

Online Appendix

In this appendix, we provide a more detailed view of our data and analyses.

Our methodological approach is both mixed and iterative, meaning that we apply both qualitative and quantitative lenses and move back and forth across different analyses—of different types and at different scales—as we develop an understanding of the phenomena of interest. This means, for example, that we were not able to fully interpret the graph presented in Appendix B until we completed the content and influential account analyses in Appendix D and G—even though that graph shaped those analyses. Below, we have attempted to describe these analyses in a way that is easiest for readers to understand, but this ordering does not reflect a linear progression across these analyses.

Note on data anonymization and data presentation

To preserve the privacy of Twitter account owners, in this paper and appendix we have anonymized the account names of individuals and groups who would have a reasonable expectation of privacy for their social media communications (even on a public platform). However, we preserve account names for the following account types:

- Media outlets and journalists
- Elected officials
- Verified accounts
- Highly visible accounts (>100,000 followers)

In the textual examples within this appendix, we alter the text and meta data of anonymized tweets to make it more difficult to search for the original tweet. For anonymized accounts that are within one of our clusters, we delineate that cluster in the anonymized account handle (or “user screen name”): @anonymizedRed and @anonymizedBlue.

All timestamps are in UTC for consistency.

Appendix A: Twitter Dataset Overview

This research is centered around a Twitter dataset of English-language tweets referencing the “white helmets” or “whitehelmets”, collected in real-time using the Twitter streaming API between May 27, 2017 and June 15, 2018. The collection was case insensitive. Due to affordances of the Twitter API, it includes tweets and retweets where “white helmets” or “whitehelmets” appears in the ‘text’ of the tweet or in the case of ‘quote’ tweets (retweets with comment), within the ‘text’ of the embedded quote tweet.

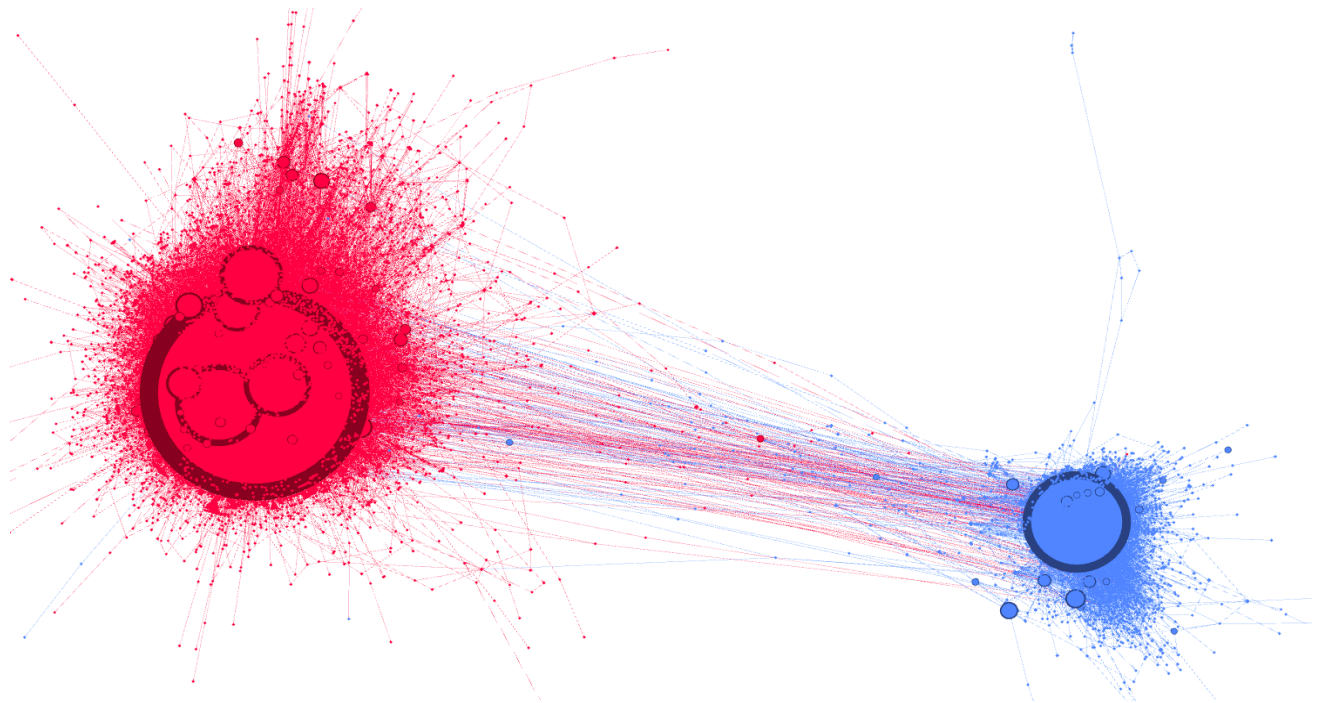
The White Helmets Twitter dataset contains 913,028 tweets from 218,302 distinct Twitter accounts. 77.6% of tweets (708,334) in the dataset are retweets, and 33.2% (303,104) of all tweets contain a URL linking to a web domain outside of Twitter.

These data—and therefore the subsequent analyses—are limited to English-language tweets. This limitation is in part due to language constraints our research team. However, it also encapsulates a specific and strategic element the White Helmets discourse. Though most members of the White Helmets do not speak English as a first language, the group has made significant and sustained efforts to communicate in

English to western and global audiences. For example, they run a Twitter account dedicated to English-language content and they have taken photographs of themselves holding signs with English-language statements. In 2016, they were featured in an English-language documentary. Similarly, a significant portion of the anti-White Helmets campaign has occurred within English-language discourse, attempting to counter the White Helmets' communications by targeting the same or similar audiences. This research therefore focuses on the aspects of the White Helmets discourse that were designed for—and taken up by—English-speaking audiences.

Appendix B: Network Graph

To understand the structure of the White Helmets discourse, we built a retweet network graph (Figure 1). In this graph, 'nodes' or circles represent accounts. Nodes are sized relative to the number of retweets that account received within the *White Helmets Twitter dataset*, providing some indication of influential accounts in this conversation. (The largest nodes line up with the most influential accounts in Tables 3 & 4, Appendix G). Nodes are connected to other accounts via edges (lines) when one account retweets another. The edges become thicker relative to the number of times one account retweeted another. We then applied the Louvain algorithm (Blondel, 2008) to detect clusters of accounts that retweet one another. This process revealed two main clusters (Red and Blue, Figure 1). Of the 218,302 distinct Twitter accounts, 168,110 (77%) were classified as either Red or Blue. The remaining accounts were either not present in the retweet network graph (32,638 accounts did not send or receive a retweet of another account in the graph) or were not within the two core components (17,554 accounts retweeted others in the graph, but formed their own, smaller clusters distinct from Red and Blue).



*Figure 1: Retweet network graph for White Helmets Twitter dataset
Trimmed to accounts from Red and Blue clusters*

Figure 1 is an image of this network graph, trimmed to nodes that were classified as either Red or Blue and where degree > 1 (e.g. the sum of retweets that they made to or received from another node in the graph is two or more).

In this paper, we focus exclusively on accounts and activities within the Red and Blue clusters. In the appendices below, we provide a series of analyses revealing salient features of the two clusters. In particular, Appendix D provides important context for the remainder of the analyses as we present qualitative analysis characterizing the Blue cluster as pro-White Helmets and the Red cluster as anti-White Helmets.

Appendix C: Temporal Signature by Cluster

Figure 2 contains the temporal signatures (the volume of tweets per day) for the Blue and Red clusters, respectively. The graphs reveal a period of data loss in February 2018—due to an issue with our collection infrastructure. They also show an increase in overall volume (across both clusters) around that time and then again in April 2018. The first rise coincides to an escalation of violence as Syrian regime forces made advances in the rebel-held region of Ghouta. The second rise begins on 7 April 2018 with initial reports of a chemical gas attack in Douma, a major city in the Ghouta region, and continues into May and—for the Red cluster—through the end of our collection period.

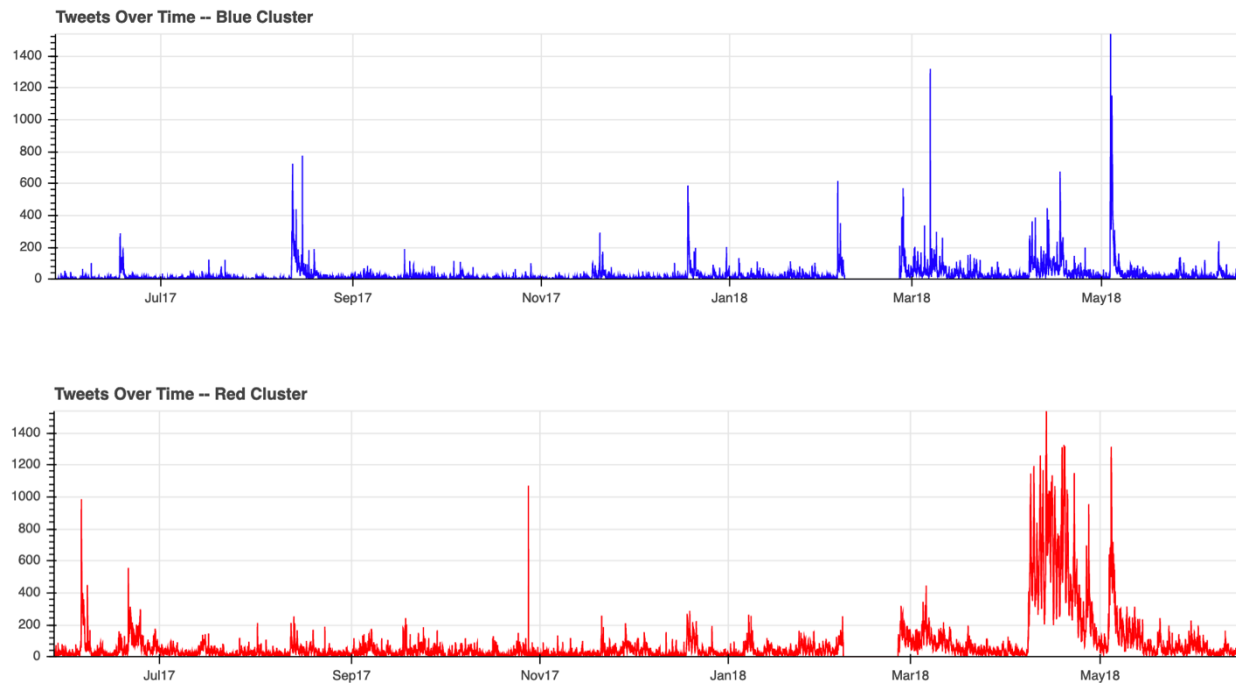


Figure 2: Temporal signatures (tweets volume per day) for Blue and Red cluster

Comparing these graphs reveals the Blue cluster to consist of relatively low volume tweeting with occasional spikes, while the Red cluster’s activities are more persistent over time.

This, combined with other analyses presented below (especially Appendix D, G, & I), suggests that the bulk of activity in the Blue Cluster is the result of sporadic attention from a more “mainstream” audience

reacting to content shared by news media and social media influencers with large follower counts. Meanwhile, the activity in the Red is largely due to sustained and persistent activities of a group of activists, journalists, and ‘alternative’ or ‘independent’ media outlets whose influencers have relatively smaller follower counts (than mainstream media) but are more dedicated to tweeting about the White Helmets.

Focusing on the window of activity in April 2018 that began in the wake of the chemical attack in Douma, we can see the first tweets from our data that reference the attack appear in the Blue cluster, as members of the White Helmets were among the first to report the attack. But the Red cluster activates shortly afterwards (about four hours later), both to directly challenge the reports of a chemical attack and to share other types of content disparaging the White Helmets—both to undermine the legitimacy of their reporting and possibly also to distract from the news of the chemical weapons attack. This content in the Red cluster soon surpasses the content in the Blue and persists for weeks. 41% of all tweets posted by the Red cluster in the *White Helmets Twitter dataset* occurred in April 2018. Only 18% of the tweets from Blue cluster were posted during that time. Eventually content from the Red cluster would converge on a set of narratives that disputes the nature and cause of the attack in Douma—claims that remain actively propagated (in December 2019).

Another interesting feature in the temporal signature of the Red cluster is a large, narrow spike in late October 2017 that appears to be inorganic (due to how it rises so quickly and does not demonstrate the typical pattern of exponential decay). Looking more closely, we find that during a four-hour period on 28 October, 994 distinct accounts posted 1070 tweets. Almost all were retweets of just two tweets, part of a ‘thread’ (of a tweet and its replies) challenging the legitimacy of a recently published report that had concluded that the Assad regime was responsible for a chemical weapons attack in Khan Sheikhoun in April 2017. More than 50% of the accounts participating in this spike have now been suspended by Twitter—a much higher rate than average (see Appendix F). Considering the inorganic temporal signature and the mass suspensions of participating accounts, it is likely that this spike is the result of coordinated, and likely automated, activity.

Appendix D: Content and Narrative Analysis by Cluster

We conducted qualitative content analysis to surface the salient narratives and determine the underlying stance of each cluster. This analysis included reading and manually analyzing hundreds of tweets—and dozens of articles linked-to from those tweets—posted by accounts in the two clusters. We identified exemplar tweets, organized those into groups representing salient narratives, and wrote memos describing those narratives.

This analysis revealed the content from Blue cluster to be almost exclusively supportive of the White Helmets, and the content from the Red cluster to be almost exclusively negative towards the White Helmets. Below, we provide a sample of content from each cluster to demonstrate these distinctions and to surface some of the most salient narratives. To capture the discourse from different perspectives, for each cluster we present three samples: (1) five random tweets from the most retweeted account in the cluster: @SyriaCivilDef (the official account of the White Helmets) from the Blue and @VanessaBeeley (an active and influential journalist) from the Red; (2) a random sample of ten tweets selected from all tweets in the cluster; and (3) the five most retweeted tweets in the cluster. For each example tweet we

include the number of followers of the authoring account and denote whether the account is active or suspended (as of December 2019). These samples are presented here to illustrate the types of tweets that we included in our content analysis, but they do not represent the entirety of that analysis (only a sample).

Tweets from the Blue Cluster

In this section we present three samples of tweets from the Blue cluster with summary analysis accompanying each sample. Across the samples, we find that content from the Blue cluster is consistently supportive of the White Helmets.

Tweets from the @SyriaCivilDef (the White Helmets)

@SyriaCivilDef is the official, English-language account of the White Helmets. They are the most retweeted account and among the most active accounts (in terms of “white helmets” tweeting) in the Blue cluster (see Appendix G). 14.3% of the total tweet volume in the Blue cluster are tweets and retweets of this account. They posted 444 “white helmets” total tweets during our collection period. 42.8% of those were original tweets (non-retweets). Below are five original tweets selected randomly from that set:

@SyriaCivilDef | Active | 106452 followers | 2017-12-30

5 civilian martyrs so far and many injuries since morning, the eastern neighborhoods of #Ghouta are subjected to air raids & heavy artillery shelling by the regime forces.

#WhiteHelmets #CivilDefense <embedded video of fire across a horizon in the aftermath of bombing>

[Retweeted 73 times]

@SyriaCivilDef | Active | 107084 followers | 2018-01-23

2 civilians were killed after artillery shelling targeted #Jisr_alsoughor city in #Idlib countryside, #Civil_Defense teams continue the rescue operation. #White_Helmets #With_Idlib 23.Jan <embedded images of White Helmets volunteers recovering the bodies of victims>

[Retweeted 45 times]

@SyriaCivilDef | Active | 117880 followers | 2018-03-06

White Helmets chief warns Eastern Ghouta worse than Aleppo <link to article in thenational.ae titles “White Helmets chief warns Eastern Ghouta worse than Aleppo”> via @anonymized @TheNationalUAE

[Retweeted 123 times]

@SyriaCivilDef | Active | 119451 followers | 2018-03-14

Having worked for 18 hours sifting through the massive destruction left by intensive Russian air raids on #Idlib city Tuesday, #WhiteHelmets teams ended their rescue operation. The confirmed civilian toll was 3 rescued alive and 9 dead. <embedded video of White Helmets volunteers working to provide rescue and medical aid in the aftermath of air raids>

[Retweeted 211 times]

@SyriaCivilDef | Active | 126532 followers | 2018-05-25

White Helmets firefighter teams managed to extinguish massive fires, that broke out after surface to surface missile carrying cluster bombs hit civilians farms south of town of #KhanShaykhun in #Idlib countryside, and were controlled without casualties. <image of a bloodied victim>

[Retweeted 121 times]

These example tweets demonstrate how the White Helmets used their English-language Twitter account to promote the humanitarian work that their organization was doing (firefighting, rescue, victim recovery) and to document civilian casualties of the civil war in Syria—including specifically calling out the impacts of the Syrian regime’s shelling and Russian air raids. Many of the @SyriaCivilDef’s tweets include embedded images and videos aligned with the textual content in the tweet. In particular, 17.3% of original tweets sent by the @SyriaCivilDef contained an embedded video using Twitter’s native embedding feature. Only 1.6% of their original tweets contained a URL link to a video on YouTube.

Random tweets from the Blue Cluster

Below are ten original tweets (non-retweets) randomly selected from the Blue Cluster. They demonstrate consistent support for the White Helmets across other accounts in that cluster.

@anonymizedBlue | Active | ~200 followers | November 2017

7th Nov: Upcoming Screening of the documentary “The White Helmets”, with Q&A <link to a webpage with information about the event> #ESRCFestival @anonymizedBlue @anonymizedBlue

[0 retweets]

@anonymizedBlue | Active | ~500 followers | December 2017

"The way the Russian propaganda machine has targeted the #WhiteHelmets ... case study in the prevailing information wars. It exposes just how rumours, conspiracy theories and half-truths bubble to the top of YouTube, Google and Twitter search al's" <embedded link to article in the Guardian titled: “How Syria’s White Helmets became victims of an online propaganda machine.”> #Syria

[0 retweets]

@anonymizedBlue | Active | ~2000 followers | December 2017

How Syria's White Helmets became victims of an online propaganda machine <link to article in the Guardian titled: “How Syria’s White Helmets became victims of an online propaganda machine.”> @anonymized @anonymized @anonymized @cbc

[2 retweets]

@anonymizedBlue | Suspended | ~6000 followers | January 2017

The White Helmets

Several casualties among civilians across besieged #EasternGhouta, victims of aerial and ground bombardment campaign against the families. #CivilDefense teams are responding rapidly to distress calls and urgently assisting the wounded <embedded content whose nature is unclear due to suspended status>

[1 retweet]

mentioned tweet: **@anonymizedRed** (January 2018): The same pit from the explosion, only later did they showed the funnel (from the explosion). #WhiteHelmets have done a lot of fake reporting recently. I have very little trust in this report. Lots of propaganda and #FakeNews.

@anonymizedBlue | Active | <100 followers | January 2018

@anonymizedRed @anonymizedBlue @anonymizedBlue Propaganda is the claim that the White Helmets aren't real rescuers and are a "legitimate target". Because they rescue people in rebel-held areas, and because they show

the world these war crimes against civilians, so they are a threat to the regime who claims to only target “terrorists”.

[0 retweets]

mentioned tweet: **@SyriaCivilDef** (2018-02-01): 3 civilians killed and many injured, including suffocation cases among children, women and #CivilDefense volunteers! 28 air raids, 70 surface-to-surface missiles, some loaded w/chlorine gas and 200+ artillery shells targeted cities in #Eastern_Ghouta today! #Doumasuffocating

@anonymizedBlue | Active | ~500 followers | February 2018

@SyriaCivilDef Absolute savagery. My heart goes out to everyone living in such horror. God bless the White Helmets.

[0 retweets]

@anonymizedBlue | Active | ~1000 followers | March 2018

Very serious, can anyone give me a list of Al Qaeda victims in the world by age? I hate them, but don't they deliberately avoid targeting children? Those figures might be a big wake up call #bonkersBeeley

@vanessabeeley #whitehelmets #Syria *<embedded image of a tweet from @VanessaBeeley claiming that content from the White Helmets does not include the context of the role of “Western backed terrorists”>*

[0 retweets]

@anonymizedBlue | Active | ~3000 followers | March 2018

.#Syria: Graduation for #WhiteHelmets trainees in #Idlib. These volunteers will make the world a better place. God bless them. #BraveHearts *<embedded photograph of 5 existing White Helmets volunteers with ~20 new recruits holding certificates>*

[0 retweets]

@anonymizedBlue | Active | <100 followers | March 2018

.@simoncoveney Today another Double-Tap attack on a School in Idlib. They bombed the school, the kids went to shelter, & they bombed the shelter. 16 Kids Dead, Youngest 3. White Helmets identified the plane as Russian Su34. RUSSIA IS MAIN AGGRESSOR IN SYRIA! @anonymized @anonymized

quoted tweet: **@SyriaCivilDef** (2018-03-21) At 10:07 today 21 Mar 18 a Russian Su34 aircraft dropped a bomb on a school in Kafr Batikh (near Saraqueb, Idlib). The children evacuated to a nearby underground shelter which was bombed in a second strike minutes later. 16 children were killed, together with 3 women and 1 man. *<embedded images of child victims>*

[0 retweets]

@anonymizedBlue | Active | ~4000 followers | April 2018

@SyriaCivilDef **@SyriaCivilDefe** **@SFUDialogue** **@anonymizedBlue** **@SFUint** **@UKinCanada** **@anonymizedPeaceTalk** with the White Helmets (**@SyriaCivilDef**).

Darren Schemmer, E.D. of SFU International (**@SFUint**), introduces WH Volunteer <anonymized>.

Simon Fraser University, Centre for Dialogue (**@SFUDialogue**).

| #WHPeaceTalk #vanpoli #cdnpoli #WhiteHelmets #peacetalks2018 #vancouver *<embedded video of a panel conversation>*

[2 retweets]

@anonymizedBlue | Active | <100 followers | April 2018

Everyone needs to know this! There is a GENOCIDE happening! Children are being brutally killed by poisonous gas by PUTIN's best friend, Assad

WARNING: These images are horrifying.

#Syrian_crisis is a GENOCIDE. #Douma #EastGhouta

HELP: Please donate to The White Helmets @SyriaCivilDef

quoted tweet: **@SyriaCivilDef** (2018-04-07): Entire families in shelters gassed to death in #Douma #EastGhouta hiding in their cellars, suffocated from the poisonous gas bringing the initial death toll to more than 40. @SyriaCivilDefe is still in the process of rescue and recovery. *<embedded images of victims of the alleged chemical attack in Douma, Syria>*

[3 retweets]

These random tweets from the Blue cluster demonstrate an underlying sentiment of support for the White Helmets. They also reflect some of the salient themes that emerged in that cluster.

Two of the randomly selected tweets are ‘quotes’ of tweets posted by the White Helmets official account (@SyriaCivilDef). These quote tweets function to pass along the White Helmet’s content, often with a comment of affirmation or support. One quote tweet was directed (via an @mention) to the Deputy Prime Minister of Ireland. Another included a call for donations.

Another tweet in the sample is a supportive reply to a White Helmets’ tweet featuring images of impacts from air raids and artillery attacks from regime forces on Syrian civilians. There is also a reply challenging a tweet (from the red cluster) that claimed the White Helmets propagate “fake news” and propaganda.

Three of the randomly selected tweets explicitly reference the campaign against the White Helmets, calling it “propaganda”. Two of these tweets link to an article titled “How Syria’s White Helmets became victims of an online propaganda machine,” written by Olivia Solon and published in the Guardian on 18 December 2017. That article catalyzed a small burst of activity in the Blue cluster immediately following its publication (see Figure 2, Appendix C) and continued to shape some of the conversation there for weeks afterwards.

This random sample also included advertisements for events featuring content about the White Helmets and a tweet celebrating the graduation of a new cohort of White Helmets volunteers.

Most-retweeted tweets from the Blue cluster

Below are the five most retweeted tweets in the Blue cluster, ordered by the total number of retweets they received in the White Helmets Twitter dataset. We include a short description of each to help contextualize the content and author.

@oliviasolon | Active | 32938 followers | posted: 2018-04-17

1. Cardiologist alleges White Helmets faked photos because EEG pads are misplaced: 12,000 retweets

2. Cardiologist admits he was mistaken & the EEG pads are placed correctly: 22 retweets *<embedded images of two screen-captured tweets, arranged side by side, illustrating the “mistake” and its correction>*

[Retweeted 4652 times]

Olivia Solon is a journalist for the Guardian who wrote an article in December 2017 about how the White Helmets were being targeted by a disinformation campaign. Her most highly retweeted tweet in our data did not feature her article, but came months afterwards, in the aftermath of the Douma chemical attack. It contains an embedded image, a screenshot of popular tweet from the Red cluster, where a cardiologist claimed that a photo of injured children taken by the White Helmets had been staged. The cardiologist explicitly mentioned (within his tweet) influencers in the Red cluster, who then retweeted his tweet, setting off cascades among their audiences. Later, after substantial directed criticism and refutation, the cardiologist corrected his original claim. Solon's tweet notes how the misinformation spread much further than the correction. Her tweet, making an example of this case and implicitly providing evidence to support the argument she made in her article published four months prior, received 4757 retweets.

@krassenstein | Suspended | 419991 followers | posted: 2018-05-04

Trump's State Department just froze funding for the famed "White Helmets," who served as emergency responders in the Syria.

- Bomb the country
- Refuse to allow refugees to enter ours
- Defund the primary group saving lives.

"Evil" is what you call that.

[Retweeted 3789 times]

This tweet criticizes President Trump for freezing funding to the White Helmets. It was posted by a social media influencer who produced content consistently critical of Donald Trump (across a wide range of topics). It is the only tweet that @krassenstein posted about the "White Helmets". This account had 419,991 followers at the time of this tweet, which is likely why this tweet is among the most retweeted tweets in the blue cluster (3789 retweets). Months later, this account was suspended for violating Twitter's terms of service related to manipulating the platform to grow its audience.

@Channel4News | Active | 1569575 followers | 2017-06-17

This is the message of solidarity to Britain's firefighters from Syria's White Helmets. *<embedded video of two White Helmets volunteers, standing in front of a destroyed building, displaying a series of signs sharing an English-language message of solidarity for firefighters responding to the Grenfell Tower fire>*

[Retweeted 2658 times]

@Channel4News is a broadcast media outlet in the United Kingdom. In this tweet, it features a video of members of the White Helmets holding up a series of messages (on white poster board) of solidarity for firefighters in Britain who were responding to the catastrophic Grenfell Tower fire. This is an example of how the White Helmets attempted to—and in this case managed to—garner international attention for their organization and its work. The @Channel4News account has over 1.5 million followers, which is likely why it was so highly retweeted here. In our data, this video (and a Channel4News article featuring it) was heavily criticized by accounts in the Red cluster, who claimed that the White Helmets were more focused on seeking attention than on doing humanitarian work.

@ajplus | Active | 864446 followers | 2018-02-25

The White Helmets were trying to save victims of an airstrike in eastern Ghouta, Syria.

They called for backup ... and then another bomb hit. *<embedded video of a news report from the Al Jazeera Plus outlet, featuring the work of the White Helmets>*

[Retweeted 2560 times]

This tweet, authored by an account associated with the Al Jazeera news network, describes a “double-tap” airstrike—where Syrian and Russian airplanes would bomb a location twice, with the second strike allegedly perpetrated with the specific goal of targeting first responders. It includes an embedded video with a news report on the same topic and was retweeted 2560 times. This tweet again reflects the White Helmets receiving attention in the international news media.

@mitchellreports | Active | 1618778 followers | 2018-02-26

Invaluable reporting on Assad’s use of banned chemicals against civilians (any use is a war crime). Enabled by Russia. Anyone listening in DC?

quoted tweet: @60minutes (2018-02-25): White Helmets had to load victims into a truck and drive them 30 miles to one of the nearest surviving hospitals. Doctors tried everything, but were unable to save many. Dr. Mamoun Morad told us the scene “was like Judgement Day, the Apocalypse.” #60Minutes *<embedded video of news report from the 60 Minutes television program>*

[Retweeted 1508 times]

This tweet, posted by an NBC news anchor, uses the quote tweet functionality to pass along a post and video news report from the 60 Minutes television program documenting how the Assad regime—“enabled by Russia”—has used chemical weapons against civilians in Syria. The large number of retweets (1508) was perhaps due to the relatively large number of followers that this account has.

Reflecting the nature of social media influence, the most retweeted tweets in the blue cluster were originally authored by high-follower accounts of journalists and social media influencers. These examples demonstrate that the White Helmets were at least somewhat successful at garnering attention from international audiences through coverage by “mainstream” news media.

Narratives from the Blue cluster

There are about a dozen narratives that take shape and propagate within tweets in the Blue Cluster of the White Helmets conversation. The examples above surface many of the most salient, including:

- The White Helmets are a humanitarian response organization that provides firefighting, medical aid, rescue, response, and body recovery in rebel-held areas of Syria.
- Military actions taken by the Syrian/Assad regime are injuring and killing Syrian civilians.
- The Syrian/Assad regime and their allies specifically target humanitarian responders.
- The Syrian/Assad regime uses chemical weapons against Syrian civilians.
- Russian forces allied with the Syrian/Assad regime are participating in airstrikes that target civilians and humanitarian responders.

- The White Helmets are the target of a disinformation campaign.

Tweets from the Red Cluster

In this section we present three samples of tweets from the Red cluster with summary analysis accompanying each sample. Across the samples, we find that content from the Red cluster is consistently critical of the White Helmets.

Tweets from influential Red-cluster journalist @VanessaBeeley (Vanessa Beeley)

The most retweeted account in the Red cluster—and in the entire dataset—is @VanessaBeeley, a highly active tweeter and self-described journalist whose tweets and articles are consistently critical of the White Helmets (see Appendix G for more detail about @VanessaBeeley and other influential accounts).

@VanessaBeeley posted 2043 tweets, including 937 original tweets, and was retweeted 63,380 times in the *White Helmets Twitter dataset*. Taken together, her content production (her tweets and retweets of her account) constitutes 10% of all activity in the Red cluster. Below are a sample of five of her original tweets. We include a description of each for context.

@VanessaBeeley | Active | 15941 followers | 2017-06-22

Exactly! Cant keep allegedly sacking people for murder, wont be any left.

quoted tweet: @anonymizedRed (2017-06-22): How can it be a smear campaign when the #WhiteHelmets are constantly apologizing for murdering people? @VanessaBeeley @anonymizedRed <link uncoverable because tweet has been deleted>

[18 retweets]

This tweet (and the one below) are in reference to an incident in June 2017 where a White Helmets volunteer was captured on video participating in executing two soldiers of the Syrian regime. The volunteer was later expelled from the Syria Civil Defence organization for a “gross breach of SCD’s Code of Conduct.” Accounts in the Red cluster (and media aligned with anti-White Helmets sentiments) seized on this incident to paint the organization as aligned with terrorists.

In the above tweet, @VanessaBeeley quotes a tweet from another account in the Red cluster. The original tweet uses the incident as evidence to deny that anti-White Helmets discourse constitutes a “smear campaign”. The original tweeter ‘tags’ (or ‘mentions’) @VanessaBeeley in their tweet, attempting to draw her attention to it through in-platform notifications. @VanessaBeeley does attend to it and retweets/quotes it with a comment of support.

mentioned tweet: @KreaseChan (2017-06-21): The #WhiteHelmets at least have some level of credible accountability..rare in Syria where impunity rules. Another reason Assad targets them <embedded image of a text excerpt from the Syria Civil Defense (SCD: the White Helmets organization) describing the expulsion of a volunteer for a “gross breach of SCD’s Code of Conduct”>

@VanessaBeeley | Active | 15905 followers | 2017-06-21

@KreaseChan So I guess he will next appear as cameraman for the #WhiteHelmets? Hand in Hand with #AlQaeda. <embedded image of a White Helmets volunteer carrying a dead body>

[7 retweets]

This tweet references the same incident as the one above. Here @VanessaBeeley is replying to a tweet from @KreaseChan, an account that belongs to the Campaigns Manager of Amnesty International UK. @KreaseChan has tweeted out an image of the statement by the Syria Civil Defense explaining how they have dismissed the volunteer in question for a “gross breach of SCD’s Code of Conduct” and commended the White Helmets for exhibiting accountability. @VanessaBeeley replies to this tweet with implied incredulity, suggesting that the volunteer will find another role within the organization.

@VanessaBeeley | Active | 20103 followers | 2017-11-19
28/11 3pm speaking at @UNGeneva Press Club screening "They Dont Care About Us" #WhiteHelmets True Agenda. @BorisJohnson @anonymizedRed @anonymizedRed @anonymizedRed @anonymizedRed @anonymizedRed @anonymizedRed @EvaKBartlett @RussianEmbassy @suspended @MatthewRycroft1 <embedded image for an event hosted by the Geneva Press Club featuring Vanessa Beeley and two other speakers>

[101 retweets]

This tweet publicizes an event hosted by the Geneva Press Club where Vanessa Beeley was set to appear on a panel with two other speakers and share their (critical) views on the White Helmets. News that the Geneva Press Club would host this event — and these speakers — was met with concern. The Swiss section of Reporters Without Borders (Reporters Sans Frontieres, RSF), a member of the Geneva Press Club, wrote an open letter to the club requesting the event be cancelled, specifically noting that some of the speakers had appeared regularly in Russian state media. However, the event went forward as planned.

mentioned tweet: @VanessaBeeley (2017-12-21): Understanding The Guardian’s Latest ‘Russia-White Helmets’ Conspiracy Theory <link to article on 21stcenturywire.com titled “Understanding The Guardian’s Latest ‘Russia-White Helmets’ Conspiracy Theory”> via @21WIRE

mentioned tweet: @anonymizedRed (2017-12-21): Yes, curious isn’t it, how conspiracy theorising is acceptable when its target is Russia?

@VanessaBeeley | Active | 21344 followers | 2017-12-21
@anonymizedRed @21WIRE Imagine if Russia were funding the #WhiteHelmets. LOL Monbiot would be all over THAT story! 😂

[1 retweet]

This is a back-and-forth exchange between @VanessaBeeley and another account in the Red cluster. Our random sample surfaced the third tweet in this thread, but we provide the previous two for context. The exchange took place in December 2017 in response to Solon’s article in the Guardian claiming that the White Helmets were the targets of a disinformation campaign. In the original tweet, @VanessaBeeley posts a link to an article on the alternative news website 21stCenturyWire titled “Understanding The Guardian’s Latest ‘Russia-White Helmets’ Conspiracy Theory.” Following that link to the website reveals the article to be a short blurb featuring an embedded YouTube video from the “Going Underground on RT” channel, a channel associated with Russia’s state media apparatus.

Another account from the Red cluster replies to @VanessaBeeley's tweet with a statement implying that claims of a disinformation campaign against the White Helmets are due in part to anti-Russia sentiments and that reactions to the White Helmets would be different if they were supported by Russia.

@VanessaBeeley's replies with a tweet supporting that view and exhibiting a humorous or mocking tone.

This example is one of hundreds showing the complementary use of Twitter, alternative news media websites, and YouTube—and the integration of content from Russia's state media apparatus within these interlinked webs of content.

@VanessaBeeley | Active | 37943 followers | 2018-06-01

"There were a lot of people from Nusra Front working with the #WhiteHelmets & other immigrants. There were many White Helmets from more than one country like Jordan or Saudi Arabia & there were some – we didn't even know what language they were speaking." Mahmoud Al Khatib #Ghouta *<embedded image of a man sitting in a kitchen looking at the camera>*

[248 retweets]

This tweet features a quote from a person who is purported to be a former ambulance driver for the White Helmets. The quote suggests that the White Helmets were working with people from the Nusra Front, a jihadist organization (distinct from ISIS) that aimed to establish an Islamic state in Syria. The content here supports narratives that the White Helmets work with foreign "terrorist" groups.

Looking across these example tweets and more broadly at @VanessaBeeley's activity throughout the *White Helmets Twitter dataset* reveals her to be a central figure in the anti-White Helmets discourse on Twitter (and beyond). She introduces new content into the space through embedded images and videos, as well as links to external websites and YouTube videos. She authors content that is published on multiple websites that she and other Red-cluster accounts link to in their tweets. She often interacts with other accounts, especially other accounts in the Red cluster—through replies, quotes, and mentions. She also specifically calls out other influential Red-cluster accounts in her tweets (through @mentions) to draw their attention to her content. She receives more retweets than any other account in the data (about 67.6 retweets per original tweet). Over the course of our collection period, her follower count nearly doubles.

Random tweets from the Red cluster

Below are ten original tweets (non-retweets) randomly selected from the Red Cluster, ordered temporally from earliest to latest. They show how accounts in that cluster consistently tweeted content that challenged the White Helmets. They also demonstrate how those criticisms ranged across themes and narratives (though they reflect an incomplete set of the narratives used to attack the White Helmets).


@anonymizedRed | Active | ~6000 followers | 2017-06-15

@anonymized @anonymized @anonymizedRed @anonymizedRed @Presidency_Sy @suspendedRed @suspendedRed @anonymizedRed @anonymizedRed Here's a short video explanation of who the #WhiteHelmets are:

<link to YouTube video titled "The Syria White Helmets Exposed as US UK Agents Embedded with Al Nusra and ISIS"> #Syria

[2 retweets]

@anonymizedRed | Active | ~4000 followers | 2017-06-27

 #Syria #NuNusra #FalseFlag

Just a reminder...

quoted tweet: **@anonymizedRed** (2017-05-03): Keep an eye on what may be happening in #Ariha and #Saraqib with the #WhiteHelmets teams, @AJArabic #Aljaqeera film crews, GKW <embedded images of two Facebook posts (textual content) purportedly describing how the White Helmets worked with television crews to stage the impacts of chemical weapons attacks> #Syria #Idlib

[56 retweets]

mentioned tweet: **@Thomas1774Paine** (2017-08-24): George Clooney and his wife donate \$1 million to group targeting conservatives

@anonymizedRed | Suspended | 21 followers | 2017-08-25

@Thomas1774Paine Clooney is the lover of the White Helmets terrorists.

[0 retweets]

@catoletters | Active | 95904 followers | 2017-11-12

West Propoganda to White Wash Terrorist "White Helmets" <link to article in SputnikNews titled "Heroes or Zeroes? Questions Raised About Upright Image of White Helmets">

[3 retweets]

@anonymizedRed | Active | <100 followers | 2018-01-31

WAKE UP. The truth about the White Helmets. This is not going to stop in a far off country! <link to article on TheWallWillFall blog titled, "Examining the Truth about Syria and the White Helmets">

[0 retweets]

@anonymizedRed | Active | ~300 followers | 2018-04-03

Now that #Ghouta is over, the next target is #Idlib. And we can expect more videos and tweets from the #WhiteHelmets talking about the last hospital in Idlib, etc.

More outrage from the Western world until the jihadists are all quietly bussed into Turkey. So it goes...

quoted tweet: **@anonymizedBlue** (2018-04-03): A father and his children were killed today after warplanes bombed their home in al-Asadiya, #Idlib. #Syria <embedded images of White Helmets volunteers working in rubble and carrying the body of a dead child>

[0 retweets]

mentioned tweet: **@Charles_Lister** (2018-04-10): Facing potential U.S strikes, #Assad & #Moscow accept an @OPCW fact-finding team to #Douma - it'd likely take several weeks for any results from a site already muddied by Russian army. Watch UNSC vote today in 2hrs 20mins - a #Russia veto is *very* likely & may catalyze action.

@anonymizedRed | Suspended | <100 followers | 2018-04-10

@Charles_Lister @OPCW #SyriaGasAttack #SyriaHoax #Syria #WhiteHelmets by Day, AlQaeda terrorists, torturers and executioners by Night. These are @RealDonaldTrump helpers!

[0 retweets]

@anonymizedRed | Active | ~2000 followers | 2018-04-13

I replied on this tweet... [link to an archive.is page capturing a tweet thread where this account argues with an account from the other side of the conversation and is referred to as a "bot"](#) of "Investigative Reporter"

@OliviaSolon's article in #Guardian (which whitewashes all of the #WhiteHelmets crimes in #Syria) and voilà - he thinks I'm a bot! Ok and you're a prime example of a Jew with Paranoia - wanna get a Beer? 🍺

quoted tweet: **@anonymizedBlue** Perfect example of a bot responding to a hashtag.

[0 retweets]

@AntiMedia | Suspended | 47457 followers | 2018-04-17

Roger Waters brought up the White Helmets after an audience member wanted him to condemn the Syrian government for its alleged complicity in a chemical weapons attack that led the US, UK, and France to bomb Syria. [link to an article on MintPressNews titled "Pink Floyd's Roger Waters Takes on Syrian White Helmets, Thought-Control"](#)

[56 retweets]

@anonymizedRed | Active | ~1000 followers | 2018-05-18

@J_Donaldson_MP Our govt supports the 'White Helmets' -- a group that claims to be a humanitarian org. Please view this video of White Helmets cheering a public execution and tell me your reaction, along with what you plan to do about it. Thanks. [link to a YouTube video titled "White Helmets cheering during extremist execution"](#)

[0 retweets]

These randomly selected tweets demonstrate that the content in the Red cluster is consistently critical of the White Helmets. They are called terrorists and torturers, and repeatedly derided for a video that purportedly shows White Helmet's volunteers celebrating the executions of Syrian soldiers. They are accused of being "crisis actors" and staging impacts—especially impacts from chemical attacks—to portray the Syrian government and their Russian allies in a negative light. And they are referred to as "Western propaganda"—positioned as favored and assisted by "Western" and "mainstream" media.

Accounts in the Red cluster rarely rely on "mainstream" news media, but instead leverage alternative media outlets and social media platforms to spread their content. Three of the Red-cluster example tweets contain links to articles on external websites, including MintPressNews, SputnikNews, and a blog called TheWallWillFall (operated by journalist Vanessa Beeley). These three websites are nodes within an "alternative media ecosystem" that repeatedly shares content (copied and pasted articles) and functions to support anti-White Helmets messages (Starbird et al., 2018).

One of the example tweets describes how Roger Waters (the Pink Floyd musician) criticized the White Helmets on stage in a concert in April 2018 (a week after the chemical attack in Douma). That tweet linked to an article in MintPressNews that described the incident, saying that Waters called the group "fake" and claimed their main purpose was to spread propaganda. A YouTube video of Waters' making

the comments, edited and hosted by a YouTube channel associated with Russian state media outlet RT (RT UK), is embedded within the MintPressNews article. That YouTube video is also linked to by 71 tweets within the *White Helmets Twitter dataset*. 54 of those were posted by accounts in the Red cluster; one was posted by an account from the Blue. Other video clips of the Waters video constitute a significant portion of all the YouTube video links posted in our data.

Another interesting aspect of the example tweets in the Red cluster is that three of the accounts have been suspended since they posted these tweets. This is a trend we examine further in Appendix F.

Most-retweeted tweets from the Red cluster

Below are the five most retweeted tweets in the Red cluster, ordered by the total number of retweets they received in the White Helmets Twitter dataset. To provide context about the author and the content, we include a short description of each.

@sahouraxo | Active | 81425 followers | 2017-06-05

Wow. Last year, the White Helmets said Assad bombed this boy. Turns out they lied. He is fine and his family supports the Syrian government. *<embedded image of "the Aleppo Boy" who had been rescued by the White Helmets a year prior, now a year older and healthy>*

[7605 retweets]

This tweet references the story of Omran Daqneesh, a boy who became known as the “Aleppo Boy” after he was photographed in an ambulance operated by the White Helmets, covered in blood, after an airstrike on his family’s home in Aleppo that took eight lives (including one of his brothers). About a year later, he and his father appeared in an interview on a Syrian government-run television station. The boy appeared healthy at that time and the father asserted that he was pro-regime and claimed that Omran had been used as a ‘propaganda tool’ by rebel forces. The account that shared this tweet is an active poster in a range of geopolitical topics, consistently critical of the U.S., U.K., and other western governments.

@RussiaUN | Active | 28290 followers | 2018-04-19

#BREAKING 11-year-old #Syrian boy Hassan Diab who was showed in the video on the alleged chemical attack in #Douma witnesses that everything was staged by #WhiteHelmets. Watch the full interview by Russian war reporter @epoddubny here: *<link to yadi.sk>* @VanessaBeeley *<embedded video with child explaining how he was unnecessarily treated for a chemical exposure>*

[2978 retweets]

This highly-retweeted tweet was posted by @RussiaUN, the official accounts of Russia’s mission to the United Nations, in the aftermath of the purported chemical attack in Douma, Syria in April 2018. The tweet features an embedded video with an interview of a child who explains how he appeared in a video being treated for a chemical exposure, and how that treatment was unneeded because he had not experienced any chemical exposure. The tweet and video support a narrative that the White Helmets staged the effects of a chemical attack. @RussiaUN includes a mention of @VanessaBeeley to draw her attention to this content. @VanessaBeeley retweets this content about six hours later.

@RussianEmbassy | Active | 78712 followers | 2018-04-14

Breaking - people from #WhiteHelmets "chemical attack" video explain how it was staged.

Retweet to beat jihadist lies! *<embedded video with interviews of two young men who had treated victims of the purported chemical attack in Douma and whose testimony suggests that the victims had not experienced a chemical attack>*

[2889 retweets]

This tweet was posted by @RussianEmbassy, the official English-language account of the Russian Embassy in London. Like the tweet above, it was posted in the aftermath of the April 2018 chemical attack. It features a different video, embedded using Twitter's native video sharing feature. The video features interviews with two men who claim to have been medics treating victims after the explosion, and who say that White Helmets volunteers and film crews interrupted their treatments to give patients additional treatments for chemical exposure. The video was produced by Russia's state media outlet, RT, whose logo appears in the bottom-right corner.

@PrisonPlanet | Active | 853078 followers | 2018-05-04

Trump is cutting off funding to the Islamist-linked White Helmets. Good news. *<link to article on ZeroHedge titled "Trump Cuts of Funding For Syria's 'White Helmets'">*

[2845 retweets]

This tweet was authored by @PrisonPlanet, a verified account that belongs to Paul Joseph Watson, a media personality who has long served as an editor of Alex Jones' website InfoWars. Paul Joseph Watson has been characterized as a conspiracy theorist—for supporting numerous conspiracy theories, including that the 9-11 attacks were perpetrated by the U.S. government. His tweet shares a link to an article on alternative news website ZeroHedge that celebrates U.S. President Trump's move to cut funding to the White Helmets. This tweet demonstrates an intersection in appeal of anti-White Helmets narratives to both international audiences on the left of the political spectrum (featured elsewhere in these examples) and a section of the U.S. and U.K. domestic audiences aligned with the "alt right" (in this example).

@PrisonPlanet had 853,078 followers at the time of this tweet, which received 2845 retweets.

@EmbassyofRussia | Active | 15545 followers | 2018-04-13 18:24:03

Russian Defence Ministry: We have evidence that #UK had a direct involvement in arranging the #DoumaProvocation in Eastern Ghouta. We know for certain that between 3 & 6 April the White Helmets were pressured from London to speed up the provocation they were preparing *<embedded image of Russian military officer with overlaid text>*

[2313 retweets]

@EmbassyofRussia is the official Twitter account of the Embassy of Russian in South Africa. Their highly retweeted tweet, also posted in the aftermath of the Douma attack, calls the reporting of a chemical attack in Douma a "provocation" and claims that the United Kingdom had coordinated with the White Helmets to stage and publicize the event. The tweet features an image of a Russian military officer with overlaid text:

"Russian Defense Ministry has evidence that Britain had a direct involvement in arranging provocation in Douma. We know for certain that between 3 and 6 April the so-called White Helmets were seriously pressured from London to speed up the provocation that they were preparing"
Igor Konashenkov, Russian Defence Ministry Spokesperson

The account had 15,545 followers at the time of this tweet and the tweet received 2312 retweets.

Similarly to the Blue cluster, the most retweeted tweets from the Red cluster also originated in accounts with high numbers of followers. However, in contrast with the Blue cluster, these accounts did not include “mainstream” media or journalists. Instead, they consist of one high follower account dedicated to a wide range of political messaging in alignment with the political objectives of Hezbollah (@sahouraxo), an “alt-right” media influencer (@PrisonPlanet), and three accounts that are officially affiliated with the Russian government.

Narratives from the Red cluster

The example tweets from these three samples reveal a subset of the salient narratives within the Red cluster. All are highly critical of the White Helmets. One prominent narrative is that the White Helmets staged evidence of the Douma chemical attack (and other previous chemical attacks). Conversations around this narrative include a kind of open source “sensemaking” where participants attempt to assemble evidence to support that theory. However, most of the narratives are not focused on directly denying specific claims or evidence provided by the White Helmets, but instead function more diffusely to delegitimize their work and their messages through a range of ad hominem attacks.

Salient narratives from example tweets in the Red cluster include:

- The White Helmets are a propaganda construct of the West.
- The White Helmets are assisted by “Western” and “mainstream” media.
- The White Helmets are not humanitarian actors.
- The White Helmets are terrorists.
- The White Helmets are “crisis actors” who stage impacts to make the Syrian government and their Russian allies look bad.
- The White Helmets stage chemical weapons attacks.
- The White Helmets are agents of the U.S. and U.K. governments.
- The Douma chemical attack was a staged provocation by the White Helmets working with the U.K.
- The U.S. government should not be supporting the White Helmets.

Appendix E: Basic Descriptive Statistics by Cluster

Table 1 provides some basic descriptive statistics on the two clusters. The Blue cluster contained 70,760 accounts and those accounts produced 208,265 total tweets. Of those 27,733 were original tweets (not retweets). 86.7% of Blue-cluster tweets were retweets and 22.7% of all Blue-cluster tweets contained a URL link to an external website (not Twitter). On the other side of the graph, the Red cluster had more accounts (97,440) and produced significantly more content than the Blue cluster (633,762 total tweets to 208,265 total tweets). The number of “white helmets” tweets per account was much higher (6.5 tweets per account in Red compared to 2.95 tweets per account in Blue). Tweets from the Red cluster were also more likely to contain a URL link to an external website (37.0%) than tweets from the Blue cluster (22.7%).

Cluster	Num Accounts	Total Tweets	Tweets per Account	Num Original Tweets	Num Retweets	% Retweets	% incl URL
Blue	70670	208265	2.95	27733	180532	86.7%	22.7%
Red	97440	633762	6.50	123167	510595	80.6%	37.0%

Table 1: Basic Statistics, by Cluster, for the White Helmets Twitter Dataset

Appendix F: Suspended Accounts

Twitter suspends accounts for breaking the platform’s terms of service—for reasons including hate speech, harassment, spam, impersonation, and other inauthentic behavior. Unfortunately, the platform does not publish the reason that any specific account in the data has been suspended, but it is possible to use patterns of suspensions as a rough proxy for behavior that violated the terms of service.

In December 2019, we used the Twitter API to identify any accounts within either of our two clusters that are currently listed as “suspended” by Twitter. Table 2 (below) contains descriptive statistics of the numbers of accounts that were suspended within each cluster as well as the amount of content and types of content (original tweet or retweet) that came from those suspended accounts.

Cluster	Num Accounts	# Accounts Suspended	% Accounts Suspended	% Tweets from Suspended Accounts	% Original Tweets from Suspended Accounts	% Retweets from Suspended Accounts
Blue	70670	4090	5.8%	7.8%	8.2%	7.7%
Red	97440	13514	13.9%	15.7%	26.6%	13.1%

Table 2: Descriptive Statistics of Account Suspensions by Cluster

This table shows that accounts in the Blue cluster are far less likely to be suspended than accounts in the Red cluster. In addition, more content from the Red cluster originated from suspended accounts—15.7% from the Red, compared to 7.8% of the Blue. Perhaps most interesting is the over-representation of original content (non retweets) posted by suspended accounts. More than a quarter of all original “White Helmets” tweets posted by accounts in the Red cluster during our collection period were tweeted by accounts that have since been suspended. Much of this now-removed content was created by a small number of highly active accounts that repeatedly tweeted content criticizing the White Helmets.

Appendix G: Top Influencers by Cluster

Tables 3 and 4 list the accounts that were retweeted the most in the Blue and Red clusters, respectively. We list the top-20 accounts in each cluster and provide a short description of each. We provide other statistics, such as tweet volume and percentage of tweets from suspended accounts, to add important context for understanding each account’s behavior and influence on the broader conversation. In the text beneath each table, we provide detailed analysis of the most-retweeted account and describe some of the salient types of accounts in each cluster.

Top Influencers in the Blue Cluster

#	Account Name	Num RTs	Num followers (max)	Num WH Tweets	% of RTs suspended accounts	Description
1	SyriaCivilDef	29375	103733	444	6.7	Official account of the White Helmets
2	oliviasolon	4870	30929	14	3.5	Journalist at the Guardian
3	krassenstein	4230	419991	2	5.9	Social media influencer; Content: U.S. Left, anti-Trump; Now suspended
4	ajplus	3629	652039	5	3.4	Online news channel associated with the Al Jazeera Network
5	anonymized	3499	570	978	22.9	Online political activist; Content: focused on Syria, anti-regime Now deleted
6	TheSyriaCmpgn	3051	30272	103	6	Activist group dedicated to supporting the White Helmets
7	RVAwonk	2931	310779	19	4.7	Disinformation researcher; writer for National Observer
8	RaedAlSaleh3	2865	6035	180	8.3	Director of the White Helmets
9	EliotHiggins	2833	54153	325	6	Open source and disinformation researcher at Bellingcat
10	Channel4News	2811	1569575	2	2.2	News program associated with broadcast television Channel 4 in U.K.
11	anonymized	2555	5208	101	9.2	White Helmets volunteer
12	anonymized	1838	1678	280	13.9	Online political activist; Content: focused on Syria, anti-regime
13	anonymized	1757	298	1139	10.7	Online political activist; Content: focused on Syria, anti-regime
14	RonanLTynan	1700	20996	184	5.9	Writer and director of documentary film: "Syria – The Impossible Revolution"
15	michaeldweiss	1602	92619	36	5	Journalist at the Daily Beast; Author
16	mitchellreports	1517	1618778	1	3	Journalist at NBC News
17	anonymized	1427	51188	49	11	Online political activist; Content: focused on Syria, anti-regime
18	ilangoldenberg	1339	21029	5	2.8	Middle East Security Director at Center for a New American Security (CNAS)

19	jimsciutto	1235	229959	2	3.4	Journalist at CNN; Author
20	anonymized	1234	295	130	8.1	Social media coordinator for the White Helmets

Table 3: Top 10 Most Retweeted Accounts in the Blue Cluster
** Rows in grey are suspended or deleted accounts*

Table 3 lists the top-20 most retweeted accounts in the Blue cluster. The most retweeted account in the Blue cluster is @SyriaCivilDef, the official account of the White Helmets organization. That account posted 444 White Helmets tweets and received 29,375 retweets—more than six times as many retweets as the next most retweeted account in that cluster. Retweets of @SyriaCivilDef constitute 14% of tweets in the Blue cluster. @SyriaCivilDef’s outsized role in shaping the activity in that cluster is visible in the retweet network graph (Figure 1, Appendix B)—where that account is the one large, visible node among the Blue.

The @SyriaCivilDef posted 190 original tweets. As described in the content analysis of a sample of their tweets (Appendix D), they often embedded images and videos in their tweets using Twitter’s native video embedding functionality. 81% of their original tweets have an embedded photo and 17% of their original tweets have an embedded video. They rarely posted links to external domains in their tweets.

Among the other top-20 most-retweeted accounts in the Blue cluster are journalists at Western media outlets, including @oliviasolon at the Guardian, @michaeldweiss at the Daily Beast, @mitchellreports at NBC News, and @jimsciutto at CNN. There are also two accounts associated with media organizations, @ajplus (of the Al Jazeera Network, funded by the Qatari government) and @Channel4News (broadcast television Channel 4 in the UK). This underscores observations made in the tweet content analysis (Appendix D) and influential domain analysis (Appendix I) that the White Helmets receive positive coverage, visibility, and support from Western media.

Other highly retweeted accounts in Blue include individuals associated with the White Helmets organization, including their Director, their social media coordinator, and one of their volunteers.

There are also several accounts representing online activists who consistently tweet in support of the White Helmets. The 6th-most retweeted account in Blue is @TheSyriaCmpgn, an account associated with an independent organization that supports the White Helmets. There are four other accounts, anonymized here, that appear to belong to individual activists who tweet at relatively high volume about the White Helmets. One of these accounts (in position #5) has been deleted by its owner. That account was highly active (978 “white helmets” tweets) and 22.9% of its retweets came from accounts that have now been suspended, a signal that this account may have been part of coordinated or “bot” activity.

Rounding out the top-20 most retweeted in the Blue cluster are two researchers who have published tweets, articles, and documents about other disinformation campaigns with Russian origins (@RVAwonk and @EliotHiggins); a documentary film maker, and a Direct for Middle East Security at the Center for New American Security.

Top Influencers in the Red Cluster

#	Account Name	Num RTs	Num followers (max)	Num WH Tweets	% of RTs suspended accounts	Description
1	VanessaBeeley	63380	38415	2043	10.5	Journalist at 21stCenturyWire; Contributor to GlobalResearch, MintPressNews, RT
2	anonymized	23733	12138	1424	12.1	Online political activist; Content: focused on Syria, anti-regime
3	WhiteHelmetsEXP	18105	3676	9929	15.2	Dedicated anti-White Helmets account; now suspended
4	sahouraxo	17079	135508	46	13.1	Online political activist; Content: covers range of geopolitical topics, aligned w/ Hezbollah, Russia, Iran
5	anonymized	13347	20193	1813	14.5	Dedicated anti-White Helmets account
6	Partisangirl	12342	96286	173	14.4	Political analyst; Contributor to InfoWars and JournalNEO (Russian think tank)
7	anonymized	9488	38593	242	12	Online political activist; Content: covers range of geopolitical topics, conspiracy theories w/ pro-Russia stance
8	ShehabiFares	9383	25882	175	11.8	Elected official in the Syrian parliament
9	EmbassyofRussia	7034	17432	48	10.7	Official account of Russian Embassy in South Africa
10	anonymized	6806	14825	63	10.3	Academic, researcher
11	anonymized	6326	15361	157	9.9	Online political activist; Contributor to RT; Content: covers range of geopolitical topics
12	21WIRE	6207	20942	457	10.7	Alternative media outlet 21stCenturyWire
13	EvaKBartlett	6171	40696	324	10.9	Journalist and contributor to RT
14	MaxBlumenthal	5938	111901	56	8.7	Journalist at Grayzone
15	RussianEmbassy	5690	80383	13	11.8	Official account of Russian Embassy in London
16	anonymized	5178	96323	1631	13.4	Online political activist; Content: libertarianism, conspiracy theories, pro-Russia
17	PearsonSharp	4180	11907	16	10	Journalist at One America News Network

18	RT_com	3894	2702879	25	12.3	Russian state-controlled media outlet
19	PrisonPlanet	3824	853078	5	12.6	Journalist at SummitNews; Contributor to InfoWars
20	RussiaUN	3309	29596	13	10.7	Official account of the Russian mission to the United Nations

Table 4: Top 10 Most Retweeted Accounts in the Red Cluster
** Rows in grey are suspended or deleted accounts*

Table 4 lists the top-20 most retweeted accounts in the Red cluster. Compared to the Blue cluster, the most influential accounts in the Red cluster receive far more retweets. For example, @oliviasolon, the 2nd-most retweeted account in the Blue cluster, would be at position #17 in the list of Red cluster accounts.

The most retweeted account in the Red cluster—and in the entire dataset—is @VanessaBeeley, an account associated with a self-described journalist whose body of work is dedicated to the Syrian conflict generally and to criticism of the White Helmets specifically. Her articles appear on alternative media websites (e.g. 21stCenturyWire and MintPressNews), Russia’s state-controlled media (RT), and her personal blog (theWallWillFall.org). Her content is strongly critical of the White Helmets and is widely shared, through retweets of her tweets and links to her articles, throughout the Red cluster. In the retweet network graph (Figure 1, Appendix B), @VanessaBeeley is the largest node in the graph, situated in the center of the Red cluster.

@VanessaBeeley posted 2043 “white helmets” tweets (937 were original tweets) and received 63,380 retweets. Compared to @SyriaCivilDef (the most highly retweeted account in the Blue cluster and the second-most highly retweeted account overall), @VanessaBeeley uses embedded images and embedded videos at much lower rates. However, she posts URL links to external websites at much higher rates—566 (28%) of her original tweets contained a URL link to an external website. The websites she linked to the most were 21stCenturyWire (98 times), YouTube (77 times), Vimeo (14 times), MintPressNews (14 times), RT (10 times), SputnikNews (6 times), and GlobalResearch (5 times).

There are other journalists, media outlets, and media contributors among the most highly retweeted in the Red cluster. They include @Partisangirl, a political analyst who self-defined as a “contributor” to InfoWars and JournalNEO (a Russian think tank); @EvaKBartlett, a journalist who has published on RT; @MaxBlumental, a journalist at Grayzone (a self-described “independent” media outlet); @PearsonSharp, a journalist at One America News Network (a right-wing news outlet); and @PrisonPlanet, a long-time contributor to InfoWars (a right-wing news outlet that has pushed several conspiracy theories).

Two media outlets appear in the top-20 most retweeted in the Red cluster: @21WIRE (affiliated with alternative news outlet 21stCenturyWire) and @RT_com (affiliated with RT, a media outlet funded and controlled by the Russian government).

Other accounts associated with the Russian government appear among the top-most retweeted accounts in the Red cluster, include @EmbassyofRussia (the Russian Embassy in South Africa), @RussianEmbassy (the Russian embassy in London), and @RussiaUN (the Russian mission to the United Nations). Their participation in this discourse is described in more detail in Appendix D.

Also among the top-20 most retweeted accounts in the Red Cluster are several accounts that consistently post high volumes of political content. We broadly label many of these accounts as “online political activists”. Some of these accounts appear to be authentic activists. Others appear to be operated by political groups or organizations. However, it is often difficult to distinguish between the two, even after dozens of hours of analysis. Many of these accounts receive a relatively high proportion of retweets from accounts that have since been suspended.

To better understand that nature of these activist accounts, we looked beyond their “white helmets” tweets to their current timelines. Some of the accounts are focused specifically on the Syrian conflict (from a pro-Syrian regime perspective). Others post political content across a range of geopolitical contexts, from Palestine to Lebanon to Venezuela to Bolivia. Many of these consistently support pro-Russia positions and narratives. Others appear to be aligned with other political states or organizations (e.g. Iran or Hezbollah). Another subset exhibits affinity for a large number of conspiracy theories about Western governments and media. Two of these activist accounts were specifically dedicated to disparaging the White Helmets. One of those, @WhiteHelmetsEXP, sent nearly 10,000 anti-White Helmets tweets and has since been suspended.

Other highly retweeted accounts in the Red Cluster include a member of the Syrian parliament and an academic researcher from the United Kingdom who is consistently critical of “western imperialism.”

Appendix H: *k*-core analysis

The two clusters differ structurally as well. The Red cluster is larger overall (in number of accounts and number of tweets), but it also has a larger number of central of accounts that are all connected—due to retweeting each other or having mutual retweeters. Table 5 presents a *k*-core decomposition of the two clusters. A *k*-core is a subgraph of a given graph where all remaining nodes have a degree of at least *k*. In this case a degree is equal to the number of retweets an account gave to or received from another account remaining in the graph.

K value	% of Blue accounts	% of Red accounts
1	100%	100%
2	25.2%	41.8%
5	5.5%	15.5%
10	2.1%	6.9%
25	0.6%	2.1%
50	0%	0.6%
100	0%	0

Table 5: *k*-Core Decomposition of the Blue and Red Clusters

Table 5 reveals that the Red cluster retains a larger proportion of its graph at higher k values than the Blue cluster. At $k=60$, the Red cluster still has 653 accounts, including most the highly-retweeted accounts described in Appendix G. This structure reflects some of the dynamics of the campaign within the Red cluster, where a number of dedicated accounts, including some journalists and other influencers as well as some activists, consistently tweet and retweet each other. The ‘glue’ that holds this network together is a large number of accounts that participate primarily through retweeting many different influential accounts in the space.

One explanation of the difference in structure is that the pro-White Helmets Blue cluster takes shape around a smaller number of influential accounts, centered around @SyriaCivilDef, but including an array of high-follower journalist and media accounts. Those accounts pull in larger audiences, but those audiences are less engaged in the “white helmets” discourse, with participation often limited to a single retweet. There are a few dedicated pro-White Helmets accounts in the Blue cluster, but not as many as there are dedicated anti-White Helmets accounts in the Red. In contrast, the Red cluster takes shape around a larger number of accounts that consistently participate in tweeting (negatively) about the White Helmets.

Appendix I: Top Domains by Cluster

In this section we identify and describe the most tweeted and retweeted domains (or websites) in each cluster.

Top domains in the Blue cluster

Table 6 lists the 20 domains that were linked-to the most by tweets from accounts in the Blue cluster.

	Domain	Total Tweets	Original Tweets	RTs	% of total from suspended accounts	Description
1	theguardian.com	7809	852	6957	5.1	Western, mainstream media
2	cbsnews.com	7438	267	7171	3.9	Western, mainstream media
3	youtube.com	2225	631	1594	9.6	Social media: Video sharing
4	whitehelmets.org	2099	440	1659	7.5	Website about the White Helmets; Managed by the Syria Campaign
5	facebook.com	1854	822	1032	13.5	Social media: Social networking
6	cnn.com	1230	62	1168	4.8	Western, mainstream media
7	aljazeera.com	1035	115	920	4.4	Qatari state media
8	medium.com	1013	207	806	8.2	Social media: Publishing
9	huffingtonpost.co.uk	968	121	847	4.6	Western, mainstream media
10	eaworldview.com	746	147	599	9	Alternative/independent news media

11	newsweek.com	573	31	542	5.8	Western, mainstream media
12	charitynavigator.org	571	1	570	6.3	Organization that facilitates donations to charities
13	worldhumanitarianday.org	570	7	563	3.5	Website of World Humanitarian Day
14	bellingcat.com	560	20	540	5.7	Open source research organization
15	en.etilaf.org	436	50	386	18.8	Syrian National Coalition of Syrian Revolution and Opposition Forces
16	thedailybeast.com	426	36	390	6.8	Western, mainstream media
17	syriacivildefense.org	421	29	392	11.9	Official website of the Syria Civil Defence (White Helmets)
18	smartdissent.com	419	83	336	3.6	Online activism website
19	middleeasteye.net	408	62	346	4.9	Online news outlet based in London, focused on Middle East
20	dailymail.co.uk	400	63	337	3.5	Western, mainstream media

Table 6: Top 10 Most Tweeted Domains in the Blue Cluster

The most linked-to domain by tweets in the Blue cluster is the Guardian—primarily for Olivia Solon’s Guardian article published in December 2017 claiming that the White Helmets were the targets of a disinformation campaign. Several other western and/or ‘mainstream’ news media outlets appear in the top-20, including CBSNews, CNN, Huffington Post, Newsweek, the Daily Beast, and the Daily Mail. There are other types of media outlets as well. Al Jazeera, a news media outlet owned by the Qatari government, appears at #7. Independent media outlet EAWorldView appears at #10. And online news outlet MiddleEastEye makes the list at #19.

YouTube is the third-most linked-to domain in the Blue cluster. We provide a more detailed description and cross-cluster comparison of video-sharing in Appendix J. Two other social media platforms (Facebook and Medium) are among the most linked-to domains by accounts in the Blue cluster.

WhiteHelmets.org is the fourth most tweeted domain by the Blue cluster (2099 tweets). This website is not run by the White Helmets, but by the Syria Campaign, a non-profit organization whose mission is to “support the Syrian people in their struggle for freedom and democracy.” Websites of two other non-profit organizations are among the most tweeted in the Blue cluster: CharityNavigator (which helps facilitate donations to non-profit organizations) and WorldHumanitarianDay.

Other relatively highly cited domains by accounts in the Blue cluster are Bellingcat (a non-profit organization that does open source investigations), en.etilaf.org (the English-language website of the Syrian National Coalition of Syrian Revolution and Opposition Forces), SyriaCivilDefense.org (the official website of the White Helmets), and SmartDissent.com (a website that appears to be an attempt to catalyze and organize online activism).

Top domains in the Red cluster

Table 7 lists the 20 domains that were linked-to the most by tweets from accounts in the Red cluster.

	Domain	Total Tweets	Original Tweets	RTs	% of total from suspended accounts	Description
1	youtube.com	43340	11184	32156	18	Social Media: Video Sharing
2	21stcenturywire.com	22145	2391	19754	13.2	Alternative/independent news media
3	clarityofsignal.com	18501	8163	10338	49	Conspiracy theory website
4	rt.com	16908	2152	14756	13.1	Russian state media
5	zerohedge.com	10925	818	10107	11.7	Alternative/independent news media
6	mintpressnews.com	9139	1446	7693	16.2	Alternative/independent news media
7	sputniknews.com	8618	1597	7021	14.6	Russian state media
8	steemit.com	5562	693	4869	18.7	Social media: Blockchain-based
9	cbsnews.com	3952	315	3637	12.5	Western, mainstream media
10	yadi.sk	3566	35	3531	11.4	Social media: Cloud-based file storage
11	globalresearch.ca	3453	1455	1998	30.2	Conspiracy theory website
12	facebook.com	3438	1044	2394	17	Social media: Social networking
13	theduran.com	2780	471	2309	12.8	Alternative media with ties to Russian state media apparatus
14	theguardian.com	2604	267	2337	11.1	Western, mainstream media
15	altnet.org	2599	127	2472	11.5	Alternative/independent news media
16	grayzoneproject.com	2335	115	2220	8.5	Alternative/independent news media
17	independent.co.uk	2331	200	2131	11.3	Western, mainstream media
18	syrianews.cc	1880	332	1548	15.1	Partisan news outlet with strong bias towards Syrian regime
19	thewallwillfall.org	1611	376	1235	28.8	Blog operated by Vanessa Beeley
20	liveleak.com	1566	518	1048	39.1	Social media: Video sharing

Table 7: Top 10 Most Tweeted Domains in the Red Cluster

Tweets from the Red cluster include links to external domains (beyond Twitter) at much higher rates than tweets from the Blue. 234,281 tweets (37% of total tweets) from the Red cluster have a URL link to an external domain.

YouTube is by far the most cited external domain—43,430 tweets (6.8% of tweets) from the Red cluster link to YouTube. We provide a more detailed description and cross-cluster comparison of video-sharing in Appendix J.

Four other social media or content-sharing domains are in the top-20 most tweeted in the cluster, including Steemit, Yadi, Facebook, and Liveleak (a live video sharing platform).

Six of the top-20 most cited domains in the Red cluster can be classified as alternative and/or independent news media outlets. Many self-identify using one or both of those terms. The most cited alternative news media outlet in the Red cluster (and the most cited news domain of any kind in the broader White Helmets Twitter dataset) was 21stCenturyWire, an outlet founded by a former InfoWars producer that contains a mixture of clickbait news, conspiracy theories, and geopolitical topics. Vanessa Beeley, a journalist who operated the most retweeted account in our dataset, published several articles on 21stCenturyWire criticizing the White Helmets, drawing from and supporting many of the narratives listed in the Red cluster section of Appendix D.

Two of the most linked-to domains in Red are media outlets with clear connections to Russia's state media apparatus: RT, SputnikNews. Other outlets, such as TheDuran, function as grey propaganda through repeatedly sharing content that echoes Russia's preferred narratives. This demonstrates how the anti-White Helmets discourse is shaped and supported by the Russia government.

This list of includes two domains dedicated to geopolitical conspiracy theories criticizing Western governments (ClarityofSignal and GlobalResearch.ca). Interestingly, the percentage of tweets posted by now-suspended accounts is very high for those two domains (49% for ClarifyofSignal and 30% for GlobalResearch.ca).

During our initial content analysis, we noted that many of the same articles (that were highly cited in the Red cluster) would appear, copied word-for-word, across different websites in this collection of sites, including some of the alternative and independent news sites, the conspiracy theory websites, and the Russian state media outlets. We explore features of that "echo-system" in previous work (Starbird et al., 2018).

There are also two "mainstream" media outlets among the most cited by tweets in the Red Cluster. CBSNews appears at #9 in the list. It was primarily linked-to by tweets in the Red cluster for an article reporting that the U.S. was freezing funding for the White Helmets. The Guardian appears (#14) due to Solon's article claiming that the White Helmets were the target of a disinformation campaign, with Red-cluster accounts linking to that article with accompanying comments of criticism (see Appendix D for more explanation of this article and the tweets citing it).

Across the two sets of highly cited domains, the percentage of tweets from now-suspended accounts is much higher for the Red cluster than for the Blue cluster. There are particularly high rates of suspended account tweeting associating with YouTube, ClarityofSignal, MintPressNews, Steemit, GlobalResearch.ca, theWallWillFall, and LiveLeak.

Appendix J: Video Sharing by Cluster

There are multiple ways to share videos through the Twitter platform. One way is "natively" or directly through the Twitter application. These videos, which must be edited to under 2 minutes and 20 seconds,

are displayed within the tweet frame. Depending upon the client application and settings, these videos either auto-play as a user scrolls over them or they are displayed as a still image that can be played with a single click.

Another way to share videos is through a link to another peer-to-peer video sharing platform, the most popular of which is YouTube. Twitter displays links to YouTube videos within the tweet frame as thumbnail images with accompanying titles and content blurbs. Users can click on the image or title and the video will expand and be playable from within the Twitter application. Embedded YouTube videos can be of any length.

In the *White Helmets Twitter dataset*, the two most popular methods of sharing videos were natively (through the Twitter application) or through URL links to YouTube videos. Table 8 shows the number of tweets that contain videos, by cluster and video-sharing method.

Cluster	Num tweets	Num Original Tweets	Num (%) Total Tweets w/ URL to YouTube	Num (%) Original Tweets w/ URL to YouTube	Num (%) Total Tweets w/ Video Embed in Twitter	Num (%) Original Tweets w/ Video Embed in Twitter
Blue	208265	27733	2225 (1.07%)	631 (2.28%)	37,614 (18.1%)	3104 (11.2%)
Red	633762	123167	43,340 (6.84%)	11,184 (9.08%)	89,717 (14.2%)	7610 (6.2%)

Table 8: The number of tweets that contain embedded videos or YouTube links

In the Blue cluster, 18.1% of all tweets and 11.2% of original tweets contained video content embedded through the Twitter application. YouTube video-sharing was much less common in the Blue cluster. Only about 1% of total tweets and 2.3% of original tweets contained a link to a YouTube video. On the other side of the graph, tweets from the Red Cluster were much more likely (than tweets from the Blue cluster) to contain a link to a YouTube video (6.8% of total tweets and 9.1% of original tweets) and somewhat less likely to have video content embedded through the Twitter application.

These findings show that while both clusters include video content at similar rates (relative to their overall tweet volume), the Blue Cluster relies almost exclusively on the native video sharing affordances of Twitter, while the Red Cluster more actively employs cross-platform video sharing (through YouTube links).

Appendix K: YouTube Sharing by Accounts

In this section we look at the cross-posting behavior between Twitter and YouTube, by individual accounts. By cross-posting, we mean sharing a tweet with a link to a YouTube video. Table 9 shows the number of different accounts that posted a tweet linking to a YouTube video. This again shows that the Red cluster was more actively cross-posting to YouTube—in this case, revealing that ten times as many accounts in the Red cluster introduced a YouTube video onto Twitter through an original tweet (2762 accounts in Red compared to 206 in Blue). Accounts in the Red cluster also tweeted linking to a much larger set of YouTube videos (1603 distinct videos in Red compared to 244 distinct videos in Blue).

Cluster	# Accounts w/ any tweet linking to YouTube	# Accounts w/ original tweet linking to YouTube	# Distinct YouTube videos tweeted
Blue	1316	206	244
Red	14693	2762	1603

Table 9: The number of accounts that share tweets and retweets linking to YouTube by Cluster

Accounts from the Blue cluster that cross-post to YouTube the most

Table 10 lists the ten accounts from the Blue cluster that cross-post the most from Twitter to YouTube. All of these accounts are low-follower accounts who are unverified and unaffiliated with media or another public organization. They received relatively few retweets for their YouTube posts. This suggests that cross-posting to YouTube was not a significant part of the activity in the Blue cluster. It was not a common behavior of influencers in that cluster.

Account	Status	Original tweets w/ YouTube video	Distinct YouTube videos tweeted	Times retweeted for YouTube tweets
anonymized	Active	46	30	62
anonymized	Active	23	15	3
anonymized	Deleted	23	17	55
anonymized	Active	22	17	12
anonymized	Active	20	14	7
anonymized	Active	19	16	5
anonymized	Active	16	16	1
anonymized	Active	16	10	0
anonymized	Active	16	15	25
anonymized	Active	13	10	23

Table 10: Top-10 YouTube cross-posting accounts in the Blue cluster

Accounts from the Red cluster that cross-post to YouTube the most

Table 11 lists the ten accounts from the Red cluster that cross-posted the most from Twitter to YouTube. Aligning with analyses in Appendix J, this table shows that Red cluster accounts were more actively posting to YouTube. A few of the accounts on this list, @WhiteHelmetsEXP and @VanessaBeeley, are among the most influential accounts, in terms of overall retweet numbers, in the Red cluster. @VanessaBeeley sent 77 original tweets with YouTube videos, linking to 49 different videos, and was retweeted 7644 times for these tweets. @WhiteHelmetsEXP, a highly-retweeted account that has since

been suspended, sent 457 original tweets linking to 180 different YouTube videos, and was retweeted 2105 times for that content. Other active Twitter-to-YouTube cross-posters were online activists dedicated to this and other social and political causes.

Interestingly, five of the ten accounts in this list have been suspended by Twitter since we collected their tweets, suggesting that accounts that were most actively sharing YouTube videos were also accounts that were likely to be found breaking Twitter’s rules (e.g. about coordinated inauthentic behavior).

Account	Status	Original tweets w/ YouTube video	Distinct YouTube videos tweeted	Times retweeted for YouTube tweets
anonymized	Suspended	959	20	180
anonymized	Active	576	1	48
WhiteHelmetsEXP	Suspended	457	180	2105
anonymized	Active	444	51	254
anonymized	Suspended	390	5	75
anonymized	Suspended	360	18	47
anonymized	Suspended	243	14	1
anonymized	Active	117	66	39
anonymized	Active	104	43	520
VanessaBeeley	Active	77	49	7644

Table 11: Top-10 YouTube cross-posting accounts in the Red cluster

Appendix L: Most Tweeted YouTube Channels by Cluster

In total, there were 1747 YouTube videos introduced into the “white helmets” Twitter discourse through cross-posting. 1603 were posted by accounts in the Red cluster and 244 were posted by accounts in the Blue cluster. (Some videos were cross-posted by accounts in both clusters.)

On 22 November 2018, we captured metadata from YouTube for every YouTube video cross-posted (or linked-to) from English-language tweets from accounts in either the Blue or Red cluster. At that time 1487 video were still available but the other 260 had been removed or deleted. The following analyses include only the videos that remain.

YouTube ‘channels’ are similar to accounts on Twitter. Each video is associated with a channel. Tables 12 and 13 list the most-tweeted to YouTube channels from the Blue and Red clusters respectively. These tables also include aggregate meta-data (views, likes, dislikes, and hours of content) for all the videos posted to that channel and linked-to in our data.

Most tweeted YouTube channels by the Blue cluster

Four of the most linked-to YouTube channels from the Blue cluster are Arabic-language channels (with Arabic names) associated with the Syria Civil Defence (the White Helmets). Each of those channels hosted about 15-20 short videos showing the White Helmets at work that were cross-posted by Blue accounts into the Twitter conversation. These videos are similar in length and content to the videos @SyriaCivilDef embeds in their tweets using the native Twitter video embedding feature. All three of these channels have about 5,000-10,000 subscribers. SCDdaraa (#6) is also branded with the White Helmets name and symbols. It has far fewer subscribers (~600) and hosted much less content (in terms of viewing length) that was cross-posted from our Twitter data.

Channel	Tweets from Blue Cluster	Num Videos	YouTube Views	Likes	Dislikes	Hours of Content linked-to from WH tweets
الدفاع المدني السوري – حلب (Syria Civil Defense –Aleppo)	341	14	5030	127	5	0.56
الدفاع المدني السوري في محافظة ادلب (The Syria Civil Defense in the Idlib Governorate)	290	19	12908	131	15	0.72
Free Syria	205	1	652	17	5	0.87
الدفاع المدني السوري في ريف دمشق (The Syria Civil Defense in Damascus countryside)	197	16	13756	148	14	0.34
The Syria Campaign	159	6	1165562	4022	211	1.14
SCDdaraa	143	4	1458	15	3	0.13
Al Jazeera English	110	2	113546	965	775	0.45
ABC News	79	1	839840	10289	224	0.04
HANDS OFF SYRIA	40	6	355470	5296	290	0.29
RT	39	9	1251073	13053	1637	0.22

Table 12: Top-10 YouTube channels from the Blue cluster

The Free Syria channel is the third most tweeted channel by the Blue cluster. All 205 tweets linked to the same video, a 50-minute video of an interview with an author of a book titled, “Brothers of the Gun: A Memoir of the Syrian War.”

The Syria Campaign, a channel associated with a Twitter account by the same name, was almost among the most tweeted channels from the Blue. It hosted six videos (that appear in our tweet data) that run for a total of 1 hour and 20 minute and have received over 1 million views. The Blue cluster also contained 110 tweets with cross-posts to Al Jazeera English, and 79 to ABCNews.

For the top-8 positions in this table, the cross-posted content from the Blue cluster was supportive of the White Helmets. The bottom two however, HANDS OFF SYRIA and RT, hosted anti-White Helmets content. Tweets in the Blue cluster linked to these tweets with critical comments.

Taken together with descriptive statistics of cross-posting in Appendix J, this table shows that the Blue cluster’s cross-posting to YouTube was relatively minimal, especially in terms of overall tweets and hours of content linked-to.

Most tweeted YouTube channels by the Red cluster

The most tweeted YouTube channels from the Red cluster tell a very different story. The top channels cross-posted from the Red cluster received far more tweets, hosted more linked-to video, and represent many more hours of content.

Channel	Tweets from Red Cluster	Num Videos	YouTube Views	Likes	Dislikes	Hours of Content linked-to from WH tweets
vanessa beeley	9612	72	381420	10606	417	7.65
RT	3230	60	4007626	78868	5731	15.54
HANDS OFF SYRIA	2748	16	397744	6267	326	1.92
syria alikhbaria	1472	4	19221	373	18	1.05
UK Column	1410	20	126887	3852	135	18.47
corbetteport	1342	9	3267602	54869	1827	5.27
Eva K Bartlett	980	7	12863	876	17	1.47
One America News Network	854	13	281212	10137	326	1.91
Sovereign People of Scotland	798	1	7501	219	3	0.12
SAA Soldier	731	10	6207	103	10	0.51

Table 13: Top-10 YouTube channels from the Red cluster

By far the most tweeted-to YouTube channel in from the Red cluster belongs to Vanessa Beeley, the journalist who is also the most retweeted in the Twitter data. Her channel hosted 72 different cross-posted videos representing more than seven hours of content. Her videos have been viewed 381,420 times. Another journalist among the most highly retweeted in the Red cluster, Eva K Bartlett, also has a YouTube channel among the top ten.

The second-most cross-posted channel from the Red cluster is RT, a channel associated with the Russian government’s state media apparatus. Red cluster accounts posted 3230 tweets linking to 60 different RT

videos, representing more than 15 hours of content. By hosting this content, RT makes it available to journalists and online activists who can introduce and re-introduce it into the discourse over time. This demonstrates another way that the anti-White Helmets discourse is supported by Russian state media.

The fourth most-tweeted YouTube channel in our data (syria alikhbari) is also a government run media outlet (operated by the Syrian regime). It cross-posted content is far smaller in number of videos, length of content, and views.


Other highly tweeted channels include UK Column, corbetteport, and One America News Network—channels associated with alternative media outlets that feature partisan political news and conspiracy theories.

Appendix M: Most Tweeted YouTube Videos by Cluster

In this section, we look at the most highly tweeted YouTube videos, by cluster.

Most tweeted YouTube videos by the Blue cluster

The most tweeted videos from the Blue cluster were consistently supportive of the White Helmets. Six of them were hosted on YouTube channels associated with the organization.

Title	Tweets Blue Cluster	Channel	Views	Likes	Dislikes	Duration
Molly Crabapple "Brothers of the Gun" Syrian War Memoir Book Launch	205	Free Syria	652	17	5	0:52:06
A report about the Atareb massacre	166	الدفاع المدني السوري - حلب	609	16	2	0:02:14
تقديم الإسعافات الأولية لجريح من قوات النظام وقع في قبضة الجيش الحر في بلدة الوارد في منطقة اللجاة (Google translate: Providing first aid to a wounded regime member, who was captured by the Free Army in Al-Ward town in the Al-Lajat area)	107	SCDdaraa	787	8	2	0:01:33
أزهار السلام (Google translate: Peace blossoms)	105	الدفاع المدني السوري في ريف دمشق	1583	39	0	0:03:45
 Syria's White Helmets Witness	100	Al Jazeera English	107253	872	732	0:25:10
Rescue Worker Cries after Pulling Baby From Rubble in Syria	79	ABC News	839840	10289	224	0:02:39
SYRIA CIVIL DEFENCE Wael Al-Omar Martyr of humanity	74	الدفاع المدني السوري في محافظة ادلب	37	0	0	0:01:29

إزالة برميل يحوي غاز الكلور السام في مدينة خان العسل بريف حلب الغربي من قبل الدفاع المدني السوري (Google translate: A barrel containing toxic chlorine gas was removed in Khan Al-Asal in the western countryside of Aleppo by the Syrian Civil Defense)	65	الدفاع المدني السوري في محافظة ادلب	7771	5	7	0:02:34
The heroes and the miracle baby	60	The Syria Campaign	1068122	3120	137	0:02:10
Civil Defence	49	الدفاع المدني السوري - حلب	1133	18	1	0:02:04

Table 14: Top-10 YouTube videos from the Blue cluster

Among the top-10 most tweeted videos in the Blue cluster are six videos posted to channels associated with the White Helmets. Each is a short video featuring the White Helmets at work. Similar to the Free Syria video in position #1, these White Helmets videos have relatively few overall views (ranging from 37 to 7771). The most highly viewed among them is a video from August 2017 documenting evidence from a chemical gas attack in Aleppo.

The most tweeted video from accounts in the Blue cluster is an interview with author Molly Crabapple about her book, “Brothers of the Gun: A Syrian War Memoir.” Though this video received a relatively high number of tweets (for the Blue cluster), the video had not been viewed many times.

Two of the most highly-tweeted videos were hosted by news media outlets Al Jazeera English and ABC News. Neither received more than 100 tweets (from the Blue cluster) in our dataset. However, they were among the most highly watched videos, in terms of YouTube views. The ABCNews piece, posted in September 2016 and featuring the White Helmets working in the aftermath of an attack to save a baby, had been viewed nearly 1 million times.

The most viewed video from our Blue cluster tweets, at more than 1M views, is one titled, “The heroes and the miracle baby.” This is a video about the White Helmets, produced by The Syria Campaign and posted to YouTube in August 2014 (three years before our Twitter data collection).

The majority of the most tweeted videos in the Blue cluster were very short. Only two were longer than four minutes. The longest was a 25 minutes video featuring the White Helmets at work in Aleppo, posted on YouTube in August 2016.

Most tweeted YouTube videos by the Red cluster

While the most tweeted videos from the Blue cluster feature the White Helmets at work risking their lives and saving others, the most tweeted videos from the Red cluster tell a starkly different story. They reflect many of the same narratives that appeared in the tweet content (Appendix D): that the White Helmets are a propaganda construct, that they cheer on executions, that they are terrorists, and that they fake chemical attacks.

Title	Tweets Red Cluster	Channel	Views	Likes	Dislikes	Duration
ROGER WATERS - WHITE HELMETS ARE FAKE PROPAGANDA CONSTRUCT FOR TERRORISTS	2431	vanessa beeley	40473	1440	25	0:03:38
Douma Chemical Attack False Flag Operation EXPOSED!. (Translated)	1416	syria alikhbaria	10362	238	10	0:16:06
Roger Waters denounces "fake" White Helmets, Don't bomb Syria	1375	HANDS OFF SYRIA	82033	2194	66	0:02:07
The White Helmets Are A Propaganda Construct	1192	corbettreport	158541	6232	157	0:34:10
Russian Ambassador to the UK Alexander Yakovenko holds news conference	1062	RT	28386	1115	54	1:18:09
Lord West	798	Sovereign People of Scotland	7501	219	3	0:06:55
UK Column News - 12th April 2018	670	UK Column	12320	392	7	0:52:22
WHITE HELMETS CHEERING DURING EXTREMIST EXECUTION	650	SAA Soldier	3593	22	3	0:01:10
SYRIA WHITE HELMETS HAND IN HAND WITH AL QAEDA	643	vanessa beeley	50511	774	46	0:06:07
The White Helmets - al Qaeda with a facelift	637	HANDS OFF SYRIA	100081	1080	70	0:03:56

Table 15: Top-10 YouTube videos from the Red cluster

As discussed in Appendix J and K above, the top videos from the Red cluster receive more cross-posts than the top videos from the Blue cluster, because the Red cluster was far more active on Twitter. The popular Red cluster videos also have very different view numbers. Though their average number of views is much lower (49,380 for top Red videos compared to 202,778 for top Blue videos), the median number of views is much higher (20,353 for Red compared to 1,358 for Blue). This again reflects a smaller but more committed audience for videos from the Red cluster, compared to the Blue cluster where there is a small group of committed viewers, but most views come through channels with large numbers of subscribers (such as ‘mainstream’ media outlets).

Popular videos from the Red cluster also run somewhat longer than those from the Blue. Only four are under four minutes in length (compared to eight in the Red). The content and format of these longer videos is much different from the promotional videos that appear in the top video list from the Blue cluster.

Two of the top three videos cross-posted to Twitter from the Red cluster are clips of Roger Waters, a musician for Pink Floyd, giving speech on stage at a concert denouncing the White Helmets. This incident and tweet content celebrating it was discussed in Appendix D above.

Two of the top videos were hosted by the YouTube channel of Vanessa Beeley, a journalist and Red-cluster Twitter influencer (see Appendix G).

The second-most tweeted video, a sixteen minute video that claims the Douma chemical attack was a “false flag” operation, was hosted by syria alikhbaria, a YouTube channel operated by Syrian state-run television.