Twitter Bots and the Spread of Russian State-Media Disinformation on the White Helmets in Syria

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1. Introduction

Robots have become increasingly relevant in politics today through their role in the spread of information online. Programmers can automate posting and interaction by bots *en masse* to create artificial interest in a story, a method knows as astroturfing. In this paper, I study disinformation stories shared by the Russian state news agency, RT, and how the spread of these stories was aided by Twitter bots. Controversy over the Russian government's influence over the recent Presidential elections due to bots has brought the regime's use of cyber troops for spreading disinformation into the spotlight. I specifically look at false stories shared about the Syrian Civil Defense, also known as the White Helmets (WH), in Syria. in which they are depicted as terrorists and frauds. **I FIND THAT XXX YYY.**

1.1. RT on Social Media

RT (formerly known as Russia Today) is Russian state-sponsored news agencies directed at foreign audiences that was founded in 2005. Their catchphrase is "Question More," and they encourage audiences to "question western and mainstream narratives of world events" (Starbird et al. 2018). They have a tremendous online footprint. RT was the first TV station ever to garner a billion cumulative views on YouTube (Von Bidder 2013). Out of the top news sources on Youtube in English, Arabic and Spanish, RT ranks highest in English and Spanish and third highest in Arabic (Orttung and Nelson 2019). Rather than focusing on overtly political content RT tends to focus on "sensational [stories], [like] eye-witness reports of catastrophes and disasters" (Chatterje-Doody and Crilley 2019; Mickiewicz 2014 as cited in Crilley et al. 2020) or other miscellaneous talk show content (Orttung and Nelson 2019). Compared to its online audience, RT's TV audience is small and the channels viewership is only growing in the Middle East and North Africa, particularly in Syria and Iraq (Connect 2018, as cited in Crilley et al. 2020).

In an analysis of the entire online disinformation ecosystem surrounding WH, Starbird et al. (2018) find that `rt.com` and `sputniknews.com`[1] are in the top ten most tweeted domains of the ecosystem (RT 879 times and Sputnik 1110 times).

I use Bradshaw and Howard (2017) concept of cyber troop to theorize RT and Sputnik's roles online.

RT's YouTube content matters for an analysis of its Twitter content because of the abundance of YouTube media consumed on Twitter that is shared in URLs and embedded in posts. Horawalavithana et al. (2020) show that Twitter acts as a megaphone for for cross-platform messaging about WH conspiracies. They find that out of all web domains sharing WH disinformation in their sample, `RT.com` co-apeared with YouTube URLs in the same Tweet the most, co-appearing 78 times. The second highest co-domain was `clarityofsignal.com`, a personal blog hosting conspiratorial articles whose catchphrase on their home page is "Exposing Geopolitical Madness." It co-appeared 60 times.

From an analysis of RT's YouTube media, Orttung and Nelson (2019) inferred that RT.

In a forthcoming piece, Crilley and Chatterje-Doody (2020),

1.1.1. RT's Audience

Crilley et al. (2020) perform an analysis of RT's Twitter audience. They find that followers are more likely to be males (0.75 compared to 0.62) and are likely to be slightly older (their probability of being 30-40 is 0.2 compared to 0.15 for a random control group of Twitter uses and 0.27 compared to 0.22 for being over 40). They find that RT Twitter followers rarely engage with RT content, arguing therefore that claims that RT has a large audience supporting "anti-Western" worldview are misguided. They are exposed to RT content, but do not appear to endorse that content on Twitter often. They also find that followers do

[1] Sputnik is another Russian state-sponsored news outlet.

not appear to be ”a niche audience of activists” (Orttung and Nelson 2019). Rather, most people who follow RT do so alongside other major international news sources. Followers are fragmented mainly along national, linguistic and cultural lines instead of political identities or ideologically extreme views.

1.2. Twitter Bots

Internet bots are automated software applications, running any range of tasks and doing so repetitively. Internet bots are so widespread that in 2016, bots were estimated to make up half of all online traffic. It is estimated that between 9 and 15 percent of Twitter accounts are bot accounts. In the literature on Twitter bots, Twitter users are generally classified as human, bot, or cyborg accounts, each distinguishing itself from the other by level of automation. Cyborgs are accounts that mix automated and non-automated tweets. Twitter bots can perform all the tasks available to users (i.e. Tweet, retweet, like, follow) and Twitter does not mind the use of bots for these purposes as long as they do not break the Terms of Service through “spamming” and “misleading.” Bots that are actively engaging with Twitter users (not just passive followers) to promote a particular viewpoint are social bots. Some bots are just made to follow an account to inflate the number of that account’s followers and increase its influence and reach (Efthimion et al. 2018).

Different methods have been used to detect Twitter bots in user samples. Forelle et al. (2015) use a particularly simple method. They identify the platform used to Tweet from and subset their sample based on these platforms. They assume that some platforms are more bot-oriented and bot-exclusive, therefore users tweeting from them are bots. Other researchers have employed more sophisticated methods like bot-detection algorithms that were trained using machine learning. The advantage of the platform-based detection strategy over the algorithm-based strategy is in mainly in it transparency. Although less transparent, bot-detecting algorithms are useful in that they output statistics measuring the likelihood of being a bot, and researchers can declare their threshold of choice, as well as using other thresholds for robustness checks. Some of these algorithms include `R's TweetBotOrNot` (AKA `BotOrNot`)[2] or `Python`'s `Botometer`[3].

1.2.1. RT's Robots

There is already significant evidence that RT engagement is driven heavily by bots. A significant amount of RT followers are bots and these bots tend to fall into specific categories of Twitter users. After running the botometer algorithm over a sample of RT followers, (Crilley et al. 2020) find that 39 percent are bots (i.e. accounts with a score ≥ 0.8). When they applied a Louvain algorithm to identify different segments of users and estimated the proportion of bots in each segment, they found that the proportion of bots in each segment ranged from 65 percent to 17 percent, suggesting that some bots engaging with RT operate as coordinated networks.

1.3. Misinformation

Nyhan and Reifler (2012) find that exposure to repetition of misinformation (which is not necessarily intentional) leads to a fluency effect—as people become familiar with claims they are more likely to judge them as true.

2. Data & Methods

I use `Python`'s `twint` library[4] to scrape all RT tweets and tweets mentioning RT between 2015 and 2017. I then use R to subset all tweets for those that were hash-tagged "#whitehelmets."

[2] https://github.com/mkearney/tweetbotornot
[3] https://botometer.osome.iu.edu/
[4] https://github.com/twintproject/twint

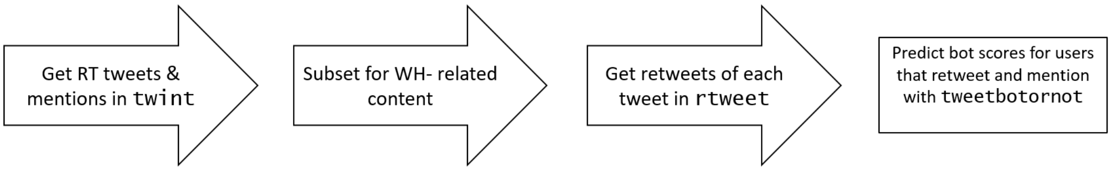

Get RT tweets & mentions in twint
Subset for WH- related content
Get retweets of each tweet in rtweet
Predict bot scores for users that retweet and mention with tweetbotornot

Figure 1: Workflow Diagram for Extracting and Predicting

Next, I get the 100 most recent retweets for each WH-related RT tweet that we scraped using the `rtweet R` package[5] because this method of searching for retweets is not yet supported by `twint`. Mentions were when users tagged "@RT_com" whereas retweets were when users retweeted RT statuses. I follow by using the `tweetbotornot R` package to predict bot probabilities for users that mentioned RT and then for users that retweeted RT for the subsets of WH-related tweets.[6] `tweetbotornot`'s default model is 93.33 percent accurate when classifying bots.[7] Its likelihood estimates range from 0 to 1 with zero meaning no likelihood of being a bot. The data from our sample of WH-related RT tweets, retweets, and mentions are summarized in Table 1.

Table 1: Summary of White Helmet Related Tweets, Mentions, and Retweets

	RT.Tweets	Mentions	Retweets	Total.Engagement
N. of Tweets	9	19	569	588
N. of Users		17	529	546
Mean bot score		0.590	0.704	0.705
Bot score ≥ 0.95		0.294	0.296	0.312
Bot score ≥ 0.9		0.353	0.392	0.462
Bot score ≥ 0.75		0.471	0.580	0.588
Bot score ≥ 0.5		0.647	0.760	0.744

[5] https://github.com/ropensci/rtweet

[6] All replication files are publicly available for review at https://github.com/timroy/white-helmets and data is hosted at https://drive.google.com/drive/folders/1pRiIkeQHrrO8NVMFGOdg7SkTChXQCtCB?usp=sharing

[7] https://www.rdocumentation.org/packages/tweetbotornot/versions/0.1.0

3. Results

RT only hashtagged "#whitehelmets" 9 times in two years.[8] RT tended to post two tweets with the same text within short intervals of each other. For those 9 tweets, I was able to collect retweets from 8 of them due to limitations in `rtweet`. There is a total of 569 retweets and 529 unique accounts in the sample. 39 bots appear in the sample twice or more times. RT was only mentioned 19 times in tweets that hash-tagged "#whitehelmets". There were 17 unique users that mentioned "@RT_com".

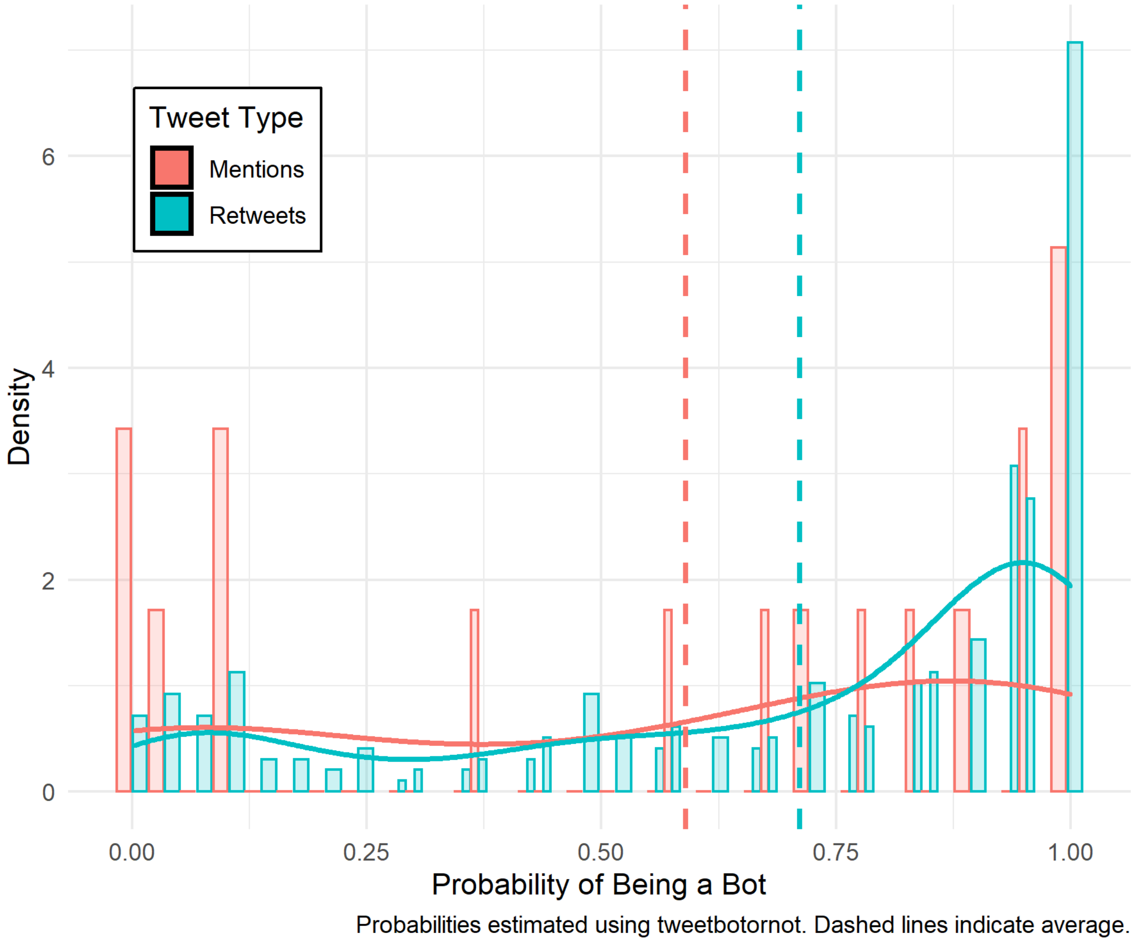
Figure 2 plots histograms and density curves for the distribution of bot probabilities for users that retweeted or mentioned RT. The distribution for retweeters is left-skewed; the majority of observations fall above 0.5 and a significant proportion score 0.9 and above. As shown in Table 1, 29.3 percent score above 0.95 and 40.3 percent score above 0.9. I employ a conservative threshold and consider accounts above 0.9 to be bots. This finding echoes the finding in Crilley et al. (2020) that 39 percent of RT followers are bots. The distribution of users that mentioned RT is more even across probabilities, with a high proportion at either end of the distribution.

4. Discussion

Compared to retweeting, mentions involve the production of original content to create the post, which requires sophisticated bots or cyborg accounts. This explains the difference in bot probabilities between the retweet and mention distributions and the fact that the mean for retweets is 0.704 compared to 0.59 for mentions. It is easier for bots to re-post and share already created content than to create original content.

[8] See Table A1 in the Appendix for tweet wording

Figure 2: Bot Probabilities for RT WH "Tweeters"



5. Limitations

I only extracted tweets that were hash-tagged "#whitehelmets." In the future, I could add "#SyrianCivilDefense" and I could search in the text of the tweet for "white helmets" or "SyrianCivilDefense". In this paper, I also only extracted English tweets. Twitter bots may be active in Arabic. In the future, I could extract Arabic tweets for RT Arabic and replicate the analysis in Arabic.

The sample size for our mentions is substantially smaller than the sample size for retweets. That means there is high uncertainty associated with the mean bot probability estimate of 0.59 for users that mention ($se_{mentions} = 0.096$, $se_{retweets} = 0.013$).

Twitter could have deleted users which they identified as bots that broke their Terms of Service. I intended to address this criticism by using a data-set of users that were removed by Twitter to check their WH-related RT retweeting.[9] The data-set for the time period under study in this paper (accounts removed before October 2018) was unfortunately corrupted and I have yet to hear back from Twitter about it. In the following data-set of Twitter users that were removed in January 2019, of those statuses posted between 2015 and 2017, 260 are retweets of RT and 2 are retweets with "#whitehelmets," but there is no intersection of the two. The January 2019 data-set is significantly smaller than the October 2018 data-set (the file size is 10 times smaller) because many accounts posting during the time-period under study in this paper were already removed from Twitter. Given the large file size of the corrupted data-set, I suspect some tweets intersecting RT and WH are stored there.

[9] https://transparency.twitter.com/en/reports/information-operations.html

6. Conclusion

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A. Appendix

Table A1: Text in RT WH-Related Tweets

	tweet
1	'I saw no evidence of executions in #Syria as reported by #WhiteHelmets amp; #MSM sources' (Op-Ed) https://t.co/KP68gjeGD2 https://t.co/NfjeIFOJAP
2	Error of judgement: #WhiteHelmets apologize for war zone #Mannequin challenge challenge https://t.co/gUhvIJ55x4
3	Error of judgement: #WhiteHelmets apologize for war zone #Mannequin challenge challenge https://t.co/gUhvIJmGoC
4	#WhiteHelmets 'deserve an Oscar' for mannequin challenge performance in Syria war zone (Op-Edge) https://t.co/oBTkV6wcV3
5	#WhiteHelmets 'deserve an Oscar' for #MannequinChallenge performance in Syria war zone (Op-Edge) https://t.co/oBTkV6wcV3
6	Confusing #WhiteHelmets "#MannequinChallenge" video goes viral, leaving many questioning authenticity. DETAILS: https://t.co/aa2VYFKQtQ https://t.co/Np1S4pT2ep
7	Confusing #WhiteHelmets "#MannequinChallenge" video goes viral, leaving many questioning authenticity. DETAILS: https://t.co/aa2VYFKQtQ https://t.co/lPeSYJhjWn
8	'Massive evidence foreign-funded #WhiteHelmets support terrorist entities in Syria' - independent researcher https://t.co/MeCHOuHOyI
9	'Massive evidence foreign-funded #WhiteHelmets support terrorist entities in Syria' - independent researcher https://t.co/MeCHOuZpXi