VoynaSlov: A Data Set of Russian Social Media Activity during the 2022 Ukraine-Russia War

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Abstract

In this report, we describe a new data set called VoynaSlov which contains 21M+ Russian-language social media activities (i.e. tweets, posts, comments) made by Russian media outlets and by the general public during the time of war between Ukraine and Russia. We scraped the data from two major platforms that are widely used in Russia: Twitter and VKontakte (VK), a Russian social media platform based in Saint Petersburg commonly referred to as “Russian Facebook”. We provide descriptions of our data collection process and data statistics that compare state-affiliated and independent Russian media, and also the two platforms, VK and Twitter. The main differences that distinguish our data from previously released data related to the ongoing war are its focus on Russian media and consideration of state-affiliation as well as the inclusion of data from VK, which is more suitable than Twitter for understanding Russian public sentiment considering its wide use within Russia. We hope our data set can facilitate future research on information warfare and ultimately enable the reduction and prevention of disinformation and opinion manipulation campaigns. The data set is available at https://github.com/chan0park/VoynaSlov and will be regularly updated as we continuously collect more data.

1 Introduction

On February 24 2022, Russia began an open military invasion of Ukraine. At the time of this writing, this conflict is ongoing and has resulted in the death of thousands of people and the displacement of millions.¹ The conflict has additionally manifested in ongoing information warfare, as Russian, Ukrainian, and ally forces attempt to spread or debunk misinformation and shape online narratives of the war.²

Over the past decade, researchers have termed the manipulation of public opinion over social media as “a critical threat to democracy” and identified trends of computational propaganda in over 80 countries (Bradshaw et al., 2021). Much attention has focused specifically on Russian influence on the global information environment and highlighted both campaigns to influence events outside of Russia, such as the Black Lives Matter movement, the 2016 Presidential election in the U.S. (Arif et al., 2018), and rescue operations in the Syrian Civil War (Starbird et al., 2019), as well as manipulate public opinion within Russia (Field et al., 2018; Rozenas and Stukal, 2019). As conflict between Russia and Ukraine pre-dates the 2022 invasion, some research has focused on information warfare in this region, specifically campaigns to win over global and local public opinions (Golovchenko et al., 2018).

Given the historical existence of information operations in Russia and Ukraine, the ongoing military invasion, and media reports of information warfare, we release an in-progress data set, VoynaSlov, to facilitate timely analyses of the information landscape. While contemporaneous work has released data sets of tweets containing keywords related to the invasion (Haq et al., 2022; Chen and Ferrara, 2022), our work focuses particularly on information manipulation by additionally building a corpus of posts¹

¹The first two authors contributed equally.
²https://www.unhcr.org/en-us/news/press/2022/3/622f7d1f4/private-sector-donates-us200-million-unhcrs-ukraine-emergency-response.html, https://www.cbsnews.com/news/ukraine-russia-death-toll-invasion/
³https://www.theatlantic.com/technology/archive/2022/03/russia-ukraine-war-propaganda/626975/, https://www.nytimes.com/2022/03/06/world/europe/ukraine-russia-families.html?searchResultPosition=2
by Russian media outlets and reactions to them on two different platforms, Twitter and VKontakte (VK). VK is a Russian social media and social networking platform that is based in Saint Petersburg. Within Russia, it is one of the most widely-used social media platforms (Makhortykh and Sydorova, 2017), and estimates suggest it is used by 83% of the country’s active social media users, as compared to 19% for Twitter. Thus, as Twitter is more dominant in Europe and the U.S., our data facilitates analysis of media communications and user reactions both inside and outside of Russia.

Our data collection process is constructed to capture social media content and news articles posted by Russian-government-associated news outlets, independent news outlets, and individual users. Our current data contains 16M tweets collected based on keywords and hashtags, 98K tweets from media accounts, 577K VK articles from media accounts, and 20M VK user comments.

In this initial data release, we describe our data collection process and present some preliminary data statistics. We hope our data set can facilitate future research on information warfare and ultimately enable the reduction and prevention of disinformation and opinion manipulation campaigns.

2 Data Collection

We collect data from two different sources, VK and Twitter. Most Russian news outlets have accounts on both platforms and make short posts with breaking news or summaries of their original news articles to promote them. We describe how we constructed a list of Russian media outlets we used throughout the data collection in §2.1. We then describe the data collection process of VoynaSlov-VK (§2.2) and VoynaSlov-Twitter (§2.3).

2.1 List of News Outlets

We collected a list of Russian news outlets and categorized them into two groups, state-affiliated and independent. We started from the seed list of media outlets in a Wikipedia article about mass media in Russia. We identified Twitter and VK handles for each media outlet. We then expand from our seed list by selecting other media accounts that are followed by the seed outlets on Twitter, and conducted this expansion procedure twice. Twitter has exerted substantial effort to define and identify state-affiliated Russian media and marked their accounts with a special ‘state-affiliated’ badge to help users stay informed. Using these labels, we categorize media accounts as state-affiliated or independent. Finally, a fluent Russian speaker familiar with the Russian media landscape manually verified the list of accounts and their categorization. The resulting list of media accounts and labels includes 23 state-affiliated media and 20 independent media, listed below (their account handles on Twitter and VK can be found in Appendix B):

**State-affiliated media (23):**
RT (English, Russian), Sputnik (News, Radio), Redfish, TASS (English, Russian), Ministry of Defence of the Russian Federation, RIA Novosti, Ruptly, Moscow 24, Ukraina.ru, PRIME, MIA Rossiya Segodnya, inoSMI, Margarita Simonyan, Zubovski 4, Life, 5TV, DVostok, Vladimir Soloviev, Vesti, Russia-1, RBC, Gazeta.Ru, Rossiyskaya Gazeta

**Independent media (20):**
TV Rain, IStories, Echo of Moscow, OVD-Info, Novaya Gazeta, DW (Deutsche Welle), BBC Russia, MediaZona, Radio Liberty, The Insider, FBK (Anti-Corruption Foundation), Reuters Russia, Znak.com, Forbes Russia, Meduza, Current Time TV, RTVI, Voice of America, Alexei Navalny, Snob Project

We collected posts written by the identified Twitter and VK media accounts. We emphasize that our data set begins in January 2021, preceding the Russian invasion of Ukraine by over a year. This decision was inspired by the widely-held belief that the invasion was planned far in advance, and

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3https://www.linkfluence.com/blog/russian-social-media-landscape
4https://en.wikipedia.org/wiki/Mass_media_in_Russia
5https://help.twitter.com/en/rules-and-policies/state-affiliated
6https://en.wikipedia.org/wiki/Prelude_to_the_2022_Russian_invasion_of_Ukraine
Table 1: The number of posts/comments/tweets in VoynaSlov. In total, there are 21.8M activities posted during the war and 14.7M posted between 2021 January and the war.

the media might have been preemptively planting narratives, setting agendas, and framing Ukraine and/or military action in order to garner support from the Russian populace. We hope the extended time period helps researchers compare pre-war and wartime media messaging and understand the development of manipulation and disinformation campaigns over the course of a year.

2.2 VoynaSlov-VK

Using the identified news media accounts on VK, we scraped their posts using the official VK Open API.7 Similar to Facebook, VK users can leave comments on posts on VK. We collected the comments left on the posts made by media accounts.

Media Posts As mentioned in the previous section, we collected posts made by media accounts since January 2021. We note that all media account pages on VK8 are publicly available and it does not require any special membership or permission to access them. In total, 36M+ posts were collected, and the detailed breakdown of the posts by time period and by media grouping is provided in Table 1. In general, we find that there are more posts from state-affiliated media than independent media.

For each media post, we were able to collect several types of meta information including the number of views, likes, and comments the post received. The API also provides information about multimedia embedded in the post such as photos and videos. In our data release, we only provide the ids of the found posts to abide by VK’s terms and conditions9, yet this information can be restored using the official VK Open API as long as the post/comments are available at the time of collection.

Public Reaction Each VK post by media accounts receives 35 user comments on average. Those user comments also receive likes from other users, and the number of likes a comment has received is also available from the VK API. Similar to the media posts, we release the comment ids of the collected comments. As expected, Table 1 again shows that, on average, there are more comments left on the posts made by state-affiliated media than independent media.

2.3 VoynaSlov-Twitter

Media Posts We scraped tweets made by the accounts we identified as Russian media outlets as we did for VoynaSlov-VK. For each tweet, we collected meta information on the number of likes and retweets each tweet received and also whether it contains any form of multimedia (e.g., photos, videos).

Public Reaction We used Twitter API’s search function to collect posts from general user accounts, which takes search terms as input and return tweets that contain the given terms. We took an iterative approach to craft search keywords: we created a seed list and collected an initial set of tweets. We then examined frequent words and keywords in this initial set and added them to our list if they were relevant to the war and not already included in our list. We went through three updates to construct 264 total keywords that include general terms and hashtags. We provide the full list of search terms and describe the entire process in Appendix A.

7https://vk.com/dev/openapi
8e.g., https://vk.com/rt_russian
9The screenshots of terms and conditions of VK is attached in Appendix D
Since Twitter API only supports the search index with a 7-day limit, we could not collect public reaction tweets from 2021. Another difference worth noting is that there is no straightforward way to categorize the collected user tweets by state-affiliation or stance toward the Russian government. In total, we collected 16M user tweets that were posted during February 24 2022 - May 15 2022 as described in Table 1.

Table 1 shows that state-affiliated media is more dominant on VK in terms of the number of posts and comments, whereas independent media is more dominant on Twitter. As discussed in §1, VK is more widely used in Russia and enables analyzing internal Russian information manipulation campaigns as well as reactions of people likely to be in Russia. However, VoynaSlov-Twitter is still useful as it enables comparisons between VK and Twitter and could reveal differences in strategies used by state-affiliated Russian media when targeting domestic and international audiences.

### 3 Data Statistics

We provide a brief overview of VoynaSlov, highlighting differences between media posts on Twitter and VK, and between state-affiliated and independent outlets, which are summarized in Tables 2 and 3.

#### 3.1 Post Content

**Length** Likely as a consequence of Twitter’s 280-character constraint, VK posts are on average significantly longer than Twitter posts. Interestingly, independent media posts are significantly longer than state-affiliated media posts on both platforms. This pattern remains consistent in public comments on VK: while comments are overall shorter than posts, those reacting to independent media are longer than those reacting to state-affiliated media.

**Multimedia** We also consider visual aspects of online communication. Images and videos can themselves be powerful framing devices (Powell et al., 2015), and images posted to VK in particular have been used to understand opposing representations and interpretations of the Russia-Ukraine conflict (Makhortykh and Sydorova, 2017). On both VK and Twitter, state-affiliated media posts include
much more multimedia (images and video) than independent media posts (70.3% vs. 21.5% on VK and 59.6% vs. 31.9% on Twitter, respectively).

**External links** In contrast to embedded multimedia, a slightly different pattern emerges for the inclusion of external links, which have been shown to enhance users’ perceptions of trustworthiness and credibility on social media (Morris et al., 2012; Wang and Mark, 2013). The majority of both state-affiliated and independent media posts on Twitter include external links (70.5% and 72.5%, respectively), possibly again a consequence of Twitter's constraint affordance. However, there is a stark difference on VK, where 76.3% of independent media posts include external links compared to just 26.4% of state-affiliated posts. As expected, a much lower proportion of public comments to media posts on VK contain embedded multimedia or external links. Public tweets collected via hashtags have slightly higher rates of including multimedia and links compared to VK comments, but are much lower compared to media posts (9.9% of public tweets include images or video, and 6.9% include external URLs).

### 3.2 Activity and User Engagement

A broad analysis of account activity and user engagement suggests that state-affiliated media dominates VK, but independent media dominates Twitter.

**Account Activity** On average, each state-affiliated media account included in VoynaSlov-VK has nearly 25K posts, more than twice as much as independent media which averages 11K posts per account. This pattern is reversed on Twitter, where independent accounts are slightly more active than state-affiliated accounts (3.5K vs 3.4K, respectively).

We also observe a high degree of self-sorting among users who comment on VK media posts: 74.1% comment only on state-affiliated posts, 17.1% only on independent posts, and only 8.8% of users have commented on both types of media posts. In other words, most people who comment on state-affiliated posts never comment on independent posts and vice versa. While we do not have user-level data about media exposure, this pattern suggests that information from state-affiliated and independent media reach disparate audiences. However, we caution that these percentages may be skewed by including users who have only commented once or twice.

**Views** Unlike most platforms studied by NLP and computational social science researchers, VK’s publicly-available data includes view counts (i.e. impressions) and thus presents a unique opportunity to study incidental exposure to media content (Tewksbury et al., 2001). Not only are state-affiliated outlets more active on VK than independent outlets, but also each post on average reaches a larger audience (17K vs 10K views, respectively).

**Interactive engagement metrics** Popularity cues, such as the numbers of likes, comments, and retweets, can serve as an indicator of the success of the media’s agenda-setting, framing, and propaganda strategies. These popularity cues have further consequences: they can be used to recommend content on social media platforms and thus impact users’ media diets, and they can act as heuristics for people trying to decide what media content is credible, accurate, and important (Haim et al., 2018; Porten-Cheé et al., 2018). Consistent with the idea that the Twitter public sphere is more globally-oriented (especially Western-oriented), independent media posts receive more engagement on Twitter than state-affiliated posts (289.0 vs. 52.7 likes and 69.6 vs. 13.5 retweets, respectively). In contrast, state-affiliated media posts on VK receive more engagement than independent posts (78.1 vs. 67.9 likes and 39.3 vs. 26.3 comments, respectively). However, we note that independent posts on VK still have a higher rate of engagement if we account for their smaller audiences (view counts).

### 3.3 Volume over Time

In February and March 2022, immediately after the war began, the volume of posts by media accounts and comments in both VoynaSlov-VK and VoynaSlov-Twitter significantly increased (Figure 1 and Figure 2). However, on March 4, Putin signed a new bill called “fake news laws” which punishes spreading “false information” with up to 15 years in prison. Consequently, many independent Russian
media outlets including TV Rain and Radio Liberty temporarily suspended operations, while others announced that they were stopping coverage of the invasion because of the signed bill; these independent outlets include Colta.ru, Snob Project, Znak.com, and Novaya Gazeta.10 The impact of the censorship is also evident in our data set, as we see a significant decrease in the volume of independent media accounts’ posts and comments to independent media starting March 2022.

We also note that state-affiliated media accounts became extremely active on Twitter after the war started, even when compared to their own activity on VK. For instance, the number of state-affiliated tweets in the first half of May greatly surpasses the volume from the first half of April, but the opposite trend is observed on VK. This suggests a recent shift in Russia’s state-affiliated media strategy: they are focusing more efforts on reaching and spreading (dis)information to a global audience through Twitter, rather than a primarily Russian audience through VK.

While we can divide media posts and their comments according to state-affiliated and independent outlets, we do not have user-level information about individual Twitter users’ stances towards Russia or the war. However, among the search terms we used for data collection, we curated a list of terms that show clear association with certain stances (Pro-Russia/Pro-Ukraine/Pro-War/Anti-War), which can be found in Appendix A. We then measure the volume of tweets that contain such stance-related terms (Figure 3). The results show that Pro-Ukraine and Anti-war tweets are consistently more prominent.

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10https://www.amnesty.org/en/latest/news/2022/03/russia-kremlins-ruthless-crackdown-stifles-independent-journalism-and-anti-war-movement/
Figure 3: Weekly volume of tweets that contain Pro-Russia/Pro-Ukraine (left) and Pro-War/Anti-War (right) hashtags during the war.

Russian-speaking Twitter users tend to be more pro-Ukraine and Anti-war compared to Russian residents according to a recent poll result that shows 81% of Russian people support the Russian military operation in Ukraine.11 Considering the fact that VK is more widely used inside of Russia than Twitter, our results suggest researchers should exercise caution in generalizing opinions on Twitter to the entire Russian population.

4 Conclusions

We present an initial release of VoynaSlov, a data set of social media posts constructed to facilitate analyses of Russian information manipulation campaigns during the ongoing war between Russia and Ukraine. We additionally show preliminary data statistics, demonstrating how this data set can facilitate comparisons between Russian state-affiliated and independent media outlets and comparisons between messaging likely targeted internally (VK) and externally (Twitter). There remains numerous directions for exploration, including investigation of the topics and framing used across media outlets and platforms, and their reflection in comments and posts by general users. We hope that this data facilitates the identification and prevention of information manipulation.

5 Ethical Considerations

Given the ongoing war and the limitations on free speech in Russia, including the recently passed law that punishes spreading “false information” with up to 15 years in prison, it is possible that our data set contains content that could have physical and legal ramifications for individual users or media outlets. Even in our initial data collection, some VK data was flagged as deleted by moderators. We take several steps to mitigate the impact our work may have on the risk to individuals or media outlets. All of the data collected in this work is publicly available and we do not make any attempt to uncover non-public data. While we do include posts by general users on Twitter, we primarily focus on posts from media outlets and replies to them, where we can assume a lower expectation of privacy. In order to preserve users’ ability to delete content, we do not release any raw text data and instead only release post IDs, which other researchers can use to recollect raw data, if it has not been removed. We further note that all data was collected in accordance with social media platforms’ terms of service.

Throughout this work, we also avoid using specific examples from the data or referring to individual users. We encourage future work on this data to exercise similar caution, and we do not condone any research that attempts to deanonymize or profile users or identify narratives that could result in individuals being targeted. We refer to Vitak et al. (2016) and Williams et al. (2017) for a more in-depth discussion of ethical considerations of research using social media data.

11https://www.levada.ru/en/2022/04/11/the-conflict-with-ukraine/
Additionally, our data set cannot be considered to capture all relevant content from this time period. While we take steps to broaden the coverage of our data, such as multiple rounds of identifying news outlets and relevant terms, collection biases could reduce the reliability of any analyses conducting with this data. We also primarily focus on news content posted by Russian media outlets, which we suggest provides avenues for studying disinformation, because of prior work on Russian information manipulation strategies and because Russia is the aggressor in this conflict. However, we note that independent reports have also found evidence of misinformation perpetuating pro-Ukranian narratives. More generally, the authors of this work are situated in the U.S. and our assumptions in this work (e.g. that Russia is the aggressor) reflect this context, but we note that this viewpoint is not universal.

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A Search Terms for Tweet Collection

Table A describes the number of total search terms we curated in each update. We describe each update in the following paragraphs.

Version 0 An initial round of defining hashtags and keywords; we manually collected general keywords and hashtags including (1) entity names, e.g. Russia, Ukraine, names of cities from both Ukraine and Russia, (2) war-related terms, including war, peace, UkraineRussianWar, RussianUkraineWar, and (3) we include the same keyword phrases in Russian and Ukrainian languages. After we sampled 1K tweets with these general keywords, we sorted all hashtags in the data sample to augment this initial seed list.

Version 1 In a manual analysis of an initial data sample, we identified additional frequently mentioned entities, e.g. additional cities in Ukraine, names of politicians in Ukraine and Russia, stance-bearing pro-Russia and pro-Ukraine hashtags (e.g., #IstandwithRussia, #stoppugin), additional hashtags referring to the Second World War (#нацизм), pro-war and anti-war hashtags (#StopWar, #правдао войне). We note that while the overall sentiment in tweets was bearing more solidarity with Ukraine, the set of hashtags and keywords is diverse, in terms of languages (English, Russian, Ukrainian), stance (pro-Russia, pro-Ukraine, pro-war, anti-war), and in addition it includes mentions of external entities involved (NATO, Belarus, USA).

Version 2 We pulled an additional sample of 5K tweets using terms from Version 1 for a manual analysis of missing seed terms and to obtain the ranking of the terms and keywords by their frequency in the sample.

Version 3 (Final) We analyzed the tweets collected through the first 24 hours and sorted hashtags by frequency. We then manually annotated top 665 hashtags (until freq-150) and added to the list 81 most frequent conflict-related hashtags.

| Versions  | V0  | V1  | V2  | V3 (final) |
|-----------|-----|-----|-----|------------|
| # of keywords | 87  | 98  | 184 | 264        |

Table 4: The size of search term list in each update.

Pro-War Search Terms (8):
#crimeanspring, #мненестыдно, #русскиеидут, #deadrussiansoldiers, #istandwithputin, #imwithrussia, #своихнебросаем, #proudtoberussian

Anti-War Search Terms (12):
#нетвойне, #stoprussia, #nowar, #stoppugin, #stopwarinukraine, #nowarwithukraine,#saveukraine, #stoppugin, #нетвойненесукрайной, #stopthewar, #stopwar, #stoprussianaggression

Pro-Ukraine (19):
#standwithukraine, #fkputin, #нетпутину, #славаукраині, #stoprussia, #saveukraine, #fklukashenko, #stoprussianaggression, #staywithukraine, #своихнебросаем, #stoppugin, #stopwarinukraine, #nowarwithukraine, #helpukraine, #stoppugin, #banrussiabansfromswift, #славаукраїні, #istandwithukraine, #istandwithzelenskyy

Pro-Russia (8):
#donbasstragedy, #crimeanspring, #русскиеидут, #istandwithputin, #istandwithrussia, #imwithrussia, #своихнебросаем, #proudtoberussian
Final Search Terms (264):

#Украина, #нетвойне, #Ukraine, #Россия, #украина, #Харьков, #НетВойне, #Херсон, #мариуполь, #война, #НетПутину, #украине, #мариуполь, #украина, #Україна, #StopWar, #UkraineWar, #нетвойнеукраиной, #Russia, #россия, #Путин, #StopTheWar, # путин, #StopRussianAggression, #Киев, #Мариуполь, #NoWarWithUkraine, #UkraineRussie, #StandWithUkraine, #Зеленский, #РФ, #RussiaUkraineConflict, #SaveUkraine, #StopRussia, #Сумы, #Ukraine Invasion, #stoppustin, #СлаваУкраїні, #UkraineRussiaCrisis, #Гостомель, #UkraineConflict, #FlyAway, #войска, #ДНР, #NoWar, #Одесса, #Харьків, #Киев, #Україна, #Россия, #Херсоне, #путинубийца, #протесты, #Donbass, #нацизм, #Одеса, #генцид, #Mariupol, #eu, #europe, #фашизм, #Odesa, #Odessa, #ЛНР, #лукашенко, #Москва, #IStandWithUkraine, #Мелитополь, #невойне, #протесты, #нацизм, #фашизм, #генцид, #война, #WWII, #nuclearwar, #саккция, #бомбы, #нацизм, #войска, #диверсии, #Удары, #армия, #пигде, #мир, #мирные, #DearForPeace, #МыНеМолчим, #newsua, #newsru, #НетвойнеУкраинойпротивДонбасса, #санктпетербург, #зеленский, #ДаПобеде, #SWIFT, #киев, #мисформ, #тихийпикет, #ЕС, #russianinvasion, #Против, #ПУТИН_ВИНОВЕН, #донбасс, #EuroMaidan, #Ирпень, #беларусь, #Maidan, #МойЛуганск, #StayWithUkraine, #Zelenskiy, #НетБезумию, #штетер, #CoupdEtat, #Протесты, #бандеровцы, #су, #Кремль, #BanRussiansFromSwift, #бойрь, #бундево, #Лавров, #Русь, #МОСКВА, #АрмияРоссии, #SanctionRussiaN, #российское_вторжение, #ДавайЗаМир, #НоваяКаховка, #I-rpin, #worldwar3, #Москов, #дапобеде, #переговоры, #русские, #ООН, #Евросоюз, #путинубийца, #терроризм, #Минобороны, #WWIII, #митинг, #РусскаяВесна, #DonbassWar, #Янкомлукч, #москов, #РоссияУбивает, #русскийсолдат, #времипомогать, #шойгу, #россияне, #ЗаПрезидента, #армия, #наДонбассе, #началет, #МнеНеСтыдно, #русскиймир, #россиаукраина, #ЯМыПутин, #ЕдинаяРоссия, #DeadRussianSoldiers, #ВКСРоссии, #КремлевскиеСМИ, #Русскилюди, #КризисиДонбассе, #дезификация, #Putler, #русскийТопот, #россиянствавий, #Путин, #Россия, #Украина, #Киев, #Путину, #Украины, #Российне, #АЭС, #США, #НАТО, #Зеленский, #Chernihiv, #Киево, #Украине, #Украина, #Россия, #украина, #Харьков, #Херсон, #мариуполь, #Киев, #Мариуполь, #Зеленский, #РФ, #Россия, #россия, #Путин, #путин, #ДНР, #Харьків, #Киев, #России, #Украина, #Херсоне, #донецк, #Луганск, #СвоихНебросаем, #DonbassTragedy, #See4YourSelf, #Think4YourSelf, #WeRemember, #IstandwithRussia, #Novorossiya, #Donbass, #РаботайтеБраты, #Welcome2Crimea, #Crimea, #CrimeanSpring, #IStandWithPutin, #своихбросаем, #русскиенцду, #inwithrussia, #ProudToBeRussian, #нетвойнекраснойУкраиной, #StopTheWar, #StopRussianAggression, #NoWarWithUkraine, #StandWithUkraine, #UkraineRussie, #SaveUkraine, #StopRussia, #Слава-Украини, #UkraineRussiaCrisis, #Ukraine Invasion, #stoppustin, #NoWar, #путинубийца, #RussiaUkraineConflict, #UkraineConflict, #StopPutinNow, #StopWar, #StandWithUkraine, #SlavaUkrayini, #HelpUkraine, #invasion, #РоссийБЕЗ-путин, #PutinIsFalling, #PutinWarCrimes, #StopWarInUkraine, #resist, #SlavaUkrayini, #FreeBelarus, #FkPutin, #FKLukashenko, #Ukraine Invasion, #противовойне, #IStandWithZelenskyy, #IStandWithUkraine, #StopWarInUkraine, #PutinWarCriminal, #CloseTheSkyoverUkraine, #AdolfPutin, #PutinHitler, #RussiaInvadedUkraine, #нетвойны, #НетВойны, #НетПутину, #UkraineWar
## B Twitter/VK Handles of Russian News Outlets

| Media Name                                      | Twitter Handle | VK Handle       |
|------------------------------------------------|----------------|-----------------|
| RT (Russian)                                   | @RT_russian    | rt_russian      |
| RT (English)                                   | @RT_com        |                 |
| TASS (Russian)                                 | @tass_agency   | tassagency      |
| TASS (English)                                 | @tassagency_en |                 |
| Sputnik News                                   | @SputnikInt    | sputnikint      |
| Sputnik (Radio)                                | @ru_radiosputnik | sputnik_radio |
| RIA Novosti                                    | @rianru        | ria             |
| RIA Novosti (Breaking News)                    | @riabreakingnews |             |
| PRIME                                          | @1prime_ru     | 1prime          |
| Ministry of Defence of the Russian Federation  | @mod_russia    | mil             |
| Ruptly                                         | @Ruptly        | ruptly          |
| Moscow 24                                      | @infomoscow24  | m24             |
| inoSMI                                         | @inosmi        | inosmi          |
| Life                                           | @lifenews_ru   | life            |
| 5TV                                            | @5tv           | tv5             |
| Vesti                                          | @vesti_news    | vesti           |
| Russia-1                                       | @tvruussia1    | russiatiy       |
| RBC                                            | @ru_rbc        | rbc             |
| Gazeta.Ru                                      | @GazetaRu      | gazeta          |
| Rossiyskaya Gazeta                             | @rgrus         | rgru            |
| Ukraina.ru                                     | @ukraina_ru    | ukraina_ru_official |
| Redfish                                        | @redfishstream |                 |
| MIA Rossiya Segodnya                           | @pressmia      |                 |
| Margarita Simonyan                             | @M_Simonyan    |                 |
| Zubovski 4                                     | @zubovski4     |                 |
| DVostok                                        | @media_dv      |                 |
| Vladimir Soloviev                              | @VRSoloviev    |                 |

Table 5: List of State-affiliated media and their handles on Twitter and VK.
| **Media Name**                  | **Twitter Handle** | **VK Handle** |
|--------------------------------|-------------------|---------------|
| TV Rain                        | @tvrain           | tvrain        |
| Alexei Navalny                 | @navalny          | navalny       |
| iStories                       | @istories_media   | istories.media|
| OVD-Info                       | @OvdInfo          | ovdinfo       |
| Novaya Gazeta                  | @novaya_gazeta    | novgaz        |
| DW (Deutsche Welle)            | @dw_russian       |               |
| BBC Russia                     | @bbcrussian       | bbc           |
| MediaZona                      | @mediazzzona      | mediazzzona   |
| Radio Liberty                  | @SvobodaRadio     | svobodaradio  |
| The Insider                    | @the_ins_ru       | theinsiders   |
| Forbes Russia                  | @ForbesRussia     | forbes        |
| Meduza                         | @meduzaproject    | meduzaproject |
| Current Time TV                | @CurrentTimeTv    | currenttimetv |
| RTVI                           | @RTVi             | rtvi          |
| Voice of America               | @GolosAmeriki     | golosameriki  |
| Snob Project                   | @snob_project     | snob_project  |
| Echo of Moscow                 | @EchoMskRu        |               |
| FBK (Anti-Corruption Foundation)| @fbkinfo          |               |
| Reuters Russia                 | @reuters_russia   |               |
| Znak.com                       | @znak_com         |               |

Table 6: List of Independent media and their handles on Twitter and VK.
## C Russian Inflections of Named Entities

| Named Entity | Inflected Forms |
|--------------|-----------------|
| Putin        | Путину, Путина, Путине, Путин, Путиным |
| Zelenskyy    | Зеленский, Зеленского, Зеленских, Зеленскому, Зеленским |
| Ukraine      | Украиной, Украине, Украина |
| US           | американское, Соединенные Штаты Америки, американские, американским, американская, американскую, американских, американском, америку, американскии, америки, американском, американкои, США, америке, американского, америка |
| Donbas       | Донбассом, Донбassa, Донбассу, Донбасс, Донбассе |
| Belarus      | Беларуси, Беларусью, Беларусь |
| Poland       | Польше, Польшеи, Польша |
| NATO         | НАТО |

Table 7: List of named entities used in 3 and their various Russian inflected forms. We used the inflections to count their frequency in the data.

## D VK Terms & Conditions
7. Intellectual Rights

- 7.1. Exclusive rights in the Site Content
  
  - 7.1.1. All objects placed on the Site, including design elements, text, graphic images, illustrations, videos, scripts, software, music, sounds and other objects and their collections (hereinafter the Content) are subject to exclusive rights of the Site Administration, Users and other rights holders, all rights in these objects being reserved.
  
  - 7.1.2. Except as provided by these Terms as well as by effective Russian legislation, no Content may be copied (reproduced), processed, distributed, displayed in the frame, published, downloaded, transferred, sold or otherwise used in full or in part without the prior permission of the right owner, unless the right owner has expressly agreed to free use of the Content by any person. Reproducing, copying, collecting, systemizing, storing and transferring the Content in order to create a database whether for commercial and/or non-commercial purpose and/or using the Content in whole or its part regardless of the way of use is not allowed without the Administration's consent.
  
  - 7.1.3. By posting on the Site his/her lawfully owned Content, the User grants the other Users a non-exclusive right to use it in the framework of the functional provided by the Site by viewing, reproducing (including copying) and other rights exclusively for the purpose of personal non-commercial use, except where such use infringes or may infringe the right owner's interests protected by law.
  
  - 7.1.4. The Content made available exclusively for the purpose of personal non-commercial use may be used by the User on the condition that all copyright marks or other authorship notices, name of the author and the work remain unchanged.
  
  - 7.1.5. The User grants to the Site Administration a non-exclusive right to use on a free of charge basis the Content published on the Site and which lawfully belongs to him/her, so that the Administration of the Site may maintain the operation of the Site in the amount established by its architecture and functionality, and to use this Content for the Site Administration promotional content, including images of the Site interface, including without limitation making this promotional content public. The said non-exclusive right is granted for the period when the Content is placed on the Site and extends to the territory of the countries all over the world. The end of the period when the Content is placed on the Site and / or the end of the non-exclusive right duration do not carry a necessity of deletion by the Site Administration of this promotional content with the said Content (including its removal from the Internet). The Site Administration has a right to transfer these rights described in this clause to the third-parties. The User accepts that the Site Administration has a right to use functional and technical capabilities of the Site that provide displaying of the published Content by the User, including player, meant to display the Content at its own discretion, including for the purpose of showing the advertising information.
  
  - 7.1.6. If the User deletes his/her Content from the Site, the non-exclusive right mentioned in clause 7.1.5. hereof will be automatically revoked, however, the Administration reserves the right to keep backup copies of the user Content during the required period of time, if needed due to technical peculiarities of the Site operation.
  
  - 7.1.7. Except his/her own Content, the User does not have the right to upload or otherwise make available to the public (publish on the Site) the content of other sites, databases and other intellectual activity results without the express consent of the right owner.
  
  - 7.1.8. Any use of the Site or Content, except as permitted herein or except the right owner consents to such use in writing, without the prior written permission of the right owner is categorically prohibited.
  
  - 7.1.9. Unless otherwise expressly provided in these Terms, nothing in these Terms may be considered as the grant of exclusive rights in the Content.
7.2. Liability for the infringement of exclusive rights.

7.2.1. The User bears personal liability for any Content or other information he/she uploads or otherwise makes publicly available (publishes) on or via the Site. The User does not have the right to upload, transfer or publish Content on the Site unless he/she has appropriate rights to do so, such rights being acquired by or transferred to him/her in accordance with Russian legislation. Upon detection of the rights violations, please use [http://vk.com/help?act=cc_terms][Regulations for Investigating Complaints concerning users’ content] to complain.

7.2.2. The Site Administration has the right but is not obliged to check the Site for prohibited Content and can delete or remove (without giving advance notice) any Content or Users at its own discretion for any reason or without reason, including, without limitation, removal or deletion of the Content which, in the personal opinion of the Site Administration, infringes these Terms, Russian legislation and/or may infringe the rights of, cause damage to, or threaten the security of other Users or third parties.

7.2.3. By posting his/her Content on the Site, the User grants the Site Administration the right to copy his/her Content in order to streamline and facilitate the publication and storage of the user Content on the Site.

7.2.4. By posting his/her Content in any part of the Site, the User automatically grants the Site Administration free of charge the non-exclusive right to use it by copying, public performance, reproduction, processing, translation and distribution for or in connection with the purposes of the Site, including for the purpose of increasing its popularity. For these purposes, the Site Administration may produce derivative works or insert the User’s Content as components in relevant collections or take other actions for these purposes.

7.2.5. In case the User removes his/her Content from the Site, the rights mentioned in clauses 7.2.3 – 7.2.4 hereof will be automatically cancelled; however, the Site Administration has the right to keep archive copies of the user Content for an indefinite period.

7.3. Third parties’ sites and content

7.3.1. The Site contains (or may contain) links to other web-sites (third parties’ sites) as well as articles, photos, illustrations, graphic images, music, sound, video, information, applications, software and other Content belonging to or originating from third parties (Third Parties’ Content), which is the result of intellectual activity and is protected in accordance with Russian legislation.

7.3.2. The Site Administration does not check these third parties and their Content for conformity to any requirements (truthfulness, completeness, good faith etc.). The Site Administration does not bear liability for any information on third parties’ sites to which the User gains access via the Site or Third Parties’ Content, including any opinions or statements expressed on the Third Parties’ Sites or in their Content.

7.3.3. The fact that the Site contains links or instructions for downloading files and/or installing software of third parties does not mean that the Site Administration supports and approves of these actions.

7.3.4. The fact that the Site contains a link or reference to any site, product, service, information of commercial or non-commercial nature does not mean that the Site Administration approves of or recommends the above.

7.3.5. If the User decides to leave the Site for the sites of third parties or use or install third parties’ software, he/she does it at his/her own risk and from this time these Terms do not apply to the User any longer. When taking further actions the User should follow the applicable standards and policies, including business practices of the persons whose Content he/she is going to use.

Figure 4: VK Terms and Conditions (relevant excerpt).