

Social Media Justice and Peacebuilding Mobilization for Syria

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Many have noted the growing pervasiveness of transitional justice (TJ) norms in global politics. Yet, cyberspace has attracted little attention from scholars. Measuring justice demands and perceptions of ongoing processes is often difficult due to limited resources and security concerns. Social media data provide one alternative in such contexts. Using the Syrian civil war as a case study, we explore the strengths and limitations of social media analysis for advancing our understanding of TJ processes. Great power politics and conditions on the ground have thus far prevented justice for atrocities committed during the war. Nonetheless, TJ discourse has been prevalent over the years among Syrian and transnational activists alike. However, our analysis of data from Twitter, YouTube, and blogs reveals that social media

users focus more on drawing attention to atrocities rather than articulating a justice vision for Syria.

Keywords: Syria, social media, transitional justice, Twitter, YouTube, blogs

Introduction

The world's worst humanitarian crisis since World War II, the Syrian Civil War has been a focus of human rights activism. Approximately 500,000 people have been killed and roughly half of Syria's pre-war population of 22 million have been displaced. As local and transnational activists mobilize around addressing these atrocities, they often employ the language of transitional justice (TJ), which denotes various policies that societies use to address histories of violence and repression. Among other things, activists speak of TJ in the Syrian context because they were initially confident that Assad would fall quickly and the rhetoric connected with global norms and donor preferences (Stokke and Wiebalhaus-Brahm 2019).

As a twenty-first century conflict, the war is waged partially in cyberspace. At least initially, the Assad regime successfully used digitally-enabled transnational repression to curb mobilization in the Syrian diaspora (Moss 2018). Syrian and non-Syrian activists also use social media to draw attention to atrocities and to advocate for TJ to address years of human rights violations. Globally, blogs and social media platforms like Facebook, YouTube, and Twitter are used to collect, organize, and analyze new information about human rights abuses and humanitarian needs with growing frequency. Yet, we know relatively little about how information and communication technologies have been used in debates about TJ, either generally or regarding Syria specifically.

In fact, social media analysis (SMA) has the potential to contribute to several key controversies within the TJ field (Vinck 2019). For example, such data can help us understand what people want and their level of satisfaction with what has been provided. As open platforms, social media enables individuals to advocate on their own behalf without the mediation of local and global elites. Thus, social media might contribute to the development of a more 'localized' or 'particularized' TJ vision. At the same time, social media data is not a panacea. Online voices are typically far from representative of broader populations. The same inequalities of access that exist in the physical world also exist in the virtual (Ragnedda and Muschert 2013). Moreover, privacy and security concerns shape whose voices are

heard and how we can analyze them. Among other things, until a critical mass of people are active on social media and privacy/security concerns settled, there are limitations to what SMA can contribute to TJ debates.

Using the case of mobilization for atrocities committed in Syria, this article demonstrates the empirical value-added of SMA. We begin by discussing how SMA can contribute to key TJ debates. Next, we provide a brief introduction to the Syrian conflict and related mobilization before turning to the analysis of social media. There, we utilize a variety of SMA tools to examine the dynamics of social media discussions about Syria that have been conducted on Twitter, YouTube, and blogs. We find that chatter has not necessarily been dominated by voices from the Global North. Nonetheless, users appear to be more focused on dimensions of the conflict that affect Europe rather than on justice itself. We conclude by reflecting more generally on the promise and limitations of SMA for advancing TJ scholarship.

Social media analysis and transitional justice debates

With some exceptions, little research has examined technological dimensions of TJ. Several studies focus on the management of data collected by truth commissions and other bodies (Mezarobba and Cesar 2016; Peterson 2005; Pham and Aronson 2019). Other research examines the implications of Web 2.0 for truth commissions' collection and dissemination of information (Pelsinger 2010; Wiebelhaus-Brahm 2013). Still other studies examine international courts' outreach strategies (Lincoln 2011; Vinck and Pham 2010), but little attention is paid to the technology through which they do so, or how individuals respond to those strategies. In fact, the social media strategies of TJ mechanisms themselves have not been examined.

SMA can contribute to several important TJ controversies. One abiding interest is measuring the justice demands of societies affected by conflict and repression. Gauging the public's justice demands is important so that TJ meets local needs. Several academic and civil society initiatives have attempted to do this in a range of national contexts (Gibson 2004; International Center for Transitional Justice 2011; International Center for Transitional Justice and Human Rights Center of the University of California at Berkeley 2004; Vinck and Pham 2008; Vinck, Pham, and Kreutzer 2011). Similarly, due to a desire to make TJ responsive to local demand, measuring individuals' reactions to TJ processes may enable adjustments midstream.

Even after TJ processes formally conclude, gauging individual assessment of them may help us understand, if not predict, their long-term impact. However, due to resource constraints, security concerns, and the unpredictability with which TJ opportunities arise, we often lack good data on the nature of societies' demands or perceptions (Backer and Kulkarni 2016)

Social media data provides one potential way of addressing this knowledge gap. SMA enables the collection of large amounts of data without the time and cost of surveys. Without the need to devise and deploy a study in the field, social media data can be collected almost the instant it is generated. Moreover, for countries beset by widespread violence and oppression, SMA typically gives rise to fewer security concerns for subjects and researchers alike. Social media users provide content voluntarily, thus they have at least implicitly weighed the security risks of participation. Finally, with some limitations, social media data can be gathered after the fact. As such, natural experiments are possible without having to be out in the field at the right time.

Another important TJ controversy is the so-called global vs. local debate, which revolves around whether the ways in which processes are designed and the form justice takes reflects local or global (often read Western) conceptions of justice (McEvoy and McGregor 2008; Robins 2009; Shaw, Waldorf, and Hazan 2010). Social media has been celebrated for its democratizing potential. Anyone with a smartphone has a voice. For example, any individual has a platform on which to assess efforts to promote accountability for atrocities committed during the Syrian war, such as the International Impartial and Independent Mechanism (IIIM) established by the United Nations (UN) or activists' efforts to use the Caesar Files to pursue cases in third countries under universal jurisdiction principles.¹ SMA allows us to reveal how social networks enable activists to amplify their voices and reach different audiences by connecting with other activists on social media. Such interactions sometimes resemble the boomerang effect of transnational human rights activism (Keck and Sikkink 1998), such as when transnational activists used social media to magnify the voices of Saudi women's rights activists globally, thereby contributing to the termination of the ban on

¹ The UN General Assembly established the IIIM in December 2016 under Resolution 71/248 to "assist in the investigation and prosecution of persons responsible for the most serious crimes under International Law committed in the Syrian Arab Republic since March 2011." The Caesar Files refers to approximately 5,500 photos documenting torture and other atrocities that were smuggled out of Syria in August 2013 by a military police photographer.

women drivers (Agarwal, Lim, and Wigand 2012; Yuce et al. 2016). More generally, social media data might help reveal whether local and Western perceptions of justice initiatives are similar or different.

One more area in which social media data can yield innovative insights is about how TJ controversies are perceived. For example, the so-called peace vs. justice debate revolves around whether the threat of prosecution deters human rights violations and/or compels actors committing violations to stop (Dancy and Wiebelhaus-Brahm 2018; Loyle and Appel 2017). Supporters of criminal prosecution argue that trials promote peace by incarcerating perpetrators, deterring would-be violators, and changing norms about the acceptability of violence to achieve political goals (Akhavan 2009; Kim and Sikkink 2010; Orentlicher 2010). Critics, by contrast, charge that the threat of prosecution gives perpetrators incentive to keep fighting to protect themselves from prosecution, either prolonging or reigniting fighting (Snyder and Vinjamuri 2003). Social media data obviously cannot weigh in on whether a trade-off between peace and justice exists. However, it can be used to explore whether or not individuals perceive that such a trade-off exists.

At the same time, there are limitations to the insights social media can provide. Syrians who comment on TJ are unlikely to be representative of the Syrian public. They are generally more highly educated activists; they and/or family members may be victims. Syrian TJ social media campaigners also are likely to be more immersed in Western notions of justice, whether out of conviction or because they understand that doing so will better ensure access to donor funds (Madlingozi 2010; Okello 2010). Syrian activists may have left Syria years, if not decades ago, but purport to speak on behalf of Syrians in the country. Furthermore, other forms of bias could creep in, such as the amplification of certain narratives via computer programs known as social bots, artificially inflating the number of views or likes, or injecting comments designed to manipulate other users. Such biases can be addressed using advanced SMA techniques as discussed by Agarwal et al. in their studies of the European migrant crisis (Hussain et al. 2017), Venezuela's ongoing political crisis (Mead et al. 2018), and anti-NATO disinformation campaigns (Agarwal and Bandeli 2018). On the whole, though, existing global and local inequalities in access and voice (e.g., Western tropes being reproduced, diaspora voices magnified over Syrians who remain in the homeland) may be reinforced by an overreliance on social media data.

Syrian context

Violence in Syria began when the government cracked down on pro-democracy protestors in early 2011. The Assad family's Ba'athist regime has a long history of oppression, so its response was not out of character. What was different was that some took up arms to defend themselves. Foreign governments opposed to Assad provided support to various rebel factions. In this context, violence escalated. Complicating matters further, the governance vacuum created by the war made it an attractive destination for Islamic extremists from around the world. In response, foreign governments deepened their military involvement to counter Islamic State, al Qaeda affiliates, and other perceived extremists. The humanitarian crisis ensued.

The civil war plays out on social media. Platforms are used to document atrocities. Activists spread knowledge of gross human rights violations to compel conflict actors to change their behavior and to pressure the international community to stop the violence and provide justice. Early on, a diverse set of actors, Syrians and foreign alike, took to social media to promote their vision of justice and accountability for Syria. Syrians' experiences have been quite diverse. Some remain in the country. Others are in the diaspora, having either fled the country since 2011 or in the years and decades prior. Syrians also have diverse perspectives on which type of justice should be prioritized in addressing the civil war and past oppression. Despite the fact that any sort of transition appears extremely remote, activists typically use TJ language in their discussions about how to address atrocities.

Social media analysis of the discourse surrounding Syria

In this section, we analyze social media discussions about human rights violations and justice in Syria. We examine data from Twitter, YouTube, and blogs.² For each social media platform, we first introduce our data collection methodology. Then, we provide an overview of our findings. Throughout, we highlight both the strengths and limitations of SMA.

² Facebook is popular among Syrians, and an important one for Syrian and non-Syrian human rights and TJ activists. However, during our data collection phase, Facebook limited access to its data as it dealt with the Cambridge Analytica scandal.

Twitter

Data was collected using Twitter Rest API via Google TAGS.³ A snowball data collection process was used, wherein we use seed knowledge (i.e., known Twitter users, hashtags⁴, and keywords related to TJ discourse surrounding Syria) and then expanded the sample as more relevant resources (hashtags, users, etc.) are identified. We started with 14 prominent users and five hashtags. For the purpose of this research, we collected data from February 14, 2018, to May 29, 2018. In total, we obtained 5,991 Twitter posts regarding Syria and TJ during the period, which include 2,052 tweets, 3,343 retweets⁵, and 596 mentions⁶ generated by 1,450 Twitter users who posted in 26 different languages.

YouTube

We identified six YouTube channels related to Syria for analysis by tracking the social media profiles of influential TJ activists who were at the forefront of TJ discussions about Syria. We combed their social media profiles and extracted links to videos they shared on various platforms. We followed the YouTube links and verified each channel's relevance. Using YouTube Data API, we extracted the title, publication date, and description of 6,884 videos from the channels of interest. Due to privacy reasons and YouTube's data usage agreement, we cannot divulge the names of the

Table 1. YouTube Data Characteristics

Videos	6,884
Channel Subscribers	1,126
Views	4,660,683
Likes	21,880
Dislikes	4,517
Comments	6,468
Commenters	4,493
Likes on comments	4,988
Replies on comments	2,418

³ An online Twitter data collection tool, available at <https://goo.gl/uxkP9k>.

⁴ Words or phrases used to identify a topic. Clicking on a hashtag enables users to view all messages mentioning it.

⁵ The act of reposting or forwarding a message posted by other Twitter users.

⁶ The act of mentioning another user in a tweet by using the @ sign.

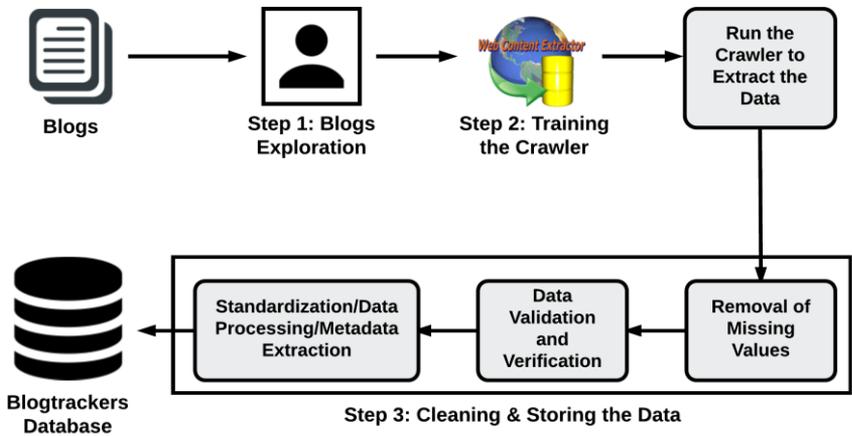
channels that hosted these videos. We extracted the number of views, likes, dislikes, and comments for all the videos hosted on each channel. For each comment, we extracted the commenter's ID and name, the comment text, likes and replies to the comment, and publication date. The data are summarized in Table 1.

Blogs

The first step to analyze blog data is to identify key blogs pertaining to Syria and TJ. We searched using keywords that highlight key Syrian activists as well as important events and actors in the civil war in order to shortlist blogs for the study.⁷ After identifying 56 blogs, we reviewed each for relevancy. The review process involved visiting each blog and combing them to verify bloggers were actually blogging about Syria. Any blogs that discussed anything other than Syria were discarded. This assessment allows us to focus on relevant bloggers. Of the initial 56, 11 blogs were found to be relevant. To collect blog data, we set up a web crawler, a computer program pre-programmed to browse blogs and extract content from the webpage. There are three main steps in crawling data from a blog site: (1) exploring the site, (2) crawling it, and (3) cleaning and storing the data in a database for analysis. The crawling process is described in Figure 1.

To crawl data from blogs, we use the Web Content Extractor (WCE), a programmable bot that visits pre-identified blogs on a regular basis to index them. To program the bot, we determine how the blog's content is arranged. During crawling, we extract blog attributes such as blog post title, author, date of posting, the text of the actual post, permalink, number of comments, and the text of the comments. We also determine how site navigation works to program the crawler. Finally, we take a sample post and define the attributes we want WCE to collect. Since blog posts typically follow a repetitive structure, WCE is run on the entire blog site to automatically fetch data for all posts. We repeat these steps for each blog.

⁷ The keywords used were Ghazwan Qrunful, Mouaz Moustafa, Mohammad Al Abdallah, Miral Biroreda, Radwan Ziadeh, Mansour al-Omari, Mazen Darwish, Syria, Aleppo, Russia, Putin, Isis, Syrian Civil War, arab spring, Russia forces in Syria, Syrian Arab Army, Daesh, Amnesty International, USA, Donald Trump, Douma, Chemical Attack, Ghouta, Iran, United Nations, Europe Migration, Chlorine gas, Idlib, Northern Syria, Syrian Revolution, Assad Regime, Syria Airstrike.

Figure 1: Blog Data Collection Framework

Web crawling does not always provide clean data. It typically contains some noise, such as missing data, duplication of data, or extraneous data like advertisements, that must be eliminated. We take several measures to ensure that the data pushed to Blogtrackers for analysis is clean (Agarwal et al. 2009). Blogtrackers is a java-based application that is designed to provide data scientists with the tools necessary to track blogs and bloggers alike. Blogtrackers has the functionality to identify not only trending topics, but also the blog posts and the bloggers who influence the blogosphere.

Following the methodology above, we crawled 11 blog sites. The crawlers were programmed to specifically collect data related to Syria. Blogs in a different language were translated into English with Google Translate. While the accuracy of such translations is debatable, it allows us to get the gist of the content. Through this process, we obtained a total of 6,683 blog posts and 30,223 comments during the period from September 5, 2006, to July 2, 2018.

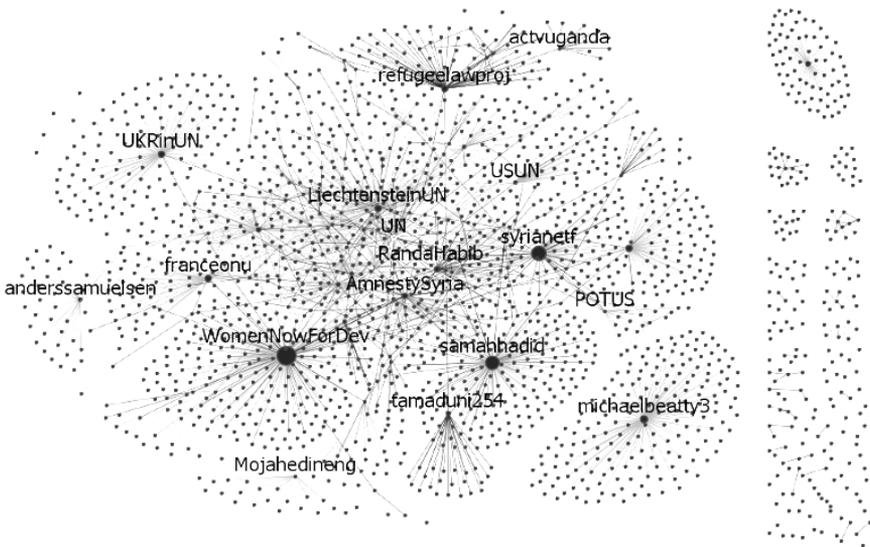
Data analysis and findings - Twitter

Based on the messaging relations from the data (i.e., who replied to whom, who mentioned whom, etc.), a communication network was developed. It consists of 2,923 Twitter accounts connected by 2,176 relations

either through retweets or mentions. By conducting a component analysis, we observe that the communication network regarding atrocities in Syria is highly fragmented, indicating several conversations going on simultaneously. This network (see Figure 2) has 49 connected components. A connected component is a network unit in which individuals are connected with each other. The number of individuals in a given component is referred to as the component's size. The components in our early 2018 Syria data have the following size distribution (see Figure 3):

- 1 isolate (size 1).
- 18 dyads (size 2).
- 11 triads (size 3).
- 2 components of size 4.
- 17 components larger than 4.

Figure 2: Communication Network of Twitter Accounts Discussing Syrian Justice Issues



Note: Each black dot denotes an account. Gray edges between the dots depict retweets or mentions.

The presence of several components in the communication network signifies that communication about Syria in this community is fragmented. The components that are larger than four are Twitter accounts retweeting authoritative/verified Twitter accounts of human rights organizations, diplomats, or news channels. Large components resemble more of a genuine

discussion of an issue involving many users. People are retweeting others' messages and mentioning others. By contrast, components that are smaller than 4 are typically users mentioning other Twitter accounts about various

Figure 3: Small Components of the Communication Network of Twitter Accounts



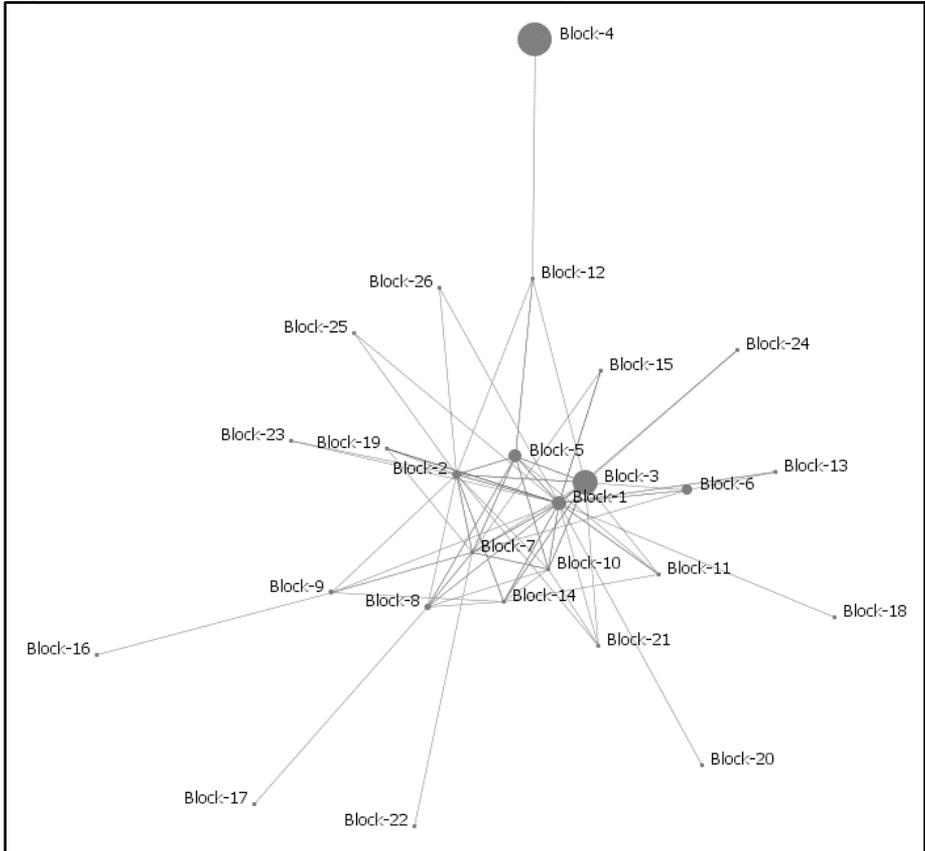
Note: Each black dot denotes an account. Gray edges between the dots depict retweets or mentions.

issues. The smaller the component, the more it resembles direct communication between two accounts rather than a network. For example, if someone is mentioned in a tweet just to show her that tweet, this would be a dyadic relationship. However, if users retweet and mention each other in more than one tweet, and then their friends also retweet and mention them in other tweets, this represents deeper engagement with the topic and the size of the component will grow.

Examining the biggest component reveals that the conversations are more relevant to the topic of human rights in Syria where more prominent organizations are engaged. A majority of the Twitter accounts were retweeting posts from various countries' UN missions and human rights organizations. The users in this component also retweeted others more than once. For example, the Twitter account for the Syria Justice and Accountability Centre (@SJAC_info) retweeted the official Twitter account of the International Commission on Missing Persons (@TheICMP) five times, meaning the accounts in the biggest component have high engagement with the text and a low direct engagement with individual Twitter accounts.

Although conversations in the biggest component are relevant to Syria, they can be further divided into subtopics. Such topical clusters are revealed by running Newman clustering algorithm on the communication network to detect communities of Twitter accounts (Newman 2006). We found that the largest connected component has 26 communities (i.e., 26 separate sub-conversations occurring in the group). The subconversations were happening between subgroups ranging in size from 4 to 308 Twitter users (on average, 72 Twitter users in each subgroup). This indicates that, although these Twitter accounts are connected in one big component, they are clustered around topics or issues. Figure 4 shows the 26 communities connected densely at the core of the network (the middle) and sparsely connected at the periphery.

Once we identify the relevant conversation through component analysis, it is important to identify the key actors engaging in the conversation. Using SMA toolkits, we can measure the structural properties of social networks to identify key actors (i.e., Twitter accounts that are repeatedly top-ranked in a set of network measures). There are several SMA toolkits that can be used to conduct this analysis, e.g., Organizational Risk Analyzer (ORA) (Yin and Chen 2012), Gephi (Bastian and Heymann 2009), Cytoscape (Shannon et al. 2003), Pajek (Batagelj and Mrvar 2004), and NodeXL (Smith et al. 2009). We use ORA because of its ability to scale well with large social networks.

Figure 4: 26 Communities Detected in the Largest Component

Note: Each dot represents a community. Larger dots denote larger communities.

By analyzing the communication network, we can identify key players. Key players are Twitter accounts that are repeatedly top-ranked in a variety of network measures developed in SMA. In the analysis that follows, we focus on accounts with the highest values in the following node-level network measures:

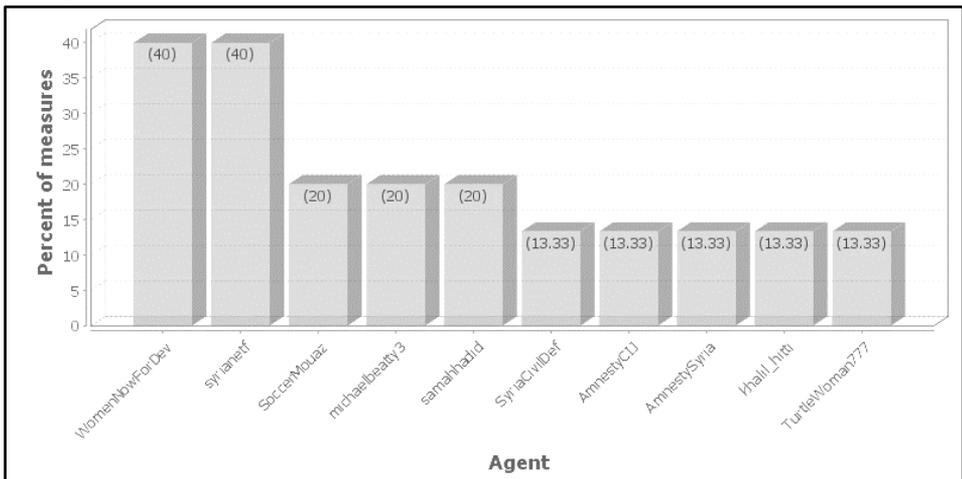
- **Total Degree Centrality:** measures the total number of connections a node has, e.g., the total number of friends and followers a Twitter account has. Twitter accounts that have high total degree centrality

are more likely to be well-known individuals or organizations as they are connected to many others.

- **Outdegree Centrality:** measures the total number of outgoing connections a node has, e.g., the total number of friends a Twitter account has. Twitter accounts that have higher outdegree centrality are more gregarious. Gregariousness is defined by the number of people one knows, i.e., the more people one knows, the more gregarious one is.
- **Indegree Centrality:** measures the total number of incoming connections a node has, e.g., the total number of followers a Twitter account has. Twitter accounts that have higher indegree centrality are more popular. Popularity is a characteristic of an individual in a social network that is defined by the number of ties (or connections) an individual has. These characteristics are directional by nature, which has further implications, i.e., the more people know someone, the more authoritative they are.
- **Betweenness Centrality:** measures how many times a node lies on the shortest path across the graph. Twitter accounts that have a high betweenness centrality are important nodes because they act as information brokers or bridges.
- **Closeness Centrality:** measures how quickly a Twitter account can reach other accounts in the network. Twitter accounts that have a high closeness centrality are important nodes because they might have better access to information or more influence on other Twitter accounts in the network.
- **Hub Centrality:** measures the extent to which a Twitter account sends a lot of information to a wide range of other Twitter accounts. Twitter accounts that have a high Hub centrality are considered authoritative Twitter accounts.
- **Authority Centrality:** measures the number of friends of any Twitter account followers. So, if a Twitter account has a high Authority Centrality, it means that this account's followers have many friends (good Hubs or accounts with high Hub centrality scores).
- **PageRank Centrality:** measures the authoritativeness of an individual in a social network. The premise is that an individual is more authoritative if his/her connections are more authoritative. In other words, the quantity of one's connections is not a sufficient measure of authoritativeness. This attribute distinguishes PageRank from the degree centrality measure. For example, Twitter users who are followed by influential nodes, e.g., Elon Musk, are more authoritative than Twitter users who are followed by non- influential nodes, e.g., us.

With respect to Syria, Figure 5 shows the top ten key players in the biggest and the most relevant conversation group. These Twitter accounts generated 27% of the data we collected. In particular, they all retweet a lot (made a total of 1,121 retweets, 306 tweets, and 227 mentions). Moreover, the key players were all human rights organizations, leaders, or supporters. For this analysis, the smaller groups were discarded because their conversations were not relevant to Syrian justice debates and, hence, their communication had comparatively little impact.

Figure 5: Top 10 Twitter Accounts in the Biggest Communication Component



We found that the account @WomenNowForDev, a Syrian non-governmental organization, ranked highest on all network measures. The account mainly focuses on women’s and children’s rights in Syria. In fact, the account mainly retweets. For example, @WomenNowForDev retweeted @ActForGhouta (which is an account that is “tweeting on the daily life and the inspiring resilience of the besieged people in Eastern Ghouta”⁸) and @WeExistSyria (which is an account of an alliance of Syrian civil society organizations) 38 and 36 times respectively during our data collection period.

⁸ Eastern Ghouta is a city in eastern Syria that the Assad regime is accused of attacking with chemical weapons on April 7, 2018.

To examine the major issues discussed by the Twitter users, we conducted content analysis of the text from the postings. Text analysis also affords a clearer picture of interaction among local and global voices. We first analyzed the content of these texts at a high level, then zoomed-in on the tweets, the retweets, and the mentions separately to understand the content based upon the characteristics of Twitter communication. For example, a tweet might indicate an individual's opinion about an issue, a retweet might indicate an individual's engagement with the text, and a mention of another account might indicate a more direct engagement with the individual (who is mentioned) and not just the content.

We analyzed the text by generating a "word cloud" using wordart.com. This visualization is useful in providing an overall understanding of the textual data where words are sized based on the number of times they occur in a given text. We found that the words "Syria", "Justice", "Accountability", and "IIM" were the most used words (see Figure 6a) between January 29, 2018, and May 29, 2018.⁹ We found that most tweets (see Figure 6b) focused on "force" used to "kill" "civilians" in "suburbs" and "cities", such as the chemical weapons attack in "Idlib" during "feb", "Mar", and "April" of 2018. During this period, violence spiked in Eastern Ghouta and Idlib. Most retweets (see Figure 6c) and mentions (see Figure 6d) called for bringing those who committed "crimes" against civilians in "Syria" to "justice" by the head of "IIM", Ms. Catherine Marchi "Uhel", during a "UN" press briefing. In April 2018, Marchi-Uhel gave her first briefing to the UN General Assembly since it passed a resolution establishing the IIM in December 2016. In the same month, the IIM signed a protocol of communication with 28 Syrian civil society organizations.

To further identify which issues matter most to Twitter users, we analyzed 1,077 unique hashtags used in early 2018. Most of them referred to war crimes in Eastern Ghouta. The hashtag "IIM" was the second most used hashtag. The most used hashtags are written in English. Account data does not reveal Twitter users' nationality. However, the predominance of English likely reflects a combination of Syrians trying to raise international awareness of war crimes and transnational activists working to mobilize

⁹ Pulling data using keywords with Twitter API often generates noise as some words have different meanings. For example, the keyword "weed" will identify tweets in which people are talking about marijuana, as well as gardening. The fact that the most commonly used words match our subject of interest provides a good indication of the data's quality.

broader outrage over continued impunity. The number of hashtags within tweets ranges from zero to 32, with an average of 3. This suggests that, generally, users were trying to make their tweets reach as broad of an audience as possible since hashtags can be followed by individual Twitter accounts.

Our content analysis goes beyond text and hashtags. Since Twitter allows a limited number of characters (originally 140, now 280 characters), it is common to include URLs of other webpages. These URLs provide information that users want to share with audiences. For example, if users tweet about breaking news, they were likely to include a URL of the story. This necessitates analyzing these URLs. This analysis helps identify major events and issues, as well as other social media presences of users, e.g., blogs, YouTube channels, Facebook pages. We extracted all URLs included in tweets. This resulted in 1,794 unique URLs from 194 domains. Several were from other social media sites, including 23 YouTube videos, 10 blogs, and 6 Instagram URLs among other social media platforms that contain narratives, videos, images, or news articles. Some users repeated their tweets. For example, the Twitter account @TheICMP repeated a tweet 4 times that contained a URL pointing to an ANFNews.com article about 900 bodies being exhumed from mass graves in Raqqa.¹⁰ The maximum number of times a Twitter user repeated their tweet is 4. In our dataset, three Twitter accounts repeated their tweets four times (@TheICMP, @EagleSyrian1, and @SyrianCenter). Some users included other users' tweets as a URL in their tweet. What this tells us is that organizations and individuals use multiple social media platforms to raise awareness in local and international communities about atrocities happening in Syria.

¹⁰ Available at <https://bit.ly/2KSuorP>.

Figure 6: Word Usage Among Twitter Users (January 29, 2018, and May 29, 2018)

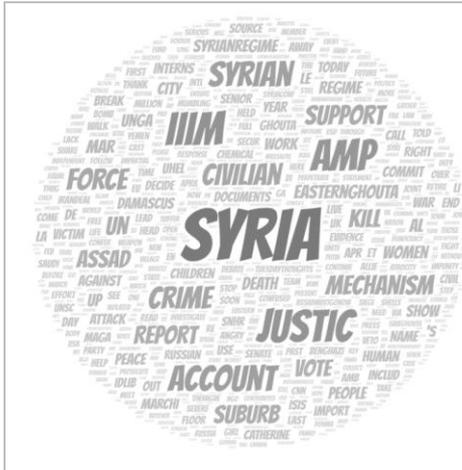


Figure 6a

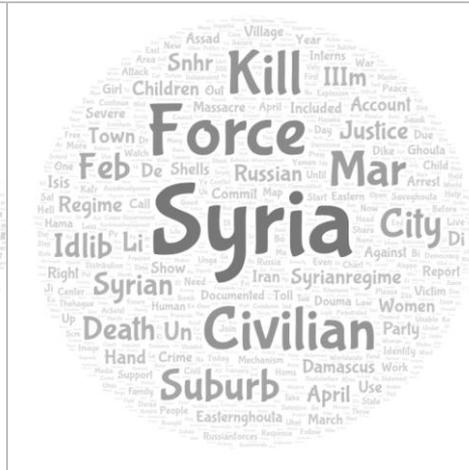


Figure 6b



Figure 6c

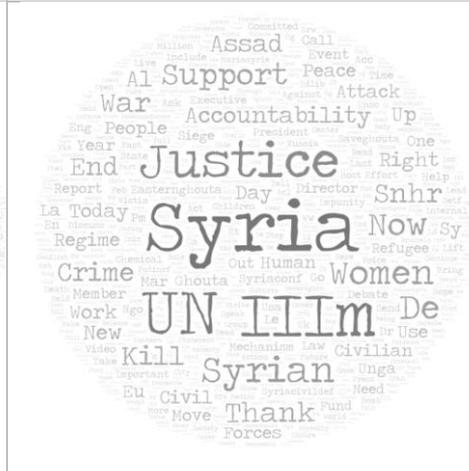


Figure 6d

Table 2: User's Language Distribution

User Language	Number of Texts
English	5264
French	206
Arabic	94
German	91
Ukrainian	70
Spanish	58
Russian	47
Danish	33
Dutch	31
Italian	29
Finnish	14
Japanese	12
Turkish	7
Norwegian	6
Portuguese	5
Persian	4
Korean	4
Swedish	4
Greek	3
Romanian	2
Chinese	2
Czech	1
Hebrew	1
Hungarian	1
Polish	1
Slovak	1

Analyzing a Twitter account's metadata is another important analytical step as it can reveal interesting findings. From this analysis, we found that the majority of the Twitter accounts tweeted in English. French is the second most common language, followed by Arabic (see Table 2 for a rank of user languages). By analyzing Twitter accounts' friends and followers, we found that the distributions of both the accounts' friends and

followers (see Figure 7 and 8) are long-tailed distributions, i.e., a large number of Twitter accounts have friends/followers far from the "head" or central part of the distribution. This indicates that, on average, the majority of the Twitter accounts have more followers than friends, i.e., more people follow them than they follow others, hence these accounts act more like information sources. Only one user (i.e., @bigsalolio) out of 1,450 users shared his location, which is located in Bosnia and Herzegovina. The lack of location sharing in our data is normal as less than 3% of Twitter users share their location (Dredze et al. 2013).

Figure 7: Users' Friends Distribution

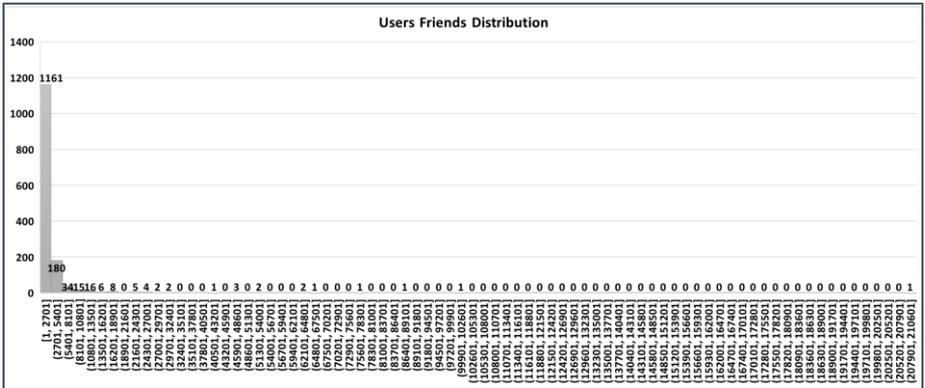
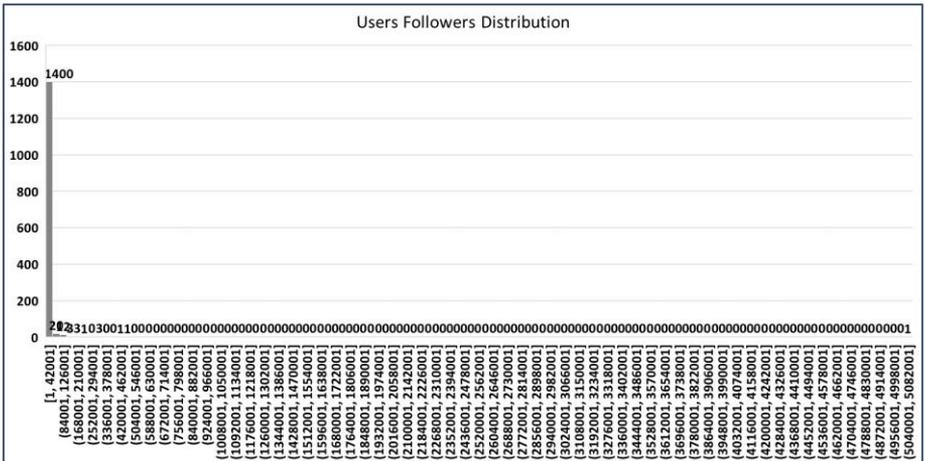


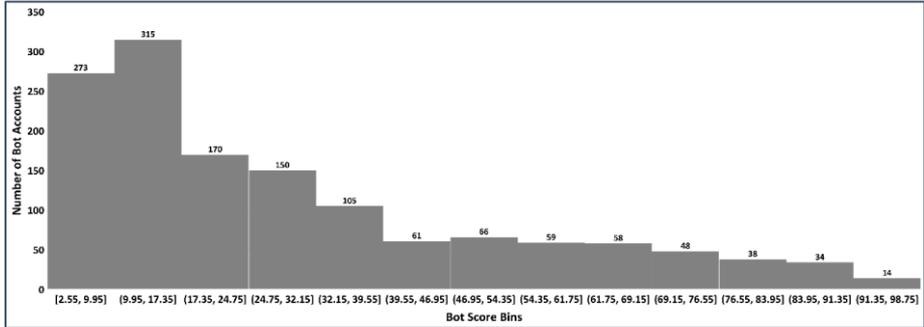
Figure 8: Users' Followers Distribution



Overall, several interesting points emerge from examining Twitter. First, discussions were highly fragmented. Some Syrian diaspora actors were

better connected to foreign governments and non-Syrian activists, but many users were relatively isolated. Second, relatedly, we see little evidence of pro-regime sentiment in these networks. Furthermore, we find little evidence of the use of computer programmed accounts, known as social bots, which automate the actions of tweeting, retweeting, and mentioning on users'

Figure 9: Bots Scores Distribution



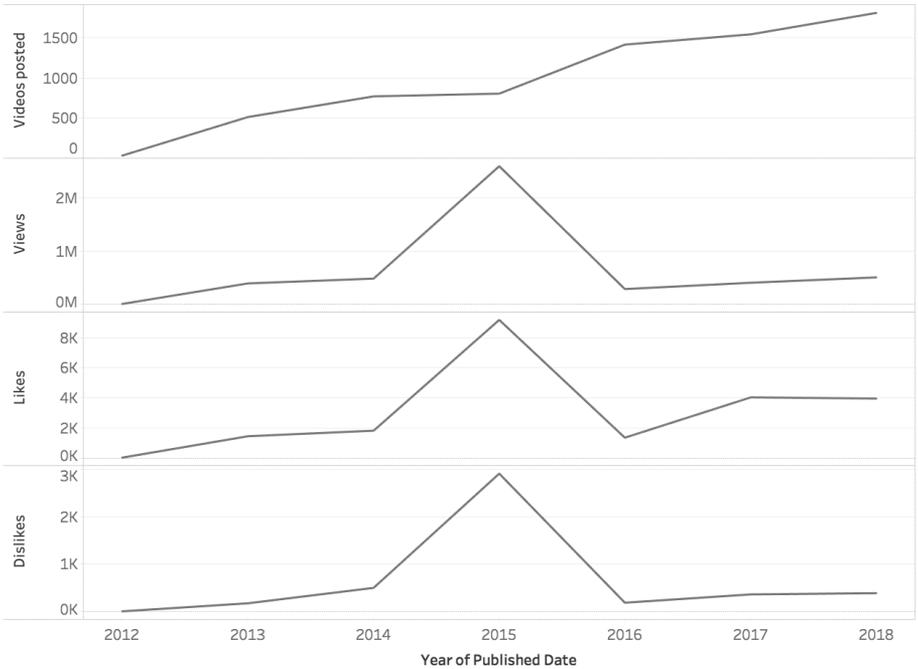
Note: Figure 8 shows the number of bot accounts in each bin of the bot scores. Bot scores are calculated by multiplying the probability of an account being a bot by 100, so we get scores between 0 - 100 instead of 0 - 1. For example, there are 315 Twitter accounts that have bot scores that range from 9.95 - 17.35.

behalf.¹¹ Overall, this analysis reveals that there was an insignificant presence of social bots in the conversations on violations and justice in Syria, thereby eliminating the concern of such biases (see Figure 9). Third, in the period in which we examine, there is virtually no discussion of justice. While there is some attention to IIM, there seems to be little optimism that TJ opportunities will emerge.

Data analysis and findings - YouTube

YouTube is another prominent platform used by individuals and organizations to talk about atrocities occurring in Syria and to reflect upon justice needs. Therefore, we next examine the platform, the content available, and how users engage with it. To study activity and content engagement trends from 2012 to 2018, we utilize a variety of data visualization tools.

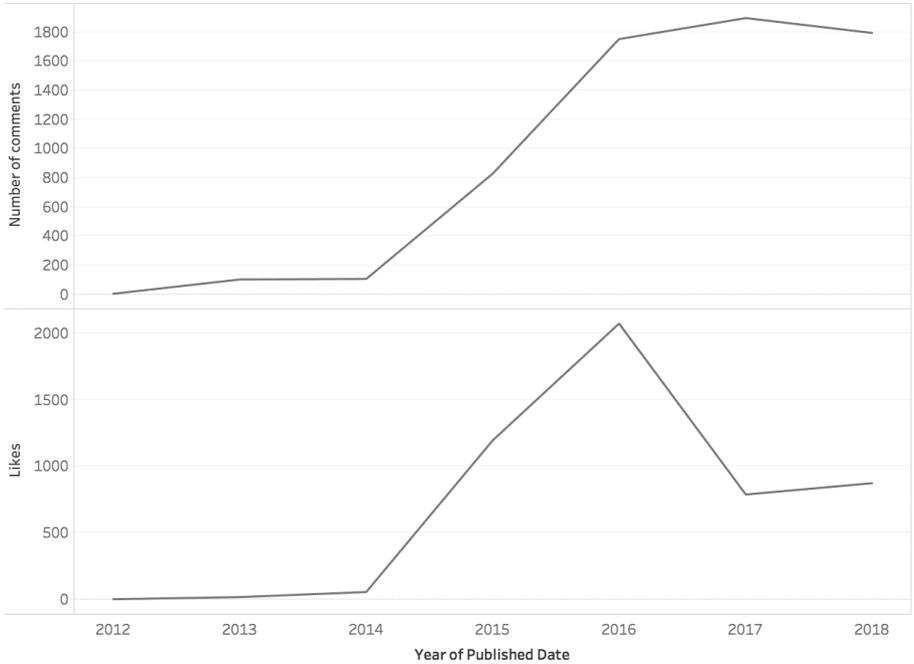
¹¹ We use Botometer API, available at <https://market.mashape.com/OSoMe/botometer>, to assess the likelihood that a Twitter account is a bot (Davis et al. 2016; Subrahmanian et al. 2016).

Figure 10: Video Metadata Analysis

Comments trends for these videos indicate higher user engagement with videos posted between 2014 and 2016 (see Figures 10 & 11). This coincides with the height of influence of Islamic State in Syria and the subsequent migration crisis in Europe.¹² Although more videos were posted after 2016, comment trends indicate that they failed to gain as much traction as videos posted between 2014 and 2016. Viewership data also indicates less interest in more recent events. Nonetheless, users remain engaged with content published between 2014 and 2016, continuing to comment on videos posted during this period at higher rates compared to more recent videos. We next explore this high activity period in greater depth.

¹² Although the Syrian civil war was a major cause of Europe's migration crisis, it was not the only one as migrants came from a variety of African and Asian countries.

Figure 11: Video Comments Trend Analysis



To study atrocity and justice content during the high activity period (2014 to 2016), we analyzed the titles of the videos posted during this period. We generated a word cloud for each month using videos’ titles. This resulted in 36 word clouds.¹³ Due to space limitation, for representational purposes, we present a word cloud of video titles for June 2014 in Figure 12.

¹³ A total of 72 word clouds can be made available in an online appendix, 36 for video titles and 36 for comments (one for each month from January 2014 to December 2016).

To study user engagement and responses to the videos, we analyzed comment text and generated similar word clouds. Word clouds for January 2014 to April 2014 contained words related to “Iraq”, but word clouds for May 2014 featured words like “war”, “America”, “army”, “military” along with “Iraq”. Word clouds for June 2014 to December 2014 had words invoking religion such as “God”, “lord”, “Arab”, “Jews”, “Christian”, and “Islam”. Despite the fact that the channels were seeking to emphasize the violence and humanitarian disaster rather than the religious dimensions of the conflict (recall the word clouds for titles featured terms like “airstrikes”, “refugees”, and “destruction”), viewers were drawn to the religious dimension of the conflict. Nonetheless, viewers generally do not appear to have bought into the sectarian narrative of the civil war. Rather, comments posted on videos throughout 2015 contained words related to peace like “peace”, “science”, and “God”. For most of 2016, words like “God”, “Arab”, and “Iraq”, (as well as other places within the Arab region) appeared frequently.

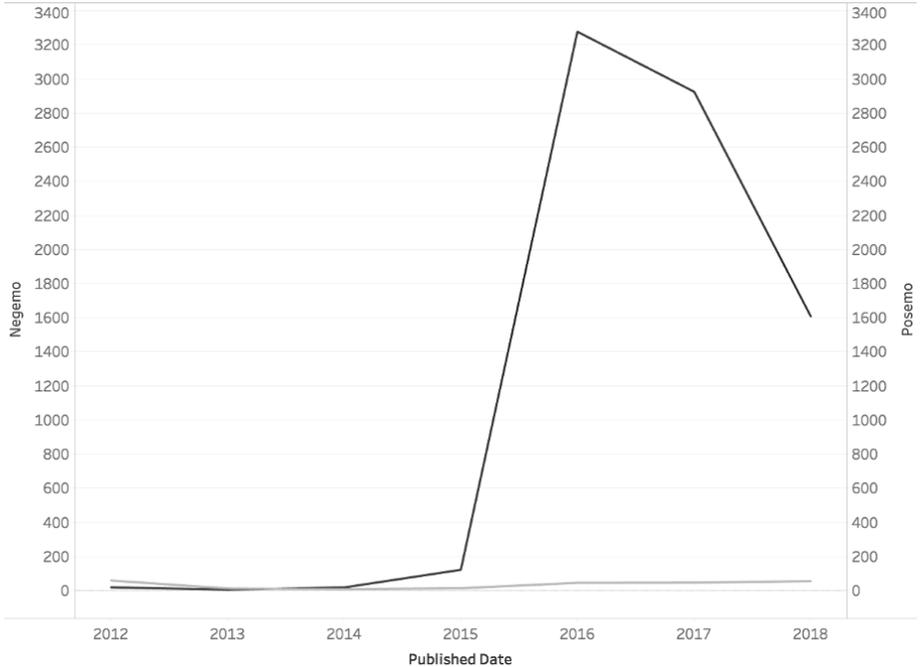
In short, the word cloud analysis highlights a few things. As is evident from the word cloud comparison, the interest in the YouTube community of activists and human rights organizations interested in Syria has changed over time. The evolution of issues of concern often closely reflect events on the ground. Moreover, although video titles were related to destruction and crisis in the region, most of the comments were about peace and religion. This contrast suggests differing attitudes toward the war between channel owners and viewers.

We explore this further using sentiment analysis. We used LIWC to calculate the sentiments expressed in the description and comments for each video. LIWC uses a dictionary-based approach in which each word in the English dictionary is classified as having a positive or negative connotation (Tausczik and Pennebaker 2010). For any given text, LIWC counts the number of positive words (positive sentiment) and the number of negative words (negative sentiment). Some words have higher polarity (higher positivity or negativity). Overall, sentiment analysis reinforces the hypotheses derived from the word clouds. Particularly from 2015 onward, the sentiment expressed by channels in their description of the videos is predominantly negative (see Figure 13). By contrast, as illustrated by Figure 14, viewer comments were more positive in tone.

YouTube data suggest several things about sentiment toward atrocities in Syria. First, interest among the YouTube activist community and

human rights organizations reflects real-world events quite closely. Second, although the sentiments reflected in the videos were extremely negative (including sadness, anger, anxiety, etc.), the sentiments reflected in subsequent discussions were more positive, sympathetic, consoling,

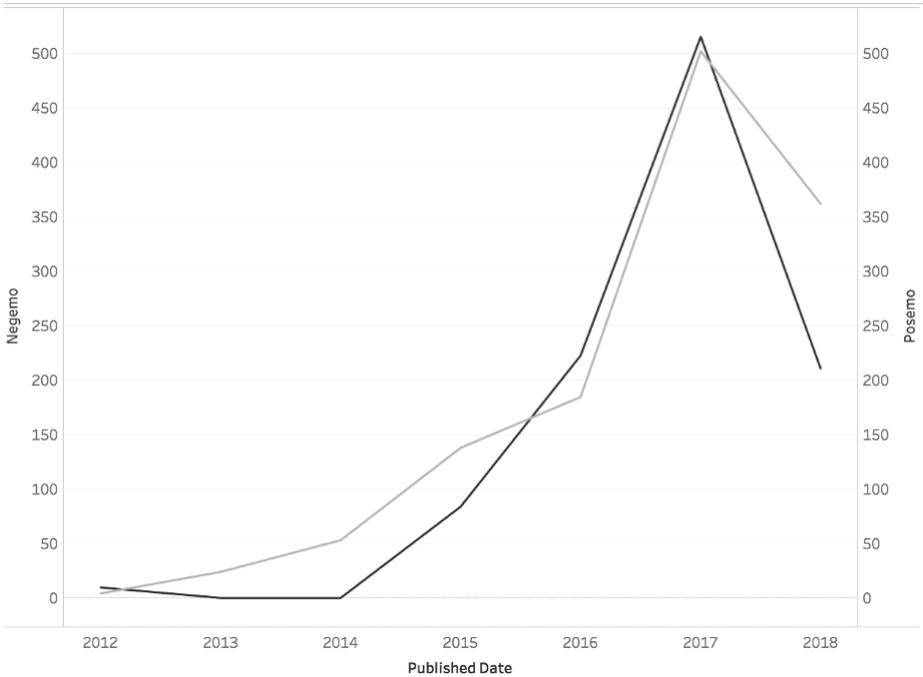
Figure 13: Sentiment Analysis of Video Descriptions



Note: Gray indicates positive sentiment, black negative.

supportive, and encouraging belief in peace and religion. Such discourse reflects a strong community support among the members. This contrasts with a third observation, namely that the relative lack of interest in more recent videos may indicate a growing despair that justice can be achieved for civil war crimes. Fourth, the fact that videos posted since 2016, which continue to seek to draw attention to gross human rights violations and the ongoing humanitarian crisis, have attracted fewer views suggests atrocity fatigue is setting in. At the same time, viewers continue to be drawn to videos from 2014 to 2016. This indicates a fifth finding, namely that users may be more concerned about the effects of the civil war on Europe or the sectarian conflict that Islamic State represents than in the atrocities happening within Syria itself.

Figure 14: Sentiment Analysis of Comments



Note: Gray indicates positive sentiment, black negative.

Data analysis and findings – Blogs

Both Twitter and YouTube data analysis demonstrate the strong presence of global voices in Syrian justice discourse. Blogs represent yet another important platform on which Syrians and non-Syrians alike have drawn attention to human rights violations in Syria and reflected upon what justice should look like. Having used seed knowledge and extracted URLs from Twitter and other platforms to identify key voices in the blogosphere, we proceeded to analyze their content.

We first examined the metadata. Metadata is the structured or administrative information included as part of a digital file. It is used for cataloging and preserving information. This allows users to efficiently retrieve information and gives us the platform to analyze the information collected. Thus, for a blog, metadata includes the author’s name, blog title,

content, post date, and comments. During the metadata extraction process, we also extracted 1,800 links (1,408 unique links) with an average of more than 3 links per blog post. Links in this context refer to URLs embedded in a blog post, such as hyperlinks to other websites or domains.

Table 3: Top Blog Domains

Domain	Frequency
syrianfreepress.files.wordpress.com	640
qunfuz.files.wordpress.com	209
qunfuz.com	41
cdn.almasdarnews.com	32
21stcenturywire.com	31
www.almasdarnews.com	31
www.guardian.co.uk	27
ccnr.ceu.edu	24
news.bbc.co.uk	16
www.thealeppoproject.com	16
2.bp.blogspot.com	15
theduran.com	14
southfront.org	12
www.facebook.com	11
muraselon.com	10
syrianfreepress.wordpress.com	10
www.awdnews.com	10
www.globalresearch.ca	10

The links reveal several interesting things. First, the volume of links indicates bloggers felt the credibility of their narrative is strengthened by bolstering the empirical and emotional appeal of their posts with other content. Second, the extracted links were from 181 different domains, indicating that bloggers were drawing upon a range of sources. Third, the nature of the domains that were linked most frequently is interesting. Table 3 lists the top domains obtained from the blog posts. We see that most of the blog posts were pointing to other blog sites, whereas comparatively few point to mainstream media sites or popular social media sites like Facebook. This indicates that bloggers seem to prefer everyday experiences over elite perspectives.

Table 4 provides a location distribution of these blog posts. The US is far and away the most prominent location for blogging. At first blush, this is surprising. According to the Pew Research Center, only about 33,000 Syrians have received asylum in the US since the start of the war (Connor 2018). In fact, the UN High Commissioner for Refugees estimates that fewer than 1.5 million of the 13 million Syrians displaced since 2011 have left the Middle East.¹⁴ However, the economic and legal precariousness of most of these refugees makes it unlikely that many were active bloggers. Why then does the United States have the highest number of influential individuals blogging on the Syrian state of affairs even though they host so few refugees? Part of the answer is that the Syrian civil war has mobilized a relatively large, but heretofore apolitical Syrian-American population. According to 2016 US Census Bureau's 2011-2015 American Community Survey, there were approximately 164,000 Syrian-Americans living in the

Table 4: Number of Blog Posts by Location

Location	Blog Posts
United States	5,997
Netherlands	423
Bulgaria	254
Canada	9

¹⁴ <https://www.unhcr.org/en-us/syria-emergency.html>.

US. Many non-Syrian activists also were based in the US. In Europe, Germany had one of the largest Syrian immigrant populations before the civil war, but only estimated to be about 30,000 in number (Ragab and Katbeh 2017). This finding reinforces the analysis obtained from Twitter data, i.e., there is a great deal of interaction among Syrian and non-Syrian voices. Furthermore, the large numbers of North American and European bloggers indicate that people were more likely to disclose their location if they were living in North America and Europe where they may feel safer.

Table 5 provides the language distribution for the blog posts collected. We find that English was used almost exclusively. In fact, most blogs were written in English, even though many bloggers' first language is not English. This is evident from the grammatical errors found in the blogs and in their structure. Many of the blog posts were short descriptions and used a lot of photographs and videos in lieu of text. Almost all the photographs contained graphic depictions of violence and its aftermath. The blogs that were richer in content were bloggers who lived in a foreign country or who were part of an organized activist group. Overall, the use of English provides a better medium in which to connect to a broader international audience. Blogs do not appear to be a means through which Syrian and non-Syrian activists were communicating with average Syrians about violence and justice issues.

Table 5: Frequency of Language Use in the Blog Posts

Language	Blog Posts
English	6683
Hungarian	1
Swedish	1
Turkish	1

The data suggest several interesting things about blogging behavior with respect to the Syrian civil war. Figure 15 reveals posting trends over time. Blogging was not a prominent way of discussing the situation prior to 2013. Then, we see a dramatic increase in blog activity from 2013 until 2016, which, like the spike in YouTube interest, coincides with the intensification

of the civil war and the ensuing migration crisis. Yet, since 2016, there has been a significant decline in blogging activity about Syria. One reason may be disinterest or despair. However, the volume of YouTube video posting does not follow the same pattern. In fact, video posting on YouTube has risen constantly each year. What this may indicate is a paradigm shift in social media in which people are moving away from blogging to vlogging to attract a larger audience.

Figure 15: Trends in Blog Post Volume

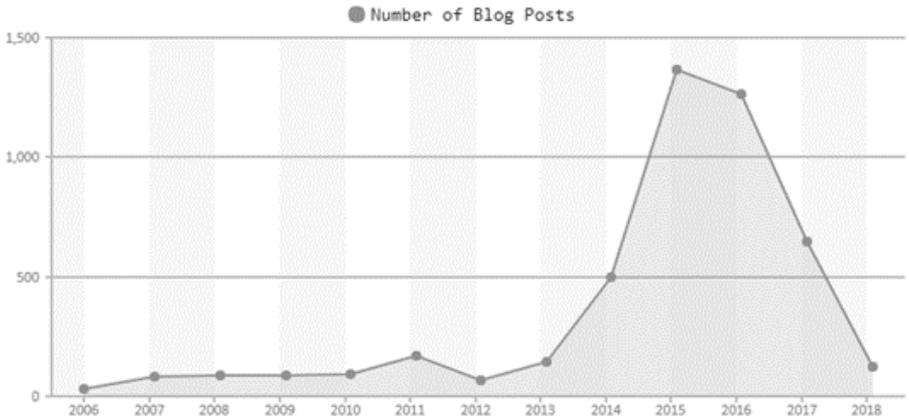


Figure 16 provides a word cloud from all the trending posts from the blogs from 2013 to 2016. What it reveals is that bloggers were overwhelmingly concerned about the violence itself; terms more directly

Next, we identified influential bloggers that resonated with the community. Influence scores were calculated using the number of inlinks (links that point to a blog post), number of outlinks (external links mentioned in the blog post), and number of comments (Agarwal et al. 2008). The higher the influence score, the more influential the blogger is considered to be. Table 6 shows the top five influential bloggers in our study. Most of the bloggers were seeking monetary donations for humanitarian relief in Syria.

Figure 18: Words Emphasized by 'Friends of Syria'



Other posts narrate a variety of more specific plights, such the conditions of Syrian refugees or the situation in a particular region of the country. Some of the topics that frequently were discussed include Syrian Kurds, US President Trump, Syrian refugees, ISIS, and foreign military interference. Overall, most blog posts were not providing sophisticated arguments about Syria's justice needs. Rather, most posts consist of brief narratives written in English accompanied by lots of photographs.

Table 6: Most Influential Bloggers on the Syrian Civil War

Blogger	Blog	Influence Score
therevoltingsyrian	therevoltingsyrian.com	582.6
Aymenn Al-Tamimi	www.joshualandis.com	171
Matthew Barber	www.joshualandis.com	151.8
Aron Lund	www.joshualandis.com	146.4
Joshua	www.joshualandis.com	135.9

Conclusion

Social media is an underutilized tool to gauge justice preferences, assess ongoing processes, and document lingering demands. Our findings reveal several important things about justice discourse about Syria on social media. First, the discussion about atrocities in Syria is a global one. Second, at the same, social media discussions were highly fragmented. There were many, disconnected efforts to mobilize people rather than broad conversation among many users. Third, it is unclear how influential Syrians actually were in discussions about their home country. Most social media discussion is based outside of the country and conducted in English. While it is often impossible to know the nationality of users, language and location data suggest these discussions were overwhelmingly rooted in the Global North. The voices of Syrian refugees and internally displaced persons were largely absent. As such, online social networks have reproduced the same North-South inequalities observed in other contexts. Finally, we see more focus on building peace and security rather than justice. This prioritization is consistent with research in other contexts where mass violence is ongoing (Vinck and Pham 2008). Sentiment is generally not specifically pro- or anti-regime. Rather, the focus is on documenting atrocities on all sides and trying to build/maintain pressure to act, with the hope that future opportunities for justice will arise. More troubling, rather than focusing on the human suffering and justice needs of Syrians, much of the discussion focused on the civil war's effects on the Global North rather than on Syria itself.

Social media analysis has the potential to shed light on important TJ issues. To cite contemporary examples, SMA could be used to explore how Colombians think decades of civil war should be addressed, the degree to

which Tunisians are satisfied with the measures taken to address Ben Ali-era abuses, and what should be done about Confederate monuments in the United States. Thus, these methods have much to contribute. Nonetheless, several limitations should be kept in mind. Here, we highlight the issues of data access, quality, and representativeness.

SMA is attractive in part because its flexibility lends itself to rapid reaction to real-world events. Tools such as those used in this article can quickly collect data from a variety of platforms. However, two issues potentially limit access to the data. First, it can be expensive to conduct historical research on some platforms. For example, one can freely collect Twitter data on an ongoing basis. However, data older than a few months must be purchased from Twitter or third-party services. Thus, unless researchers time their studies well or have expansive resources and/or data collection capabilities, longitudinal research can be difficult. Second, evolving public debates about internet privacy can result in a change or loss of access to data without notice, as we experienced with Facebook.

Another issue relates to the quality of the data. For privacy or security reasons, users may misrepresent or withhold data about themselves, which limits the insights that can be gained. As such, it may be difficult to determine whose sentiment is actually being assessed. Research ethics is another area where researchers need to be careful while handling social media data. Although much of social media research is strictly observational and relies upon publicly available information, researchers need to be careful while discussing research findings. Revealing any personally identifiable information of activists (or individuals supporting a cause) may threaten their physical security.

Translation poses another challenge. Social media data is appealing because it potentially represents sentiment from multiple ethnic groups or even globally. However, the data is only as good as the translation tool. The volume of social media data prohibits employing human translators in most instances. Yet, online translation tools, while improving, are far from perfect. Many other data quality challenges are platform-specific.

Finally, as previously noted, the sentiment reflected in social media data may not be representative of society as a whole. Users, particularly those who are prominent content producers, are likely to be more passionate about an issue than the average person. They may be better informed about and/or have a greater stake in the issue. They also are likely to be from a

higher socioeconomic status and be more globally aware than others in society. As such, we should be cautious about drawing overly broad conclusions about what communities want and need based upon social media analysis.

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