

Proud Boys on Telegram

WEI ZHONG

New York University, USA

CATIE SNOW BAILARD

George Washington University, USA

DAVID A. BRONIATOWSKI

George Washington University, USA

REBEKAH TROMBLE

George Washington University, USA

Utilizing an original data set of public Telegram channels affiliated with a right-wing extremist group, the Proud Boys, we conduct an exploratory analysis of the structure and nature of the group's presence on the platform. Our study considers the group's growth, organizational structure, connectedness with other far-right and/or fringe factions, and the range of topics discussed on this alternative social media platform. The findings show that the Proud Boys have a notable presence on Telegram, with a discernable spike in activity coinciding with Facebook's and Instagram's 2018 deplatforming of associated pages and profiles with this and other extremist groups. Another sharp increase in activity is then precipitated by the attack on the U.S. Capitol Building on January 6, 2021. By February 2022, we identified 92 public Telegram channels explicitly affiliated with the Proud Boys, which constitute the core of a well-connected network with 131,953 subscribers. These channels, primarily from the United States, also include international presences in Australia, New Zealand, Canada, the UK, and Germany. Our data reveals substantial

interaction between the Proud Boys and other fringe and/or far-right communities on Telegram, including MAGA Trumpists, QAnon, COVID-19-related misinformation, and white-supremacist communities. Content analyses of this network highlights several prominent and recurring themes, including opposition to feminism and liberals, skepticism toward official information sources, and propagation of various conspiracy beliefs. This study offers the first systematic examination of the Proud Boys on Telegram, illuminating how a far-right extremist group leverages the latitude afforded by a relatively unregulated alternative social media platform.

Keywords: Proud Boys, Telegram, Far-right, Extremism

Introduction

Founded by far-right political commentator and media personality Gavin McInnes in 2016, the Proud Boys are an all-male, far-right neo-fascist group that describes themselves as “proud Western chauvinists who refuse to apologize for creating the modern world” (McBain, 2020). They have been designated as a “general hate” group by the Southern Poverty Law Center and classified as an “extremist group with ties to white nationalism” by the U.S. Federal Bureau of Investigation (FBI) (Wilson, 2018; Rosenberg, 2018). As of 2021, the Proud Boys have had 116 chapters across 46 states in the United States (ADL, 2021), as well as several international chapters in the UK, Norway, and Australia (Crawford, 2020). The organization has been linked to numerous arrests and violent incidents, including high-profile events like the UC Berkeley protests and the Charlottesville Unite the Right rally of 2017 (MacFarquhar, 2021). In the following years, the Proud Boys continued to engage in street violence, primarily targeting their political opponents on the left.

In the months after the 2020 U.S. General Election, the propagation of the big lie by former President Donald Trump and his allies, which falsely alleged that the election was stolen from the incumbent, generated ample opportunity and motivation for members of the Proud Boys to engage in coordinated violence, particularly against left-wing protestors in Democrat-heavy regions, such as Portland, Oregon (Hay, 2020). Members of the Proud Boys participated in “Stop the Steal” events across the United States (Kishi, Stall, and Jones, 2021), culminating in the January 6th, 2021, assault on the U.S. Capitol Building in Washington, DC. The group’s visible participation in the attack assured that the Proud Boys were a focal point for subsequent investigatory and prosecutory efforts by multiple government agencies (Walker, 2022).

The Proud Boys have long relied on a variety of social media platforms for both internal and external communication – including recruiting new members, planning activities, growing solidarity among their adherents, and sharing their beliefs with the wider public in an effort to mainstream or normalize their world view (Nguyen and Gokhale, 2022). However, in recent years, major social media platforms have more strictly regulated the group’s presence and activities on their networks. In 2018, both Twitter and Facebook announced that they would deplatform the group and quickly removed the largest accounts linked to the organization and its leaders (Linton, 2018). Like other right-wing extremist groups, the Proud Boys responded to these bans by migrating to smaller, alternative social media platforms, such as Telegram (Walther and McCoy, 2021).

Telegram is a free cloud-based instant messaging platform created in 2013 by Pavel and Nikolai Durov in response to the Russian state’s censorship of online speech (Urman and Katz, 2022). Telegram offers several options for engagement, including private one-on-one conversations, group chats, and both private and public channels that are controlled by administrators. According to the Telegram website ¹, the company does not partake in extensive content-moderation policies compared to apps like Facebook,

¹ Please visit <https://telegram.org/faq> for more information.

Instagram, and Twitter, only removing pornographic material and blocking ISIS-related terrorist activity on its public channels (Walther and McCoy, 2021). As a result, Telegram has attracted users from across a range of hate-based, extremist organizations, including the Proud Boys.

By February 2021, the Proud Boy's Telegram community consisted of a plurality of public channels, the largest of which had more than 45,000 members (Crawford, 2020). However, although Telegram has been a popular platform for communication within extremist groups for a number of years – with its popularity increasing dramatically following the January 6th Capitol insurrection (Dickson, 2021) – to date, relatively few studies have systematically investigated how these groups make use of this platform. The present study contributes to this nascent body of research, offering useful insights into how an alternative social media platform can be leveraged by an extremist group after it is deplatformed by mainstream social media sites. A longitudinal examination of the group's use of Telegram provides insight into the evolution and organizational structure of the Proud Boys network, its connectedness with other far-right communities, as well as the information and narratives that its members and leaders share through those channels.

In our effort to construct a more systematic and nuanced understanding of the Proud Boys network on Telegram, our analysis focuses on four specific questions: 1) What are the dynamics of how the Proud Boys community developed on Telegram? 2) What is the structure of the Proud Boys network on Telegram? 3) Outside of their core structure, to what degree is the Proud Boys community connected to other far-right or fringe communities on Telegram? And, 4) Which topics are communicated about more prominently and frequently by the members of this network?

In the next section, we describe our data set and its collection process. We then discuss the motivation for each of our research questions in more detail, and outline the methodology we used to investigate each. This is followed by a description of our

findings and their implications for each of the research questions. We then conclude with a discussion of the limitations of our findings and potential avenues for future research.

Data collection

Our data collection on Telegram is channel-based. We compile data and metadata for publicly-viewable Proud Boys-affiliated channels. Typically, each Telegram channel is set up by its owner to allow broadcast or one-way communication from a small set of senders to a broader set of general channel users. However, some channels are interactive, allowing channel followers to share and respond to posts. Content in a channel primarily consists of messages composed of text, images, audio files, and/or video files. To collect content and metadata from Proud Boys channels, we use Telethon, a Python-based interface for the Telegram API ². Data provided by the Telegram API include channel and post-level metadata, as well as the content of the posts themselves.

Channel metadata provided by the Telegram API includes the unique identification number, title, creation date, current count of users, and various channel settings (e.g., usage configurations, administrator restrictions, and whether the channel is a bot), as well as the actual messages sent in the channel. Messages can either be original content posted to a channel or can be forwarded content from another channel. We do not collect user handles pertaining to the individuals who posted in these channels. Accordingly, our data set consists of anonymized user posts to public channels.

We start with a seed list of 10 Proud Boys-affiliated broadcast channels³ on Telegram identified by leading organizations working in this domain.⁴ To grow this list of channels, we rely on mentions of other channels and the “forwarding” feature within Telegram, whereby content can be shared between channels. Each time we encounter a

² Please visit <https://docs.telethon.dev/en/stable/> for more information.

³ The seed list of 10 Proud Boys channels are “ProudBoysUSA”, “KingdomZombe”, “TheWesternChauvinist”, “ProudBoysCanada”, “ProudBoysBritannia”, “SeattleProudBoys”, “PhillyPB”, “ProudBoyspdx”, “OfficialMichiganProudBoys”, and “OhioProudBoys”.

⁴ The list of channels that served as the starting point for our data collection was shared by [Moonshot](#), a private consulting firm that specializes in investigating and disrupting online harms.

new mention of a channel or content forwarded from a channel that was not already on our list, we add the channel to our list, collect its data, and follow all of its channels. This snowball “crawling” approach results in a list of more than 7,000 unique channels. From the dataset of 7000 public channels, we employ a rigorous manual identification process to single out channels associated with the Proud Boys. Initially, we execute keyword-based searches focusing on terms such as “Proud Boys”, “PB”, and other affiliated terminologies in the channel’s username, title, or bio. After this preliminary filter, a team of trained undergraduates and graduates from George Washington University undertook a comprehensive review of each channel’s posts. Throughout this annotation phase, the students often encountered content that included the use of established Proud Boys narratives, memes, slogans, and jargon. Posts to these channels also include mentions of or interactions with other recognized Proud Boys channels, figures, or sources. This process enabled the team to confidently confirm that these 92 core channels were explicitly and primarily Proud Boys-centric.

To explore the network, we focus on 2,934 public channels consisting of 92 explicitly Proud Boys-affiliated channels and 2,842 other related channels that promote Proud Boys-aligned content (including 571 with full histories of their posts, and 2,363 that have been mentioned by these core channels, but lacking full histories⁵). The corresponding data spans a period from November 2018 – when the first channel included in the network is created – to February 2022.

The research questions and their methodologies

⁵ Our methodology of constructing the network involves analyzing chats from all available channels and identifying forwarded messages within these chats. It’s in these forwarded messages where we encounter references to new channels. Once we obtain chats from these newly discovered channels, we often find references to even more channels within their forwarded messages, creating a cascading discovery of channels. This recursive discovery of new channels implies that acquiring full histories becomes inherently unfeasible, as each layer of discovery could potentially lead to more layers, in a seemingly endless process. The nature of this methodology means that the collection is bound to be incomplete, given the continually unfolding layers of channels referenced in the forwarded messages. Our approach has been to garner as comprehensive a snapshot as possible within the constraints of this ever-expanding network of channels.

Research Question 1. What are the dynamics of how the Proud Boys community developed on Telegram?

The Proud Boys have long relied on social media for recruitment and to strategize as a group (DeCook 2018); however, the Proud Boys have seen their digital reach in mainstream online spaces limited in recent years. In August 2018, Twitter terminated the group's official account, along with that of the group's founder, Gavin McInnes', under its policy prohibiting violent extremist groups (Roettgers, 2018). Facebook and Instagram also banned the group and its leader in October 2018 (CBC, 2018). In December of that same year, YouTube banned the Proud Boys founder for copyright violation (Solsman, 2018). Then, in February of 2019, Slate magazine reported that Square, Chase Paymentech, and PayPal had pulled their payment processing services from 1776.shop, an online far-right merchandise site associated with the Proud Boys (Glaser, 2019). In the light of this mass deplatforming, as well as the popular right-wing social platform Parler going dark (Kenes, 2021), the Proud Boys community began flocking to alternative social networks, including a large migration to the encrypted messaging app Telegram. This progression is the focus of our first research question (RQ1): What are the dynamics of how the Proud Boys community developed on Telegram?

To answer RQ1, we first create a Proud Boys-centered directed network using all forwardings from the 571 channels with full histories (self-citations were included), with the total channel interactions amounted to 2,363. Forwardings include direct re-posts from other channels/groups (sometimes with their added comments) in message texts. In this network, each node represents a public channel, each edge stands for the number of direct re-posts between two channels, and the arrow of each edge indicates the direction of the connection (e.g., if forwarding a message from channel B to channel A, then channel B is the source, and channel A is the target, then the arrow direction would be from the channel B pointing to channel A). Then, to trace the evolution of the network, we take the temporal dimension into account and examine the rates of its growth. Since a network evolves over time by adding or removing nodes or edges, we calculate the network's temporal (e.g., monthly) number and cumulative number of onset channels

(nodes) and messages (edges). The onset nodes correspond to the channels that come into existence and start to engage with the existing channels in the temporal network, and newly active edges, new messages sharing within the temporal network.

Research Question 2. What is the organizational structure of the Proud Boys network on Telegram?

Some of the most consequential affordances that social media platforms provide to extremist groups include facilitating the spread and visibility of the group and its ideology, which is a central component of the group's recruitment efforts, as well as the group's ability to define its own identity, justify or mainstream its worldview, and organize and mobilize its members (Jost et al., 2018; Ruijgrok, 2017; Urman, Ho, and Katz, 2021). In the context of social media, network theory provides a framework for understanding and measuring the efficiency with which a group can achieve these goals (Jost et al., 2018; Urman, Ho, and Katz, 2021). When online networks are sparse and disconnected, and thus lacking meaningful interaction partners, this structure can hinder the speed with which information is diffused. Although there remains some capacity for nodes in this network to receive information, the relative inefficiency of this network structure decreases the degree to which it can be successfully leveraged to facilitate the group's visibility, expansion, and mobilization. Alternatively, to maximize efficiency, a network needs powerful or influential actors that act as structural bridges to facilitate the transmission of information in the network. Ideally, such an efficient spread of information would lead to increased cohesiveness among participants (Urman, Ho, and Katz, 2021). One of the primary avenues for information diffusion on Telegram is via public channels, which are easily searchable. These channels' discoverability and reach is directly dependent on being mentioned on and/or their posts being forwarded by other channels. Hence, the analysis of the structure and cohesion of a forwardings⁶ network is

⁶ Forwarding a message from channel B to channel A, i.e. members of channel A will see a link to channel B (a link from node A to node B). It is useful to think of each directed link (directed interaction) from channel A to channel B, as meaning that A is influenced by B.

particularly useful for the assessment of the efficiency of information diffusion and communication within the Proud Boys community on Telegram. This is the focus of our second research question (RQ2): What is the organizational structure of the Proud Boys network on Telegram?

To investigate RQ2, we compute various descriptive statistics (e.g., nodes' in-degrees, out-degrees, etc.) for the Proud Boys-centered network. While the first of these channels originates in November 2018, the network data, constructed from the chat histories across these channels, covers the period from April 2019 to February 2022.

To enhance our understanding of the network's connectivity, we juxtapose the Proud Boys network with the broader and more expansive far-right Telegram networks delineated by Urman and Katz (2020). We utilize a seed propagation approach to generate a simulated subgraph of comparable size to the Proud Boys network, both containing 2934 nodes. Initiation of this approach involves the random selection of a "seed node." Once this node is chosen, a traversal algorithm, that is, a breadth-first search (BFS), kicks into action. This method systematically explores nodes neighboring the seed, expanding the subgraph progressively. This iterative process persists until the subgraph reaches the designated size, set at 2934 nodes for our study. A distinguishing attribute of the seed propagation technique is its commitment to retaining the original network's connection structure, ensuring the resultant subgraph accurately mirrors the overarching network's characteristics.

Subsequently, we compute the average clustering coefficients, indicative of the network's interconnectedness or node density. When a network has an average clustering coefficient nearing 1, it is typically viewed as being highly connected (Chalancon, Kruse and Babu, 2013). This suggests that a majority of the nodes are intricately linked, forming dense clusters with adjacent nodes. To discern if the average directed and undirected clustering coefficients of the Proud Boys' network significantly differ from

those of the identified far-right networks, we employed a permutation test (Edgington, 2011). This non-parametric statistical method tests the null hypothesis that two samples arise from the same distribution. For each of the six networks, they are combined with the Proud Boys' network, the node labels are randomized, and the merged network is then segregated again, resulting in two randomized subgraphs. This method is executed 10,000 iterations, to formulate a distribution of discrepancies based on the presumption of consistent clustering coefficients across networks. The p-value is then calculated by comparing the fraction of randomized disparities that are equal to or more pronounced than the initially observed difference. Following our analysis, we employ the Louvain algorithm for community detection (Blondel et al., 2008) to partition the network into communities of nodes that exhibit stronger connections with nodes within their community than with those outside it.

To gain deeper insight into the network's structural characteristics, we study two types of nodes and their roles within the Proud Boys network, based on the two main network roles: gatekeeper and representative, as defined by Gould and Fernandez (1989). A gatekeeper, according to Gould and Fernandez (1989), is an individual who filters information within their own division, gathers knowledge from an external actor, and transfers it to an actor within their own division. A representative, on the other hand, conveys knowledge obtained from an actor within their own division to an actor in a different division, representing their own division externally. In essence, gatekeepers act as bridges between their own community and others through incoming contact, while representatives serve as bridges between their own community and others through outgoing contact (Urman, Ho, and Katz, 2021).

There are a number of metrics that can be used to measure the roles of individual nodes in a network. Among these most widely used are degree (including indegree and outdegree) and betweenness. Degrees (including indegree and outdegree) can be used to assess a node's popularity and the direction of information flow in the network, while betweenness can be used to assess nodes' centrality and to what extent they act as

structural bridges that facilitate information diffusion across different communities in the network. Research has shown that brokers, such as gatekeepers and representatives can be identified with high betweenness centrality (Freeman, 1977; Giuliani and Bell, 2005), which is a centrality metric showing bridging score of a node (Gould and Fernandez, 1989).

However, knowing only which nodes have high betweenness centrality is not enough. In directed graphs like the Proud Boys network, connections often carry weights (in our case, the number of messages shared between two linked nodes) and directions. Relying solely on betweenness centrality may overlook the significance and directionality of these relationships, both vital aspects when pinpointing gatekeepers and representatives. Therefore, we propose a method to identify gatekeepers and representatives based on the definitions outlined above. The initial step involves distinguishing communities within the network using the Louvain community detection method. This provides clarity on node groupings and helps determine if a node's connections remain internal to its community or serve as bridges to others.

We then concentrate on influential nodes by determining and filtering them based on their betweenness centrality. This centrality measure signifies a node's influence on the flow of information within the network. Our use of this metric ensures that the identified gatekeepers and representatives aren't merely passive links but play active roles in shaping communication routes, spotlighting the most significant nodes in terms of their capacity to bridge or filter information.

For the identification of gatekeepers, we focus on nodes within the Proud Boys affiliated channels, studying edges that stemmed from distinct communities. We then assign a score based on the edge weight and the variance between the node's in-degree and out-degree. This is particularly relevant since the Proud Boys network is a weighted directed network, where edge weights represent the volume of messages exchanged between two linked channels. On the other hand, for pinpointing representatives, we

evaluate nodes projecting connections to diverse communities and apply a similar scoring mechanism. Nodes with top scores in these categories are distinguished as primary gatekeepers and representatives, respectively. By considering connection weights, our method underscores the idea that not every connection holds equal significance in a network. Incorporating these weights allows our approach to depict the depth and vigor of relationships, such that nodes with more potent or recurrent interactions receive appropriate acknowledgment. Thus, our methodology for discerning gatekeepers and representatives integrates various dimensions of network analysis. (Please refer to the Supplementary Materials for a more detailed description of these steps.)

Research Question 3: Outside of their core structure, to what degree is the Proud Boys community connected to other far-right or fringe communities on Telegram?

For a fuller understanding of the affordances that Telegram provides to the Proud Boys community, it is essential to understand their ties to other influential far-right and fringe entities on the platform. These connections influence both their engagement within this larger ecosystem, as well as the narratives and information that is diffused within the Proud Boys network. For example, Newhouse, Arlett, and McClintock (2020) discover that on Twitter numerous Proud Boys follow conservative activists like DeAnna Lorraine, Candace Owens, and Dan Bongino, all of whom have actively downplayed the severity of the pandemic and propagated false narratives about its origins. This likely contributed to the adoption of coronavirus trutherism among many members of the Proud Boys. Moreover, as they engage with more influential accounts in adjacent communities, the Proud Boys themselves become conduits for message transmission and amplification. Thus, examining the other communities with which the Proud Boys network is most closely connected on Telegram is the basis of our third research question (RQ3): Outside of their core structure, to what degree is the Proud Boys community connected to other far-right or fringe communities on Telegram?

To answer R3, we closely examine a total of 7,030 public Telegram channels, including Proud Boys-affiliated and other far-right channels related to the Proud Boys

network. We rely on the far-right community classification of Telegram channels provided by a recent study by Puyosa and Leon (2022), in which channels are categorized into similar ideologies and like-minded topical interests that nonetheless form distinct communities delineated by limited interactions with each other on the platform. In the case of the Proud Boys network on Telegram, these adjacent communities can be categorized as MAGA Trumpists, white-supremacists, anti-mandates and COVID-19 misinformation, and QAnon. (Please see Table 1.)

By carefully examining the example channels identified by Puyosa and Leon (2022), we observe a recurring pattern in usernames and titles, which frequently incorporate terms that allude to far-right ideologies or conspiracy theories, such as “Trump,” “Coronavirus,” “QAnon,” and “WLM”. Accordingly, we employ these keywords⁷ as criteria to identify and categorize channels. Our initial categorization yields more than 300 channels spanning various extreme ideologies. To enhance our dataset, we incorporate additional sub-category channels identified by recent studies, especially that of Puyosa and Leon (2022), and leading organizations working in this domain ⁸.

Table 1. Other Far-right Groups on Telegram.

Community	Concept	Examples Channels	Description	No. of Channels
Trumpist	Pro-Trump, white nationalism	real_donaldjtrump, trumpjr, trumpchannel; thetrumpist, realvincentjames, loomeredofficial, Nickjfuentes	Channels idolizing Trump, promoting right-wing ideals.	74

⁷ The full list of access words: [‘cov’, ‘covid’, ‘corona’, ‘virus’, ‘vax’, ‘white’, ‘wlm’, ‘trump’, ‘Qanon’, ‘Qstorm’].

⁸ [Moonshot](#), a private consulting firm that specializes in investigating and disrupting online harms, has provided us with additional channels pertinent to these subcategories.

White Supremacists	White-supremacist, Neo-Nazism	Whiteagendaradio, prowhitefam, Huwhiteprivilege, patriotfrontupdates	The primary White Lives Matter Official channel, created in April 2020, aimed to advance “White Children’s interests.”	155
Anti-mandates and COVID-19 misinformation, fraudulent treatments	COVID-19 Misinformation, COVID-19 conspiracy theories	covid19agenda, covidredpills, plandemicscam, mrn_death, covid_vaccine_injuries	Against health mandates, spread vaccine misinformation, promote unproven treatments.	70
QAnon	Spread QAnon conspiracy theories (e.g, a supposed Deep State cabal)	Johnfkennedyjr, qanonplus, qanonstormbase, qanonofficial	Followers of QAnon, linking JFK Jr. to Trump narratives.	46

It is noteworthy that some search terms related to COVID-19 misinformation are neutral. To ensure accuracy in our classification of channels propagating COVID-19 misinformation, we adopt a two-tiered examination process. First, we manually review the metadata of each channel, including its username, title, and description, to ascertain any overt indications of misinformation or conspiracy. Subsequently, we compile the URLs shared within each channel and utilize the external lists of low-credibility news sources, specifically the “Iffy Index of Unreliable Sources” (Resnick et al., 2018) to gauge the credibility of these shared domains. The Iffy index aggregates trustworthiness

ratings from Media Bias/Fact Check (MBFC)⁹ and includes a list of 1,388 unreliable domains.¹⁰ Channels are deemed as disseminators of misinformation if they either circulate news from untrustworthy sources or explicitly indicate such a purpose in their title or description. Channels that do not fit this criterion are excluded from our dataset.

Using the identified classification of these channels, we build a larger network by these different far-right communities. We visualize URL flows using an alluvial diagram to depict the frequency of URLs exchanges among these groups. This flow is determined based on the timestamp when the URL is shared, for instance, 2020-11-12 12:53:59+0000. If identical URLs are disseminated across multiple groups, the group with the earlier timestamp is recognized as the source channel, with the subsequent group being the target. Subsequently, we calculate the distinct hashtags, mentions, and domains shared between the Proud Boys network and the other four communities. We also assess the proportions of these uniquely shared elements in relation to the corresponding unique information within the Proud Boys network.

Research Question 4: Which topics are communicated about more prominently and frequently by members of the Proud Boys network?

In addition to the efficiency of information diffusion, the nature of the content circulated within a network is a crucial component of understanding its reach and impact. Prior research has shown that far-right activists need to actively participate in content creation as a means of fostering and disseminating hate (Donovan et al., 2019; Gaudette et al., 2020). To achieve this, they often depict an imagined homogeneous, victimized in-group (Hameleers et al., 2019), thus rationalizing the exclusion of out-groups (Krämer, 2017). Furthermore, their narratives involve the triggering of emotions and can thus promote actions perceived as logical consequences (Marcks and Pawelz, 2020). Consequently, the content of messages shared on Telegram is the basis for our fourth and

⁹ <https://mediabiasfactcheck.com/>

¹⁰ The complete list is available at the following link:
<https://gwu.box.com/s/jv1r23ft96ncso7bj4d5h8a2tif1qu5a>

final research question (RQ4): Which topics are communicated about more prominently and frequently by members of the Proud Boys network?

To answer RQ4, we apply an unsupervised popular Latent Dirichlet Allocation topic model (LDA)¹¹ (Blei et al., 2003) to summarize the underlying themes present within the text. A key decision in our methodology is to retain duplicate text during LDA application. This choice is driven by two primary considerations: first, in our contexts, we think the repetition of content can be of significance. For example, if the Proud Boys statement is frequently repeated across different channels, its repeated presence might indicate its importance or popularity, which we would like to capture in the topic distribution. Second, by maintaining duplicates, we ensure the dataset mirrors its original content distribution. This approach provides a more genuine representation of the source data, staying true to its authentic nature and composition.

Prior to employing the LDA topic model, we subject the text to a comprehensive pre-processing routine to ensure data consistency and improve model accuracy. We first transform all content to lowercase to ensure uniformity and address case discrepancies. Subsequently, all URLs, including http, https, and www-based links, are excluded, followed by the removal of mentions such as “@username” to diminish noise. Hashtags are retained but cleaned of the ‘#’ symbol, and all punctuation is removed for clarity. The text is then tokenized into individual words, and common stopwords like “and,” “the,” and “is” are discarded. This is accompanied by the lemmatization of words, reducing them to their base form (e.g., “running” to “run”), and the elimination of words with two or fewer characters. After applying the LDA model, we utilize coherence values to ascertain the optimal number of topics.

Besides the shared discourse, a major purpose of this network is to share information in the form of links to external content, such as news articles. To understand the nature of the information being shared, we extract the link appearing in each message

¹¹ Hyperparameters in LDA model: alpha = 5, beta = 0.01, iterations = 400.

in our collection and extract the domain name, e.g., from www.yahoo.com/news/MAGA-news-story, we extract yahoo.com. We then focus on the top 1000 most commonly shared domains appearing in the network, and classify them based on the type of service (including news, business, computers and technology, entertainment, politics and law, government, shopping, education, health and medicine and personal sites) they provide using Cyren.¹² We further characterize the news websites with political labels based on information about the site contained in Media Bias/Fact Check website. This website is a fact checking site that rates websites based on ideological bias and credibility of factual reporting. Their methodology is subjective, but based on a numeric scoring system to assign labels. The possible labels for political bias are: far left, left, left-center, least biased/pro-science, right-center, right, right conspiracy pseudoscience, and far/extreme right. They are assigned on domain level, so every article originating from the same source will have the same label.

Findings

RQ1: The Proud Boys network's most significant expansions on Telegram are event-driven.

To understand the evolution and expansion of the Proud Boys network on Telegram, we look at the dynamics of its formation. First, we look at the speed of network development over time to identify the tipping points in network formation. As shown in Figure 1, the network has 40 snapshots, each corresponding to one month period. Although the Proud Boys established their initial channel on Telegram in November 2018, there were no observed interactions between the Proud Boys channels until April of 2019. Thus our analysis is based on chat interaction histories across these channels from April 2019 to February 2022.

¹² <https://www.cyren.com/security-center/url-category-check>

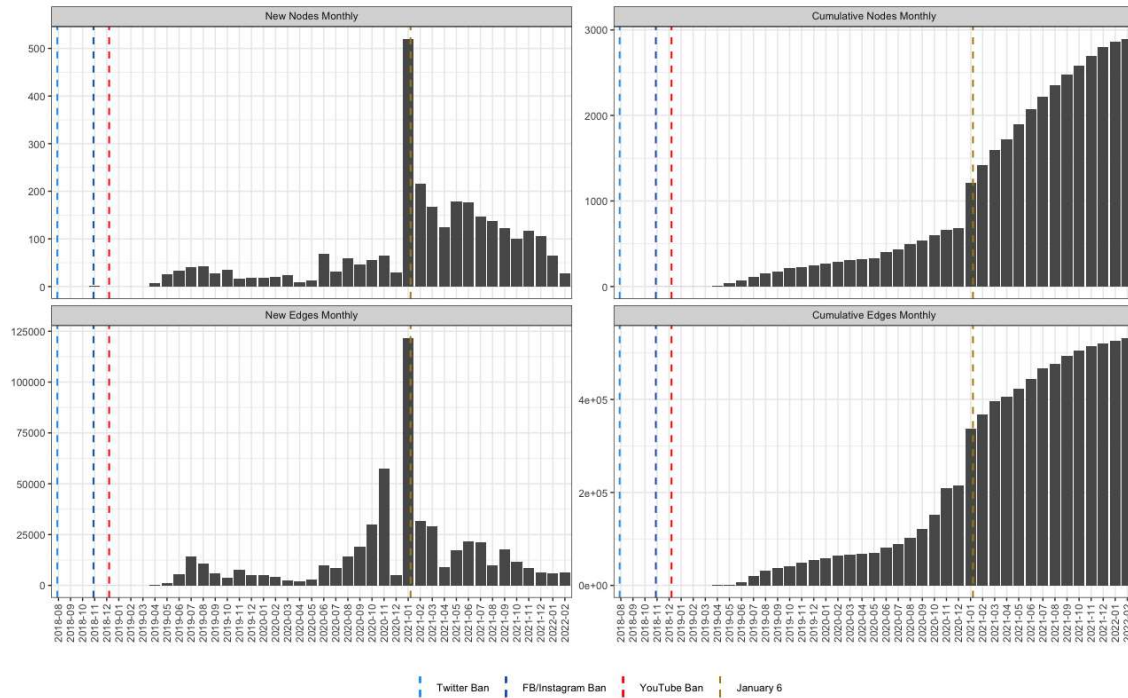


Figure 1. The Cumulative and New Number of Nodes (channels) and Edges (shared text messages) within the Proud Boys Network Over Time.

During the early months, the “ProudBoysUSA” channel was the primary source of messages, disseminating a total of 86 messages between November 2018 and April 2019. After manually reviewing these messages, we categorized their content into the following themes: website promotion and onboarding (highlighting the Proud Boys website and encouraging chapter enrollment), media links (directing to YouTube videos and pertinent articles), internal announcements blended with humor (references to Tucker Carlson’s brother, Gavin McInnes, and playful jibes about “Elder” names likened to superheroes), quotes and ideological alignment (featuring quotations like those from Ayn Rand), merchandise promotion (links showcasing Proud Boys merchandise), defense and reaction (countering claims of white supremacy or affiliations with violence), advocacy for alternative platforms (encouraging engagement on Minds and Gab), general updates

(like fundraising for a leukemia-afflicted child), and engagement encouragement (emphasizing broader visibility and growth).

Beginning in May 2019, interactions between channels intensified, peaking in January 2021. During this time, the growth of channels depicted an exponential pattern.¹³ Figure 1 reveals that edge formation began around April 2019, and subsequently continued to increase, with a notable surge during January 2021. Of relevance within the context of broader events in the digital space, Twitter suspended accounts related to the Proud Boys on August 10, 2018, citing violations of their policy against “violent extremist groups” (Buzzfeed, 2018). Subsequently, both Facebook and Instagram imposed bans on the Proud Boys and its founder, Gavin McInnes, on October 30, 2018 (Picchi, 2018). This was followed by a similar ban from YouTube in December 2018 (Solsman, 2018). Other studies have observed a parallel between the rise in active channels starting in April 2019 and the bans faced by US far-right entities – including counterparts from Britain, Australia, Germany, and more – on Facebook during that time or slightly earlier in February 2019 (Hern, 2019; Urman and Katz, 2022). These developments highlight a potential shift of far-right groups, including the Proud Boys, towards Telegram around this period.

The second notable expansion of this network occurred after the U.S. Capitol insurrection on January 6, 2021. This expansion coincides with significant events such as the mainstream politician, former President Donald Trump, and many associated with the event’s planning being removed from major social media platforms (including Facebook, Twitter, and YouTube). At the same time, there is a demonstrable show of enthusiasm among allied individuals after the January 6th event. To visually represent and quantify the changing trend over time, we employed an interrupted time series analysis, with particular focus on the events surrounding January 2021. Although interrupted time series

¹³ To investigate the channels’ growth pattern, we compare an exponential model against a simple linear model. Using the Akaike Information Criterion (AIC) for model selection, the exponential model yields a lower AIC score (126.65) relative to the linear model (595.21). This supports the assertion of an exponential growth trajectory for the channels.

can be used to suggest causality, in the present study we use it strictly for descriptive purposes to observe shifts or patterns in network growth without drawing causal inferences.

Our analysis reveals an amplification in the network's expansion during and after January 2021. Whereas prior to January 2021 there was an addition of roughly 21 ($p < 0.001$) new channels to the network every month; during this month there was a precipitous increase when the network expanded by 289 channels ($p < 0.001$). In the months following January 2021, a persistent uptick in the growth rate continued, with an addition of approximately 93 ($p < 0.001$) channels monthly. (Please see Figure 2.)

RQ2: Consistent with other far-right on Telegram, the Proud Boys Telegram network structure is highly connected.

To examine the patterns of communication and information diffusion within the Proud Boys community on Telegram, we focus on the final snapshot of the network during the period of our analysis, the end of February of 2022. (Please see Figure 3.) The network is comprised of 2,934 Telegram channels, including 92 explicitly Proud Boys-affiliated channels and 2,842 other channels that potentially promote Proud Boys-aligned content, and 10,392 weighted edges (weight represents the number of mentions; whereas the total number of mentions, or unweighted edges, is 86,306 edges).

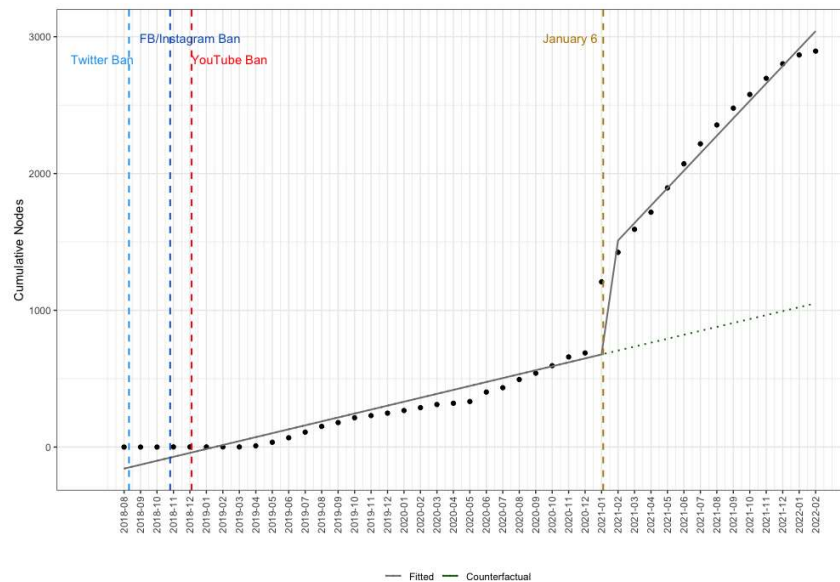


Figure 2. Interrupted Time Series Analysis of the Peak of Growth of Channels within Proud Boys Network after January, 2021.

In the supplementary details provided for Urman and Katz's (2020) study, their final snapshot from February 2020 depicts a comprehensive network of 11,605 channels. In a comparative analysis based on channel usernames, we identify an overlap of 461 channels between the Proud Boys network and the far-right network delineated by Urman and Katz (2020). Notably, 12 of these overlapping channels are explicitly affiliated with the Proud Boys. On average, 338 channels from the six far-right networks discussed in Urman and Katz (2020) intersect with the Proud Boys-centered network.

Upon juxtaposing the Proud Boys network with the February 2020 snapshot of the far-right network from Urman and Katz (2020), we observe the former showcasing slightly higher values for both directed average clustering coefficient (0.206) and undirected average clustering coefficient (0.65). In contrast, the far-right network from Urman and Katz (2020) records directed and undirected average clustering coefficients of 0.15 and 0.551, respectively. When benchmarked against the six distinct far-right Telegram networks, the clustering coefficients of the Proud Boys network (both directed

at 0.206 and undirected at 0.65) are found to be in line with those networks. For context, the six far-right networks from Urman and Katz (2020) demonstrate directed average clustering coefficients of 0.247, 0.219, 0.211, 0.233, 0.255, and 0.195, and undirected ones at 0.514, 0.536, 0.543, 0.499, 0.564, and 0.509. Based on the permutation test, these variations are determined to be statistically insignificant from the Proud Boys network. This means that the pattern of communication and interaction within the Proud Boys network on Telegram is consistent with the communication patterns seen in other far-right groups on the same platform. (These six graphs for these networks can be found in the Supplementary Materials.)

In visualizing the Proud Boys network in Figure 3, it is evident that the majority of channels explicitly affiliated with the Proud Boys (represented as orange nodes) were centrally located within the network graph. These channels had a higher average eigenvector centrality value of 0.144. In contrast, channels not directly affiliated with the Proud Boys (depicted as gray nodes) had a lower average eigenvector centrality of 0.006. A subsequent two-sample t-test confirms that the Proud Boys channels have a significantly higher mean eigenvector centrality (a difference of 0.138, $p < 0.001$) compared to non-Proud Boys channels.

To illustrate the distribution of in-degrees and out-degrees of nodes within the Proud Boys network, in Figure 4 we plotted the Lorenz curves for both in-degree and out-degree. The x-axis denotes the cumulative proportion of nodes, while the y-axis signifies the cumulative proportion of degrees. The diagonal red dashed line, commonly termed the “line of equality,” symbolizes perfect equality; if degrees are distributed uniformly, the curve would trace this line.

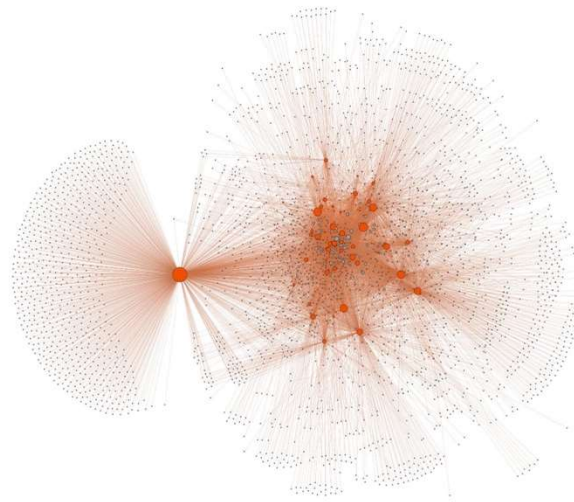


Figure 3. Network Map of Proud Boys-affiliated Telegram Channels

Note. The orange nodes represent explicitly Proud Boys-affiliated channels, and gray nodes indicate other far-right related channels that promote Proud Boys-aligned content. The size of the node is based on how often messages are forwarded from that channel to another within the network.

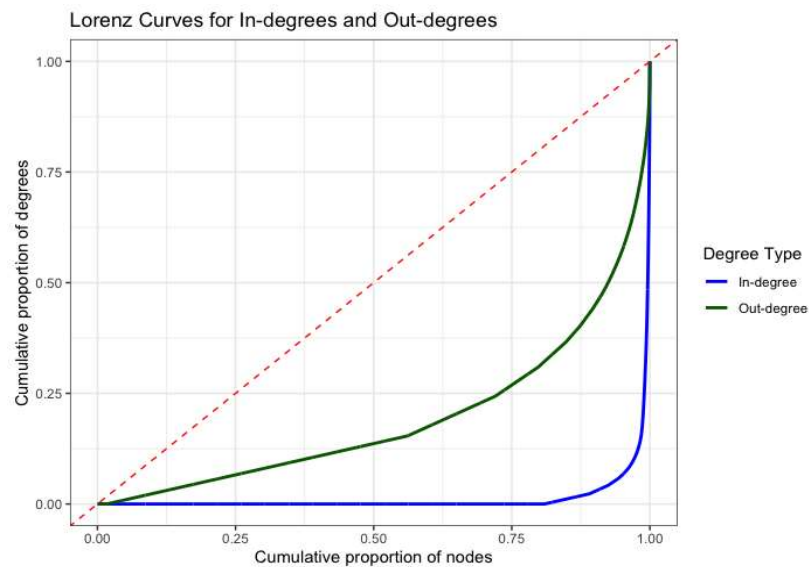


Figure 4. Lorenz Curves of In-degree and Out-degree of the Proud Boys Network.

The in-degree Lorenz curve (illustrated in blue) commences beneath the line of equality, approaching it towards the end. This pattern indicates that many nodes possess relatively low in-degrees. However, the curve steepens at the latter stages, revealing that only a few nodes maintain high in-degrees, which denotes that they are notably connected and receive numerous edges. The general contour of the in-degree Lorenz curve highlights an inequality: a minority of nodes govern a significant share of the incoming connections.

Contrastingly, the out-degree Lorenz curve (depicted in green) exhibits a starker ascent, particularly in its concluding segments. This implies that the vast majority of nodes have minimal out-degrees, with the curve remaining adjacent to the x-axis for an extended stretch. The abrupt surge at the curve's end signifies that a minuscule portion of nodes account for a vast number of outgoing connections. This denotes a more pronounced inequality in out-degrees than in in-degrees: a scant few nodes are predominant in initiating outgoing connections.

Comparing the in-degree and out-degree Lorenz curves, the steeper ascent of the in-degree curve suggests a higher inequality in the distribution of incoming connections compared to outgoing ones. This implies that while a select group of nodes act as major recipients of connections (high in-degree), a broader distribution of nodes disperse their outgoing connections (out-degree) more evenly. In essence, while disparities are present in both in-degrees and out-degrees, it is the in-degree connections that exhibit a more pronounced level of inequality. This could indicate a network structure in which a relatively small number of nodes function as key “hubs” or “influencers” that attract a large number of connections, while a larger portion of the network consists of “broadcasters” disseminating information. As depicted in Figure 3, the Proud Boys network is marked by prominent hubs that play a crucial role in disseminating and gathering information across the network.

Next, by employing the Louvain algorithm for community detection, the network divides into five communities with a modularity score of 0.38, indicating a good community partition considering the degree distribution (Newman, 2006), as shown in Figure 5. These communities include the KingdomZombe-ProudBoysUSA cluster (comprising 38.4% of the 2,934 channels in the network), TheWesternChauvinist cluster (25.8%), ProudBoysGirlsAlaska - ProudBoysAlaskaNorthStar cluster (19.3%), ProudBoysBritannia cluster (13%), and ProudBoysAustralia-NewZealand cluster (3.6%). Notably, these divisions appear to align largely with national and geographic affiliations. We can discern specific communities representing the British Isles (ProudBoysBritannia), Australia and New Zealand (ProudBoysAustralia and ProudBoysNewZealand), the United States (KingdomZombe, ProudBoysUSA, and TheWesternChauvinist), and a dedicated community for the United States' Alaska region (ProudBoysGirlsAlaska and ProudBoysAlaskaNorthStar). While these communities emerge from distinct national backgrounds, they exhibit strong interconnectivity, as depicted in Figure 5, underscoring potential international collaborations amongst Proud Boys chapters.

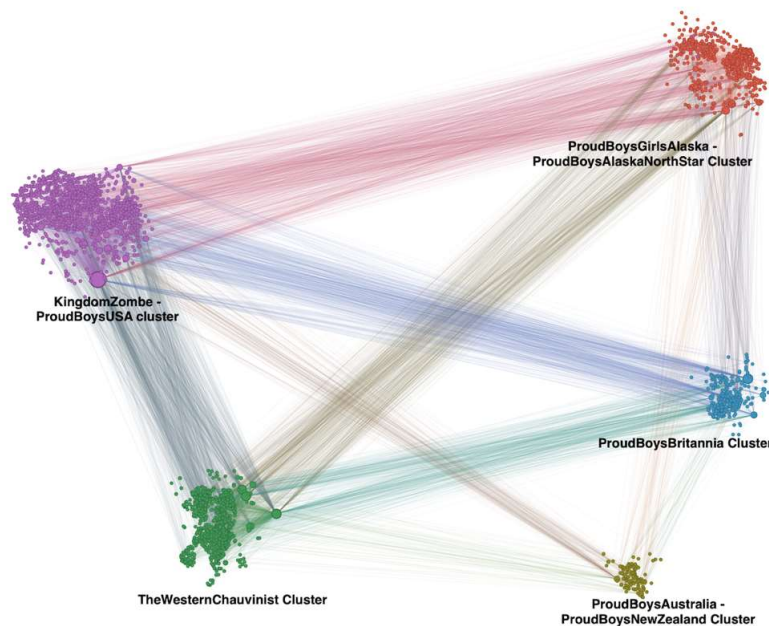


Figure 5. The Network Map of Modularities in Proud Boys Network.

Upon closer examination, we discern two primary functions played by the channels within this network: gatekeepers and representatives. (Please see Table 2.) Specific nodes stand out as gatekeepers, characterized by their distinct interaction patterns. While these nodes are not essential in creating the shortest paths throughout the network (evidenced by their low normalized betweenness centrality), they exhibit influence, as reflected in their in-degrees and out-degrees. In the Proud Boys-centered network, the normalized betweenness centrality values are distributed with quartiles of 0.0, 0.0, 0.0, 0.0, and 0.0789, corresponding to the minimum, 25%, 50%, 75%, and maximum values, respectively. The pronounced left-skewed trend toward 0 suggests that a large portion of nodes in this directed graph don't serve as bridges in the directed flow. Nonetheless, nodes with non-zero betweenness centrality have a pivotal role in directing or managing the network's flow. Importantly, a betweenness centrality value of 0 should not be interpreted as an indication of a node's insignificance within the network's structure or its overall dynamics. Take for instance the node labeled "KingdomZombe", despite its negligible betweenness centrality of 0.000, it prominently stands out with a perfect normalized in-degree of 1.000 and a stark absence of any outgoing connections. This indicates that "KingdomZombe" is a substantial magnet for attention or focus within the network, drawing connections almost exclusively towards itself without dispersing any outward.

Channels such as "ProudBoysGirlsAlaska" and "ProudBoysoftheredoubt" display a notable balance in their profiles. Although their in-degrees are not as stark as "KingdomZombe", they both have higher normalized in-degrees of 0.182 and 0.125, respectively, indicating their importance in the reception of information. Furthermore, their nonzero normalized betweenness centrality implies that they do occasionally act as bridges or intermediaries in the communication paths. "MauiPB" bears some resemblance to "KingdomZombe", primarily acting as a recipient of information, given its in-degree of 0.074 and negligible out-degree. "ProudBoysBritannia" presents an intriguing mix, with both a decent in-degree (0.151) and out-degree (0.094), revealing a

more balanced role in both acquiring and transmitting information. All five nodes have a low betweenness centrality, meaning they're not critical connectors in terms of the network's shortest paths. However, they all exhibit the trait of gatekeepers to varying degrees – receiving more information or connections than they send out.

On the representatives' front, "TheWesternChauvinist" emerges as a paramount disseminator of information. With a normalized out-degree pegged at the maximum value of 1.000, this channel is evidently the most active in broadcasting information to other nodes in the network. Furthermore, its non-trivial betweenness centrality of 0.079 accentuates its role in connecting disparate parts of the network. "ProudBoysUSA" and "NobleLeader" both have significant out-degrees of 0.278 and 0.109, respectively, marking their positions as crucial information distributors. The presence of "OhioProudBoys" and

Table 2. GateKeeper and Representative in Proud Boys Network on Telegram

Node/Channel	Normalized Betweenness Centrality	Normalized In-Degree	Normalized Out-Degree	Difference between normalized in- degree and out- degree
GateKeepers				
KingdomZombe	0.0	1.0	0.0	1.0
ProudBoysGirlsAlaska	0.011	0.182	0.001	0.181
ProudBoysoftheredoubt	0.007	0.125	0.012	0.114
MauiPB	0.0	0.074	0.0	0.073
ProudBoysBritannia	0.016	0.151	0.094	0.058
Representatives				
TheWesternChauvinist	0.079	0.172	1.0	-0.828
ProudBoysUSA	0.013	0.103	0.278	-0.175
NobleLeader	0.006	0.028	0.109	-0.081
OhioProudBoys	0.006	0.024	0.067	-0.042
PhillyPB	0.003	0.015	0.032	-0.017

“PhillyPB” in the top representatives, even with relatively lower out-degrees, emphasizes the intricate dynamics of the Proud Boys network. Their nonzero betweenness centralities, albeit small, indicate that they occasionally play roles in bridging communication paths within the network.

In summary, these gatekeepers and representatives, with their distinct in-degree and out-degree profiles, offer an insight into the flow of information and influence within the Proud Boys network. Their roles, whether predominantly receptive or distributive, underpin the network’s communication structure and influence dissemination.

RQ3: The Proud Boys network is tightly linked with other far-right and/or fringe communities on the platform.

Our analysis identified a larger Telegram network, within which the Proud Boys network is situated, comprised by four adjacent communities (i.e., MAGA Trumpists, white-supremacists, QAnon, and anti-mandate and COVID-19 misinformation purveyors), incorporating 7,030 Telegram channels and 178,580 weighted edges (weight represents the number of mentions; the total number of mentions, or unweighted edges, is 2,411,478). The network is closely connected, with an average undirected average clustering coefficient of 0.583¹⁴, and a total of 3,133,469 triangles. Specifically, about 83 out of 92 Proud Boys affiliated channels are indirectly and/or directly linked with 42% of pro-Trump channels, 83% of white supremacist groups, and 64% of channels that involve COVID-19 and 39% of QAnon conspiracy theory channels. On average, by calculating the shortest path, we discover that the Proud Boys channels connect with pro-Trump allies, white supremacist groups, and channels espousing COVID-19 and QAnon conspiracy beliefs, through 2.7, 2.3, 2.7, and 2.9 nodes, respectively.

¹⁴ A clustering coefficient, ranging from 0 to 1, is a measure of the likelihood that its neighbors (i.e., other nodes it’s directly connected to) are also connected to each other.

We also track and display the flow of URLs between these communities (see Figure 6). The Proud Boys, denoted with an originating count of 456,744, are observed to have substantial intersections with the four other groups. A pronounced flow is evident toward the “COVID” category, suggesting significant content sharing concerning pandemic-related topics. Furthermore, discernible intersections with the “QAnon” faction suggest a confluence of thematic interests, potentially rooted in shared conspiracy narratives. While intersections with the “Trumpist” and “White-supremacist” factions are evident, their relative flow densities are comparably subdued.

In addition, there is a large sharing of unique domains, hashtags, and mentions among these communities. (Please see Figure 7). Starting with the interaction between the ProudBoys and the COVID-19 group, there is a notable overlap in their online discussions. Specifically, 16.2% of the ProudBoys’ mentions are also found within the COVID-19 discussions. This percentage is even higher when observing hashtags, where 21.8% of ProudBoys’ unique hashtags overlap with those of COVID-19. Moreover, when it comes to shared domains, an astounding 44.5% of ProudBoys’ domains coincide with those mentioned in the context of COVID19.

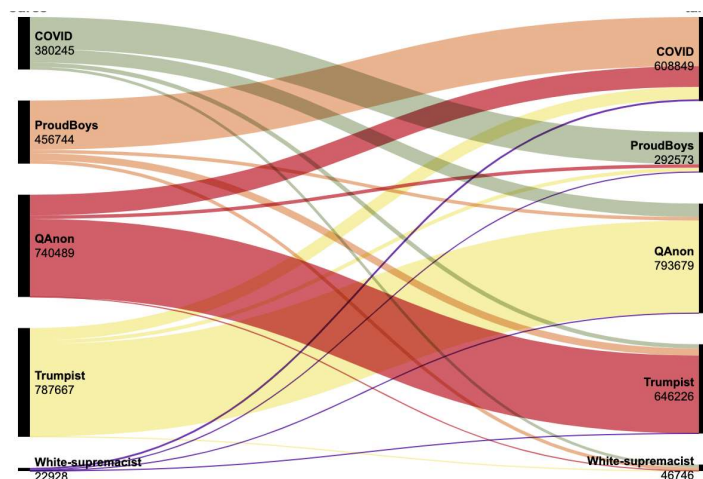


Figure 6. URL Shares Between Proud Boys and Four Other Communities: COVID-19, QAnon, Trumpist, and White-Supremacist.

In terms of the Proud Boys and Trump dynamic, there is a discernible overlap across all three categories: mentions, hashtags, and domains. Specifically, the Proud Boys share 22.2% of their mentions, 19.7% of their hashtags, and 25.9% of their domains with those associated with Trump. Next, the White Supremacist group also exhibits intersections with the Proud Boys. The data shows that 19.9% of Proud Boys' mentions, 12.6% of their hashtags, and 22.9% of their domains overlap with those of White Supremacists.

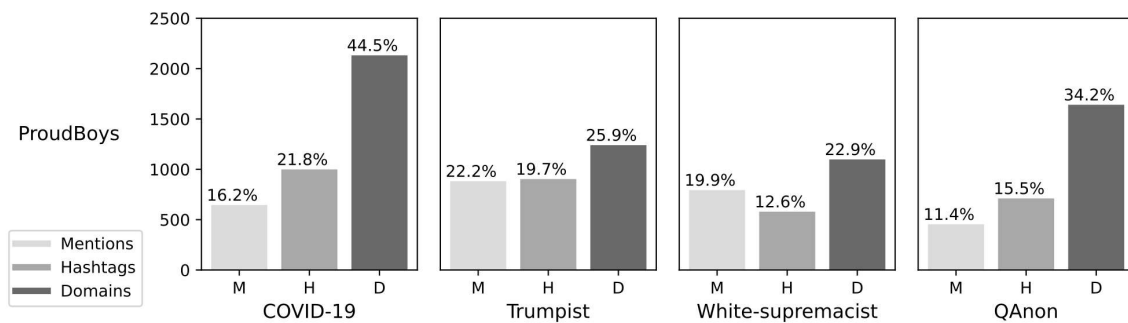


Figure 7. Overlap of Unique Domains, Hashtags, and Mentions Between Proud Boys and Four Other Communities: COVID-19, QAnon, Trumpist, and White-Supremacist.

Note. The bar chart illustrates the number of unique mentions, hashtags, and domains, while the accompanying percentages denote the proportion of these unique counts relative to the total unique sharings by the Proud Boys.

Lastly, the interaction between the Proud Boys and QAnon unveils interesting patterns as well. Approximately 11.4% of mentions, 15.5% of hashtags, and 34.2% of domains that are unique to Proud Boys also appear within QAnon's digital footprint. The domain overlap, in particular, highlights that more than a third of the platforms or websites referred to by Proud Boys are also frequented by QAnon adherents.

To further provide context, Table 3 lists the top 5 shared domains, hashtags, and mentions shared both within the other four groups and by the Proud Boys group. The

mentions illuminate interconnected themes and affiliations. For instance, mentions like “covid19up” and “covid19agenda” associated with COVID-19 indicate mutual concerns or doubts about the pandemic. Mentions from the Trumpist sphere, notably “realdonaldtrump” and “thetrumpist”, highlight common political inclinations and possibly an admiration for Trump’s perspectives. Mentions within the white-supremacist context, such as “whitelivesmatterofficial” and “whiteagendaradio”, point to mutual emphases on white identity and socio-political movements. The QAnon mentions, with the likes of “stormisuponusjm” and “qanonplus”, reveal overlaps in conspiracy beliefs. These connections accentuate the themes and influencers shared by the Proud Boys and these adjacent groups, underscoring their interlinked ideologies.

The confluence of hashtags between the Proud Boys and the other communities provides an additional lens into their mutual narratives. Shared use of “covid19” by Proud Boys, COVID-19, and Trumpist groups underscores a collective engagement with pandemic discourse. Trumpist hashtags, including “maga” and “antifa”, shed light on political affiliations, hinting at a converging narrative with the Proud Boys. Concurrently, white-supremacist tags like “whitepower” and “reclaimamerica” evoke common ideologies around racial perspectives and a vision for America. QAnon’s more spiritually-toned tags, such as “godblessamerica”, suggest shared patriotic sentiments. This hashtag overlap pinpoints the intersecting ideologies and concerns among these communities.

The preference for domains such as “Telegram.org” and “Bitchute.com” across these groups showcases a united appreciation for discrete communication channels and platforms that support uncensored content. Their mutual engagement with “YouTube.com” and “Twitter.com” signifies a cohesive strategy to engage expansive audiences and be part of mainstream dialogues. Moreover, the use of “Bit.ly” indicates a shared approach to efficient content dissemination. This selection of domains highlights the synergized digital tactics among these entities.

Table 3. Top 5 Domains, Hashtags and Mentions Between Proud Boys and Four Other Communities: COVID-19, QAnon, Trumpist, and White-Supremacist.

		Mention
Proud Boys	COVID-19	covid19up, covid19agenda, covid1984chat, covidpassportsaregayasfuck, protonmail
	Trumpist	trumpintel, realdonaldtrump, thetrumpist, q_anon_donaldtrump, realtrump19
	White-supremacist	whitelivesmatterofficial, owl_portal, whiteagendaradio, wlmcontactbot, wlm_usa_texas
	QAnon	stormisuponusjm, hsretoucher17, qanonplus, nancyqanon, bandofbrothersq
		Hashtag
Proud Boys	COVID-19	pfizer, astrazeneca, death, clotshots, covid19
	Trumpist	maga, antifa, covid19, coronavirus, kag
	White-supremacist	whitepower, reclaimamerica, americaforwhites, patriotfront, glr
	QAnon	confiaenelplan, lomejorestaporvenir, covid19, godblessamerica, todossomotrump
		Domain
Proud Boys	COVID-19	telegram.org, youtube.com, bit.ly, twitter.com, bitchute.com
	Trumpist	twitter.com, youtube.com, thebl.tv, safechat.com, telegram.org
	White-supremacist	twitter.com, telegram.org, youtube.com, archive.is, dailymail.co.uk
	QAnon	telegram.org, twitter.com, youtube.com, bit.ly, rumble.com

RQ4: Proud Boys' conversations are overwhelmingly characterized by misogyny, anti-liberal sentiments, deep-seated distrust, and conspiracy theories.

Turning our attention to the content of the messages posted within the Proud Boys Telegram network, we conduct an inductive content analysis, in the form of LDA topic modeling, to identify which subjects most dominate discussions in these channels. Analyzing the substantive nature of posts that circulate within a network is another central component of garnering a more comprehensive understanding of the role it plays. From November 2018 to February 2022, we gathered a total of 528,467 text messages. After thorough pre-processing and text cleaning, 429,224 messages were then fed into the LDA model.

Table 4 presents 50 topics. Dominating the discourse, the most pronounced theme is that of “expression of misogynistic views and/or use of derogatory language towards women.” This overshadows other societal themes, such as discussions on “life, love, hope, and the human experience” and a more ambiguous category that combined “daily life activities with potentially darker or controversial themes.” This suggests a strong undercurrent of gender-based resentment and animosity toward women within the network. Another significant portion of the discourse revolved around contemporary political events and figures. Topics such as “judgment of political liberals,” the dynamics between “Trump vs. Biden,” and the intricate “Trump-Clinton dynamics” constitute a sizable chunk of the discussion. Additionally, events such as “Antifa, Black Lives Matter (BLM), and the Capitol riot” also showcase the network’s active and ongoing engagement with political current events. Within this cluster, it is noteworthy that discussions revolve around critiques of liberal perspectives, as well as various aspects related to both the Trump and Biden administrations.

Conspiracy theories are rife, with posts reflecting “distrust and conspiracy theories,” concerns about “secret global elites,” and debates around “media narrative, political polarization, and ideological divisions.” The frequency of these topics indicates a general atmosphere of skepticism and suspicion toward official information sources, especially when compared to more grounded themes such as “dialogue, information exchange, and problem-solving.” Issues surrounding “mask-wearing” and “COVID-19, including vaccinations and public health measures” are also prominent, revealing the ongoing global health crisis as another focal point of discussions.

The role of media and its perceived bias is another central theme, followed closely by concerns about “social media rules and censorship.” This reflects an overarching sentiment of mistrust towards media platforms, both traditional and digital, and the role they play in shaping public opinion. While religious themes center mainly on the “faith and theology of Christianity,” international politics touch upon “Ukraine/Europe-Russia military relations” and “China, communist, and Sino-American political dynamics.” These topics, though less frequent than domestic political issues, indicate a broader horizon of discussion within the network. Certain events and controversial topics, like “Kyle Rittenhouse discussions,” “police shootings,” and “serious crimes and proceedings,” are also present. These not only indicate the network’s response to high-profile incidents but also hint at the darker or more controversial aspects of their discussions.

Table 4. Topics of text messages within Proud Boys network on Telegram

Topics	Freq. (N = 429,224)	%
Expressions of misogyny and anti-women views, or use misogynistic language	53265	12.41%
General opinions and sentiments about ongoing events or issues (work, societal changes, or political matters)	25416	5.92%
Judgment of political liberals	19053	4.44%

Distrust and conspiracy theories	18592	4.33%
Social Interactions and daily Life	16863	3.93%
Patriotism, national pride and unity	16508	3.85%
Dialogue, information exchange, and problem-solving	16463	3.84%
Antifa, Black Lives Matter (BLM), and the Capitol riot	15183	3.54%
Life, love, hope, and the human experience	13748	3.20%
A mix of daily life activities and potentially darker or controversial themes	13098	3.05%
Trump vs Biden dynamics	12362	2.88%
Mask-wearing	12098	2.82%
Social media rules and censorship	11944	2.78%
Patriotism related chats, channels or news	10801	2.52%
Racism, white supremacy, and anti-racism movements like Black Lives Matter	9489	2.21%
Discussing past events, possibly involving figures like Cuomo	9235	2.15%
Antifa and Proud Boys chapters	8409	1.96%
Communication and information exchange	8364	1.95%
Economics and finance including taxation, business operations, government funding and personal expenses	8066	1.88%

Gender and family, discussing the roles and experiences of men, women, and children	7557	1.76%
COVID-19, including vaccinations, public health measures, medical professionals	7299	1.70%
Media narrative, political polarization and ideological divisions	7043	1.64%
Gun-related discussions	6964	1.62%
Kyle Rittenhouse discussions	6630	1.54%
Faith and theology of Christianity	6466	1.51%
Vehicular incidents and daily life	5919	1.38%
Legal proceedings, justice system and investigations	5427	1.26%
Political parties, elections, and ideological movements.	5186	1.21%
State and federal laws, constitutional matters, and government institutions.	5163	1.20%
Ukraine/Europe-Russia military relations	4729	1.10%
War, military actions and international politics	4576	1.07%
Elections, voting and allegations of fraud	4525	1.05%
Police shootings	4426	1.03%
China, communist and Sino-American political dynamics	4298	1.00%
News media bias	4141	0.96%

Serious crimes and proceedings like murder, sexual abuse, and pedophilia	4000	0.93%
Advocating for Western civilization and cultural preservation	3904	0.91%
Favored Proud Boys related Telegram channels and social media platforms	3512	0.82%
Proud Boys chapters, domestic terrorism, Antifa	3322	0.77%
Charlottesville rally involvement	3003	0.70%
Judaism, Islam, and Christianity discussions	3001	0.70%
Education and school system challenges	2651	0.62%
Federal law enforcement	2555	0.60%
Celebrations, daily life, and special events	2375	0.55%
Right-wing personalities	2368	0.55%
Conspiracy theories: Secret global elites.	2336	0.54%
Trump-Clinton dynamics	2235	0.52%
Dog-whistling, covert or coded communication	1833	0.43%
California politics and gay-related issues	1427	0.33%
American legal and governmental systems, with a focus on corruption, law, and citizenship	1396	0.33%

Besides the shared discourse, a major function of this network is to share information in the form of links to external content, such as news articles. Not only is this reflective of the preferred perspective or slant of information shared within this network, but it also suggests which sources members of this network consider to be more reliable or authoritative. In the Proud Boys network, about 15.2% of text messages contain links. A total of 4,853 distinct domains (65,077 unique URLs) have been shared within the Proud Boys network. Of the 1000 most commonly shared domains in this network, 38.7% are news websites according to Cyren's classification. Among the top 100 shared news websites, 24 % are websites associated with extreme/far right and conspiracy theories, 37% are right or right-center websites, 29 % are left or left-center websites, according to the MBFC. In addition, 2% associated with satire and 1% Russian government sponsored messaging are also observed. Table 5 shows the top 20 most popular news websites shared in the Proud Boys network, including the frequency, percentages of total number of domains shared, and their characteristics defined by MBFC.

Table 5. Top 20 News Domain Shared by Proud Boys Network.

Domain	Country	Bias Rating	Factual Reporting	Traffic	Freq. (N = 90,522)	%
Thegatewaypundit.com	USA	Extreme right	Very low	High traffic	2741	3.03 %
Breitbart.com	USA	Right	Mixed	High traffic	978	1.08 %
Infowars.com	USA	Extreme right	Very low	High traffic	821	0.91 %
Summit.news	USA	Extreme right	Low	Medium traffic	688	0.76 %
Dailymail.co.uk	UK	Right	Low	High traffic	654	0.72 %

Theepochtimes.com	USA	Right	Mixed	High traffic	651	0.72 %
Nypost.com	USA	Right center	Mixed	High traffic	651	0.72 %
Foxnews.com	USA	Right	Mixed	High traffic	618	0.68 %
Zerohedge.com	Bulgaria	Right conspiracy pseudoscience	Low	High traffic	535	0.59 %
Redstate.com	USA	Right	Mixed	High traffic	496	0.55 %
Dailywire.com	USA	Right	Mixed	High traffic	452	0.50 %
Thefederalist.com	USA	Right	Mixed	High traffic	435	0.48 %
Lawenforcementtoday.com	USA	Right	Mixed	Medium traffic	423	0.47 %
Nationalfile.com	USA	Far right	Low	Medium traffic	368	0.41 %
Theblaze.com	USA	Right	Mixed	High traffic	346	0.38 %
Wikileaks.org	Iceland	Left center	Mixed	Medium traffic	301	0.33 %
Oann.com	USA	Far right	Low	High traffic	234	0.26 %
Thenationalpulse.com	USA	Extreme right	Mixed	Medium traffic	228	0.25 %
Justthenews.com	USA	Far right	Mixed	High traffic	222	0.25 %
Dailycaller.com	USA	Right	Mixed	High traffic	217	0.24 %

A significant trend is the dominance of U.S.-based news outlets, indicating a predominantly domestic focus in the shared content. Moreover, the majority of these domains lean towards the right or extreme right in their bias rating. Notably, thegatewaypundit.com, classified as “extreme right” and having “very low” factual reporting, stands out with the highest frequency of 3.03%, followed by Breitbart.com and Infowars.com with 1.08% and 0.91% respectively. There’s a noticeable correlation between high traffic and the frequency of shares, suggesting that popular sites with larger audiences have a higher likelihood of being circulated within the network. Examples include Breitbart.com, Dailymail.co.uk, and Theepochtimes.com, all of which have high traffic and are among the top domains shared.

Limitation

While this study provides valuable insights into how a far-right organization, the Proud Boys, makes use of an alternative, relatively unregulated social media platform, it is not without its limitations. First, the research is confined to our data collection methods. Specifically, utilizing Telegram’s “forward” feature to expand upon our initial seed list of channels opens the door to certain potential biases. Primarily, our starting channels have an undeniable influence on the derived channels, potentially leading to a lack of sample diversity. There is also a risk of recurrently encountering the same channels, leading to an echo chamber effect.

The search constraints imposed by Telegram’s design introduce another type of limitation. Specifically, the platform’s search functionality primarily returns channels based on handle or name matches, which means that our exploration was accordingly limited to these parameters. This restricted search capability suggests that there may be channels related to our topic of interest that don’t explicitly mention relevant keywords in their handle or name and, thus, might have been missed in our study. Other sources of limitation include the forward feature’s algorithm, which may inherently favor popular or currently active channels, inadvertently sidelining smaller or dormant yet still relevant

channels. Lastly, the channels we've accessed are shaped by user behavior, and if our seed channels exhibit certain preferences or biases, the derived channels will reflect those tendencies.

Nevertheless, even with these limitations in mind, we feel confident that our strategy ensured that the sample covered a vast network of channels associated either directly or indirectly with the seed channels. This method is beneficial in capturing potential lesser-known channels that might be indirectly linked to the primary channels or that emerge over time. Moreover it offers a dynamic and organic expansion method that mimics real-world user behavior on the platform.

Turning to other potential limitations, to determine whether a source is misleading or not, we relied on external credibility ratings to assess the unreliability of URLs. This method is domain-based and dependent on the MBFC website. Next, to capture the flow of URLs between Proud Boys and other four far-right groups, we relied on identical URLs rather than the "forward" actions in Telegram channels. We opted for this approach because the text network often captures these actions, and URLs are frequently shared independently without using the "forward" feature. Additionally, in collecting the domains, we encountered numerous short links from "bit.ly". Regrettably, not all of them could be expanded due to expiration or invalidity upon access. For those unexpanded short links, we retained them under the domain of "bit.ly", which might lead to a potential underestimation of the frequency of unique domains.

Conclusion

This study offers insights into the Proud Boys' digital presence on and use of Telegram. Our findings indicate that the Proud Boys established and expanded their presence on Telegram in November 2018, coinciding with Facebook's enforcement actions against pages and profiles affiliated with group (Statt, 2018). A second large expansion of the network was precipitated by the January 6, 2021 U.S. Capitol attack. As

of the conclusion of our data gathering in February 2022, our analysis identified 92 primary Proud Boys-affiliated channels with over 130,000 subscribers, extending globally from the U.S. to regions like Australia, New Zealand, Canada, and Europe.

In addition to these channels with explicit affiliation with the group, over 2800 channels were identified that also disseminate Proud Boys-aligned content. These channels, while not overtly affiliated, showed interconnectivity, often bridging various communities and acting as crucial nodes in this digital network. The Proud Boys Telegram network is also closely connected with a number of far-right and/or fringe communities on Telegram, including Trump enthusiasts, QAnon followers, white-supremacist communities, and COVID-19 doubters.

An inductive content analysis, utilizing LDA topic modeling, of the messages and information shared within the Proud Boys network revealed strong undercurrents of misogyny, a critical or hostile stance towards liberals, and an abundance of conspiracy narratives. The discourse spans a wide array of topics, from the U.S.-centered political dynamics, such as the Trump-Biden discussions, to broader global issues, including international politics and the COVID-19 pandemic. Furthermore, URLs shared within these channels often lead to alt-right platforms or conservative-biased sites.

The threat posed by the Proud Boys and other far-right extremist groups has been raised by numerous journalists and experts. However, it was not until after the 2020 presidential election and the January 6, 2021 insurrection that the mainstream began to recognize the seriousness of the issue (Kenes, 2021). Despite facing internal and external pressures, our findings suggest that Proud Boys remain active, especially online. Future investigations could focus on this organization's transnational collaborations and the potential ideological unions of various other far-right factions on Telegram.

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Supplemental Materials for “Proud Boys on Telegram”

WEI ZHONG

New York University, USA

CATIE SNOW BAILARD

George Washington University, USA

DAVID A. BRONIATOWSKI

George Washington University, USA

REBEKAH TROMBLE

George Washington University, USA

Table of Contents

Proud Boys Channels Dataset on Telegram.....	3
Table A1. Proud Boys-affiliated Telegram Channels.....	3
Comparing the Proud Boys Network with non-Proud Boys Far-right Networks.....	14
Step-by-step Description of the Methodology for Discerning Gatekeepers and Representatives within Proud Boys Network.....	14
Manually Identification of Misinformative COVID-19 related Telegram Channels	15
Table A2. COVID-19 related Telegram Channels.....	15
Topics within Proud Boys Channels.....	33
Table A3. Topics of Proud Boys Channels on Telegram.....	33

Proud Boys Channels Dataset on Telegram

Our dataset includes 92 distinct public channels associated with the Proud Boys. Notably, Telegram allows channel owners to change their usernames, yet the channel ID remains constant. Therefore, during our data collection, we encountered identical channels with varying usernames. Given the nature of the groups involved, we have anonymized the channel IDs, usernames, and titles. Table 1 provides metadata for these channels as of July 2022, listing anonymized unique identification numbers, anonymized usernames, anonymized titles, current subscriber counts, and biographies. If a biography field is empty, it indicates that the channel has not posted a biography. The table further illustrates the substantial range in the number of registered users, from 16 to 33,366. This raw data is strictly reserved for limited research purposes. For access to this dataset, please contact the corresponding author.

Table A1. Proud Boys-affiliated Telegram Channels

Anonymized Channel Username	Anonymized Channel ID	Anonymized Channel Title	Channel Bio	No. of Subscribers
AK***	116393****	Ak***** *****		30
al*****	118850****	Of***** ***** ****	Alabama Proud Boys Public Telegram. If it's said about us and we don't post it here, it's a lie.	369
Au***** ***	143297****	PB***** ***** ***** *	The voice of independent clubs who reject the idea our brotherhood needs national centralized leadership. Brotherhood is our law.	114
Br***** *****	158767****	Br***** ***** *****	Brick City Proud Boys official channel.	157
ca***** *	158180****	Of***** ***** *****	Southeastern NC	532
Co***** *	156516****	Th***** ***** *****	The official public channel of the Columbus chapter of the Ohio Proud Boys.	287
Da*****	129596****	Da***** *****	Dakota Boys Rule.... UHURU POYB	347
da*****	138718****	Da***** ***** *****	Everything on the channel is purely satire. Thanks	1101

Da*****	178351****	Da***** *****	Dar X Korner PB Chapter Foothills South Carolina Email us at DarkCornerPB@protonmail.com	143
Fr*****	153825****	Fr***** *	A place for all the charity pages, fund raising and News regarding all the Proud Boys that have been unjustly imprisoned, their constitutional rights taken away from them and being tortured on a daily basis. Free the Boys	1517
Gh*****	149398****	Th***** ***** ****	Reinstilling the true founding spirit of Western Chauvanism that made the Proud Boys great.	27
Gr*****	148780****	Gr***** *****	Official channel of the Great Basin Proud Boys. A chapter for rural Northern Nevadans. BattleBornUhuru@protonmail.com I am a western chauvinist who refuses to apologize for creating the modern world.	508
Ho*****	126870****	He***** ***** **	Does this smell like chloroform to you?	255
in*****	146793****	***** ***** **	Offensive, inappropriate, gay aids content ahead, not to be taken seriously ever! Fwpb@protonmail.com	497
Jo*****	149561****	Jo***** *****	Official channel of ANTIFAs worst Nightmare	624
Ke***** *	115082****	Ke***** *****	The official Telegram channel of the Kentucky Proud Boys. Get all your latest KYPB news and updates right here! POYB. Contact us: KyProudBoys@ProtonMail.com	336
Ki*****	136265****	TH***** *****	Home of the SUGAR BOYS. BUY BEENDA COINS. Pronouns: BEENDA, PEENDA, VAGEENDA, ASSEENDA, ADNEEB, SCARES	3288

le***** ****	140130****	Le***** *****	The public page of Lehigh Valley Proud Boys	311
ma****	140882****	Of***** *****	To Join Maui PB please send e-mail that you are interested to: mauiproudboys@gmail.com Venmo: Maui-proudboys	20
Mi*****	140806****	Vi***** *****	MiamiPB@protonmail.com	973
mi***** *	168077****	Of***** ***** ****	Be the man you were born to be and start standing up for your rights and the rights of your children. The evil we are living in is going to continue as long as we allow it to continue! Michianaproudboys@protonmail.com	194
Mi***** ****	175463****	Pu***** ***** *****		373
mi*****	140456****	*M***** ***	The official channel of Mike Lasater, host of @AFRICAsoGOOD on @MurderTheMedia , Fridays at 9c Replays: @AFRICAreplays DMs: @lasater Follow Carl: @CarlLambII	618
mn*****	135926****	Mi***** ***** *****	Best Chapter in the West. Starofthenorth.club poybm@protonmail.com	492
Mo*****	116078****	Mo***** ***	Whatever the fuck Moonstomp Says	16
mu*****	168360****	Mu***** *****	The original chapter of the state of Tennessee! The founders of all three chapters still Agree with our principals... so does the Clarksville Chapter! No Nazi shit Frank is our leader! We hate Rallies	202

			We love brotherhood! We run Tennessee always have	
NH***	133868****	Of***** ***** *****		203
NI*****	131476****	PR***** ***** ***** ***** ***** *		445
NJ*****	163753****	Pr***** *****	Official New Jersey Coalition News Channel News from Ocean County PB (shore), SNJ PB (south), Jersey Line PB (north) Central Jersey Chapter (central) south.jersey.pb@protonmail.com https://t.me/NJPBCoalition	328
NJ*****	146704****	Pr***** *****	The Official channel of the New Jersey State Proud Boys. New Jersey's Original Chapter. Home of the The OGs proudboysnewjersey@protonmail.com Follow us on Truth Social https://truthsocial.com/@proudb_boysNJ	400
NL***	158729****	No***** ***** ***	Your source for anti-communist propaganda. Interested in joining our chapter? Comment that you'd like information on how to join on any post in this page and we will contact you. UHURU	118
No*****	123656****	***** *****	Chairman of the Notorious ProudBoys Patriot - Super-Villain - Entrepreneur American Supremacist	6956
No*****	143556****	No***** ***** ***** *****	nwoproudboys.com	179
no***** *	143678****	OF***** *****	Official Northern Virginia PROUDBOYS	16

Of***** ****	145461****	Of***** ***** ***	Ireland's official Proud Boys organisation!! The West is the Best!	1359
Of***** *****	117740****	He***** ***** *****	Does this smell like chloroform to you?	173
of***** *****	113010****	Of***** ***** ****	Official Michigan Proud Boys Telegram Channel	826
of*****	148742****	Ne***** ***** *****	“We are New Hampshire’s Proud Boys” Contact: NHProudBoys@protonmail.com	401
of*****	177816****	Of***** ***** *****	The public channel of the only official and recognized chapter of The New Hampshire Proud Boys. The Freedom State Warriors.	146
Of*****	155542****	Of***** ***** ***** *****		60
Of*****	160065****	*r***** ***** *****		155
Of***** *	119338****	Of***** ***** *****	The Official merch shop!	46
Of***** *****	172863****	Of***** ***** ***** *****	Official Telegram Channel for the Memphis "West Tennessee" Proud Boys	283
Oh*****	131486****	Pr***** ***	The official Telegram channel of Proud Boys Ohio. UHURU! To join the Proud Boys in Ohio: https://proudboysohio.com/ Follow us on TruthSocial: https://truthsocial.com/@ProudBoysOhio Follow us on GETTR: https://www.gettr.com/user/ohio_proudboys	1678

OI*****	121847****	Un***** ***** *****		125
pa*****	138980****	Pa***** ***** **	Stay updated for events in the Pacific Northwest. <u>CallToActionLibertyBell.com</u> - enter your cell # to get text notifications for events or emergencies <u>ThePatriotCalendar.com</u> for list of events. Donate: <u>https://secure.lawpay.com/pages/mblp/trust</u>	2607
pb****	124033****	PB****		9113
PB***	148633****	Of***** ***** **	Official Norwegian Chapter of the Proud Boys	172
PB*****	132742****	Of***** ***** **		74
ph***** *****	166238****	Ph***** ***** ***** *****	The OFFICIAL public channel of the Philadelphia Proud Boys , one of the original chapters of the fraternity.	114
ph*****	129803****	Pr***** *****	Official Channel of the Philadelphia Chapter of the Proud Boys. Web: <u>https://ProudBoysPhiladelphia.com</u>	1061
pi***** **	157138****	Pi***** *****	The Official Telegram channel of The Pittsburgh Proud Boys, get your dose of daily red pills.	146
PO*****	131261****	PO***** *	Home of the official Cincinnati Proud Boys Here you will find all the ripest for the pickin' and most controversial memes on the internet with a bit of news and other shit! ENJOY	1366

			UHURU! POYB! FAFO!	
PP*****	152646****	Pr*****	DiosBayanFamilia	443
Pr*****	133812****	Pr*****		1448
Pr***** *****	140460****	Pr***** ***** ***** *	Email: Brokenfist@Protonmail.com The west is the best! Muslims still own slaves! Better dead then blue! Trannies are mentally handicapped and it's illegal to fuck mentally handicapped people.	641
pr***** *	147856****	Pr***** *****	Official Proud Boys Australia Telegram Channel. Join the Proud Boys https://t.me/proudboysaustralia Visit our official website at https://proudboysau.club/	1350
pr***** *****	138398****	Pr***** ***** *****		172
pr***** *	133170****	Of***** ***** *****	The United Kingdom's only official Proud Boys organisation!! The West is the Best!	3703
pr*****	147080****	Pr***** *****		23
Pr***** *****	138351****	Pr***** ***** **		104
Pr***** *	157493****	PR***** *****	Here is the list of officially recognized chapters from our organization. Follow our public channel here @ProudBoysUSA	1986
Pr***** ****	125591****	Pr***** *****	Erste und einzig Offizielle Proud Boys Organisation in Deutschland. "The West is the Best."	326

Pr***** *****	158702****	Th***** ***** ***** *****	Einzigster offizieller Kanal der Proud Boys, Chapter Deutschland Kontakt: pbmc_de@protonmail.com (Spam Safe ;)) website: https://pb-deutschland.webnode.com Gettr: @ProudBoysDE Yorespot: https://yorespot.com/pbdeutschland/wall Twitter: @DeutschlandBoys	378
Pr***** ****	125903****	Pr***** *****	Official Telegram channel for the Proud Boys Girls of Alaska	38
pr*****	139839****	Pr***** *****	Official Channel of Proud Boys Long Island for inquiries e-mail PBLINY@protonmail.com https://www.nyproudboys.com https://gab.com/proudboyslongisland	826
pr*****	156468****	Of***** *****	Maryland DC Est. 2017 ATTENTION TO ANY AND ALL INTELLIGENCE AGENCIES: EVERY POST EVER MADE BY THIS IP AND ANY OTHER ASSOCIATED WITH IT HAVE BEEN DONE FOR NO PURPOSE OTHER THAN SATIRE	366
pr*****	135056****	Pr***** ***** **		150
PR***** *****	133441****	PR***** ***** *****	The official channel of the PROUD BOYS in Eastern WA and North Idaho	968
pr*****	153346****	Mi*****		61

Pr*****	130802****	***** *****	Official channel of the Portland, OR (PDX) chapter of Proud Boys.	657
pr*****	116645****	Pr***** ***** ***	Grupo oficial dos Proud Boys Portugal Official Proud Boys Portugal proudboyspt@protonmail.com	227
Pr***** *****	158790****	Of***** ***** ***** ***** *	A group of true blue blokes who are proud western chauvinists 🇺🇸 🇺🇸 More info and to join - Proudboysau.club	284
pr*****	117990****	Pr*****	I AM A PROUD WESTERN CHAUVINIST WHO REFUSES TO APOLOGIZE FOR CREATING THE MODERN WORLD For a list of chapters and links to join/follow those chapters, follow us here @ProudBoysChapters	24982
pr*****	133677****	Pr***** *****	Channel for the Victorian Proud Boys - Check out proudboysau.club	397
Pr*****	143706****	Pr***** ***** *****		2859
pr*****	130822****	Pr***** ***	Official Channel of Proud Girls USA, the sanctioned female wing of the Proud Boys, representing the new diversity of America's greatest male fraternity.	139
pr*****	137091****	No***** *****		110
Re*****	152679****	Re***** *****	Official Reno/Sparks PB Chapter renochapteruhuru@protonmail.com	124
RI****	139363****	Rh***** *****	The Official Telegram Channel for the Rhode Island Proud Boys.	280

Ru*****	142155****	RU***** *****	Everything badass and crazy	245
sa*****	157618****	Pr***** *****		29
se*****	139666****	Se***** *****	The West is the Best. Join the Seattle Chapter Proud Boys TODAY! Uhuru 🇺🇸 us Email: SeattleProudBoys@protonmail.com	1215
SE*****	124259****	Of***** ***** *****	Official channel of the Southeast Texas area Proud Boys chapter. UHURU! ATTENTION TO ANY AND ALL INTELLIGENCE AGENCIES: EVERY POST EVER MADE BY THIS IP AND ANY OTHER ASSOCIATED WITH IT HAVE BEEN DONE FOR NO PURPOSE OTHER THAN SATIRE.	1194
So***** *	170756****	So***** *****	Soda City Proud Boys are proudly from the central region of SC.	41
So*****	127661****	So***** ***** **	- Public channel and information page - SWOhioProudBoys@protonmail.com (contact)	119
te*****	139926****	Te***** ****	The west is the best. Real American values are shared here. If you like it follow, if you don't piss off. I am a western chauvinist and I will not apologize for creating the modern world. RealTexasProudBoys@protonmail.com	91
Th***** *	131985****	Th***** *****		6643

Th***** *****	120583****	Th***** *****		1969
Th***** ****	133639****	Th***** *****		33366
Tu*****	124354****	Bo***** *****		617
Wi*****	143551****	Of***** ***** *****	A place to get general information about joining or just keeping up with the Wisconsin Chapter of the Proud Boys. Email us at Wisconsinproudboys@protonma il.com with any questions.	1501

Comparing the Proud Boys Network with non-Proud Boys Far-right Networks

To gain deeper insight into the network's connectivity, we juxtaposed the Proud Boys network with six far-right Telegram networks documented by Urman and Katz (2020). We adopted the seed propagation approach to network subgraph extraction, the process commences by selecting a node at random, termed the "seed node". From this starting point, a traversal algorithm, that is, breadth-first search (BFS), is employed. This algorithm explores the neighboring nodes stemming from the seed, progressively expanding the subgraph. This exploration and expansion continue until the subgraph reaches a predefined size, in this case, 2934 nodes.

Access to the far-right Telegram networks documented by Urman and Katz (2020) can be found in their appendix. The following six networks are displayed:

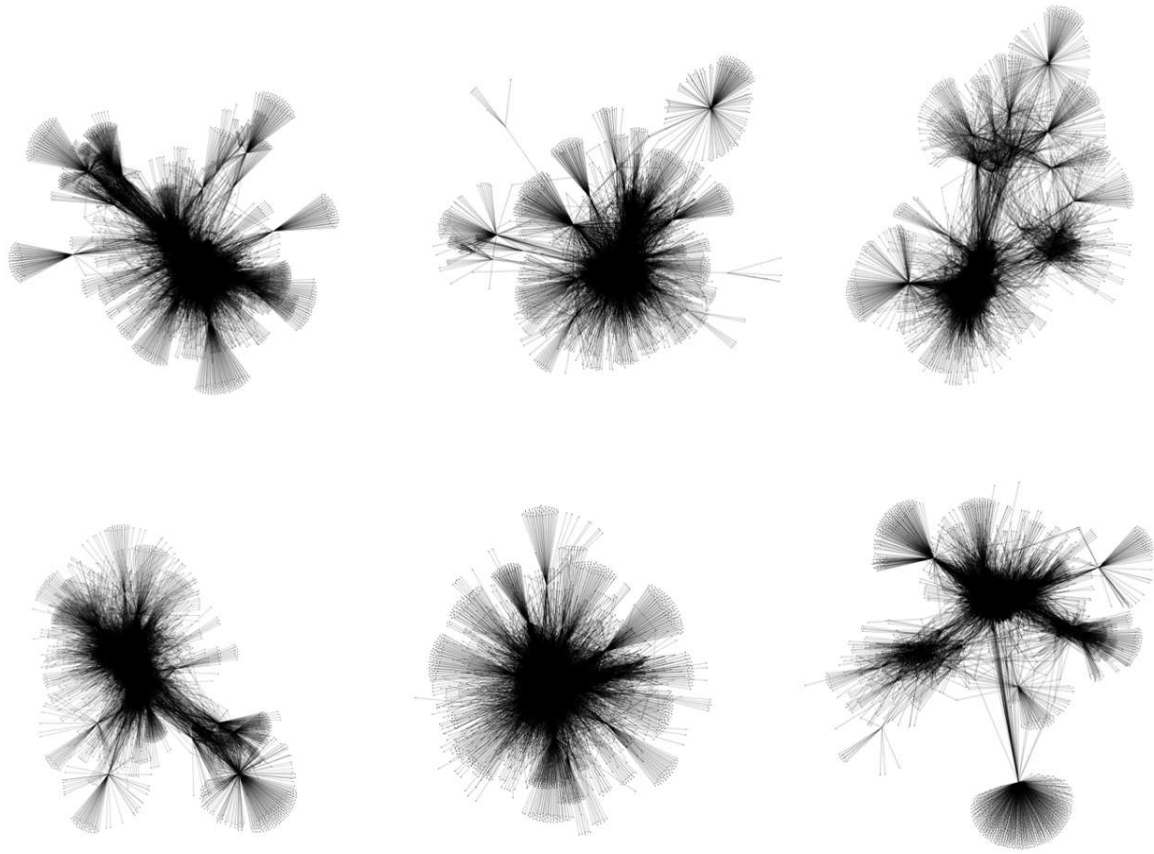


Figure A1. The non-Proud Boys far right networks documented by Urman and Katz (2020)

Step-by-step Description of the Methodology for Discerning Gatekeepers and Representatives within Proud Boys Network

Step 1: Community Detection

- *Convert the Proud Boys network into an undirected version and use the Louvain method to detect communities (or divisions).*

Step 2: Centrality Calculation

- *Compute the betweenness centrality for all nodes in the directed Proud Boys network*
- *Filter out nodes based on betweenness centrality that's higher than the normalized mean value. This ensures only influential nodes are considered in further analysis.*

Step 3: In-degree and Out-degree Analysis

- Compute the weighted in-degree and out-degree for each node. The in-degree represents incoming connections, while the out-degree represents outgoing connections.
- Calculate the average in-degree and out-degree across all nodes.

Step 4: Gatekeeper Identification

- For each edge in the network:
 - If the target node belongs to the identified Proud Boys channels and the edge comes from a different community, calculate a score. This score is a combination of the edge's weight and the difference between the node's in-degree and out-degree.
 - Rank the nodes based on their gatekeeper scores. The top nodes with the highest scores are the main gatekeepers.

Step 5: Representative Identification


- Similarly, for each edge in the graph:
 - If the source node belongs to the identified Proud Boys channels and the edge goes to a different community, calculate a score. This score is influenced by the edge's weight and the difference between the node's out-degree and in-degree.
 - Rank the nodes based on their representative scores. The top nodes with the highest scores are the main representatives.

Manually Identification of Misinformative COVID-19 related Telegram Channels

To ensure a precise and accurate classification of channels disseminating COVID-19 misinformation, we implemented a two-step examination process: Initially, we conducted a manual review of each channel's metadata, encompassing its username, title, and description. This allowed us to identify channels with clear markers of misinformation or conspiratorial content. The results are in the "Notes" column in Table A2.

Table A2. COVID-19 related Telegram Channels







Channel ID	Channel Username	Channel Title	Channel Bio	Notes
1393406498	ilviruselostato	Il VIRUS è lo STATO	"L'anarchia è una forma di governo o di costituzione nella quale la coscienza pubblica e privata, formata dallo sviluppo della scienza e del diritto, basta da sola a mantenere l'ordine ed a garantire tutte le libertà." Pierre-Joseph Proudhon	This channel seems to express a viewpoint on government and order, drawing from Pierre-Joseph Proudhon's quotation about anarchy. It's unclear whether this is specifically related to covid misinformation, but

				the name suggests a perspective that "the virus is the state."
1176330391	CovidRedPillsChat	Covid Red Pills Chat 	WELCOME TO COVID RED PILLS CHAT RULES 1. No fed posting or illegal posts 2. No spam 3. Try to use mostly English 4. Be respectful to other members 5. Try to focus mostly on covid	The title "Red Pills" is often used in the context of waking up to a perceived truth or reality. The rules suggest discussions focus mostly on covid, but no specific misinformation is evident in the description provided.
1204995962	covidvaccineinjuries	Covid Vaccine Injuries	To contact me or submit a story send a message to: @angelaisawake Gab @AngelaNashville	This channel focuses on alleged injuries from the covid vaccine. This could potentially promote misinformation about vaccine safety.
1475656827	COVIDCanadaNews	COVID ca Canada News - CCN	Get the latest news on COVID in Canada and information from over 20 trusted and alternative sources. Chat: https://t.me/covidcanada	Appears to share news about COVID in Canada.
1518188631	covidmemes	Induced Mass Psychosis	Things do not happen. Things are made to happen. Coincidence is the word we use when we can't see the levers and pulleys. The latest updates on the "new normal" – chronicling the lies, distortions, and abuses by the ruling class.	The title "Induced Mass Psychosis" and the about section suggest the channel may contain conspiracy-related content or viewpoints opposing mainstream narratives.
1355515670	corona_investigative	Corona Investigative	This channel focuses on all aspects of the corona crisis with an investigative perspective, focusing on the scientific proof of the existence of the virus and its detection by PCR techniques. The whole world blindly trusts that this is sound science.	The description seems to question the scientific validity of the coronavirus and PCR testing. This suggests potential misinformation.
1406312796	Coronavirus Plushie	Coronavirus Plushie	My Bitchute channel: https://www.bitchute.com/channel/ngCZbwscsTcF/ One of my last two remaining You	No direct evidence of misinformation from the given description.

			Tube channels (all the channels I had many subscribers on were deleted) https://www.youtube.com/channel/UCyHSmF-T8RTeCHHgB8nLmsQ/videos	
1233783838	RealCovid	Real World News	Back up channel.	The title "Real World News" and the description "Back up channel" are vague, so it's difficult to determine the content.
1642737506	TheCovidTruthNet	Covid Truth Network	This is the channel of a group of public health, science, and media experts who will clarify the truth about Covid-19 and the associated measures and therapies.	Claims to clarify the truth about Covid-19. The title suggests potential counter-narratives to mainstream information.
1326327796	TheTruthAboutCOVIDVaccines	TheTruthAboutCOVIDVaccines - Clive Palmer		The name suggests potential misinformation or alternative narratives about COVID vaccines.
1323556313	patentcovid	mRNA Spike Protein Effects	Showing Adverse reactions illnesses pain suffering and death making awareness of the harm the unproven never isolated Sars-cov-2 (Covid-19) virus shot jab Injection ; and manipulation by Governments media & corporations draconian culling by Alien tech	The about section contains language suggesting skepticism or opposition to official narratives, especially regarding the vaccine.
1226804730	covid_vaccine_injuries	Covid Vaccine Injuries	Collating injuries from around the world so people can have more information about these new products. We try not to post the same testimony twice, apologies if this occurs.	Similar to "covidvaccineinjuries," this channel appears to focus on alleged injuries from the covid vaccine, suggesting potential misinformation about vaccine safety.
1300974801	Covid19TruthGroup	@COVID19TRUTHGROUP	t.me/Covid19Truth Must join to comment Chat: t.me/Covid19TruthGroup Rules https://t.me/Covid19TruthGroup/40507	The description and hashtags suggest a focus on various conspiracy theories and potentially misinformation

			Report Spam @c19tg_report #COVID #lockdowns #EconomicReset #Agenda21 #Agenda2030 #WW1 #WW2 history paved way for #Zionist #Marxist #Bolshevik	about COVID.
1174504772	CovidDiscussionForum	Covid-19 Discuss Forum Files	Exposed COVID-19 SCAM #Uncensored #News #Music #Videos #Educational #Health - Free from Mainstream Media deception and delusional programming.	The title "Exposed COVID-19 SCAM" directly indicates a counter-narrative or conspiracy viewpoint about COVID.
1475139306	CoVidScamdemic	CoVid Scamdemic	CoVid Hoax. Global Scam. 21st century GENOCIDE. Predominantly CoVid but includes related info, Flat Earth, Moon & more. Info offered is not endorsed. Every living man, woman & child is free to make their own decisions from info shared on this channel.	The name and description indicate a belief that COVID is a hoax and related to other conspiracy topics.
1363143989	covid19armiabiologica	COVID-19 ARMA BIOLOGICA VACCINI INEFFICACI ANZI LETALI COVID-19 BIOLOGICAL WEAPON	La speranza del vaccino è destinata in breve termine a trasformarsi in un incubo, il virus SarsCoV2 è un'arma biologica progettata per adattarsi alla risposta anticorpale umana mutando e causando malattie devastanti nei vaccinati (A.D.E.)	The description suggests the belief that the SarsCoV2 virus is a bioweapon and that vaccines are potentially harmful.
1201191009	covidvaccinevictims	COVID VACCINE VICTIMS	Victims & their stories.. Chat link: https://t.me/CovidVaccineVictimsChat	Another channel focusing on alleged vaccine injuries, suggesting potential misinformation.
1131143668	covid19au	auCOVID-19 Australia	A channel to share info relevant to Australia on the COVID-19 pandemic. Chat at https://t.me/covid19auchat Australia's Coronavirus Health Info Line: 1800 020 080	Appears to be an informational channel related to COVID-19 in Australia.
1454855338	SilverNervutiCovid	Silver Nervuti Il nientologo Plandemia		Insufficient information to determine the content.
1097684148	terapiadomiciliareprecocecovid19	terapiadomiciliareprecocecovid19	Canale creato dall'avv. Erich Grimaldi per il Comitato Cura Domiciliare Covid e relativo gruppo Facebook	The name suggests it might be related to early home treatment for


				COVID-19, and it's created by someone named Erich Grimaldi for the Home Care Committee for COVID and a related Facebook group.
1477384989	covidvaxinjury	Covid Vaccine Injuries	A collection of Covid vaccine injuries. Rules: No spam posting - post your link once, otherwise all your comments will be deleted. Blatant obnoxious victim shaming will be deleted on this channel. If you do it multiple times, you will be banned.	The channel "covidvaxinjury" appears to focus on collecting and sharing stories or information related to injuries or adverse effects from COVID-19 vaccines.
1487132002	covidemotions	CovidEmotions	Fantasy channel 😊. Do not take it as truth Fake news, conspiracies, fiction, imagination, opinions, humor and beauty.	Based on the provided description, the channel "covidemotions" identifies itself as a fantasy or satirical channel and directly states that its content includes "Fake news, conspiracies, fiction, imagination, opinions, humor and beauty."
1375792189	CoronaAusschussAlleAnhoerungen	CORONA ◊ AUSSCHUSS 🏰 ALLE ANHÖRUNGEN 🗣️ (inoffiziell)	Das Mega-Archiv. 📄 DEGBESIT Dies ist ein inoffizielles Kanal-Projekt: Mit Schnellsuch-Liste, verbesserter Tonspur & seit Sitzung 54 auch mit Podcast-Version. 🎧 👤 securewhistleblower.com 📄 corona-ausschuss.de 📄 2020news.de 👤 👤 ♂ 🏰	The channel "CoronaAusschussAlleAnhoerungen" appears to be related to the "CORONA ◊ AUSSCHUSS 🏰 ALLE ANHÖRUNGEN 🗣️", which translates to "CORONA COMMITTEE ALL HEARINGS" in English. The mention of " securewhistleblower.com " and " 2020news.de " suggests that it might be associated

				with whistleblower or alternative news platforms.
1416830659	nocovidvaccines	No Covid Vaccines: Community Building	Some posts might be accidentally flagged as spam. If this happens you can resolve it by contacting our admin team here: https://t.me/+3gykKEdIfos3NDdk	The channel "nocovidvaccines" has a title "No Covid Vaccines: Community Building." The title itself suggests a stance against COVID vaccines.
1324938695	cccورونا	Corona Conspiracy	Channel Link  T.me/cccورونا	Corona Conspiracy
1439043605	covidvaccinevictims	COVID VACC VICTIMS 		The channel title suggest a negative stance towards COVID vaccines, potentially implying harm or adverse effects from them.
1262529462	covid19vaccinevictims	COVID VACCINE VICTIMS AND FAMILIES	For inquiries message me: @TawsifemonOfficial Chat: @covid19vaccinevictims1 For shoutout/Sponsor  : Telegram: @TawsifemonOfficial E-mail: ahidul5228@gmail.com	The title implies that the channel is focused on individuals and families who believe they have experienced negative effects from the COVID vaccine.
1459035940	CovidRedPills	Covid Red Pills 	Covid 19 Red Pills  Truth About Corona  Please submit protest footage and photos / whistleblower leaks / news to @submit_tip_bot Monero (XMR) Address 8BoaFc8eAyMSJsVkg7EzHHbhPcGPB6rxMht1ShEEqF7QWg2xJQ7u1PcE3YyvhnqwToMzHKxffuttjZihXp97Z8xCKfnUDiL	The title "Red Pills" is often used in the context of waking up to a perceived truth or reality. The rules suggest discussions focus mostly on covid, but no specific misinformation is evident in the description provided.
1386912714	coronavirusdatadump	SARS-COV-2 Data Dump		Based on the title alone, it suggests that the channel may be focused on sharing data or information related to SARS-COV-2,



				the virus responsible for the COVID-19 pandemic.
1398142110	truthshepherd covid19	Truth Shepherd/Covid19	Library of Covid 19 related information	The use of the term "Truth Shepherd" may indicate a specific perspective or approach to the information shared
1558475195	covidillusion	COVIDillusion	THANK YOU FOR FOLLOWING <3 IF YOU FIND THE RESOURCES I HAVE COLLECTED HERE USEFUL, I EMPLORE YOU TO SHARE AND BRING OTHERS TO THIS CHANNEL. WE NEED TO DISSEMINATE THIS INFORMATION WHILE OUR ABILITY TO SPEAK FREELY REMAINS SOMEWHAT INTACT ONLINE.	The channel "covidillusion" uses the title "COVIDillusion" and includes a description that emphasizes the importance of sharing the resources they have collected. The use of the term "illusion" in the title and the emphasis on preserving the ability to "speak freely" suggests that the channel may be presenting alternative or dissenting views on the topic of COVID-19.
1585929908	CovidSolutionsAustralia	HOLD THE LINE 🌐	A page that will post a lot of pandemic and political information and news as it develops daily.	The description indicates that it aims to post pandemic-related and political information and news on a daily basis.
1407623625	GreatCoronaCoup	Great Corona Coup	More: www.linktr.ee/vaxfree	The description provides a link titled " www.linktr.ee/vaxfree ", implying that the channel may be associated with or promote vaccine-related content, possibly opposing vaccination.
1507049795	MalaysiaCovid19infochannel	M'Sia vaccine info channelMY	Our CountryMY has one biggest ISSUE. NO FREEDOM OF	The description suggests that the channel may focus

			<p>INFORMATION. 🚫 🚫 👉 👉 👉 👉 👉 👉 'Mereka yang dapat melihat di luar bayangan dan kebohongan budaya mereka tidak akan pernah difahami, apalagi dipercayai oleh orang ramai Uncensored 🌐 unbiased</p>	<p>on providing information related to COVID-19 vaccines in Malaysia. The description expresses concerns about the perceived lack of freedom of information in Malaysia and emphasizes that the content on the channel is uncensored and unbiased.</p>
1160448888	Coronaviru sFrance	Coronavirus France	<p>Voulez-vous rester informé sur le covid-19 qui bouleverse notre quotidien ? Alors installez-vous 📺 Sources : AFP, 20minutes, Le Figaro, BFMTV... ETH : 0xc70a8f18b6AB0CF28B89b2B567dD5830124E49fa</p>	<p>updates and information related to COVID-19 as it impacts daily life in France. The sources of information listed include well-known French news outlets like AFP, 20minutes, Le Figaro, and BFMTV, suggesting that the channel may compile or relay news from these outlets. The inclusion of an ETH (Ethereum) address at the end could imply that the channel is accepting donations or contributions via cryptocurrency.</p>
1269909528	mrn_death	mRNA Death Toll		<p>The channel "mrn_death" is titled "mRNA Death Toll". Based on the title alone, it seems the channel may focus on negative outcomes or concerns related to mRNA-based vaccines or treatments.</p>
1592440910	Covid1984	Covid-1984	Archive everything.	From the

	archive	Document Archive	I will use this channel to expose the New World Order, Big Pharma, and their skills for the evil that they are, and document what they say and do ✂ ✕ This is a secondary channel of https://t.me/yuriwarnedus	description, it appears that the channel aims to document and expose what the creator believes to be actions or intentions of groups like the "New World Order" and "Big Pharma". The use of the term "Covid-1984" is likely a play on George Orwell's novel "1984", suggesting themes of dystopia, surveillance, and government manipulation.
1476461293	CovidCoronaVaccines	Corona Vaccine Bivirkninger / Side-effects	Corona Vaccine Side Effects is a channel that informs about the thousands of serious Side effects and deaths from the experimental mRNA Gene Therapy injections.	Based on the description, the channel seems to focus on discussing the purported side effects and fatalities related to mRNA vaccines.
1549930878	copsforcovidtruth	Cops for Truth	Official channel of Cops for Truth Email for Police officers requiring support - chat@copsforcovidtruth.com www.copsforcovidtruth.com	Based on the provided description, it appears to be an official channel for an organization or group called "Cops for Truth".
1494759873	CoronavirussIntelligence	✂ Coronavirus Intelligence		The name does not provide enough context to determine its content.
1384909624	Uncensored Covid	COVID Uncensored	We share Covid related info from scientists and doctors who are frequently being censored on other channels combined with some fun memes for some feel good vibes. Group Chat Link: https://t.me/UncensoredCovidChat	The description suggests sharing potentially censored content from scientists and doctors, along with memes. Could lean towards conspiracy, but further investigation is needed.
1198445854	tearingcovi	The Truth About	Here is a 100GB + data dump of	The name and

	d19apart	The Covid 19 Plandemic	the facts surrounding Covid-19, corruption, conspiracies, leaks, medical journals, whistleblowers, Covid-19 autopsies, treatments, cures, Agenda 21/20, UN, WHO, WEF, CDC, Medical Cabal, Vaccinations & crimes against humanity	description, especially with terms like "Plandemic," "conspiracies," and "crimes against humanity," suggest a conspiracy theory stance.
1488438431	AmericasFrontlineDoctors	America's Frontline Doctors	America's Frontline Doctors  Founded by @DrSimoneGold The Trusted Name for Independent Information • AFLDS.org • Official channel	The description suggests it's an official channel for America's Frontline Doctors, a group known to have made controversial claims about COVID-19.
1478851494	Covidbin	COVID BIN	Truth bin	"Truth bin" is vague and doesn't give much detail.
1263133498	CovidVaccineVictimsChat	Covid Vaccine Victims Chat	Chat closed 12am-8am EST. Things not allowed: Harassment, hate speech, spamming & trolling. No promoting other pages. No links without descriptions, non-Covid vaccine related topics. No selling. Invite link: https://t.me/CovidVaccineVictims	The name suggests the channel focuses on negative vaccine reactions.
1644815847	DoctorsforCovidethics	Doctors For Covid Ethics Channel	We are doctors and scientists from 30 countries, seeking to uphold medical ethics, patient safety and human rights in response to COVID-19. https://doctors4covidethics.org/	Appears to be a channel where doctors and scientists share their perspectives, but the name itself doesn't suggest conspiracy.
1458220408	AEFICOVIDVAX	AEFI CASES [PATV]	Kompilasi kes ² AEFI (Adverse Events Following Immunisation) vaksin Covid: HTTP://T.ME/AEFICOVIDVAX Buat aduan AEFI anda di Pusat Aduan Terkesan Vaksin (PATV by PPIM): https://gpmc.my/aduan-patv/	Focuses on adverse reactions to the COVID vaccine.
1407083613	covidvaccinereactionstruthworld	Covid Vaccine Reaction Truth Worldwide	Real information & stories from people around the world who have been victim to side effects from the Covid 19 vaccines.	Focused on side effects of the COVID-19 vaccines.
1183930141	covid19report	COVID-19 Report	The latest news on COVID-19 from around the world with focus on the U.S. World Update:	Appears to provide news updates on COVID-19.

			—> @COVID19Up Tip the admin: Cash App - \$g3hq PayPal - paypal.me/g3group	
1597569415	myaeficovid	MY AEFI COVID REPORTS	Perkongsian analisa aduan masyarakat akan kesan sampingan Vaksin COVID-19 di Malaysia. Telus. Bebas. Sukarela. Berniat baik. Untuk masyarakat. PPIM-GPMC-IMPAK-MFM	Focuses on side effects of the COVID-19 vaccine in Malaysia.
1238824601	plandemicscam	Plandemic scam	“In tempi di menzogna universale, dire la verità è un atto rivoluzionario.”	The name "Plandemic scam" suggests a conspiracy theory stance.
1470799563	Corona_5G_Rollout	Signs & Times	EXPOSING TRUTH TO THE MASSES CHECK OUT OUR OTHER CHANNELS: https://t.me/signsandtimesurvival https://t.me/SignsandTimesHealth https://t.me/SignsandTimesFinance	The name hints at linking COVID-19 with 5G, a known conspiracy theory.
1308749057	covid19vax reaction	COVID 19 VAX REACTIONS		Focus on the COVID-19 vaccine reactions
1384268156	virussesdebunked	Viruses debunked channel	It's called virusTHEORY for a reason! Louis Pasteur was a fraud, he confessed in his diary. Antoine Bechamp was right! Virusses are not the source of disease, they are the healers.	A channel that challenges mainstream views on viruses, suggesting Louis Pasteur's work was fraudulent and promoting Antoine Bechamp's theories.
1593289301	FightingCovidTyranny	Fighting Covid Tyranny	The war for human liberty is now	Advocating against perceived tyranny in response to COVID-19 measures and restrictions.
1446573122	COVID19agenda	COVID-19 Agenda	News, videos, memes, and more about vaccines, COVID-19, and other pharmaceutical crimes against humanity.	Offering news, videos, and memes that question the safety and intentions behind COVID-19 vaccines and pharmaceutical interventions.
1423746290	CodeMonkeyZ	Ron Watkins [CodeMonkeyZ]	Ron Watkins [gab.com/codemonkey]	A channel by Ron Watkins, featuring content from his

				gab.com account.
1315130945	covidsense	Covid Sense	Covid Sense seeks to expose the elitist depopulation plan, while simultaneously doing our part to help save humanity. ♡ Topics include: COVID-19, future pandemics, UN Agenda 2021-2063, World Bank project plans, Build Back Better, The Great Reset, & more.	A platform aiming to expose alleged elite depopulation plans linked with COVID-19 and associated global agendas.
1424529676	thecovidblog	The COVID Blog	Official channel for https://thecovidblog.com	The official channel for content related to thecovidblog.com .
1336224089	Covid19Truth	Join  @COVID19TRUTH	Covid19TruthGroup	A collection of personal stories from individuals who believe they've experienced adverse reactions from the COVID-19 vaccine.
1550610214	covid19negative reactions	COVID-19 Vaccine Adverse Reactions & Deaths	Updated personal stories captured from people affected negatively by the COVID-19 Vaccine.	Discussions on perceived lies and negatives surrounding COVID-19, vaccines, and media narratives.
1272474896	covidcabalvaccineworld	COVID Vaccine Cabal Media World	Everything about Covid-cheat, vaccines, cabal, lies and media truths. Everything that happens in the world.	A collection of reports and discussions on deaths attributed to the COVID-19 vaccine from various parts of the world.
1236464198	CovidVaccineWORLD	COVID VACCINE - REAL INFO	Any and all information about Covid vaccines. Worldwide	This channel seems to be dedicated to sharing information on Covid vaccines on a global scale.
1259249024	COVID19 Up	COVID-19 Up	A network of independent journalists from around the world dedicated to reporting the most important updates about COVID-19. COVID19Up.org  t.me/COVID1984Chat	This channel appears to be a platform where independent journalists globally share critical updates and news regarding COVID-19.
1247953346	Covid_Vac	Covid Vaccine	-All languages are accepted.	The channel appears

	cine_Deaths_Worldwide	Deaths Reports Worldwide	t.me/Covid_Vaccine_Deaths_Worldwide Group: https://t.me/joinchat/VrHxITWZp2Liq7G2	to be focused on documenting and reporting deaths that are allegedly associated with the COVID-19 vaccine.
1391675687	covid19vaccineinjurytruth	Covid Vaccine Truth	A collection of reports of injuries after the Covid-19 shot. Share the truth. Big tech and big pharma are deleting people's experiences across all platforms. This vaccine has many risks including death. Informed consent! I also bust on liberals.	The channel seems to focus on reporting injuries or adverse reactions post COVID-19 vaccination.
1429741266	covid19malaysiachinese	新冠肺炎 COVID-19 相关消息	新冠肺炎 COVID-19 相关消息 https://t.me/covid19malaysiachinese	From this description alone, it seems like the channel is intended to share COVID-19 related information for the Chinese-speaking community in Malaysia.
1523247017	CovidPassportsAreGayAsFuck	Antivaxx Cum Preservers - Covid Edition	Show me your papers??? How about I show you this dick!	This channel appears to express strong opposition to COVID-19 vaccination passports, as suggested by the name "CovidPassportsAreGayAsFuck." The usage of language is provocative and confrontational. The tag "Antivaxx Cum Preservers - Covid Edition" indicates an anti-vaccine stance and seems to be making a derogatory or mocking remark. The phrase "Show me your papers??? How about I show you this dick!" further emphasizes the channel's defiant and confrontational stance against COVID-19 vaccination

				mandates or requirements.
1552046000	SGTheCovi dNumbers Game	SGSG The COVID Numbers Game	Numbers don't lie...	The title "The COVID Numbers Game" and the statement "Numbers don't lie..." seem to emphasize a focus on statistics or data related to COVID-19.
1466193143	coronavacc insbijwerki ngen	Coronavaccins bijwerkingen	Hier vind je een internationaal overzicht van alle nieuwsartikelen, persoonlijke verhalen en video's van de gevolgen en bijwerkingen van de COVID-19 prik. Dit nieuws laat de main stream media jou niet zien. Informeer je goed voordat je de injecties neemt	The channel appears to be emphasizing the side effects and consequences of the COVID-19 vaccine and suggesting that mainstream media is not showing this information. The statement "Informeer je goed voordat je de injecties neemt" suggests urging readers to be cautious and well-informed before deciding to take the vaccine.

Topics within Proud Boys Channels

To analyze a large body of text, we initially utilized a LDA model (Blei et al., 2003). From November 2018 to February 2022, we gathered a total of 528,467 text messages. After thorough pre-processing and text cleaning, 429,224 messages were fed into the LDA model. The key words for each topic is as follows:

Table A3. Topics of Proud Boys Channels on Telegram

Topic Key Words	Topic Theme
fish bitch guy love gay dude nice lmao bro faggot suck troll commie stupid girl sound lmfaio hell dumb pussy	Misogynistic and anti-women sentiments
people thing wrong care lot time point work happen left country start bad sense coming sad real happening feel absolutely	General sentiments about ongoing events in the country
good bad morning game guy ban play thing idiot liberal agree troll pretty super feel night amen nice idea playing	Judgment of political liberals

people truth hate lie thing true fact book read history enemy understand good speak conspiracy hard agree fear point mind	Distrust and conspiracy theories
gon guy good joke funny pretty thought sound love stuff glad wait hell cool bad guess lmao awesome fun dude	Social Interactions and daily Life
stand american fight brother patriot country america day time freedom love great fighting support war family today enemy year enrique	Patriotism, national pride and unity
time question change word answer day heard thing true hear talk source problem lot issue fact called interesting long real	Dialogue, information exchange, and problem-solving
antifa police blm protest capitol portland city riot rally cop street building protester arrested leftist attack washington march violence peaceful	Antifa, Black Lives Matter (BLM), and the Capitol riot
time life great long live love hope baby thing work matter place mind family human animal kid save lost brain	Life, love, hope, and the human experience
day man dog eat night kill drink good head friend house nazi coffee hot great hour sleep food room wife	A mix of daily life activities and potentially darker or controversial themes
trump biden president joe supporter donald house pelosi impeachment hunter office administration democrat maga mike bidens breaking harris obama penny	Trump vs Biden dynamics
mask face work stay wear time hand hard wearing job safe day told fine leave left trust shut blue walk	Mask-wearing
telegram parler channel twitter service facebook app account term google platform phone violated banned displayed user apple amazon post content	Social media rules and censorship
chat patriot join free group share speech texas link channel message follow voice sign support send email room today news	Patriotism related chats, channels or news
white black people racist matter race life hate nazi man racism group supremacist color nationalist racial asian woman antiwhite parasite	Racism, white supremacy, and anti-racism movements like Black Lives Matter
year remember ago time people told called open left crazy week shut eye today started heard death wanted cuomo york	Discussing past events, possibly involving figures like Cuomo
boy antifa uhuru chapter member group official poyb britannia join christmas today ireland meet fascist guy pb rally beer soy	Antifa and Proud Boys chapters
watch video live ill youtube florida big link music listen watching mentally stream podcast song ice double day episode movie	Communication and information exchange
money tax business pay company dollar bank year billion government fund job paid buy american cost price work family food	Economics and finance including taxation, business operations, government funding and personal expenses
woman men man child family kid young wife female male girl mother sex gender father good gay baby life age	Gender and family, discussing the roles and experiences of men, women, and children
covid vaccine death virus vaccinated vaccination health coronavirus pfizer test case mandate fauci doctor cdc passport medical shot hospital rate	COVID-19, including vaccinations, public health measures, medical professionals

medium social people left political violence threat conservative mainstream narrative american wing support mass public leftist camp propaganda control completely	Media narrative, political polarization and ideological divisions
gun pic guy check picture shirt store omg man buy profile big hole round send pop gon pull kill owner	Gun-related discussions
post video read kyle comment article posted rittenhouse photo proof today link watch time minute real based posting online follow	Kyle Rittenhouse discussions
god jesus bless church evil christ love lord man king pray faith father bible christian heart soul day son earth	Faith and theology of Christianity
car hit head man truck street drive road house time door day driver wall rock hard number phone toy ride	Vehicular incidents and daily life
court case fbi security evidence attorney general public department federal national judge investigation press report team official letter lawsuit justice	Legal proceedings, justice system and investigations
party republican democrat conservative big political support vote gop win left america liberal democratic movement candidate year tech election campaign	Political parties, elections, and ideological movements.
state law government united order constitution power house rule amendment federal citizen court member enforcement congress president america executive australia	State and federal laws, constitutional matters, and government institutions.
war russia country russian border germany europe german south civil french european france ukraine migrant usa subscribe putin africa british	Ukraine/Europe-Russia military relations
force weapon military air attack water taliban flight strike plane area armed space storm ground hour ship afghanistan team shot	War, military actions and international politics
election vote state fraud ballot voter voting county audit georgia machine arizona democrat michigan biden republican evidence win dominion senate	Elections, voting and allegations of fraud
police shot officer shooting man killed cop george video dead floyd black suspect death city chicago gun died arrest footage	Police shootings
china communist country government chinese socialist communism state american america national power socialism tucker fascism party today ccp real democracy	China, communist and Sino-American political dynamics
news fake cnn fox twitter breaking story report john video project interview journalist reporter tweet bbc account read site reporting	News media bias
child crime charge prison year pedophile trial murder sex charged arrested criminal case guilty girl jail epstein judge rape abuse	Serious crimes and proceedings like murder, sexual abuse, and pedophilia
western culture nation people west freedom society men free modern based government race country crisis civilization america history refuse belief	Advocating for Western civilization and cultural preservation
meme farm powered todorant poy check boy cincinnati parler fact quiet racist configure bully song bacon eat trumplers friendly chicken	Favored Proud Boys related Telegram channels and social media platforms

terrorist group boy chapter member domestic event organization antifa club public attack terrorism rally case local government city ohio militia	Proud Boys chapters, domestic terrorism, Antifa
paul south north charlottesville tom carolina michael john florida david robert island leader thomas smith washington adam chris york richard	Charlottesville rally involvement
jew jewish israel muslim christian religion hitler islam zionist hate israeli arab goy anti killed jared holocaust evil islamic book	Judaism, Islam, and Christianity discussions
school child kid parent board student teacher high public college people meeting class illegal university immigrant mandate education mask critical	Education and school system challenges
fbi flag fed false sticker gang agent knew coming dead list pant head terrorist set people alt start beat blame	Federal law enforcement
live happy day tonight die red tomorrow blue thanksgiving night birthday dad tune today special friday great thursday ill guest	Celebrations, daily life, and special events
trump share daily wood jones james conservative telegram join news alex lin channel tommy mike charlie owen dan usa america	Right-wing personalities
country people control state society population elite plan global year family globalists goal order human community power movement destruction united	Conspiracy theories: Secret global elites.
military guard national trump clinton day insurrection plan troop marine intel hillary general operation broadcast time medium army start arrest	Trump-Clinton dynamics
hope ready canada brought catch canadian water salmon wader freedom trudeau pillow person zombe friend buy kingdom wake justin beenda	Dog-whistling, covert or coded communication
fish myfish plan view trust real failed life bait bye caught thisplaceisgay den newsom california recall normal med whoa som	California politics and gay-related issues
american america state lawyer legal people united today judge corrupt job corruption government work citizen country law adam bee prison	American legal and governmental systems, with a focus on corruption, law, and citizenship