Title:

The "Tarrant Effect": What Impact Did Far-Right Attacks Have on the 8chan Forum?

Abstract:

This paper analyses the impact of a series of mass shootings committed in 2018-2019 by right-wing extremists on 8chan/pol, a prominent far-right online forum. Using computational methods, it offers a detailed examination of how attacks trigger shifts in both forum activity and content. We find that while each shooting is discussed by forum participants, their respective impact varies considerably. We highlight, in particular, a "Tarrant effect": the considerable effect Brenton Tarrant's attack of two mosques in Christchurch, New Zealand, had on the forum. In the double context of the rise in far-right terrorism and the growing and diversifying online far-right ecosystem, such interactive offline-online effects warrant the attention of both scholars and security professionals.

Keywords:

Far-right; extremism; mass shooting; 8chan; internet; Brenton Tarrant; Christchurch attack

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Word count:

8,641 words (+ Appendix)

Funding:

This work was supported by Economic and Social Research Council (ESRC) via the Centre for Research and Evidence on Security Threats (CREST) consortium under grant number ES/N009614/1.

Acknowledgements:

We thank all participants to the Free University of Brussels' (ULB) departmental seminar, where the paper was (virtually) presented in May 2020, as well as the two anonymous reviewers who provided detailed remarks that helped significantly improve the article.

THE "TARRANT EFFECT":

WHAT IMPACT DID FAR-RIGHT ATTACKS HAVE ON THE 8CHAN FORUM?

Introduction

This paper investigates the relationship between recent mass shootings committed by right-wing extremists and the growing underworld of far-right online forums. It more precisely focuses on the relationship between 8chan, a "semi-dark web forum" (Zamani, et al., 2019) hosting far-right discussions, which was created in October 2013 and terminated in early August 2019, and a series of mass shootings committed between October 2018 and August 2019 by right-wing extremists. Specifically, we analyze the impact of the shootings on the forum's interaction dynamics, offering a fine-grained examination of how attacks trigger shifts in both the pace of discussion and engagement with shootings-related content. This analysis suggests understanding attacks and forum behavior as a dynamic interlocking dyad. Understanding the impact of attacks on grey forums like 8chan is essential given both the recurring pattern of online announcements of real-world attacks linked to far-right extremism, and the gradual displacement of the most extreme far-right online activity from mainstream social media providers (e.g. YouTube, Twitter) to fringe platforms such as the "chans", Slug, Discord, or BitChute (Conway, Scrivens & Mcnair, 2019, p. 9).

As an anonymous "image-board" with little (if any) moderation, 8chan/pol was one of these fringe platforms where far-right discussions took place. The forum only truly attracted policymakers' attention with the Christchurch shooting (15/03/2019) carried out by Brenton Tarrant, who used the board to announce his attack, provide links to his manifesto, and to distribute a Facebook livestream video of the massacre. Little more than a month later (27/04/2019), another right-wing extremist followed the same pattern of action, increasing public concern over the forum; the Poway synagogue shooter, John Earnest, used 8chan to announce his attack and provide links to his "Open Letter" and livestream video. The forum was terminated a couple of days after Patrick Crusius, the El Paso attacker (03/08/2019), similarly announced his intentions and posted a manifesto on the image-board. The year prior to Crusius' attack, Robert Bowers' attack on the Tree of Life synagogue in Pittsburgh (27/10/2018) already triggered discussions in 8chan/pol, even though Bowers does not appear to have been a "Channer" (he instead used another social media platform favored by right-wing extremists, Gab). In sum, as Conway, Scrivens and Macnair (2019, p. 13)

¹ While the concepts of "far-right" and "extreme-right" are notoriously hard to define (see e.g. Mudde, 1996), we understand them here as characterizing an "illiberal opposition to equality" (see e.g. Jupskås, 2020; Carter, 2018; Mudde, 2007).

² A forum where the sharing of images is predominant.

³ Although not writing a manifesto, shortly before the attack, Bowers made a post to Gab stating: "HIAS likes to bring invaders in that kill our people. I can't sit by and watch my people get slaughtered. Screw your optics, I'm going in".

put it, "8chan was directly implicated in three high profile [right-wing extremist] terrorist attacks". Despite the fact that 8chan is no longer accessible online, a spate of similar platforms have appeared since it was taken down. Indeed, the likes of 8kun (8chan's direct successor), 16chan, and Neinchan have appeared or gained traction, hosting comparable far-right extremist discussions and attacks announcements. One such offshoot, Endchan, was used by Philip Manshaus to announce his attack in Bærum, Norway (10 August 2019), with a direct reference to Tarrant; Stephan Balliet posted links to a manifesto and the Twitch livestream of his attack of the Halle synagogue (9 October 2019) to another iteration called Meguca. More recently, Kohlchan users disseminated Tobias Rathjen's video and his "Message to the German people" right after he killed five people and injured nine others in Hanau near Frankfurt (19 February 2020).

Given the persistence of these "chans" as far-right online communities closely linked with terrorist attacks, we argue that *8chan* offers a unique case to gain a better understanding of the interconnection between far-right forums and violent attacks. Specifically, we use the case of *8chan* to shed light on what we believe is the least understood direction of this interconnection: the influence of the attacks on the forum dynamics (as opposed to the more widely studied impact of online content on shootings). We engage with two main, interlocking research questions. First, did the four attacks (in chronological order, Bowers', Tarrant's, Earnest's, Crusius') change the popularity of *8chan/pol*? If so, what was the nature of the changes (short-term or long-term, cumulative or not, etc.)? Second, did the four attacks change the content of these discussions? If so, in what way (towards more extreme content, with/without long-lasting consequences, etc.)?

By answering these questions, we hope to strengthen academics' and security professionals' understanding of the nature of the interaction linking fringe extremist far-right platforms and actual attacks, complementing the literature's current emphasis of the media-to-attack direction of this interaction by a granular analysis of the attack-to-media direction. More broadly, the present paper builds on, and further reinforces, ongoing efforts⁵ to correct the field's historically limited interest in far-right violent extremism⁶—and, *a fortiori*, its online presence.⁷ Given the overall size of the *8chan/pol* corpus (i.e., 22,456 original posts and 435,697 total posts [original posts and replies] over the period from September 2017 to August 2019), we employ recent advances in computational text analysis methods to answer both questions, following the lead of recent quantitative analyses of comparable extremist online spaces (e.g. Bernstein et al., 2011; Jaki et al., 2019; Baele, Brace & Coan, 2019). We understand such computer-assisted approaches as a complement to—not as a replacement for—in-depth qualitative work. It is important to note that our analysis, while providing important insights into forum behavior, cannot directly incorporate a range of exogenous factors that may be significant for influencing forum dynamics (e.g. opening of a rival forum,

⁴ "Botschaft an das gesamte deutsche Volk".

⁵ To note only a few: Caiani & Parenti, 2009; Caiani & Parenti, 2016; Lee, 2015; Davey & Ebner, 2017; Froio & Ganesh, 2019.

⁶ Schuurman (2019) recently showed that as little as 1.9% of the 3.442 articles published by the main journals in terrorism and political violence over the 2007-2016 timespan was dedicated to right-wing extremism.

⁷ Even though, as Conway, Scrivens and Macnair (2019) note, right-wing extremists were "some of the very first users to engage in online politics and were the earliest adopters of internet technology for violent extremist purposes".

big political event which is not an attack). We nonetheless suggest, throughout the analysis, when these alternatives could have played a role.

We proceed in four main parts. First, we provide a brief overview of the history of the "chans" and provide more information on 8chan/pol and associated attacks; this contextual information is necessary to interpret our findings. In the second part, we specify our research questions and situate them within both the growing literature on the far-right online ecosystem and theories of online-offline extremist interactions. In the third part, we explain our computer-assisted method. Fourth and finally, we provide and discuss our results, organized in two interlocking sections corresponding to our two research questions. Overall, we show that there is no single, simple impact of attacks on forum dynamics and content; rather, each attack had different effects, in some instances opposite. This can only be understood by considering the general evolution of the discussion across time, more specifically by attuning to the important and long-lasting "Tarrant effect" of the Christchurch shooting.

Background

8chan's content and dynamics are only understandable within the ever-growing constellation of sites colloquially referred to as "the Chans" or the "Chanosphere", which are all built on a similar structure and guaranteeing users' anonymity. The "Chans" initially started with two Japanese forums: "2channel" (renamed "5channel" in 2017, 5ch.net) launched in 1999, and "futaba channel" (2chan.net) launched in 2001. While originally dedicated to "anime" and "random" discussions, new iterations were quickly created that channeled nationalistic rants, pornography and hate speech, and triggering controversies. The creation of 4chan (4chan.org) in 2003 marked both the spread of the Chans outside Japan towards a complex and rapidly evolving nebula constituted by a range of forums in different languages. The Chans have, from their inception, been the source of a range of controversies related to pornography, xenophobia, conspiratorial claims, misogyny, and violence. 4chan was already suspended in 2004 due to concerns with child pornography on the site's thematic board dedicated to "hentai" (pornographic Japanese anime), and serious problems arose with other thematic boards, such as discussions on weaponry ("/k" board), xenophobic slurs (chiefly on the "/pol" – for "politically incorrect" – board), or the development of the misogynistic "InCel" subculture ("/r9k" board).

8Chan (or infinitechan)⁹ was, immediately from its creation in 2013, a particularly problematic iteration of these sites. The image-board was directly intended to be a "no holds barred" equivalent of 4chan, as a result of a perceived increase in moderation from the 4chan team and surveillance by intelligence and law-enforcement agencies. The forum indeed grew in popularity following the "#gamergate" controversy, during which 4chan moderators decided to ban conversations on the subject, triggering a migration of some 4chan

⁸ Anonymity is an important feature of the Chans, and one that its users take seriously (Ludemann, 2018). Chans users thereby self-identify as "anons". Indeed, the Anonymous hacking collective originated from *4chan* as a result of users targeting the Church of Scientology in response to its attempts to censor the Internet. It is worth noting that this anonymity can be overcome through the use of a "trip-code", a factor that proved to play a large role in discussions surrounding the "QAnon" conspiracy discussed below.

⁹ The 8 on the site's logo is horizontal, like the infinity symbol.

users to 8chan. The lack of moderation and anonymity on 8chan resulted in its /pol board quickly becoming a hub for right-wing extremists (Conway, Scrivens & Macnair, 2019) and a hotspot for shooters hoping to share their manifestos and videos (most notoriously the Christchurch shooter Brenton Tarrant). The focus of the analysis in the present paper is therefore on that particular board, where a community had gradually coalesced around a common ideology and subculture, 10 the main components of which are discussed in the analysis below. 8chan shut down in August 2019 following the El Paso shooting, accelerating the already growing expansion of the Chans nebula to forums like 8kun (8chan's direct successor), Neinchan, Endchan, 16chan, Shitchan, Spacechan, Finalchan, 38chan, JulayWorld and many others, all of which contain right-wing extremist forums (when they are not entirely dedicated to far-right discussions).

As noted in the introduction, three shootings are directly linked to 8chan/pol, and an earlier one indirectly. Table 1 below provides key information about these attacks, which have been lethal (85 deaths and 82 injured overall). As far as can be ascertained, Bowers was not an active member of the Chan community, nor was his attack the first in the wave of right-wing extremist attacks that began in 2018. It was, however, arguably the first such attack that was majorly reported on and which gained attention on 8chan/pol. Furthermore, this appears to have been the first instance of the modus operandi that would be adopted by the future attacks discussed here, namely that an announcement about an attack was made on social media by the perpetrator prior to it taking place. In contrast, Tarrant's attack of the two mosques in Christchurch was directly announced on the forum by the shooter, who was a board user. At 08:28 local time (19:30 UTC) on March 15, 2019, he made a post stating "I will carry out and attack against the invaders". As can be seen from **Figure 1** below (which also gives unfamiliar readers an example of what the forum looks like), the poster goes on to talk about the 8chan community in favorable terms as an ingroup, and posts links to both his manifesto entitled "The Great Replacement" (which contained numerous in-jokes demonstrating his familiarity with the forum's subculture) and a Facebook livestream video of his attack. The first response arrives less than 2 minutes later, and, in line with the Chan style, consists solely of a meme. Other replies include an image of Hitler drawn in anime style accompanied by the text "Good luck shitposter. Rolling for many dead chinks and niggers" (posted at 00:49 UTC), or the statement "holy Ifuck [Link removed] OP fucking delivered I just saw him kill so many fucking hajis" (posted at 00:51 UTC). Little more than a month after this mass killing, on April 27, 2019, at 11:23 local time, Earnest committed the attack on Poway Synagogue in California. 11 Shortly beforehand, a post was made to 8chan's /pol board that contained a manifesto entitled "Open Letter", accompanied by the following words: "Keep up the infographic redpill threads. I've only been lurking for a year and a half, yet what I've learned here is priceless. It's been a honor". 12 Finally, on August 3, 2019, Crusius committed a mass shooting at a Walmart

¹⁰ We understand here the term culture broadly as a coherent ensemble of shared practices, references, lingo, moral code and assumptions (read Ramsay, 2013, or Hegghammer, 2017, on the culture of jihadi communities). For an analysis of the chans' /pol board subculture, read Baele, Brace and Coan (2021).

¹¹ Since his arrest, Earnest has been linked to an earlier arson attack on a mosque, due to his manifesto stating: "I scorched a mosque in Escondido with gasoline a week after Brenton Tarrant's sacrifice and they never found shit on me".

¹² Reported by Evans, 2019b.

in El Paso, Texas, following the same pattern of behavior as Tarrant and Earnest: he announced his intentions in an *8chan/pol* post made at 10:15 local time, where he stated "I can't wait any longer", adding "I know the media is going to try to frame my incorrectly, but y'all will know the truth!". The post also included a four page manifesto entitled "The Inconvenient Truth", where he specifically singled out Hispanics as being his primary target and stated his wish for a confederacy of ethno-states.

This consistent pattern of behavior inevitably raises the question of the exact nature of the online-offline interactions at play between the shootings (and shooters) and the forum. The next section specifies our take on this question and situates our effort within existing work on similar phenomena.

[FIGURE 1 HERE]
[TABLE 1 HERE]

Literature review and research questions

As evoked above, gaining a stronger understanding of the online-offline interactions when it comes to the far-right is crucial. As demonstrated by recent studies (e.g. Conway, Scrivens, & Macnair, 2019; Baele, Brace, & Coan, 2020; Wahlström, & Törnberg, 2019), the far-right online ecosystem is vast, multifaceted, and growing fast, yet – for these very reasons – it is still poorly mapped and insufficiently understood. Simultaneously, data shows an increase of attacks related to far-right ideology over the past years. ¹⁴ In this double context, and with the shootings described above in mind, unpacking the relationship that connects this online environment to real-world violent incidents is a pressing question, both scientifically and in terms of counter-extremism/terrorism practice.

Efforts have been made to clarify the type of relationship that unite extremist online messaging and communities with real-world activism, in some cases violent action. Most of these efforts have, however, focused on the online-to-offline direction of the relationship, generally arguing that higher exposure to, and participation in, online extremism raises the probability of actual violent behavior (e.g. Pauwels, & Schils, 2016), a phenomenon observed in the cases of the far-right (e.g. Müller, & Schwarz, 2018) and other extremist ideologies (for example Salafi-jihadism, see Rosenblatt, Winter, & Basra, 2019; Zekulin, 2020). It is worth noting a series of reviews come to less assertive conclusions (e.g. Brown, & Pearson, 2019). The present study focuses on the other, offline-to-online direction, in an effort to re-balance the analysis of the relationship as a dynamic and circular one whereby online developments influence offline behaviors which themselves shape further online developments. By doing so, we follow Boulianne and Theocharis' (2020) heed that "while research generally assumes a causal flow from digital media to participation, the evidence for the alternative causal flow is strong and has very different implications on interventions". With online and offline activities being highly interconnected in complex ways (Johansson, & Scaramuzzino, 2019), we

¹³ Reported by Evans 2019c.

¹⁴ Read, among others, Anti-Defamation League Center On Extremism (2020), UN Counter-Terrorism Committee Executive Directorate (2020), Bjørgo and Ravndal (2019), or EUROPOL (2020).

hypothesize, and empirically evaluate, two main processes when it comes to 8chan/pol and the four attacks described above.

Hypothesis and research question 1: Our first hypothesis relates to the impact of shootings on 8chan/pol's popularity. We hypothesize that the board's popularity would not be significantly affected by the shootings, for two reasons. First, two opposite effects might happen simultaneously and cancel each other: on the one hand, attacks might have brought new, particularly extreme users endorsing violence to 8chan/pol, yet on the other hand they could well have put off existing users who either fear surveillance or don't embrace the killing of civilians even though they share the kind of far-right ideological beliefs that dominate the forum. Second, none of these opposing user migrations is likely to be big, because 8chan/pol occupied, from the onset, a very specific niche in the broader "chan" ecosystem, hosting a much more extremist type of debate and content than 4chan/pol (Baele, Brace, & Coan, 2020). A very particular user base was rapidly cemented that was likely to support the shootings. Empirically, we therefore seek to evaluate whether over time the popularity of the board has increased or decreased, especially in the immediate aftermath of the shootings. Since 8chan/pol was fully anonymous, it is impossible to distinguish posters and thereby identify new and old users; we therefore use, as a proxy measure, the amount of contributions posted to the board. While this is far from perfect, it should nonetheless allow us to spot clear changes in the forum's popularity, especially on the long run.

Hypothesis and research question 2: Our second hypothesis relates to the effect of shootings on 8chan/pol's content. We hypothesize that, after attacks, the forum discussions would display a small yet noticeable shift towards more extreme content or exhibit slight ideological shifts. On the one hand, different theories and past observations encourage us to expect an intensification of the level of extremism in the discussions, towards, for example, more explicit calls to violence or more regular racial slurs, for two reasons. First, it is likely that attackers who evidence their belonging to the board by announcing their attacks and posting manifestos/livestreams would subsequently become glorified by users, entering the subculture as martyrs for the cause. This "martyrology" phenomenon is notoriously widespread in the Salafi-jihadi culture, but also in other extremist online communities akin to the "chans" where the "sanctification" of killers reinforced commitment to violence (read e.g. Baele, Brace, & Coan, 2019, on incel forums; Raitanen, & Oksanen, 2018; or Oksanen, Hawdon, & Räsänen, 2014, on school shooters fan communities). Second, it is now established that the group polarization phenomenon (Myers, & Lamm, 1976), which refers to the tendency of like-minded individuals to embrace increasingly extreme politics the longer they deliberate, can lead groups to support violence (Thomas, et al., 2014) and takes place in ideologically sealed online environments (e.g. Sunstein, 1999). Yet on the other hand, our previous argument that the 8chan/pol user base was from the start a hardcore community with large support for violence means that group polarization cannot lead to support for much more extreme policies than the ones initially endorsed. So overall, while we don't expect to see an evolution of discussions towards significantly more extremism, the glorification of killer figures into "role-models" (Langman, 2018) that ought to be emulated is likely to be noticeable, with the specific arguments made by the killers in their communications (manifestos, videos) having the potential to produce slight ideological shifts.

Data and Methods

To answer these research questions, we conducted a two-step computer-assisted analysis of the forum. This approach was chosen for its demonstrated value in studying extremist forums (e.g. Jaki et al., 2019 and Baele, Brace & Coan, 2019, on *Incels.me*), and should be situated within the broader research agenda using computational methods to study areas of the far-right online ecosystem (e.g. Törnberg & Wahlström, 2018; Wahlström, Törnberg, & Ekbrand, 2020; Baele, Brace, & Coan 2021). This quantitative approach should be understood as a complement to, rather than a replacement of, more interpretive qualitative work that could be developed on the basis of the present effort.

1) Data: Harvesting the 8Chan/pol corpus

We developed a custom web-scraper¹⁵ to harvest both the visual and textual content of the 8*ch.net/pol* board, and organized this content within a ready-to-use database which contains all of the board's linguistic content¹⁶ from 09/04/2017 through to the site's closure on 05/08/2019. Data was collected for all original posts and reply posts (for a total of 435,697 original and reply posts), and included all the corresponding metadata (for each post, key information such as its length, its date and time, and how many replies it received). Most of the analysis was carried out on a corpus comprising original posts only – the fact that replies were sometimes uploaded several months after the original post, made a judgement of the forum pace very difficult and a study of the content variation across time impossible.

2) Computational methods

We used this database to address our two core research questions. To answer research question 1 on the popularity of the forum, as explained we used the proxy measure of the pace of posting behavior, we used the posts' metadata harmonized in UTC time zone (as this is the time zone used by the forum itself). We plotted posting activity across time to show variation during the whole timespan covered by the website (zoom out) and then around the days the attacks took place (zoom in). This simple descriptive analysis provides sufficient information to assess general questions on posting dynamics.

Next, we employ two approaches to answer question 2 on changes in the forum's content. First, we use a topic model to identify and measure the main themes present in the *8chan* corpus, as well as to trace the evolution of these topics across time in our corpus in order to locate shifts in content before/after attacks. Generally speaking, topic models are "an unsupervised machine learning method that learns the underlying themes in a large collection of otherwise unorganized documents" (Chaney & Blei, 2012: 1), and there have

¹⁵ The scraper was developed in Python, using the request (https://pypi.org/project/requests/) and BeautifulSoup (https://pypi.org/project/beautifulsoup4/) packages. The Python script used is available at https://github.com/LewBrace/From mass shootings to shitposting what impact did far right attacks have on thee.8chan_forum.

¹⁶ 8ch.net/pol archived all of the text data from April 2017 onwards, but it did not archive visual data, which could only be obtained through "live scraping", i.e. continuous scraping of the board's currently active posts. Because the authors conducted live scraping from 04/07/2019 until the site's closure, the visual data in our database was insufficient to warrant inclusion in the present analysis (see conclusion).

been a number of different approaches to estimating these models offered in the literature, from generative models such as Blei, Ng, and Jordan's (2003) well-known Latent Dirichlet Allocation (LDA) model to more recent approaches based on matrix factorization techniques (see Greene & Cross 2017). In the analysis below, we utilize a non-negative matrix factorization approach (NMF) model, which our experiments suggest is particularly well-suited to short texts (such as posts on an online forum). Full details of our approach are provided in Section 1 of the **Appendix**. The end result of this analysis is the identification of eight semantically coherent themes that reoccur across *8chan/pol* posts.

In addition to the topic modelling results, we provide additional nuance on the key features of 8chan's content by employing the popular Word2Vec model developed by Mikolov and colleagues (2013) and standard textual data summary statistics (such as relative term frequency counts and bi-grams). As described by Mikolov and colleagues, the Word2Vec model applies a simple, two layer neural network to a text corpus (here the text from every original post made to 8ch.net/pol) in order to produce an N-dimensional vector space, whereby each unique word within the input text corpus is assigned a vector (or "embedded") within the space. Why is this embedding useful? Mikolov et al. (2013) demonstrated how these word vectors can be used to understand the context surrounding a particular word and to find other words used in a similar context. That is, words that are used in similar contexts are closer together in this space than those that share different context of usage. We use this approach to identify and visualize the main dimensions of the forum's content, and how they relate to one another. For more information on our application of the Word2Vec model to the 8chan corpus, see section 2 of the Appendix (information on the specific versions of the packages used for the scraping and analysis is available in section 6).

Admittedly, these computational tools are not adequate to attribute direct, unambiguous causation between the shootings and the shifts noticed in the forum pace or/and content. As noted earlier, exogenous confounding effects may produce such effects. Our combination of various techniques and our consideration for such potential effects, together with our focus on several cases, nonetheless allows us to make measured claims on the shooting-to-posting connection.

Results and Discussion

1) Research question 1: Attacks and forum popularity.

In order to be able to identify any potential impact of attacks on forum popularity via an analysis of posting pace, it is first necessary to have a general overview of this measure over a long period of time. **Table 2** below depicts summary statistics for the entirety of the *8chan/pol* corpus. We notice that the forum is very active: on average there are over 570 posts (original and replies) per day. The average length for posts is similar to what one would expect in any other internet forum, with significant fluctuation (from very short posts with no text whatsoever and only containing images, to substantial arguments developed in several

¹⁷ Bi-grams (and N-grams more generally) capture the language structure of a body of text by calculating which word or letter is likely to follow any other given word or letter.

¹⁸ The amount of replies per original post varies a lot. Mean replies = 16.70; median replies = 4; STD= 32.20; range = 532.

paragraphs), again not unlike any other internet forums. These measures also demonstrate the large amount of variation in the frequency of posts over time, which makes our analysis difficult.

Figure 2 below already suggests some attacks-related effects. It shows the evolution of the number of original posts made to *8ch.net/pol* across time, from the board's first archived post (09/04/2017) to the site's closure (05/08/2019). The figure shows that it took a couple of months for the board to develop a frequent user base over the summer 2017, after which the pace of the forum increased to around 30 new original posts per day (not counting replies). A significant surge in activity occurred on 27/05/2018, which carried on into June 2018, reflecting the first major discussion of the "QAnon" conspiracy theory. In Importantly for us, two other substantial increases in the frequency of original posts occurred, first on 15/03/2019, the day of Brenton Tarrant's attack in Christchurch, which cannot be a coincidence, and a more gradual increase from mid-June to mid-July 2019, followed by a new drop shortly before Crusius' attack.

[TABLE 2 HERE]

[FIGURE 2 HERE]

With this general information in mind, we can zoom in on the periods of time directly preceding and following the four attacks. **Figure 3** below displays the number of original posts per day for the four periods running from ten days before to ten days after each attack (the related summary statistics are provided in section 3 of the **Appendix**).²⁰ One major observation can reasonably be made: Brenton Tarrant's attack had a strong and lasting impact on the forum's activity, while other attacks did not significantly boost posting rhythm. Bowers' attack coincides with an increase in traffic during the five days following his attack (which took place on a day of relatively little activity on *8ch.net/pol*), but on the slightly longer run the effect disappeared: the mean number of original posts per day during the 10 days preceding the attack was 29, and 32 for the 10 days following it. Tarrant's action was different in kind: his announcement of his attack resulted in an immediate, sharp increase in the number of original posts made to the forum (the number of original posts jumps to over 80), ²¹ an increased pace that took time to dissipate: from an average 32 original posts per day over the 10 days preceding the shooting, the forum activity reaches an average of 74 posts for the same period after the attack.

Earnest's attack seems to have had a somewhat counter-intuitive effect: not only did posts not increase, their amount actually decreased (32 original posts on average over the 10 days beforehand, 23 for the same timeframe afterwards). Between the period of 17/04/2019 and 07/05/2019, there were actually only eight original posts mentioning Earnest (for a total of 19 mentions). As **Figure 2** showed, his attack took place at a time posting activity was just back to its average as the impact of Tarrant's massacre eventually waned,

¹⁹ The belief that the world is run world is controlled by a global cabal that is anti-Trump and operate an international child sex-trafficking ring. The theory states that Donald Trump is planning to dismantle the cabal through a series of simultaneous arrests that QAnon followers refer to as "the storm".

²⁰ The graph for Crusius only contains 2 days after his attack as the forum shut down at that point.

²¹ The graph shows the increase in traffic beginning on 14/03/2019 due to the NZST time zone being twelve hours ahead of the UTC time zone and eleven hours ahead of UTC+1 time, which was the time zone of the authors at the time of scraping.

but instead of reinvigorating the forum the shooting seemed to have further depressed it to unprecedentedly low intensity. Our content analysis carried out in the next section partially explains this impact or lack thereof, which cannot be understood solely with the kind of metadata studied here. Interestingly, after more than a month of almost null posting activity on the board, intensity gradually increased again up to normal levels, and then plummeted once more before Crusius announced and committed his attack, which precipitated the closure of the platform within two days.

To sum up, we find that not all attacks have the same impact on forum dynamics. Indeed, only one – the Christchurch attack – had a clear effect on the online environment. Apart from Tarrant's attack, our data backs our hypothesis that the board's popularity is not significantly affected by the shootings; our use of posting pace as a proxy for the board's popularity further reinforces this argument, as part of the "Tarrant effect" (yet most probably not all) could well be explained by old users intensifying their contribution rather than new members joining. The other attacks cannot be matched with clear, sharp changes in forum popularity: one did not change the posting activity (Bowers), one heralded an unprecedented decline that could be due to other factors (Earnest), and the final one, which provoked the closure of the website, occurred *following* an increase in posting intensity, potentially pointing to the kind of online-to-online dynamics more usually examined by the literature.

[FIGURE 3 HERE]

2) Research question 2: Attacks and forum content.

Before assessing the impact of attacks on the forum content, it is necessary to offer a brief overview of that content over the whole corpus; that baseline will enable us to identify potential shifts in this content before/after the attacks. To do so, we first ran a topic model for the whole corpus of original posts. Figure 4 below lists the 12 clusters of 10 words constituting each topic, with each topic being numbered, and the bars indicating their proportional contribution to the corpus, which allows us to confirm the far-right nature of the forum (topics 4, 5, 8) as well as its focus on political issues, with the first Trump campaign and presidency identified as a single important topic. Posters are also keen to talk about news stories - together with topic 10 (which we could label "government and economics"), this is the forum's top discussion topic. Figure 5 visualizes the forum's major themes in a different way, displaying the results of a Word2Vec model of the whole forum (fed with the majority of 8chan/pol's most frequent terms, which are available in **Appendix** together with top bi-grams);²² thematic clusters clearly appear that reveal six major components of 8chan/pol's ideology, locating it with the broader "far right" as defined in the introduction. First, an orange cluster on the right evidences the predominance of anti-Semitism ("kike", "judaism", "shabbat", "jew", "rothschild", "zionist", etc.). This cluster is important: "jew" is the third most frequent term of the whole corpus, and "jewish" the eleventh. Second, a blue cluster right under the orange one confirms considerations about race ("white" [which is the second most frequent term in the whole forum], "brown",

²² The terms "people", "time", "year", "jewish", "president", and "thing" were not fed into the model either because they strongly co-occurred with one of the other terms that were fed in or because they were so frequently used while having little analytical value that they would have constituted noise in the analysis to follow.

"minority", "color", etc.). *Third*, the central, grey cluster reveals the importance of discussions revolving around race-oriented movements and action ("identitarian", "organization", "militant", "antifa", "violent", "atomwaffen", etc.). Going left, a *fourth*, purple cluster confirms the board's preoccupation with migration, understood as an invasion ("foreigner", "invasion", "influx", "migration", "refugee"). Next to it, a *fifth* cluster in pink exposes the presence of discussions about government/finance collusion ("government", "lobbying", "corrupt", "finance", "corporate", etc.). *Finally sixth*, a green cluster on the left shows the salience of American politics and Trump in particular ("trump", "trumpist", "kushner", "presidency", "dems", etc.). Trump is a key figure in *8chan/pol*'s discussions – indeed "trump" is the fifth most frequent term in the whole forum, and "donald, trump" is the second most frequent bi-gram (with "president, donald" and "white, house" coming sixth and seventh respectively).

[FIGURE 4 HERE]

[FIGURE 5 HERE]

How did this content vary across time – and if it did, could changes be explained by attacks? We proceed in two steps. First, we evaluate if the attacks had a broad influence on the major themes and topics preferred by board members (the ones highlighted above). To detect such an effect, we plotted the relative salience of the 8 non-junk topics across time, in **Figure 6** below. The figure clearly shows the overall prominence of topics 1 ("news stories") and 10 ("Government and economy"). It also shows, importantly, no clear impact of attacks on the big topics of discussion. The forum content remained much of the same throughout its history, confirming our hypothesis that no major change in the ideology of the forum would be expected following the attacks. While there are drops and spikes in topics' respective saliencies, these cannot be clearly attributed to the attacks (for example, the June 2019 spike in topic 10 does not directly follow Earnest's attack, and are more likely due to an exogenous factor: important steps in the China-US trade war and Trump's announcement of his participation in the 2020 presidential election). Topics, however, do become much more unstable in the period following Tarrant's attack. The aftermath of the Christchurch shooting is indeed followed by an increase (proportionally to other topics) in racial slurs, while discussions on government and news stories fall. This might be part of the "Tarrant effect" observed above in terms of forum pace/popularity.

[FIGURE 6 HERE]

Second, and as this analysis remains quite superficial and opens up the possibility of a "Tarrant effect", we complemented it with a more focused verification of whether the four attacks were commented on by posters, and if so, why and for how long. As noted above, the glorification of "role-models" is indeed a well-known amplifier of extremist worldviews that tends to reinforce commitments to violence. We observe that, as expected, forum members did in fact discuss the attacks in a direct way, with Tarrant's shooting having an unmistakable impact that further adds to our observation that a "Tarrant effect" is at play on the board. **Figure 7** below displays the frequency of the terms unambiguously characterizing each attack ("Bowers" OR "Pittsburgh", "Tarrant" OR "Christchurch", "Earnest" OR "Poway", "Crusius" OR "El Paso") as well

as the words "shooting" and "attack". We see that after each attack the shooter/place is explicitly mentioned and the frequency of the words "attack" and "shooting" augments. In line with our findings on posting pace, and echoing the relative increase in racial slurs noted in the previous paragraph, we notice the undeniable impact of Tarrant's attack, as well as a small and short-lived effect of Earnest's shooting. Clearly, by the novelty of his modus operandi – an 8chan/pol user directly announcing the attack on the board, posting a manifesto and livestreaming the massacre - Tarrant became an important and lasting influence on discussions. The tables listing the most frequent terms and bi-grams occurring in the forum for the periods running 10 days before to after each attack (available in Appendix, section 4) confirm that while each attack is talked about, Tarrant's shooting truly colonizes the discussion (and Earnest's attack does not raise much interest). Some of the most frequent bi-grams in the Bowers' timeframe include "life, synagogue", "pittsburgh, synagogue", "false, flag", 23 and "robert, bowers". A close, qualitative look at these terms in their context²⁴ shows that Bowers is, in line with our theoretical discussion, lauded as a "saint" and "fucking hero fighting the ZOG", 25 for having stopped "sick kikes" and a "faggot rabbi mutilating the penis of two infants and then sucking the blood from the wound". In Tarrant's timeframe, some of the most frequent words are "attack, "video", and "muslim", and a lot of the most frequent bi-grams unambiguously refer to the attack: "Brenton, tarrant" (3rd most frequent bi-gram), "false, flag" (6th), "mass, shooting", "terror, attack", "christchurch, shooting" "jacinda, ardern", or "christchurch, mosque". The most frequent bi-gram for the period is even "noice, noice", a slang way of saying "nice, nice" which posters kept on writing to directly comment on the shooting. A qualitative examination of the posts in context shows a large discussion on Tarrant's attack, where he is referred to as "our soldier". While strongly supported overall, the attack nonetheless sparkled intense "strategic" debates as to whether Tarrant was misleading in targeting Muslims (who "are ruining their countries" and "infesting their values and societies") and should have instead targeted Jews and "inspire young white men to battle the ZOG" ("49 dead Muslims isn't going to hurt the System, and he could have killed nearly as many, along with robbing them, to help finance his own war against the ZOG along the way"). Earnest's and Cruius' attacks did not have such an impact on the forum content - the latter in large part because of the forum's closure it accelerated. Together with factual information and links to his manifesto, the rare posts mentioning Earnest dismissed him as a failure ("Earnest: 1 Google Crane: 4.26 Weaksauce. Will the ZOG bury their retalitatory [sic] crane slaying? They know they won this round. Smug mother fuckers").

[FIGURE 7 HERE]

²³ The notion of "false flags" appears frequently in the *8chan* corpus and other Chans and right-wing extremist forums. It is a term used by both far-right and far-left groups to describe a violent act as being conducted by either an opposing group or the government in order to deflect blame onto the in-group in order to further a hidden agenda (the term is therefore intimately linked with the various conspiracy theories that are encountered on the Chans).

²⁴ Quotes in this paragraph are taken from the 5 most popular original posts that mentioned the name of the killer within the 10-days timeframe around the attack day (ordered by the number of replies each original post had). These posts are available in **Appendix**, section 5.

²⁵ The ZOG is an acronym commonly found on anti-Semitic platforms, standing for "Zionist-Occupied Government".

²⁶ A crane accident occurred in Seattle on the same day.

Overall, our second hypothesis that attacks would prompt small yet noticeable shifts towards more extreme forum content, or trigger slight ideological shifts, is not strictly speaking verified. We do observe, however, changes following Tarrant's attack that contribute to the multidimensional "Tarrant effect" exposed throughout the empirical section of this article.

Conclusions

Contributing to the ongoing debate on the offline-online interplay when it comes to extremism, the present paper aimed at determining the impact of a series of lethal shootings carried out by far-right terrorists on 8chan/pol, a prominent online forum linked to these attackers. Examining the forum's metadata and textual content allowed us to find that overall, there is no single, clear type of offline-to-online impact. Each shooting had a different impact on the forum's popularity (approximated by posting activity measures) and content; in fact, in line with our hypotheses the forum's activity and ideology have remained relatively stable throughout its existence. There is one exception, however: the attack of the Christchurch mosques did have an undeniable and lasting impact on both the forum's activity and content. This "Tarrant effect", which increased offensive racial slurs for over a month and created a "saint" for the community, cannot reasonably be attributed to exogenous factors, even though our study does not involve causal analysis strictly speaking.

These results, while useful in clarifying the offline-to-online direction of the relationship between the far-right internet and real-life violence, raise a series of questions. First, it remains to be explained why this "Tarrant effect" occurred, and why there was no "Earnest effect" or "Crusius effect". We suggest that the novelty of Tarrant's attack modus operandi, its direct relationship to the forum, and its very high lethality, triggered the effect. In comparison, Earnest's and Crusius' attacks were far less lethal and not as "new". Second, and more importantly, highlighting a "Tarrant effect" completes the picture of the cyclic interplay between the chans and far-right attacks, with the Christchurch attack prompting changes in the forum that most probably played a role in the occurrence of subsequent shootings. Indeed we are almost certain that both Earnest and Crusius were 8chan posters, and we know that they discuss Tarrant in their manifesto which they disseminated on the image-board. Earnest directly cites both Bowers and Tarrant as his inspiration for his actions, the latter being mentioned ten times and described as "a catalyst for me personally" ("I used a gun for the same reason that Brenton Tarrant used a gun"). Tarrant's influence is equally obvious in Crusius' manifesto: "I support the Christchurch shooter and his manifesto", he writes, adding that "the Hispanic community was not my target before I read The Great Replacement". Our analysis, taken together with previous studies and intelligence on this case, therefore suggests the existence of a form of crime-media-crime contagion effect not dissimilar to the one found after the Columbine school shooting (read e.g. Helfgott, 2015; Surette, 2012).

These findings also call for further research – indeed we consider them as a first step in a broader research agenda necessitated by the current proliferation of similar "chan" boards hosting right-wing extremist discussions, and by the continuing growth and increasingly multidimensional character of the far-right

online ecosystem more generally. Further research should start by correcting the shortcomings of the present inquiry. Most evidently, the investigation net ought to be broadened to other chan boards (e.g. *Neinchan*, *Endchan*) in order to detect inter-platforms migration, which could verify our use of forum posting activity as a proxy for popularity, elucidate some observations made here, and account more comprehensively for some under-explained variations (above all, the forum's first "death" in May-June 2019). Future studies should also correct the present contribution's blindness to visual imagery, which constitutes a defining feature of the chan boards and an important piece of their extremist "martyrology" (Tarrant, for example, became the source of some of the platform's most prominent memes). Careful qualitative work would also be needed to deepen the analysis, in order to better understand recurring posting practices and their role in establishing a common subculture that encourages violence. Finally, methods directly geared towards establishing causal pathways are necessitated to evaluate the validity of the findings we delivered through our descriptive methodology.

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Tables and Figures

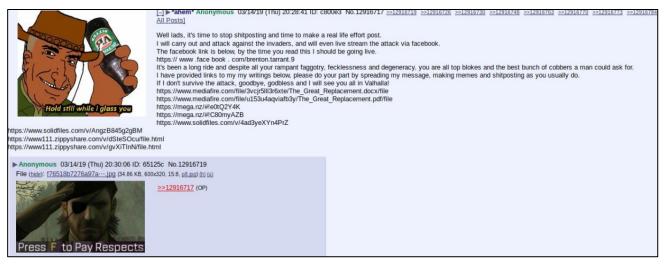


Figure 1: Screenshot of Tarrant's original post to 8chan/pol just prior to his attack, with the first reply post.

Shooter	Number of victims	Place of attack	Date of attack	Time of attack start	Use of 8chan ²⁷
Robert Bowers	11 killed, 6 injured	Pittsburgh, Pennsylvania	27/10/2018	09:54 EDT	Predominately used Gab, but was the first in a wave of high-profile attacks using a specific MO that was discussed on 8chan.
Brenton Tarrant	51 killed, 49 injured	Christchurch, New Zealand	15/03/2019	13:40 NZST	- announcement of attack Link to livestream video link to manifesto.
John Earnest	1 killed, 3 injured	Poway, California, US	27/04/2019	10:39 MDTC	- announcement of attack Link to livestream video link to manifesto.
Patrick Crusius	22 killed, 24 injured	El Paso, Texas, US	03/08/2019	10:39 MDT	- announcement of attack. - link to manifesto.

Table 1: Key information about the four shootings included in the analysis. Note: time of attack is reported Zulu (local) time and UTC time.

 $^{^{27}}$ Due to the anonymous nature of interactions on 8chan, we cannot firmly establish if the shooters were active posters on the forum, and if so for how long. We only list here the uses of 8chan that are clearly established.

	Mean	Median	Mode	Standard deviation	Range
Original posts per day	33.67	34	32	16.98	152
Number of words per post	155.39	96	20	162.93	1564
Length of words (number of letters) in post	7.02	5.37	5	13.68	702.43

Table 2: Summary statistics of all of original posts of the 8ch.net/pol corpus between 09/04/2017-17/07/2019.

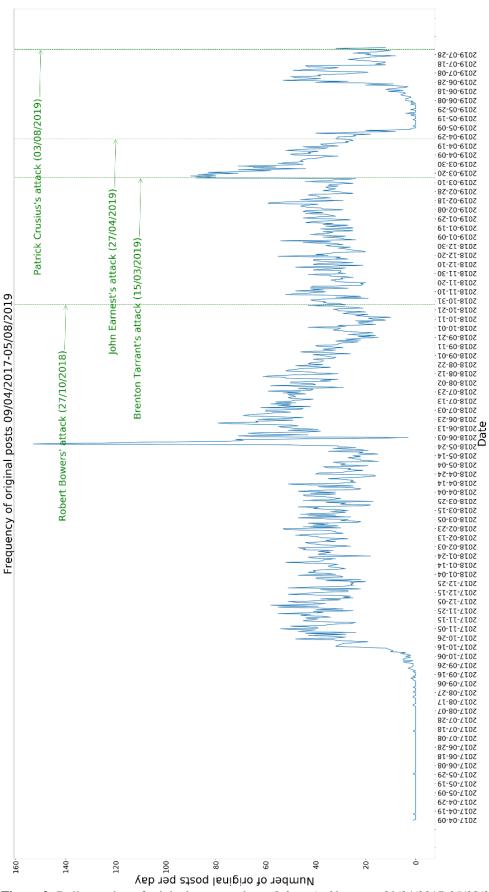


Figure 2: Daily number of original posts made on 8ch.net/pol between 09/04/2017-05/08/2019.

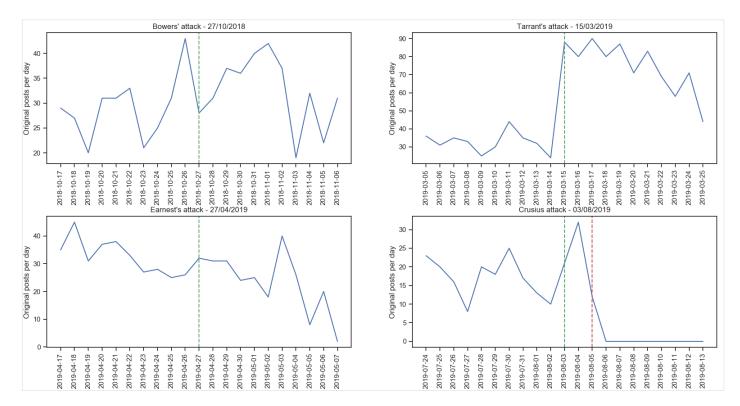


Figure 3: Number of original posts per day the 10 days prior to and following the four attacks, with the green dashed vertical lines signifying the day of the attack.²⁸ The red dashed line on the graph for Crusius' attack indicates the date that 8ch.net/pol went offline.

²⁸ Note that time zones should be taken into account. In a) the difference between Zulu and Quebec time is -4 hours; in b) the difference between Zulu and Mike time is +12 hours; in c) the difference between Zulu and Tango time is -7 hours; in d)

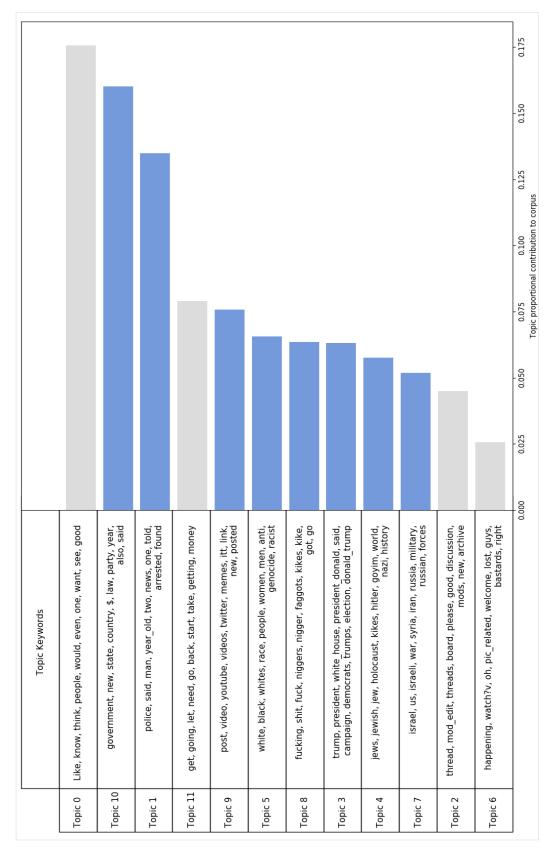


Figure 4: Topic model results for 8chan/pol's original posts (12 topics; the 4 "junk" topics are highlighted in grey).

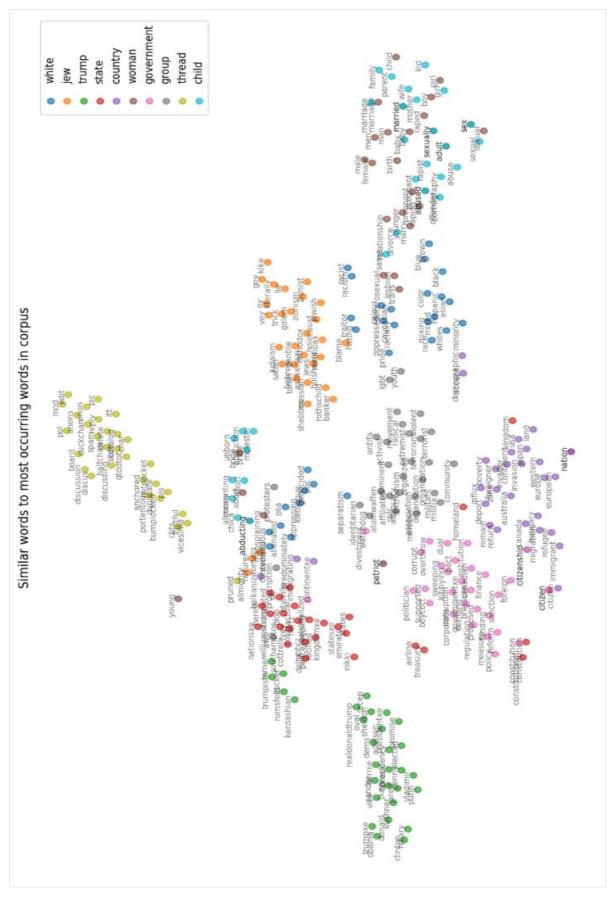


Figure 5: Visualization of word vectors from the trained Word2Vec model for a selection of the most frequently occurring terms in the original posts in the corpus.

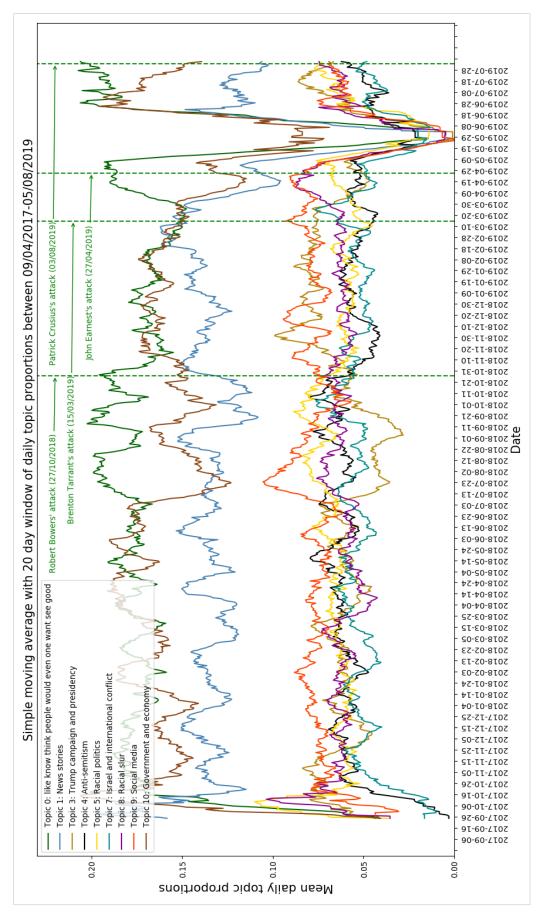


Figure 6: Evolution of 8chan/pol's topics across time.

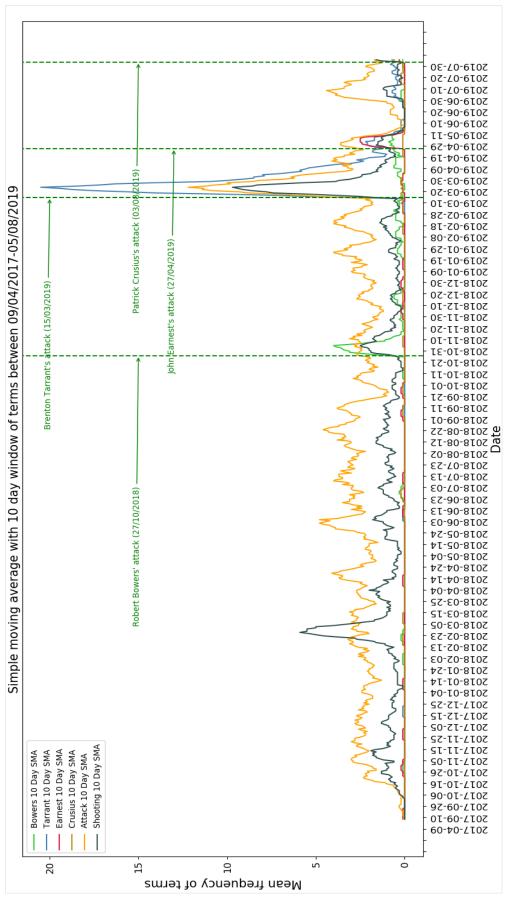


Figure 7: Frequency over time of words directly referring to attacks in 8chan/pol (Bowers ["Bowers" OR "Pittsburgh"], Tarrant ["Tarrant" OR "Christchurch"], Earnest ["Earnest" OR "Poway"], and Crusius ["Crusius" OR "El Paso"]), plus "attack" and "shooting".

Appendix

Section 1: Topic model

As described in main text, we utilize Non-negative Matrix Factorization (NMF) to estimate the key topics or themes in the *8Chan/pol* corpus. NMF is a well-known linear dimensionality reduction technique Paatero 1994; Lee 1999; Gillis2014), which has been recently applied to topic modelling problems (Greene and Cross 2017). The NMF approach proceeds as follows.

First, similar to well-known generative models (e.g., the LDA), NMF begins by assuming that documents are exchangeable in time (for dynamic extensions, see Greene and Cross 2017). The algorithm then takes as an input a $n \times m$ matrix, V, where n is the number of documents (or posts) in the corpus and m is the vocabulary of unique words in the set of documents. Each cell of this matrix is a term frequency—inverse document frequency (TF-IDF) adjusted weight of a given term for a given document. The TF-IDF weights help to isolate important/unique words in a post and are particularly useful in the context of short documents.

Next, exploiting the non-negative nature of the (weighted) document-term frequency matrix, NMF is then used to approximately factorize this matrix into an $n \times k$ matrix W and $K \times k$ matrix W, such that $V \approx WH$. The output of the NMF algorithm may be understood as a compressed version of the original document-term matrix (see Lee 2001). The matrix W provides non-negative weights for each the W terms for each W topics (i.e., the importance of a particular word for a given topic) and may be ordered by weight to provide keywords to facilitate interpretation for a given topic (see the "Topic keywords" Table 4 in the main text). The matrix W contains the membership weights of W documents for each of the W topics and may be interpreted as the proportion of a given document (post) that is related to each of the W topics.

Section 2: Information on Word2Vec

This paper utilised the skip-gram version of the Word2Vec model²⁹. This model utilises a shallow neural network architecture that was originally developed by Mikolov et al. (2013). These models are trained on a whole text corpus and produce an *N*-dimensional vector space, whereby each unique word from the text corpus is assigned a distinct vector within this space. The relative positions of these vectors are then a product of the contexts in which their corresponding words are used. More specifically, words that are used in similar contexts are closer together within the vector space than those words that share different context

²⁹ Our Word2Vec model was implemented through the use of the GenSim Python package (https://pypi.org/project/gensim/).

of usage. As an example, in a hypothetical corpus and resulting vector space, the vectors for the words "car" and "truck" would be closer together than the vectors for "car" and "apple".

In simple terms, the Word2Vec model involves training the shallow neural network on the text corpus. However, instead of using the trained network for a specific task, we instead extract the weights of the network's hidden layer. These extracted weights then constitute the vectors in our *N*-dimensional space.

As with all such models, this Word2Vec implementation had a number of hyper-parameters that needed setting; this model had two such parameters. We conducted a parameter sweep in order to ascertain the values for the following parameters that best suited our data. First, any unique word that appeared in the 8chan corpus less than 5 times were not included in the model's internal dictionary; both because there was not a sufficient amount of data to train on these words and because their infrequency suggests that they are likely to be uninteresting typos. Secondly, the number of dimensions, N, of the model was set to 100. While a larger N may have produced a more reliable model, it would also have required more training data. Given the size of the 8chan corpus, and the results of the model's parameter sweeps, N=100 yielded the best results.

While Word2Vec is a powerful analytical tool for working with text data, its multi-dimensional nature provides obviously difficulties in visualising its features for the purpose we used it for in this paper. As such, we utilised the dimensionality reduction technique referred to as t-Distributed Stochastic Neighbour Embedding (t-SNE), which was originally proposed by van der Maaten & Hinton (2008). This dimensionality reduction method converts high-dimensional data $X = \{x_1, x_2 \dots x_n\}$, such as the weights from the hidden layer of our network, into $Y = \{y_1, y_2 \dots y_n\}$, where y_i are map points for a 2D scatterplot. Unlike more traditional, linear, dimensionality reduction techniques, such as multi-dimensional scaling (MDS) and Principle Components Analysis (PCA), t-SNE utilises a non-linear approach that aims to preserve as much of the high-dimensional data as possible in the resulting low-dimensional map. In order to achieve this, the algorithm first calculates the corresponding probability of the similarity of the data points in both the high-dimensional and low-dimensional space. This is done by calculating the probability that two points would be neighbours if neighbours were selected in relation to the proportion to their probability density under a Gaussian distribution. The algorithm then tries to minimise the difference between these similarities in higher and lower-dimensional space in order to create an accurate representation in lower-dimensional space.

In order to train our Word2Vec model, it was seeded with the most frequently occurring words that were depicted in Table 3 in the paper. We then asked the model to output the 30 words that were closest in the vector space to each of these seed words. As stated in the paper, the terms "people", "time", "year", "Jewish", "President", and "thing" were not fed into the model. These words were not included for one of two reasons. First because they may have strongly co-occurred with one of the other, more analytically interesting, terms that were fed in. For example, table 3 contained both the words "president" and "trump". In this case, the word "trump" was included and "president" excluded. Secondly, a word was not included it was a term such as "year", for example, because such terms appeared frequently in the corpus but offer little in terms of analytical value.

Section 3: Summary statistics for posting dynamics 10 days before/after attacks

a) Bowers:

	Mean	Median	Mode	Standard deviation	Range			
Ten days before	Ten days before							
Posts per day	29.1	30	31	6.23	23			
Word count per post	156.42	100	10	165.72	864			
Average word length per post	7.07	5.32	5.55	9.15	100.66			
Ten days after, incl	uding 27/10/2018							
Posts per day	32.27	32	31	6.85	23			
Word count per post	157.27	86	12	170.82	817			
Average word length per post	6.31	5.36	5	5.71	92			

b) <u>Tarrant:</u>

	Mean	Median	Mode	Standard deviation	Range
Ten days before					
Posts per day	32.5	32.5	35	5.42	20
Word count per post	161.57	110	22	164.57	1178
Average word length per post	7.85	5.36	5.33	14.87	164
Ten days after, inc	cluding 15/03/20	119		<u>.</u>	
Posts per day	74.63	80	80	13.37	46
Word count per post	133.78	76	20	154.03	1240
Average word length per post	7.8	5.22	5	17.38	326.72

c) <u>Earnest:</u>

	Mean	Median	Mode	Standard deviation	Range
Ten days before				<u>.</u>	
Posts per day	32.5	32	N/A	5.42	20
Word count per post	161.18	106	28	159.73	770
Average word length per post	7.53	5.58	5	15.30	198.66
Ten days after, in	cluding 27/04/2	019			
Posts per day	23.36	25	31	10.49	38
Word count per post	171.68	100	24	172.26	799
Average word length per post	6.91	5.31	5	18.59	299.4

d) Crusius:

-	Mean	Median	Mode	Standard deviation	Range		
Ten days before							
Posts per day	17	17.5	20	5.15	17		
Word count per post	159.67	139.5	43	111.50	421		
Average word length per post	5.6	5.19	N/A	1.24	11.02		
Ten days after, including 03/08/2019							
Posts per day	21.66	21	N/A	8.17	20		

Word count per post	115.67	77	44	97.76	392
Average word length per post	6.07	5.15	N/A	2.80	17.46

Section 4: Frequency and bi-grams tables

a) Bowers, period 17/10/2018 to 06/11/2018:

Term	Frequency	Ratio of term in
		corpus
people	331	0.007363
jew	269	0.005984
white	231	0.005139
time	178	0.00396
trump	174	0.003871
state	164	0.003648
year	141	0.003137
jewish	117	0.002603
country	116	0.00258
war	114	0.002536
group	108	0.002403
race	105	0.002336
election	97	0.002158
thread	94	0.002091
border	94	0.002091
video	91	0.002024

Most frequent terms

Bi-gram number	Bi-gram	Frequency	Bi- gram number	Bi-gram	Frequency
1	united, state	52	16	squirrel, hill	12
2	white, people	24	17	president, donald	12
3	donald, trump	22	18	free, speech	12
4	tree, life	20	19	robert, bower	11
5	social, medium	16	20	conspiracy, theory	10
6	president, trump	15	21	civil, war	10
7	life, synagogue	14	22	family, member	9
8	law, enforcement	14	23	saudi, arabia	9
9	midterm, election	14	24	woman, child	9

10	pittsburgh, synagogue	14	25	white, house	9
11	war, room	13	26	jewish, people	9
12	supreme, court	13	27	member, state	9
13	hate, crime	12	28	race, war	9
14	false, flag	12	29	trump, administration	9
15	united, state	52	30	open, border	9

Most frequent bi-grams

b) Tarrant, period 05/03/2019 to 25/03/2019:

Term	Frequency	Ratio of term in
		corpus
people	1119	0.008428
white	955	0.007193
jew	632	0.00476
time	504	0.003796
year	433	0.003261
state	377	0.002839
country	376	0.002832
thing	357	0.002689
woman	351	0.002644
jewish	345	0.002598
muslim	344	0.002591
attack	324	0.00244
trump	323	0.002433
video	319	0.002403
day	288	0.002169
group	284	0.002139

Most frequent words

Bi-gram number	Bi-gram	Frequency	Bi- gram number	Bi-gram	Frequency
1	noice, noice	61	16	president, donald	20
2	white, people	53	17	muslim, terrorist	19
3	brenton, tarrant	51	18	alex, jones	19
4	prime, minister	40	19	white, race	18
5	terrorist, attack	39	20	white, woman	18
6	false, flag	38	21	schaeffer, cox	18

7	united, state	36	22	trump, administration	17
8	donald, trump	30	23	terror, attack	15
9	social, medium	28	24	high, school	15
10	white, men	26	25	christchurch, shooting	15
11	mass, shooting	23	26	conspiracy, theory	14
12	white, nationalist	22	27	jacinda, ardern	14
13	white, man	20	28	christchurch, mosque	14
14	killamanjaro, killamanjaro	20	29	ilhan, omar	14
15	noice, noice	61	30	race, war	14

Most frequent bi-grams

c) Earnest, period

Term	Frequency	Ratio of term in corpus
people	326	0.007491
white	242	0.005561
jew	228	0.005239
state	182	0.004182
time	179	0.004113
year	164	0.003769
country	123	0.002826
american	114	0.00262
group	112	0.002574
jewish	111	0.002551
attack	105	0.002413
black	101	0.002321
police	95	0.002183
day	94	0.00216
child	92	0.002114
good	91	0.002091

Most frequent terms

Bi-gram number	Bi-gram	Frequency	Bi- gram number	Bi-gram	Frequency
1	united, state	45	16	donald, trump	13
2	landline/services, 610	28	17	black, people	12
3	yo, mama	26	18	islamic, state	11

4	notre, dame	25	19	attorney, general	10
5	law, enforcement	23	20	san, diego	10
6	social, medium	20	21	civil, war	10
7	white, people	18	22	jewish, community	10
8	sri, lanka	18	23	police, officer	10
9	wireless, 610	16	24	white, men	10
10	white, nationalist	15	25	south, africa	9
11	white, supremacist	15	26	suicide, rate	9
12	plan, goym	14	27	social, security	9
13	goym, plan	13	28	mueller, report	9
14	constitutional, patriot	13	29	vice, president	9
15	united, constitutional	13	30	yellow, vest	9

Most frequent bi-grams

d) Crusius, period

Term	Frequency	Ratio of term in
		corpus
people	140	0.00922
white	116	0.007639
jew	86	0.005663
time	75	0.004939
long	52	0.003424
thing	51	0.003359
year	42	0.002766
text	41	0.0027
good	40	0.002634
country	40	0.002634
view	40	0.002634
child	40	0.002634
man	38	0.002502
trump	37	0.002437
post	36	0.002371
state	35	0.002305

Most frequent terms

Bi-gram number	Bi-gram	Frequency	Bi- gram number	Bi-gram	Frequency
1	archive, footage	13	16	white, ethnostate	6
2	united, state	13	17	white, men	6
3	mass, shooting	12	18	father, white	6
4	national, socialism	8	19	white, woman	6
5	resonant, cavity	8	20	jeffrey, epstein	5
6	archive, link	8	21	white, nationalism	5
7	200, charactersfucking	8	22	white, race	5
8	charactersfucking, 200	8	23	bullshit, thing	5
9	white, people	8	24	thing, enjoy	5
10	post, long	7	25	president, trump	5
11	white, nationalist	7	26	time, 200	5
12	catholic, church	7	27	enjoy, fucking	5
13	social, medium	7	28	character, limit	5
14	founding, father	7	29	limit, bullshit	5
15	200, character	6	30	birth, rate	4

Most frequent bi-grams

Section 5: Most popular posts mentioning the shooters

a) <u>Bowers:</u>

Original post text	Number of replies
A gunman killed 11 "people" at a Pittsburgh synagogue during Saturday-morning services in what the Anti-Defamation League called "likely the deadliest attack on the Jewish community in the history of the United States.". Law enforcement officials said Robert Bowers - a 46-year-old man with a history of making virulently anti-Semitic statements online - was taken into custody after a gun battle with police and is expected to face federal hate crime charges.". Justice in this case will be swift and it will be severe," said Scott W. Brady, the U.S. Attorney for the Western District of Pennsylvania. Brady said Bowers could be charged sometime Saturday for what he called a "terrible and unspeakable act of hate.". Authorities described a rampage at the Tree of Life synagogue, the city's oldest Jewish congregation, that was stunning in its savagery.	227
Rob Bowers is a fucking hero for fighting the zog machine. He's the hero we need!	124
Trump told reporters that people like Bowers should not wait on death row, for years, waiting to be executed The president insisted that he should be put to death quickly, and ,legal wrangling, should be removed [Label remove]	70
Tree of Life Synagogue Victims' Names Released- 11 Victim's combined age divided by 11 = 74 (eleven again)- '11 counts of criminal homicide- 6 counts of aggravated assault, - 6 wounded- Took place on the shabbat - Gematria: 204 6- 13 counts of ethnic intimidation, 29-count federal criminal complaint 29 + 13 = 42: 6; or 4 (1 +3 counts) + 11 (2 + 9 counts) = 15 (1+5) = 6 - 11 Victims, 6 Shabbat, 6 Wounded, 6 Assault charges = 29 11- 11 Synagogue Victims, 4 Dead Police = 15 6- Date aligns if using numerical value of October's 7 characters; reported time of incident to authorities ~9:55 A.M (very close.) Law of Fives Numerology & 23 Enigma for the 'Goy' [] So there are really 11 sefirot spheres, 22 together with the dark qliphoth - 23 is inauspicious, being 1 less than 6 and presumably tied into the human chromosomal pair count (as in "you goyim have too many chromosomes")So then take the Chosen Ground of the Tree of Life Synagogue (10, 10) in goyim land of Pittsburgh, Pennsylvania (5, 23), the unlucky Squirrel Hill (13) []	52
Synagogue Shooting: faggot Bris ceremony. The media is not reporting on what a "Bris" (genital mutilation) ceremony entails, so perhaps it is up to us to let the public know what these sick kikes were doing? The mainstream media is largely deflecting or refusing to acknowledge what Bowers actually interrupted: Two faggot parents and a faggot rabbi mutilating the penis of two infants and then sucking the blood from the wound. Images related.	17

b) <u>Tarrant:</u>

Original post text	Number of replies
Here are some notable events that happened regarding the mosque shooting in NZ:	357
two mosques were shot, not one	
four (!) people were arrested, not one	
Tarrant somehow visited Pakistan as a muslim hater	
Tarrant STILL supports Trump as a symbol of white identity	
the name Alexandre Bissonette was on 'Tarrant's" rifle equipment; Alexandre Bissonnette is the 'patsy'	
in the Quebec Mosque shooting	
the manifesto contains typical Jewish-American spelling	
Tarrant was alledgedly inspired by literal zionist mason Andres Breivikl am not saying the guy who	
played Tarrant wasn't on this board; in fact, I think it was a CIA/Mossadi glowkike thatcompletely	
enshrined himself in his new identity to do this attack, which makes it even more disorienting for anons.	
What this did:	
Some Muslims died	
Will encourage revenge attacks by Jihadists on European communities	
Definitely will be used for more gun control justification	
Gives an easy excuse to silence anti-Islam speakers	
Islam will continue to exist in the West	
Didn't attack any kind of actual power structure or person in power	
Didn't expose anything or redpill anyone	
Those whites that do decide to defend the attack, will get drawn to Zionism, exactly following the	

Protocols of Zion. The best course of action? Unironically blame Israel for inspiring hatred against muslims with figures like Trump (Tarrantsupported Trump), Tommy Robinson (literal Mossad agent) and Avi Yemeni (Aussie-pretender constantly attackingMuslims). This can only be beneficial, because either Israel admits that they hate muslims, or they have to pretend theylike muslims (hypocritical). We must control the narrative. Also, dig, fellow anons.	
The Turner Diaries are coming! Pay no attention to people claiming this is a false-flag. These are people who hope and pray that the White Nation Liberation War will never happen. This will say any violence against the ZOG is just a conspiracy. This was predicted by the Great Dr. William Luther Pierce himself. To quote him: Of all the segments of the population from which we had hoped to draw new members, the "conservatives" and "right wingers" have been the biggest disappointment. They are the world's worst conspiracy-mongers - and also the world's greatest cowards. In fact, their cowardice is exceeded only by their stupidity. The current conspiracy theory being circulated among conservatives is that the Organization is actually in the pay of the System. We are hired provocateurs whose job is to raise enough hell to justify the repressive counterrevolutionary and anti-racist measures the System is taking. If we would just stop rocking the boat, things would be easier on everyone. Whether they believe that theory or not, it gives them an excuse for not joining us. This incident has proven, pol holds great power. The ideology propagated on this board, has the potential to radicalize young white men to wage war against the enemies of our people. But we are still in our infancy in terms of the ideological battle. We should have been prepared to give our soldier Brenton Tarrant better ideas. We should have transformed his desire to go out in a blaze of glory with a single incident into a string of incidents with better targets. 49 dead Muslims isn't going to hurt the System, and he could have killed nearly as many, along with robbing them, to help finance his own war against the ZOG along the way. For young white men like Brenton Tarrant, clearly a very smart and clever young man, though not college educated, we need to be put more and better fiction like the Turner Diaries in his hand. We need a website, devoted explicitly to short works of fiction, to inspire young white men to battle the ZOG, in the most eff	276
Full livestream & Manifesto : [Link removed] If anyone's got any other shit, dump them here for everyone else.	362
No isolated act of extreme violence will cause *anything* to happen in the masses but what their accepted social environment dictates. So the goal is to change the social environment, called often the Overton Window or the Zeitgeist, and anons are lucky because it's exactly what they do best: Redpilling people. No garden ever grows properly on untilled soil. The first step, detailed in first-hand experience from just about every anon and in many books, is to get people to notice the problem. Noticing is the first and most important redpill. Noticing lets people see that Muslims now are ruining their countries. Noticing lets people see who are promoting the decay of their values and societies. Noticing lets people see the lies they have been fed and the absurdity of what has been blasted to them from above by those who want to treat them as slaves and cattle. It is that noticing that allows anons to look at this recent spectacle from Tarrant in a different way than the non-redpilled public. Without that there is no hope in hell of getting a beneficial reaction from the populace. Tarrant's mistake was thinking that pointing out that "Christchurch" was now infested with Muslims, the very antithesis of Christianity, would affect the general populace in the same way as him. He was redpilled, the populace was not. This lack of cultivation beforehand means that his action will more or less trigger the normal pathologically tolerant responses in people rather than the Deus Vult response that he desires. It does not serve as a good redpill in itself because the violent spectacle overwhelms the message that Muslims are conquering the dying spirit of the Western man without a struggle. The average Western person's spirit is so weak that they see the destruction of a foreign body as infinitely more important the the destruction of the soul of their own people. What would have been more effective was to show Christchurch, in fact many more churches like it, succumbing to the Muslim's soft invasion. Showing people the rottin	275

works to allow redpills only in that it disrupts that messaging and, in that confusion, allows for alternative ideas to take root once the dust settles and they can't properly reconcile it. The reason why this redpilling process is frustrating to some is that when it is working it appears like nothing is happening at all! The real redpilling happens behind closed doors, late at night, where men stare up at the ceiling and wonder quietly to themselves, "Is what I have believed all my life actually true?" It's like The Man Who Planted Trees, with redpills sown about where only some take root, and the process is so subtle and so gradual that when the forest eventually springs up everyone believes it is a spontaneous miracle rather than the efforts of some persistent and dedicated sowers. Western society needs that forest to be growing properly before the right actions can be taken - actions that are far less violent and far more effective than what Tarrant and those of his opinion can offer today. Right now that forest is growing in the hearts and minds of many people. But they are obviously not ready yet to see events like Tarrant's to be anything but what the media tells them it is. More redpills need to be sown and cultivated. It is not the foreigners or brown people that are causing this paralysis in the Western spirit, but ourselves and one another. But the time for violence is not now. We haven't even truly begun to stand up and speak out of fear of one another's scorn, so it is utterly absurd to believe it is time for physical violence. If you want to do something revolutionary, speak. Speak to your people and tell them what you have noticed. Stand up if you have the courage for it and be a beacon of reason and hope for those who let fear guide them to slouch and moan in the shadows. Shitpost the enemies of the West, laugh at the tyrants that wish to rule over you, and distribute the ideas that will supply them with many thoughts during those sleepless nights. Those are the soldiers we need now, not partisans or vigilantes. Brendon did not target innocents. He didn't attack teenagers at a pop concert or families enjoying a 391 night out on a public promenade. He struck a highly effective blow against part of the political machine that is still actively engaged in attacking his people and attempting to eradicate them. If you don't believe violence is a legitimate way of resisting invasion, if you don't think that making war on those making war on you is permissible, that's your prerogative, but your opinion is both ahistorical and irrelevant. The fact is that Brendon Tarrant not only gave up his freedom to strike back at the invaders who are actively seeking to destroy your nation and your people, but he did so alone, and in the full knowledge that he would be hated for it by many of the very people he sought to save. You may recall that someone once said something about the quality of the love that such a self-sacrifice requires. Can you honestly say that it was nothing but simple hatred that inspired him? Those who are not religious cannot fathom that kind of love, which is why they simply deem him mad, and a monster, and try to avoid thinking about the future. I don't expect you to simply accept my perspective, but it might give you some food for further thought. While he may have done a "terrible thing", it is far more terrible that he was put into a position where he felt the need to do it in the first place. In any event, should the West, and Oz, survive the ongoing clash of civilizations, Brendon will be considered its first hero. And if it does not, well, then Brendon will be regarded in much the same way that Robert E. Lee, Jefferson Davis, and P.G.T. Beauregard are presently regarded in New Orleans, America, as an evil monster who was "on the wrong side of humanity.". At the end of the day, he was simply practising politics by other means in a world where democracy is only a one-way train ride to hell and we are in a state of war by all definitions. If every man had his dedication and determination, we'd be living in a much better place. And for that alone, I salute him.

c) Earnest:

Original post text	Number of replies
bigger body count	32
only 20 years in "jail"	
allowed to go study at university	
comfy place to sleep	
Inspired munich massacre kid	
higher body count than Earnest kid	
detailed 1000+ page manifesto that explains perfectly his motives	
has a badass stash of medieval weaponry and armor he uses on niggers after finding out his sister was	
abused by one of them	
killed kike followers of socialism Lets not forget the OG king who started all of this /pol/	
7 shot, 1 fatally, near Baptist church in Baltimore, gunman on the run	31
Seven people have been shot near Perkins Square Baptist Church in Baltimore, Maryland, police say.	
The attacker is reportedly on the run	

Images posted on social media indicate a massive police presence near the Perkins Square Baptist Church in Baltimore, with a nearby street taped off following a mass shooting. Police have confirmed one of the seven victims have died. No motive has been named so far. Twitter Ads info and privacy. The shooting reportedly took place during a cookout. It is not clear if it is linked to the church. There have been reports that the incident took place opposite the church grounds. The Baltimore Sun reported that heavy police presence and activity can be observed at a barber shop, located on the opposite side of the block. The shooting comes just a day after a gunman stormed in synagogue in Poway, not far from San Diego, California, in an apparent anti-Semitic attack. The name of the suspect, John Earnest, has been tentatively linked to a hate-filled manifesto that appeared online before the attack. [Link removed] Is this the revenge of the Jews for yesterday's attack? DOTR is approaching, I feel it Earnest Wrote in His Manifesto He, 'Would Die a Thousand Times Over to Prevent the Doomed Fate that the Jews Have Planned for My Race & Says He Started a Fire at a Mosque. Manifesto: [Link removed] In his manifesto, John Earnest wrote, "I do not care about the debt-based currency that Jews like to pretend is money. I do not care for the bread and circus that Jewry has used to attempt to pacify my people. I willingly sacrifice my future-the future of having a fulfilling job, a loving wife, and amazing kids. I sacrifice this for the sake of my people. OUR people. I would die a thousand times over to prevent the doomed fate that the Jews have planned for my race." [] Earnest wrote. "To the true anons out there (you know who you are). You are the product of /pol/-the product of unadulterated truth. You are my brothers and the best dudes out there. You are the most honorable men of this age. Despite all odds against you, you not only discovered the truth but also help to spread it. Some of you have been waiting for The Day	24
Here's the Synagogue shooter. John Earnest as a 14 year old playing Fantasie Impromptu op 66 by Chopin. They took down his YouTube channel [Link removed] and thus his video, but I downloaded the entire thing. Save it and spread it around. Here you go: [Link removed]	5
Earnest: 1 Google Crane: 4. Weaksauce. Will the ZOG bury their retalitatory crane slaying? They know they won this round. Smug mother fuckers.	5

e) Crusius:

Original Posts	Number of replies
So the sister of the Ohio shooter has been found dead. Wtf RIP to both of them. also Trump orders American flags in the US and around the world lowered to half staff until Aug. 8 at sunset "as a mark of solemn respect" for the El Paso and Dayton mass shooting attack victims - NBCGlowniggers in full force this week huh	30
Ohio shooter was dead in 2014 El Paso shooter changed faces in under a day El Paso shooter's dad owned a new age healing clinic and has Judaic symbolism in his now deleted youtube videos Parkland parents were in El Paso Walmart during shooting [Link removed]	16
Don't do what this fucking dipshit nerd did at the Walmart in El Paso. I did almost a year in state prison in the midwest on a 5 year sentence. Been almost 10 year ago now but I've talked about it before. My prison would self segregate - whites would eat on one side of the chow hall blacks on the other. Mexicans (and mind you we don't have a massive Mexican population here yet like some parts of the country) could go either way but virtually all sat with the whites, which we allowed. Most Mexicans fucking hate niggers. One of my best friends in there was actually named Juan, dude was cool as fuck. He was a Mexican but was born and raised in the US. Other whites didn't bat an eye to being friends with Mexicans, though you'd instantly be shunned by them if you were seen hanging with niggers. I am pro-white above all else but honestly man I am not so much on board with massacring Beaners Mudslimes have done UNIMAGINABLE shit to whites since 9/11 over and over Mexicans mostly just clean toliets and pick watermelons I mean yeah, the illegal immigration shit much be dealt with, and yes they do tend to have huge families which are outbreeding us at an alarming rate But come on man He shouldve done a synagogue or a mosque. If someone is going to Minecraft then they need too hit hard targets in Minecraft and not be a lazy loser who couldn't even take the time to properly plan or	8

THEY are getting sloppy [Link removed] EL PASO, Texas (KTSM) - The parents of one of the Stonewall Douglas High School shooting in Parkland, Florida happened to be in El Paso on Saturday. Manuel and Patricia Oliver, parent of Joaquin Oliver, were in town to unveil a memorial mural that was going to be unveiled this weekend. Both parents shared their reaction to the shooting at Walmart that has claimed at least 20 lives. "You saw what happened today and it could happen tomorrow in another 'safest city in the country," Manuel Oliver said. "So this is America, this is how we live here. We pretend to have things that we don't have. We like to think that it is a perfect country, but it is not."Anon says these parents are handlers for these mkultra'd activated shooters/patsies.	5
EL PASO MASSACRE DEEMED DOMESTIC TERRORISM; SHOOTER ID'D, FACES DEATH PENALTY Three attackers in six months allegedly posted their plans on the site in advance. In an exclusive interview, Silicon Valley CEO explains his 'moral obligation' to keep 8chan online [Link removed] The suspect in the massacre that left 51 Muslims dead in Christchurch, New Zealand, allegedly posted a white nationalist screed and link to his Facebook live feed on 8chan, a far-right message board and notorious bastion of hate speech. The suspect in the shooting at a synagogue in Poway, California, that killed one person and injured three, allegedly posted a racist and antisemitic "open letter" on 8chan. And the suspect in Saturday's attack at a crowded Walmart in El Paso, Texas, which claimed the lives of at least 20 people, is believed to also have posted a white nationalist rant on the platform. If the connection between the 21-year-old suspect in Saturday's massacre and the 8chan document is confirmed - and law enforcement sources told NBC News that they are "reasonably confident" that they are linked - then the El Paso attack will mark the third mass shooting in less than six months that was announced in advance on the message board. The first targeted Muslims, the second Jews, and the third appears to have been aimed at killing Latinos. So what is 8chan - and why is a website linked to such a high death count allowed to exist on the open internet? []	5
GET IN HERE AND ENJOY THE SHOW LADS /ourguy/ shoots up a walmart in El Paso kikes whining live [Link removed] dead spics, killcount potentially still rising livestream got trolled	0

Section 6: Software versions used

The Python-based scraper was built using the following package versions:

Python v3.6.8

NumPy v1.16.2

Pandas v0.24.0

Requests v2.21.0

Scrapy v1.6.0

All graphs and analysis were conducted using the following package versions:

Python v3.7.7

Datetime v4.3

GenSim v3.8.1

Itertools v8.2

Matplotlib v3.1.3

NLTK v3.4.5

NumPy v1.18.1

Pandas v1.0.3

SciPy v1.4.1

Seaborn v0.10.0

Sklearn v0.22.1