of conflicting parties in the course of the Ukrainian crisis 2013–2014. Using 45,000 messages from the online newsfeeds of a Russian and a Ukrainian TV channel, they perform topic modelling coupled with qualitative analysis to reveal crisis-related topics, assess their salience and map evolution of attention of both channels to each of those topics. They find that the two channels produce fundamentally different agenda sequences. Based on the Ukrainian case, they offer a typology of conflict media coverage stages.

Keywords

agenda-building, conflict coverage, news, topic modelling, Ukrainian crisis

Introduction

The media of conflicting parties have been repeatedly found to align with the interests of those parties and thus to demonstrate divergent, often opposite framings of the same events (Cottle, 2006; Hertog, 2000; Nossek, 2004). Growing attention has been paid to news agendas during conflicts; however, paradoxically, we find very little comparative research of agendas produced by the media of conflicting parties during large-scale country-level confrontations. Given the increasingly mediatized character of modern

Corresponding author:

Olessia Koltsova, National Research University Higher School of Economics, Laboratory for Internet Studies, Room 216, 55/2 Sedova Street, St Petersburg 190008, Russia.

Email: ekoltsova@hse.ru

military conflicts (Hamelink, 2011; Hoskins and O'Loughlin, 2015), this seems to be a significant gap. When populations of conflicting societies cease to share not only a common understanding of the same events but even common awareness of them, this may have a much more profound effect on the conflict development (Bennett et al., 2007; Jakobsen, 2000; Norris et al., 2003).

One of the most resonant examples of this process is the recent Ukrainian crisis. Having once been parts of the common Soviet and early-post Soviet media environment, Russian and Ukrainian audiences, since the start of the conflict, have been rapidly moving away from each other in relation to their media diets. Unavailability of Ukrainian TV in Russia has been increasingly supplemented by the mirror policies of the Ukrainian government that gradually shut down all Russian TV channels in Ukraine. In 2017, Ukraine's decision to ban Russia-owned *Vkontakte*, the leading social network in the post-Soviet space, put a severe limitation on informal communication within families and friendship communities that might have had a soothing effect on the situation.

In this article, we introduce quantitative evidence of agenda divergence between the media of conflicting parties using data from the online newsfeeds of the two official TV channels: Channel 1 from Russia and Channel 5 from Ukraine. Until recently, it was a challenge to study media agendas and their change on a large scale as the only method available was manual content analysis that is prone to subjectivity. However, benefiting from the new techniques of automatic text analysis, we use an algorithm of topic modelling that lets us define an agenda objectively, through a loose set of the most typical words, and to perform co-clustering of both most probable words and texts without any prior human preconceptions. With this approach, we not only retrieve media agendas from two large collections of news texts but also measure their salience and quantitatively assess their distribution over channels at different stages of the conflict. We demonstrate quantitatively that the difference between the two channels in the salience of crisis-related topics grows with time. Additional qualitative analysis reveals increasing differences in framing. Our approach allows us to illustrate a process in which a conflict contributes to step-by-step transformation of a former single media space into two country-level echo chambers that may amplify this conflict and make it irreversible. Finally, we offer a broader typology of conflict coverage stages that in future may be generalized to other conflicts.

Agendas, frames and their automatic detection

Most broadly, media agendas may be defined as issues or topics, or sets of those, covered by media (Shoemaker and Reese, 2014: 5). An agenda-setting function of media, as it was originally formulated (McCombs and Shaw, 1972), refers to the ability of media to bring certain topics to the attention of audiences, perhaps at the expense of other topics, and to influence audiences' knowledge about those topics, as well as publics' opinions about their relative importance. A related concept of media (news) frame, comprehensively described by Scheufele (1999) is, most generally, defined as a way in which meaning is ascribed by a news story to a given agenda point. It may imply different mechanisms from selective coverage of agenda's attributes to direct moral judgements. Framing effect is thus defined as the ability of media to influence audiences' interpretations of

agendas. A similar but more narrow concept of priming effect – an ability of media to influence criteria by which the audiences judge public figures – was introduced by Iyengar and Kinder (1987). In later works, McCombs (2005) offers a consideration of framing and priming as second-order, or attribute agenda-setting, as both concepts deal with the ability of media to influence the salience of certain agenda's features.

As a frame is related to selective attention to agendas' attributes, it would be expected to be closely connected to the concept of media bias; however, usually, the latter is studied in a separate line of research (Budak et al., 2016; Castro-Herrero et al., 2016). While the former aims to establish the link between media representations and public opinion, media bias research seeks to compare media representations with 'reality', or at least with other available representations. Despite this separation, the concept of bias, as can be seen from its various definitions (Groeling, 2013), is in fact very close to that of a frame, or a second-order agenda.

At all times, it has been difficult to quantify either agendas, frames, or biases and to measure them reproducibly. Recent developments of computer science approaches have given promising results for solving this problem (Grimmer and Stewart, 2013; Günther and Quandt, 2016) offering the use of supervised machine learning (SML) for finding predefined categories and unsupervised machine learning (UML) for unknown categories. UML has been already applied to determining topic prevalence among media, topical differences between news sources, topic popularity with readers and to tracing topical change (Flaounas et al., 2013; Koltsova and Koltcov, 2013; Nagornyy and Koltsova, 2017). In all these cases, topic labels have been close in essence to agenda labels used in the original work of McCombs and Shaw (1972).

Kim et al. (2014) go still further and suggest measuring the agenda-setting effect of automatically detected topics with the news sharing data by the respective audience. Some other scholars directly address the agenda-setting effect with a keyword search for issue detection on Twitter (Vargo et al., 2014). A limitation of keyword approach, apart from it being able to detect only pre-known issues, is that agendas, as they are defined initially, could not be adequately captured with a set of terms. If they are to reflect phenomena of public life, agendas are relatively broad and often de facto described by word sets differing from those that any expert might think of; these word sets are instead something to be inferred from texts than to be pre-defined. For inferring pre-known issues, SML is more suitable; in such cases, human coders mark up news with topic labels and then an algorithm is programmed to recognize similar news (Burscher et al., 2014, 2015; Scharrow, 2013).

In this research, given our goals, we opt for topic modelling as a UML method that is outlined in more detail further below.

Coverage of war and conflict in media

Media coverage of conflicts and wars has been extensively studied and theorized (Fröhlich, 2018; Mortensen, 2015; Seib, 2006; Thussu and Freedman, 2003), with substantial attention being given to the causes and consequences of conflict mediatization. Media have been repeatedly found to align with the interests of their governments due to a number of typical reasons: increased and united efforts of the government and the

military, limited resources of media companies for international coverage and reliance on governmental sources (Cottle, 2006) and journalists' ethnocentrism and patriotism (Zandberg and Neiger, 2005). Larger distances between a home country and a covered conflict were found to produce more alignment of news with the government (Bennett, 1990), although involvement of the home country in the conflict has been associated with increased weaponization of the media by the respective government. Moreover, it has been claimed that governments have regained control over conflict coverage from social media, with reference to Russia's media policy towards the Ukrainian crisis (Hoskins and O'Loughlin, 2015). The role of the media in conflict amplification – termed the spiral of escalation – has been summarized by Hamelink (2011), although this effect may find limited proof in non-military conflicts (Michailidou and Trenz, 2015).

Despite the vastness of research on media coverage of war and conflict, there is an apparent lack of rigorous empirical comparisons of coverage of the same conflict by the media associated with the conflicting parties, at least when it comes to international armed conflict. To date, empirical research has most often focused on a single conflict (Greenwood and Jenkins, 2015) and has been usually done with qualitative (Kalb and Saivetz, 2007), or quantitative manual approaches (Zollmann, 2015). Some studies comprise either coverage of two–three conflicts by one country (Ben-Yehuda et al. 2013), or coverage of a single conflict by a few countries (Panti, 2016), none of which is usually a conflicting party (Heywood, 2015; Ojala and Panti, 2017). This stream of literature argues that media usually focus on the active phases of conflict, emphasize violence and suffering, and de-emphasize conflict resolution and post-conflict recovery. Some notable exceptions include Baden and Tenenboim-Weinblatt (2018), who study long-term coverage of six conflicts by 66 media from different countries, and Baum and Zhukov (2015) who study coverage of the Libyan conflict by 113 countries. From the amount of coverage of different types of events, they infer status-quo and revisionist biases in the media of non-democratic and democratic countries, respectively. To our knowledge, with the exception of Baden and Tenenboim-Weinblatt (2018), such studies do not examine relationship between media coverage and conflict stage, although a general theory of conflict stages does exist and is known to media and conflict scholars (Frère and Wilen, 2015).

A few researchers use SML to study coverage of conflicts and crises. Thus, Montiel et al. (2014) study a China–Philippines maritime dispute and programme a classifier that successfully predicts whether a given news item belongs to a Chinese or a Philippine outlet. Then, they assess the differences in content the algorithm learned. De Fortuny et al. (2012) investigate the evolution of coverage of a prolonged political crisis in Belgium and find significant biases against some political parties both regarding amount and polarity. However, to our knowledge, none of the ML-oriented studies of conflict coverage directly relates its results to agenda-building or conflict mediatization theories which hinder their conceptual depth. Conversely, works that study conflict coverage as an agenda-setting process (Bayulgen and Arbatli, 2013) do not apply any automatic techniques that may limit their scale and objectivity.

Works on Ukrainian political conflicts share many of those limitations. Baysha and Hallahan (2004) use manual content analysis to study framing of the 2000–2001 crisis by various Ukrainian media. They find that already at that time the media were highly politicized, manipulative and polarized – either in favour of the incumbent or the opposition.

Studying the 2014 crisis, Nygren et al. (2016) hand-code 1875 news items from the Russian, Ukrainian, Polish and Swedish media and find substantial differences in both the salience of news agendas and framing of particular topics. The latter looks particularly pronounced in the coverage of the armed conflict in Eastern Ukraine where blame attribution diverges dramatically and finds itself expressed in either accusative or supportive nominations of the conflict participants and the event itself. Makhortykh and Sydorova (2017) hand-code 1518 images from pro-government and pro-separatist pages on the *Vkontakte* social networking site in summer 2014. They find that, while the latter emphasized destruction and death, the former featured glossy pictures of Ukrainian weapons. Ojala and Pantti (2017) hand-coded 402 news articles from German, Swedish, Finnish and British newspapers and found that most of them legitimized European support of the Ukrainian government, placed responsibility on Russia and thus in a way endorsed a new cold war. None of these works performs any statistical analysis or large-scale automatic data analysis.

Works that do so make no reference to media theory. Karamshuk et al. (2016) seek to determine political slant in the news about the Ukrainian crisis by programming a classifier to predict whether a message belongs to one of three hand-coded types of sources (pro-Ukrainian, pro-Russian and Russian independent). Similarly, Watanabe (2017) seeks to establish pro-government bias in the vast collection of English-language news of a Russian news agency, although use of sentiment words for this purpose is not optimal as they can only determine general sentiment. Thus, although, there are plenty of comparative studies, to the best of our knowledge, there are no studies that could perform a large-scale comparison of agendas of the media belonging to the conflicting parties or trace their evolution as the conflict evolves.

Background of the Ukrainian crisis

In line with the theories of conflict mediatization and amplification, the conflict between Russia and Ukraine has been called an ‘information war’, ‘hybrid war’ and ‘war of narratives’ (Khaldarova and Pantti, 2016; Ojala and Pantti, 2017; Pasitselska, 2017). The entire storyline of this conflict and the Ukrainian crisis is so highly debated that making a mere list of its key events and participants turns out to be almost impossible without contradicting the vision of at least one of the conflicting parties. The brief overview that follows, most probably, does not avoid this trap either, but may hopefully provide a general idea of the conflict background; more detailed accounts can be found in Sakwa (2015), Wilson (2014) and Yekelchuk (2015).

The Ukrainian crisis of 2013–2014 developed from public concerns with corruption and the longstanding internal conflict between different groups of the population inside Ukraine, as well as the interests of some external geopolitical actors, including Russia, the EU and the US (Sakwa, 2015; Wilson, 2014). Historically, Ukraine has had visible regional divisions in language use (Russian in the East and South vs Ukrainian in the Centre and the West), religious affiliation (several Orthodox jurisdictions and Greek Catholic religion) and cultural identity that includes Ukrainian, Russian and even ‘Soviet’ subtypes, with the two latter significant in the East and South (Kyiv International Institute of Sociology [KIIS], 2014; National Security and Defence, 2007). This fragmentation

stems from centuries of shifting dominance of different empires over different parts of what became Ukraine only in the mid-20th century (Baysha, 2018: 107–109). It still manifests itself not only in national identity definition, but also in such aspects as voting, TV consumption and attitudes towards the status of the Russian language (Ivanov, 2016); conventionally, most of these differences may be placed on a ‘pro-Russian’–‘Pro-Western’ continuum.

As the post-Soviet Ukrainian elite has also been fragmented along this line, the recent history of Ukraine has been marked by a series of political crises that – not without competing external pressures – have been bringing either East or West-oriented groups to power (Feklyunina, 2016; Kubicek, 2000). As of 2013, the presidential position was occupied by Viktor Yanukovich who had won it over the former Ukraine’s prime minister and one of the leaders of the 2004 pro-Western ‘Orange revolution’, Julia Tymoshenko. Although, under Yanukovich’s rule, Tymoshenko was put in prison, Yanukovich himself was at first oriented towards EU integration. During 2013, amidst allegations of gross corruption, Yanukovich’s team was actively working towards signing an Association Agreement (AA) and Deep and Comprehensive Free Trade Agreement (DCFTA) with the EU. For common people in the West of Ukraine, this symbolized a right civilizational choice, while people in the East had a number of cultural and economic reasons to oppose it (Baysha, 2018: 110–114). In geopolitical terms, according to one line of analysis, this agreement was to open Ukrainian and European markets to each other, providing Ukraine would implement the necessary reforms, ultimately threatening Yanukovich’s power (Wilson, 2014; Yekelchik, 2015). Another perspective on this deal argued that it would have only opened Ukrainian markets for exploitation by the global capitalist system (Yurchenko, 2018). It also meant that Ukraine had to stop all similar agreements with the Russian-led Customs Union. For the Russian political elite, it thus meant a crucial step in dragging Ukraine from Russia’s sphere of influence to that of the EU and, more broadly, the ‘West’. Additionally, at some point in time, EU negotiators had put a condition of Tymoshenko’s release from jail for signing DCFTA, which only added political risks for Yanukovich. In November 2013, after failed negotiations on Tymoshenko and consultations with Russia, Yanukovich’s government abruptly suspended preparations for signing DCFTA just a week before the planned date. This move immediately took several thousands of Ukrainians to Maidan¹ square in Kyiv to protest the decision.

Fuelled by the brutal dispersal of this initial street action, subsequent growing protests that demanded closer European integration, as well as the resignation of the Ukrainian president and the government were named ‘Euromaidan’ or the ‘Revolution of Dignity’, while the opposing movement came to be known as ‘Anti-Maidan’. EU and USA representatives took an active part in organizing Euromaidan (Boyd-Barrett, 2017; ‘John McCain tells Ukraine protesters: “We are here to support your just cause”’, *The Guardian*, 2013; ‘Ukraine crisis: Transcript of leaked Nuland-Pyatt call’, BBC News, 2014). Stemming from ineffective negotiations, repression and police brutality, tensions between the government and the protesters grew, with government buildings being forcefully occupied, especially in the Western regions, but also in Kyiv. The tensions peaked from 18–20 February 2014, when around 100 people – mostly protesters, but also security police officers – were killed and hundreds more were wounded in the centre of Kyiv. Two days after the clashes, the president and the opposition leaders signed a settlement

agreement under the terms of early presidential elections and constitution change, shifting power from the president to the parliament. According to Yanukovich, in violation of this agreement, his cortège was attacked by armed protesters and he had to flee the country with the help of the Russian security forces ('Putin: Russia helped Yanukovich to flee Ukraine', 2014) which meant that the regime change could have been interpreted as a coup d'état. According to other sources, fleeing through the Eastern parts of the country, Yanukovich made attempts to secure his assets and to search for support among local elites in the hope of regaining power, thus acting himself as the agreement violator (Wilson, 2014).

Shortly after that, a new and much more radical wave of Anti-Maidan protests began in the South-Eastern regions of the country. Although initially authentic and diverse, demanding greater autonomy within Ukraine and closer ties with Russia, this protest was unequivocally interpreted as a separatist threat by the new Kyiv government (Baysa, 2017, 2018). The Russian government used this movement to its own ends and fuelled it by providing support (Wilson, 2014). The earliest post-Yanukovich Anti-Maidan protests took place on the Crimean Peninsula, a predominantly Russian-speaking region where the Russian navy had remained stationed after the collapse of the Soviet Union. These circumstances led Crimea – with the help of the Russian military – to a swift transition from Ukraine to the Russian Federation. This act was recognized by the vast majority of countries as illegal annexation (while the Russian official sources preferred such wording as 'unification' and 'coming back home'). This immediately resulted in international sanctions against Russia. In other Eastern regions, anti-Euromaidan rallies clashed with Euromaidan supporters. While in some of them, pro-Russian protests either failed or were suppressed, in two regions 'self-defence forces' (*opolchenie*) did occupy government buildings. Eventually, protesters managed to establish – allegedly with help from Russia – two proto-states along Ukraine's eastern border: the 'Donetsk People's Republic' and 'Luhansk People's Republic'.

The tensions in Eastern Ukraine quickly escalated to the point of a full-scale armed conflict when Kyiv declared an anti-terrorist operation and deployed military forces in the East. From April to August 2014, heavy fighting produced thousands of casualties of the military as well as civilians. One of the most infamous catastrophes was the downing of Malaysian Airlines flight MH17 which killed almost 300 people. Although the rebels were clearly losing before mid-August 2014, after the change of leadership in late August, their armed actions were a sudden success. According to the Ukrainian government, between 22 and 25 August, Russian artillery and personnel (called a 'humanitarian convoy' by the Russian official media) crossed the border and joined the rebels who, as a result, regained much of the territory they had lost before. A deal to establish a ceasefire, called the Minsk Protocol, was signed on 5 September 2014. This deal did not end the conflict, but it terminated its active phase studied in this research.

Data and methods

To compare conflict coverage in Russian and Ukrainian media, we chose television as the most influential type of media: TV reach in Russia and Ukraine was 98.4 percent and 96.8 percent in 2014, respectively, compared to 70.2 percent and 50.9 percent internet

penetration (Broadcasting Board of Governors [BBG], 2014a, 2014b). Our goal was to compare media sources that best represent the official positions of the respective governments and are, ideally, consumed by a large proportion of the respective populations. The choice of Russian Channel 1 was obvious as it had both the highest reach (98%) and highest rating (13.3%) (Brand Media, 2017), and has always been positioned as the official mouthpiece of the Russian government. As the Ukrainian media market has been very fragmented, the choice of a Ukrainian channel was much more difficult. When the government changed in the middle of the crisis, so did the relation of politicized channels to the current regime; therefore, it was impossible to pick up a channel that was 'pro-government' during the entire period of study and simultaneously was the most popular. We finally opted for Channel 5 that was associated with the post-Yanukovich government and owned by the new president Petro Poroshenko (Channel 5, 2003), as presumably the most contrastive case. The limitation of this choice is that Channel 5 has never been a leader either in reach or rating (Industrial Television Committee, 2014).

To capture news coverage of the major events of the crisis, we chose the period of 53 weeks from 2 September 2013 to 7 September 2014. This period starts 11 weeks before the crisis to provide a sample of non-crisis coverage. It then embraces all the major events and terminates shortly after the conventional end of the active phase of the conflict (Minsk ceasefire protocol).

The selected channels have official websites: Channel 1 publishes full transcripts; Channel 5 provides shortened versions of the news. We parsed these texts, which resulted in 44,989 news items: 20,025 of Channel 5 and 24,964 of Channel 1. To perform joint topic modelling, we translated all news items of Channel 5 into Russian with the Yandex automatic translation service (<https://tech.yandex.ru/translate/>). The quality of translation was checked on a selective basis by a bilingual Russian–Ukrainian speaker; as Russian and Ukrainian languages are very similar, the automatic translation performed well. The collection was lemmatized with MyStem software (Segalovich, 2003).

As mentioned before, to infer topics we used topic modelling: by clustering simultaneously words and texts, this approach provides, for each topic: (a) a list of most probable words that allows understanding the content of this topic without reading texts, and (b) a list of most probable texts that can thus be easily sampled for manual analysis. The most common topic modelling algorithm (Latent Dirichlet Allocation, LDA) was introduced by Blei et al. (2003); we used a version of LDA with collapsed Gibbs sampling (Chang, 2015) to model all texts of Channels 1 and 5 jointly. For our collection we set the number of topics as $N = 100$ based on the analytic utility, as suggested by Blei and Lafferty (2009).

To overcome LDA instability – that is, inability to yield the same results in different runs with the same data – we used a strategy suggested in Koltcov et al. (2014). We obtained five solutions with the same parameters; then, for each topic from the first solution, we found the closest equivalents in each of the remaining solutions by computing the Kullback–Leibler distance (KL). Topics were considered stable if their similarity exceeded 90 percent threshold among three or more equivalents. Next, we averaged the probabilities of all 49 stable topics in each text across all solutions. These probabilities are commonly used as proxies for topic salience in a given text (group of texts), and so

we did the same. Finally, each topic was assigned a label based on reading its top words and top documents; the topics were manually divided into crisis-related and others.

To account for topic dynamics, the probabilities of each topic were aggregated by week based on news timestamps. This resulted in a time series of 53 weeks. Three weeks were excluded from the analysis: the last week because of technical errors with data collection; the New Year week for the absence of news; and the week from 10 February 10 to 16 February 2014, as Channel 5 provided no news in that period. Absence of news on Channel 5 right before the regime change surely has a great political meaning; however, we excluded this week because it skewed the comparison with Channel 1.

For each week, topic probabilities were also aggregated by channel. For each topic, we estimated the weekly divergence between the Russian and Ukrainian channels by calculating KL distance between their topic distributions over weeks. Absolute differences between saliences of topics correlate with the saliences themselves (i.e. the bigger the topic, the more its volume differs between the channels). KL accounts for this effect and shows the dynamics of volume-independent divergence.

Guided by the results of topic modelling, texts were ranked by their probabilities and sampled for qualitative analysis: 25 top texts in each topic from each channel that formed 15 pairs of sets representing 15 crisis-related topics. In addition, in each set, we calculated absolute and relative word frequencies, the latter for revealing channel-specific words for the texts within a given.

Evolution of crisis topics salience

Figures 1a and 1b present general distribution of the crisis-related topics between the Russian and Ukrainian channels. Two notes should be made here before passing on to the analysis. First, since topic modelling is a fuzzy technique, crisis-related content may appear in non-crisis topics. Second, the topic labels reflect their content in the most general way while some topics may in fact be dominated by a certain sub-topic (e.g. MH17 plane downing in the topic *Plane crashes*).

From Figure 1(a) we see that crisis-related topics hold high positions among other topics taking about 35 percent of total salience of 49 stable topics examined. They account for 45 percent of salience on Channel 5, and for 27 percent on Channel 1. This is understandable as the crisis takes place in the country where Channel 5 broadcasts. Also, the overall topic repertoire of Channel 1 is much broader. Against this background, a quarter of attention to the crisis in another country is an enormous amount.

Development of crisis topics salience (Figure 2) falls into two distinct periods divided by Kyiv shootings after which the graphs of Channels 1 and 5 intersect for the first time. Before that, the overall salience of crisis topics is clearly smaller, and the Russian channel pays less attention to the Tymoshenko release and DCFTA preparation suspension than the Ukrainian channel. Paradoxically, after shootings and especially after the Crimea secession, Channel 1 pays more attention to the Ukrainian crisis than a channel within the country in crisis. Overall salience of all stable topics on Channel 5 constitutes roughly 64 percent of that of Channel 1; controlled for this, the salience of crisis-related topics on Channels 1 and 5 is approximately the same in the second period. Appendix 1 reveals more details about weekly distributions of topic salience.

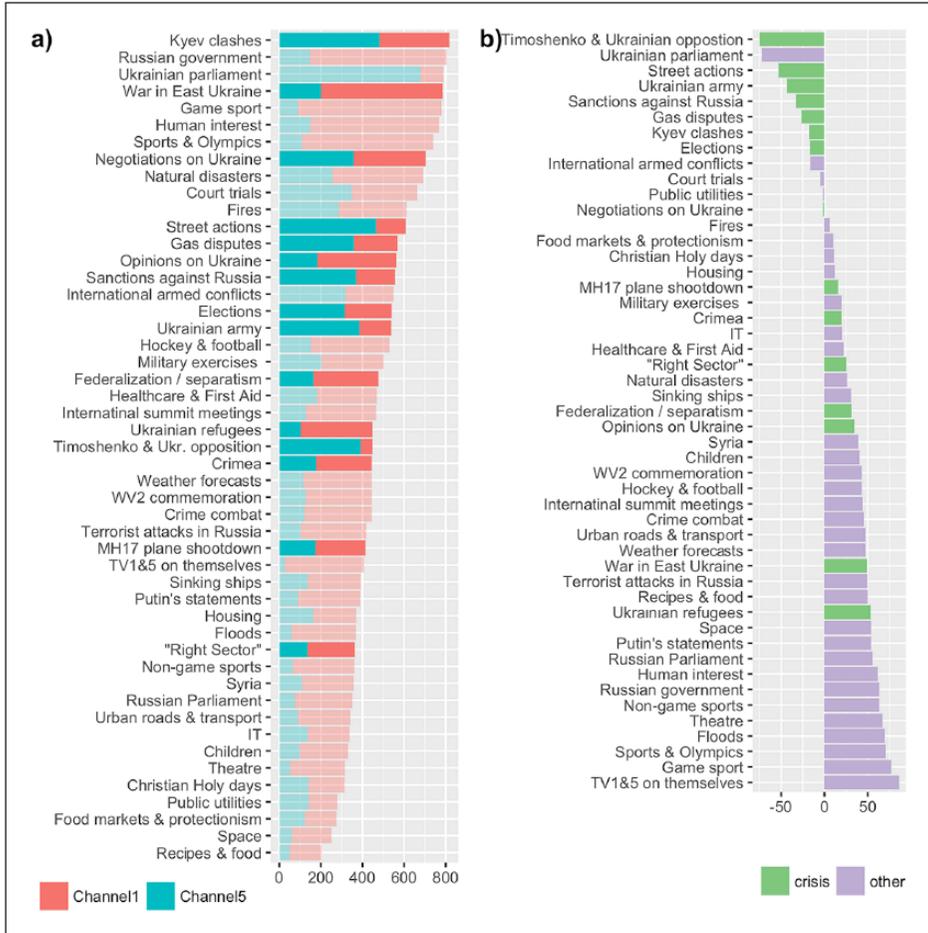


Figure 1. (a) Topic salience. Bright: crisis-related topics; pale: other topics; x-axis: sum of probabilities of texts in a topic, range (0; N), where N = number of texts in collection. (b) Differences between channels in topic salience, % of topics' overall saliences. Left to y-axis: topics prevailing on Channel 5; right to y-axis: topics prevailing on Channel 1.

Nevertheless, differences in the salience of specific crisis-related topics between the two channels are dramatic, even when controlled for the absolute weight of each topic (Figure 1b). Some topics are in fact channel-specific. Thus, the Russian channel is more inclined to raise the problem of refugees from the Ukrainian East and to cover successful acquisition of Crimea by Russia. It also has to spend more effort to promote its version of the MH17 downing to its audience. Finally, it pays more attention to the radical anti-Yanukovych political group 'Right Sector', presumably in order to present the entire anti-Yanukovych movement as radical. On the contrary, Channel 5 focuses much more on sanctions against Russia as a very painful issue for the Russian government. Violent clashes in Kyiv and other cities gain more of its attention than that of Channel 1 as well. It also has to focus on the Russia-Ukraine gas pricing dispute since the absence of gas in Ukraine in winter means

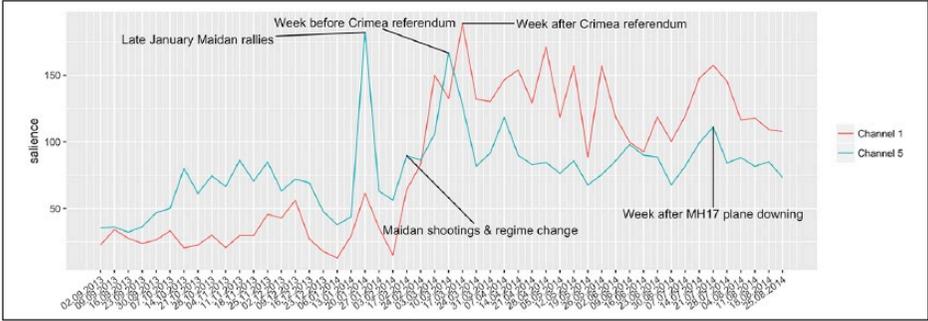


Figure 2. The total salience of all crisis-related topics over time. X-axis: weeks; Y-axis: sum of probabilities of topics in texts, range = (0; N), where N = total number of texts. Green: Channel 1; brown: Channel 5.

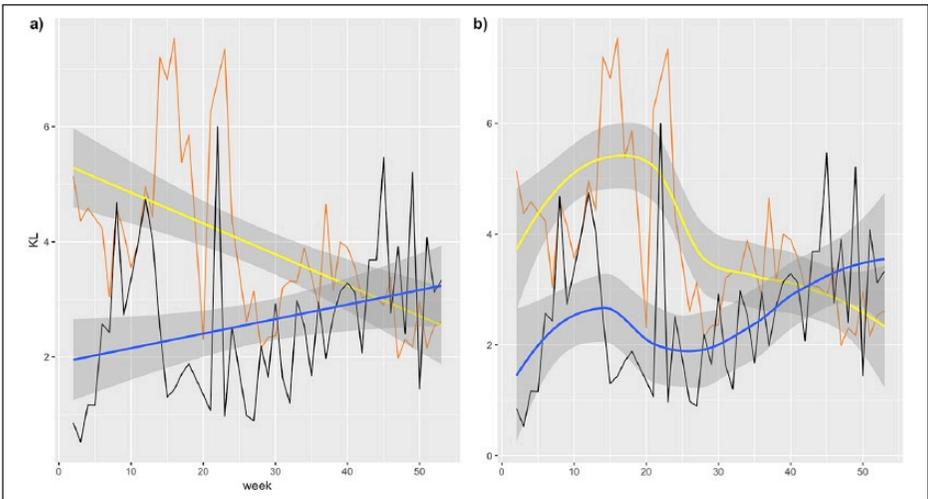


Figure 3. Dynamics of differences in topic salience between Channels 1 and 5: (a) with a linear approximation; (b) with LOESS approximation. X-axis: weeks; Y-axis: KL divergence. Black: crisis topics; blue: crisis topics approximation; orange: other topics; yellow: other topics approximation.

no heating for common people. *War in East Ukraine, Federalization/separatism, Ukrainian army, Street actions, Kyiv clashes and Tymoshenko & Ukrainian opposition* topics will be analysed in more detail below. Unfortunately, we cannot estimate the statistical significance of the difference between the two channels due to non-normal distributions in our data. However, *Negotiations* to find solutions to the Ukrainian situation – the most ‘peaceful’ crisis-related topic – is obviously equally important for both sides.

Figures 3a and 3b map the week-by-week development of differences in the overall salience of crisis-related (black) and other (orange) topics between the channels. The linear approximation (3a) is imprecise but shows the general descending trend in

non-crisis topic differences and the ascending trend in crisis topic differences. As stated above, KL divergence metric compensates for varying saliences of individual topics, so the rise of difference between crisis-related topics is not due to the growth of their salience. We thus can see that both the salience of non-crisis topics and the difference between them shrink as the conflict develops, and they get substituted with politicized topics in both channels. This substitution is consistent with our earlier findings related to the topical structure of the Russian blogosphere in the Russian electoral cycle 2011–2012 (Koltsova and Koltcov, 2013); however, the growth of differences between crisis topics with time is a new finding.

The LOESS approximation (3b) reveals non-linear trends in the development of differences. In crisis-related topics, two waves reflect periods of difference growth: the first spans October–November 2013 (the most intense disputes on Tymoshenko and DCFTA); the second and the larger one starts from May 2014 (launch of the active military campaign in East Ukraine). A closer look at weekly differences distribution over individual topics (Figure 4), coupled with qualitative text analysis, sheds light on the details of those differences.

Evolution of crisis topics content and political slant

On 3 October 2013, the European Parliament's monitoring mission on human rights asked President Yanukovich to pardon Julia Tymoshenko as she was said to need urgent medical treatment in Europe, after which many European officials confirmed that this was a condition for signing DCFTA. Until late November, Tymoshenko's health seemed to be one of the most important problems in Ukraine, while Channel 1 was virtually silent. This topic coincided with a smaller topic of *Street actions*. Unlike *Kyiv clashes* with violent protests, it includes peaceful actions only. Thus, before 2014, violent topics are modestly represented.

Since mid-November, the *Street actions* topic grows on Channel 5 and features stories about rallies for European integration and against refusal from DCFTA. It also pays attention to pro-Yanukovich protests, although it mentions that some participants admitted they were participating for money. In the first half of December, the salience of *Kyiv clashes* exceeds *Street actions* on both Channel 5 (the difference is twofold), and Channel 1 (one level of magnitude). That is, the Russian channel is much more inclined to cover December rallies as violent: it depicts protesters capturing administrative buildings, blocking streets and using Molotov cocktails against the riot police, while the latter is then portrayed disassembling barricades and unblocking streets. Channel 5 emphasizes that protesters were blocking the work of the parliament demanding resignation of the government and that some government members condemned brutal police actions.

Next, *Kyiv clashes* peaks dramatically on Channel 5 accompanied by a smaller peak in *Street actions* in late January 2014 when the Ukrainian parliament passed a restrictive anti-protest law that led to mass street protests throughout Ukraine and brought the first victims. Channel 1 pays very modest attention to this event: the difference between the two channels for *Kyiv clashes* is threefold, and for *Street actions* – 30-fold.

Surprisingly, the week 17–23 February 2014 with major clashes in Kyiv and the fall of Yanukovich's government produces neither the highest salience scores nor the biggest difference in salience between the channels – probably, this event was of equal importance for

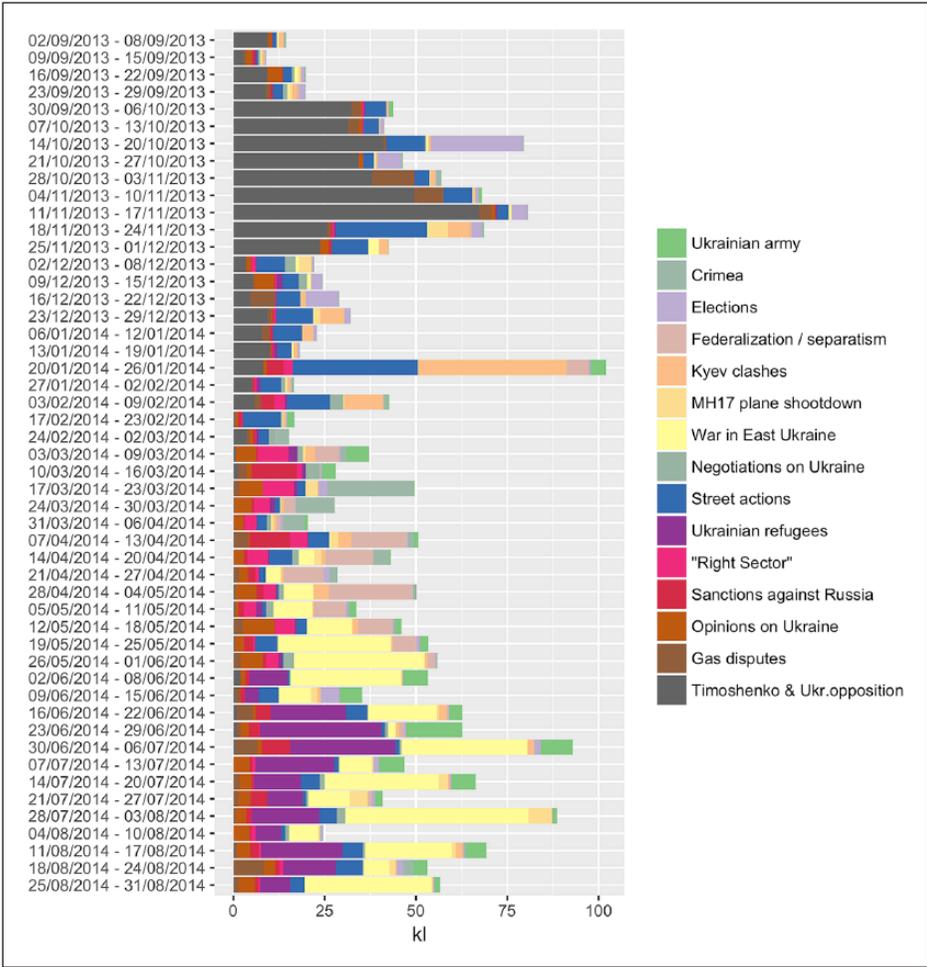


Figure 4. Weekly differences between Channels 1 and 5 by topic. X-axis: cumulative KL divergence for all crisis topics; colour areas within bars show KL values for individual topics; Y-axis: weeks.

both countries. Relatively low salience might be explained by a unique vocabulary describing the regime change events, which did not let this issue form a stable topic. The most salient topic of the week, *Kyiv clashes*, covers street violence but not the political transition. Additionally, both channels might be hesitant about choice of the coverage slant in this very unstable period. The defeat of the opposition might mean the loss of all resources for the Channel 5 owner as the main sponsor of Maidan protest. Also, regime change in Ukraine coincided with the Winter Olympics held in Russia, which were viewed by the Russian government as a very important promotion event. Therefore, before the Olympics ended, the Russian government demonstrated no reaction on Ukraine’s situation. In any case, during that week, much of the news from Maidan on both channels was relatively

neutrally formulated, although modest polarization was already apparent. Both channels featured ‘protesters’ seizing buildings, but Channel 1 also mentioned use of guns by ‘radicals’, while Channel 5 portrayed enforcers leaving their positions ‘in panic’ by the end of the week.

Right after the regime change, both channels continue with the *Street actions* topic without a big difference in salience, but covering different actions in very different ways. Channel 1 emphasizes within-Russia rallies supporting Russian-speaking people in the Ukraine. Channel 5 starts from world protests against Russian military interference in the Ukraine, but quickly comes to cover a large variety of actions: for Ukrainian unity, pro-Russian protests, Russian rallies against the war and ‘for the war and Putin’. Trying to differentiate between ‘genuine’ pro-Russian protesters and provocateurs, the channel uses a very diverse vocabulary: from ‘peaceful protests’ to actions ‘organized by pro-Russian henchmen, russophiles and separatists’.

Very soon, the leadership in salience goes to *Crimea*. This topic marks an inversion of attention to the crisis between the channels and radically polarizes their discourses. While on Channel 1 words related to ‘normal’ voting process (voter, voting, poll station, city council) score high in relative frequency, on Channel 5, the most frequent word is ‘illegitimate’, with such commonly used nominations as ‘occupation’ and ‘annexation’.

Simultaneously, *Street actions*, a predominantly Channel 5 topic, shrinks and gets supplemented with predominantly Channel 1’s *Federalization/separatism* topic. The topic title contains the main nominations the two channels applied to the processes that were emerging in Eastern Ukraine in March–April 2014. The amount of attention paid by the two channels to these processes reflects the level of support for them from the respective governments. By that time, the political slants of the two channels are clearly opposite. The Russian channel describes rallies for referendums and against ‘Kyiv henchmen’ in the Donetsk and Luhansk regions, preparation of those referendums and the announcement of the creation of republics in both regions by ‘people’s governors’. Ukrainian channel features ‘self-proclaimed governors’ and ‘impostors’ in republics ‘proclaimed by separatists’ with true governors trying to solve the conflict by fighting terrorists but listening to protesters.

From mid-April, when the Ukrainian government announced the anti-terrorist operation, *War in East Ukraine* emerges as the dominant topic in which, surprisingly, Channel 1 clearly prevails. Importantly, this topic was paralleled by the predominantly Channel 5 topic of *Ukrainian army*. While *War in East Ukraine* depicts battles, destruction and human casualties, *Ukrainian army* topic allows Channel 5 to partially shift its attention to military supplies, logistics and recruitment. Admitting the lack of all kinds of resources, Channel 5 emphasizes the contribution of volunteers – both for military service and by donating to the army. Many stories describe how heroes returning from the East are warmly met at home, but also depict funerals and protest actions. Channel 1, if it mentions the topic, emphasizes conscription protests, desertion and escapes across the Russian border, soldiers abandoned by their commanders and military losses.

However, these differences are relatively small compared to the *War in East Ukraine*, where the lists of channel-specific words are led by *militiaman* in Channel 1 and *terrorist* in Channel 5. On Channel 1, the topic starts earlier and shows battles between Ukrainian enforcers/army and the militiamen. Later Channel 1 emphasizes casualties among

civilians, excessive shelling and destruction while blaming the Ukrainian forces. Channel 5 starts the story as an anti-terrorist operation, then shifts to reporting full-scale battles against terrorists and separatists who ‘suffer much greater losses than the Ukrainian army’. When, in late August, the situation changes, Channel 5 starts paying much more attention to shelling and civilian casualties, attributing them to the other side.

Meanwhile, the most dramatic event of late August was the so-called ‘Ilovaïsk cauldron’ when Ukrainian troops became encircled near the town of Ilovaïsk by the overwhelming (allegedly Russian) military forces and suffered heavy losses during the retreat. In the course of the respective week, Channel 5 mentions Ilovaïsk in six texts out of 357 without reference to the ‘cauldron’. At the same time, Channel 1 lavishly covers the ‘Ilovaïsk cauldron’ in 30 messages out of 446.

Tracing the evolution of vocabulary in topics related to street activity, from *Street actions* (Autumn–Spring) through *Kyiv clashes* (Winter–Spring) to *Federalization/separatism* (Spring) to *Ukrainian army* and *war in East Ukraine* (Summer), we can see that the first is the most peaceful. *Kyiv clashes* contains words referring to violent actions (‘barricades’, ‘Molotov cocktails’, ‘fire’), but neutral nominations of participants still prevail. Next, *Federalization/separatism* uses overwhelmingly polarized nominations – from supporters of federalization to separatists and terrorists. Finally, the vision of summer events by the two channels gets so diffuse that it falls into two distinct topics. Channel 1 features *War in East Ukraine* 3.8 times more intensively than it talks of the *Ukrainian army*; for Channel 5, paradoxically, *Ukrainian army* is twice as important as *War in East Ukraine*. Channel 5 thus, in a way, substitutes description of military actions with more trivial issues of army logistics, while Channel 1 readily depicts suffering and horror.

Discussion and conclusion

We believe that the contribution of this research is twofold. First, we have shown that the salience and evolution of agendas can be assessed quantitatively, and relatively unbiased evidence may be obtained on issues prone to subjectivity. The offered methodological approach is of visible importance for conflict coverage studies, going far beyond the Ukrainian crisis, as researchers, too, in their attempts to capture agenda change, may find it difficult to break through echo chambers they may be trapped in.

Second, and more important, we have hopefully contributed to the theories of conflict mediatization and conflict agenda evolution through the stages of conflict, specifically, by illustrating the development and features of the ‘spiral of escalation’. We not only confirm that conflict coverage by the conflicting parties is inverse and aligned with the interests of those parties but we also show that, as the conflict develops, the agendas of the conflicting parties diverge, polarization in framing increases and the alignment takes different forms. Proceeding from the Ukrainian case, we can suggest the following typology of stages of conflict media coverage, based on the general theory of conflict stages.

- Stage 1: latent conflict – conflict silencing or ignorance, low media attention.
- Stage 2: emerging conflict – initial framing, low or moderate attention. Conflict parties and the subject of conflict may be identified at this stage, and they are

likely to coincide in the media of the future conflicting parties. In our case, Channel 1 lags behind Channel 5 in the transition to stage 2.

- Stage 3: conflict eruption with the maximum of indeterminacy of the outcome – hesitant coverage, moderate or high attention. Blame attribution is avoided.
- Stage 3 (in case no peaceful conflict resolution occurred): political escalation – polarized blame attribution within similar agendas, high attention.
- Stage 4: military escalation – agenda divergence. This includes attention to different events and different event nomination (and preserves polarized blame attribution). High attention. If no alternative media sources are widely available to populations of the conflicting parties at this stage, country-level echo chambers are formed.
- Stage 5: attempted conflict resolution – hesitant coverage. Blame attribution avoided, but agenda divergence is unlikely to abruptly decrease. Moderate attention. Depending on the outcome of this stage, the situation may proceed into a post-conflict recovery stage, return to the pre-conflict state, or to one of the earlier conflict stages and repeat itself in a cyclical manner. If the state of separated country-level echo-chambers lasts sufficiently long, the conflict may become unresolvable.

The Ukrainian case is, of course, not sufficient proof of the suggested scheme of conflict coverage. Its universality is to be tested on other cases, where it may be further elaborated and refined. However, the Ukrainian case is a most recent and vivid illustration of the process of country-level echo chambers formation.

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Note

1. ‘Maidan’ in Ukrainian means ‘market square’. The square in central Kiev where the protests took place is called Maidan Nezalezhnosti (literally: Independence Square) or simply Maidan.

ORCID iD

Sergei Pashakhin  <https://orcid.org/0000-0003-0361-2064>

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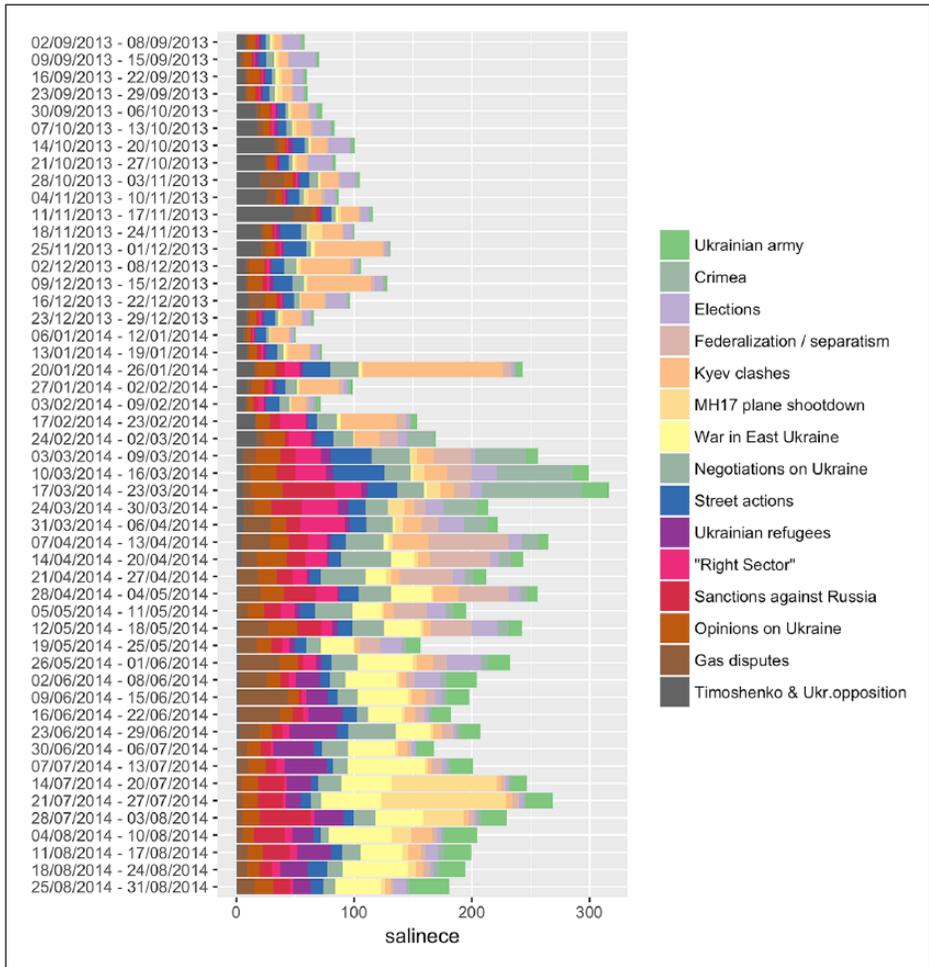
Author biographies

Olessia Koltsova is the Director of Laboratory for Internet Studies (LINIS) at the National Research University Higher School of Economics (HSE), and the associate professor at the Department of Sociology. Prior to LINIS, she was the Dean of the Faculty of Sociology at HSE. She holds the PhD in sociology and publishes extensively in the fields of Internet research, media studies and computational methods in social science. She is also the author of *News Media and Power in Russia* (Routledge, 2006).

Sergei Pashakhin is a Research Assistant at LINIS and a PhD student in Sociology at the HSE. His research interests include social media, agenda-setting and applications of topic modelling in web science.

Address: National Research University Higher School of Economics, Laboratory for Internet Studies, Room 216, 55/2 Sedova Street, St Petersburg 190008, Russia.

Email: spashahin@hse.ru



Appendix I. Topic salience by week.

Weekly topic salience. X-axis: cumulative topic salience for all crisis topics; colour areas within bars show topic salience for individual topics; Y-axis: weeks.