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A Bibliometric Analysis of Conspiracy Texts on Telegram

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Because of their narrative complexity and idiosyncratic themes, conspiracy theories on social media might easily be dismissed as all but detached from scientific or political reality. Adding nuance to this view, this paper demonstrates that online conspiracy theories cannot truly be understood in isolation from established systems of communication and (scientific) knowledge production. To this end, we draw on methods from the field of bibliometrics to offer an empirically-informed discussion of how scientific knowledge is used and abused in extreme communities on the messaging platform Telegram. Our analysis thereby surfaces 1) the different types of scientific sources with which politically extreme communities on Telegram engage, 2) the narratives these channels support by invoking these sources, and 3) the discursive and rhetorical techniques that are used to frame scientific knowledge in light of extreme narratives. Based on these findings, we critically reflect on the societal implications of the connection between scientific knowledge and extreme narratives.

Keywords:

disinformation;
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social media;
Telegram;
bibliometrics;
digital methods.

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Introduction

An outside observer might easily dismiss online conspiracy theories as stories that are all but detached from scientific or political reality. This can in part be attributed to the narrative complexity of online conspiracy theories, which have been likened to "vortices" that rapidly re-organize seemingly heterogeneous concepts such as vaccines, 5G technologies and microchips into over-arching tales of hidden political power.[1] That such extreme conspiracy narratives typically germinate on platforms situated at the fringes of the media ecosystem,[2] with affordances and cultures that might be unfamiliar to users of established social media, further adds to their seemingly impenetrable nature.

Yet for all their peculiarities, online conspiracy theories cannot truly be understood in isolation from established systems of communication and knowledge production. For one thing, online conspiracy theories and other extreme discourses have been shown to readily propagate from fringe platforms to mainstream media, thus reaching audiences beyond the subcultural communities in which they originate.[3] For another, and as will be examined in more depth in this paper, online conspiracy theories fundamentally rely on previous knowledge and (authoritative scientific) knowledge sources to form narratives. Conspiracy theories might thereby recontextualize, antagonize, collate and otherwise (ab)use established knowledge in support of extreme and other potentially harmful discourses. Recent empirical work on the social medium X (previously known as Twitter), has for instance surfaced how during the covid-19 pandemic the seemingly neutral, scientific concept of mRNA (messenger ribonucleic acid) rapidly became associated with conspiracy theories such as the "Great Reset", that is: the narrative that the pandemic was deliberately and strategically planned by a global elite.[4] As the present paper intends to demonstrate, such recontextualizations of previous knowledge need not be limited to narratives that deal with scientific subjects in the strict sense. Instead, scientific sources might be invoked in support of a range of extreme discourses and narratives. To this end, social media offer various devices and mechanisms, including hyperlinks or hashtags, that allow users to connect extreme discourses with a body of work from external knowledge sources.[5] It has even been argued that the intensified referencing of academic papers, monographs, websites, and other knowledge sources in conspiracy texts is akin to the citation apparatus that characterizes "conventional scholarship".[6]

Zooming in on these practices, which we will refer to as the "bibliometric" dimension of conspiracy texts, this paper aims to offer an empirically-informed discussion of the types of scientific sources that are drawn upon by online communities in support of extreme narratives, with a specific focus on the discursive and rhetorical strategies through which these communities lay claim to scientific observations

1 Marc Tuters and Tom Willaert, "Deep State Phobia: Narrative Convergence in Coronavirus Conspiracism on Instagram," *Convergence* 28, no. 4 (August 2022): 1214– 1238, https://doi.org/10.1177/13548565221118751; Naomi Klein, *The Great Reset Conspiracy Smoothie*, https://theintercept.com/2020/12/08/great-reset-conspiracy/, December 2020, accessed October 3, 2023; Anna Merlan, *The Conspiracy Singularity Has Arrived*, https://www.vice.com/en/article/v7gz53/the-conspiracy-singularity-has-arrived, 2020, accessed October 3, 2023.

2 Tom Willaert et al., "Disinformation Networks: A Quali-Quantitative Investigation of Antagonistic Dutch-speaking Telegram Channels," *First Monday* 27, no. 5 (September 2022), https://doi.org/10.5210/fm.v27i5.12533, https://firstmonday.org/ojs/index.php/ fm/article/view/12533.

3 Richard Rogers, ed., *The Propagation of Misinformation in Social Media: A Crossplatform Analysis* (Amsterdam: Amsterdam University Press, 2023).

4 Marc Tuters, Tom Willaert, and Trisha Meyer, "How Science Gets Drawn Into Global Conspiracy Narratives," *Issues in Science and Technology* 39, no. 12 (2023): 32–36, https: //doi.org/10.58875/POZR1536.

5 Rodrigo Costas, Sarah de Rijcke, and Noortje Marres, ""Heterogeneous Couplings": Operationalizing Network Perspectives to Study Science-Society Interactions through Social Media Metrics," *Journal of the Association for Information Science and Technology* 72, no. 5 (2021): 595–610, https://doi.org/10.1002/asi.24427, https://onlinelibrary.wiley. com/doi/abs/10.1002/asi.24427.

6 Michael Barkun, *A Culture of Conspiracy: Apocalyptic Visions in Contemporary America* (Berkeley: University of California Press, 2013), p.7.

about the world. We believe that these dynamics can be of interest to scholars of radicalization and extremism, as they provide further insights into how potentially damaging narratives and discourses might establish a basis of credibility, and thus enhance their overall appeal and "communicability".[7]

Telegram and disinformation

The focus of the present investigation is on Telegram: a messaging platform that has become known for attracting actors previously "deplatformed" elsewhere.[8] The platform's reputation of being a haven for free speech, in conjunction with its promised lack of content moderation, have made it the preferred medium for a range of extreme narratives, including openly racist, anti-establishment, and conspiracist discourses.[9] While Telegram offers a range of communication services, including direct messaging and chat groups, the present paper zooms in the most public-facing part of the platform: public broadcasting channels. Public Telegram channels are essentially one-to-many broadcasting channels in which a channel owner posts a chronological sequence of messages that might be read by a potentially large audience of followers.[10] In many cases, these channels can be previewed in a browser even by users who do not have an account on the platform, thus further extending their potential reach. Once a user starts exploring the contents of a Telegram channel, they might also be guided towards other channels via forwarded messages: messages originally posted in other channels that have been reshared by the channel owner. As channels thus forward messages among themselves, they form interconnected networks based on shared (political) preferences or interests. Reconstructing and investigating such networks has become an established practice in Telegram research.[11] Message forwarding, however, constitutes but one of the ways in which Telegram channels might be connected to each other. A complementary picture emerges when we consider that Telegram channels can also form connections on the grounds of shared references to external knowledge sources, which might be introduced as hyperlinks in message texts.[12]

7 Tommaso M. Milani, "No-Go Zones in Sweden: The Infectious Communicability of Evil," *Language, Culture and Society* 2, no. 1 (July 2020): p.13, https://doi.org/10.1075/ lcs.19014.mil, http://www.jbe-platform.com/content/journals/10.1075/lcs.19014.mil.

8 Richard Rogers, "Deplatforming: Following Extreme Internet Celebrities to Telegram and Alternative Social Media," *European Journal of Communication* 35, no. 3 (2020): 213– 229, https://doi.org/10.1177/0267323120922066.

9 Willaert et al., "Disinformation Networks: A Quali-Quantitative Investigation of Antagonistic Dutch-speaking Telegram Channels"; Aleksandra Urman and Stefan Katz, "What They Do in the Shadows: Examining the Far-right Networks on Telegram," *Information, Communication & Society* 25, no. 7 (August 2020): 904–923, https://doi. org/10.1080/1369118X.2020.1803946.

10 Tom Willaert, "A Computational Analysis of Telegram's Narrative Affordances," *PLOS ONE* 18, no. 11 (November 2023): 1–23, https://doi.org/10.1371/journal.pone.0293508; Nathalie Van Raemdonck and Jo Pierson, "Conceptueel kader voor wisselwerking van platformkenmerken, affordances en normen op sociale media," *Tijdschrift voor Communicatiewetenschap* 50, no. 4 (2022): 358–383, https://doi.org/https://doi.org/10.5117/TCW2022.4.005.RAEM.

11 Stijn Peeters and Tom Willaert, "Telegram and Digital Methods. Mapping Networked Conspiracy Theories through Platform Affordances," *M/C Journal* 25, no. 1 (2022), https://doi.org/https://doi.org/10.5204/mcj.2878; Mónika Simon et al., "Linked in the Dark: A Network Approach to Understanding Information Flows within the Dutch Telegramsphere," *Information, Communication & Society* 26, no. 15 (2023): 3054–3078, https://doi.org/https://doi.org/10.1080/1369118X.2022.2133549.

12 Miglė Bareikytė et al., "How Should Platforms be Archived? On Sustainable Use Practices of a Telegram Archive to Study Russia's War against Ukraine," *Media, Culture & Society*, April 2024, https://doi.org/10.1177/01634437241245915.

Knowledge and narrative coalitions on Telegram

A previous study,[13] which forms the basis for the present paper, has shown that a network analysis of connections between channels based on shared knowledge can provide insights into the latent intellectual structures that underpin extreme Telegram channels. More concretely, this study examined the multilingual Pushshift Telegram dataset,[14] which contains the contents of 28,000 Telegram channels "snowballed" from primarily English-language seed channels pertaining to right-wing extremist politics and cryptocurrencies, and which covers a period between 2015 and 2019. While this dataset is collected from seed channels that primarily originate in the US, the snowballing approach results in a multilingual dataset comprising channels from across the world. As such, the dataset can be considered a representative sample of extreme Telegram discourse for the time period at hand.

Taking a knowledge-centric approach, this dataset was examined by means of transferable methods from "bibliometrics": a field that has been referred to as the "science of science", and that aims to quantify the importance of academic papers based on citations.[15] The central hypothesis is thereby that those articles that attract more citations are also more significant. A "bibliometric" approach to Telegram channels then, starts from the assumption that hyperlinks to external sources in a Telegram channel can be likened to references in a scientific paper, and as such, might be subjected to similar analyses. While this method only zooms in on this specific knowledge dimension of extremist discourse, and therefore only captures part of its complexity, we argue that this approach nonetheless highlights an important dimension of the data that complements previous work on this type of discourse.

A central bibliometric technique that was thus fielded in our previous work,[16] is a bibliographic coupling analysis, which quantifies the strength of the association our "coupling" between two channels in terms of the number of references to external knowledge they share. Applied to Telegram, this means that two channels are connected with a bibliographic coupling frequency (BCF) of three if they share three references (URLs) to external sources between them. Such references to established knowledge can be identified by cross-referencing URLs in channels with bibliographic databases, such as the OpenAlex knowledge graph.[17] This approach thus yielded a bibliographic coupling network, with nodes representing channels, and edges representing the BCF-score that connect these nodes. Coherent communities where then identified within this bibliographic coupling network using the Louvain community detection algorithm, an established method for identifying coherent communities within a network.[18] A visualization of the network is shown in Figure 1.

13 Tom Willaert, *Recontextualized Knowledge and Narrative Coalitions on Telegram*, April 2024, https://doi.org/10.48550/arXiv.2404.17855.

14 Jason Baumgartner et al., *The Pushshift Telegram Dataset*, January 2020, https://doi.org/10.48550/arXiv.2001.08438.

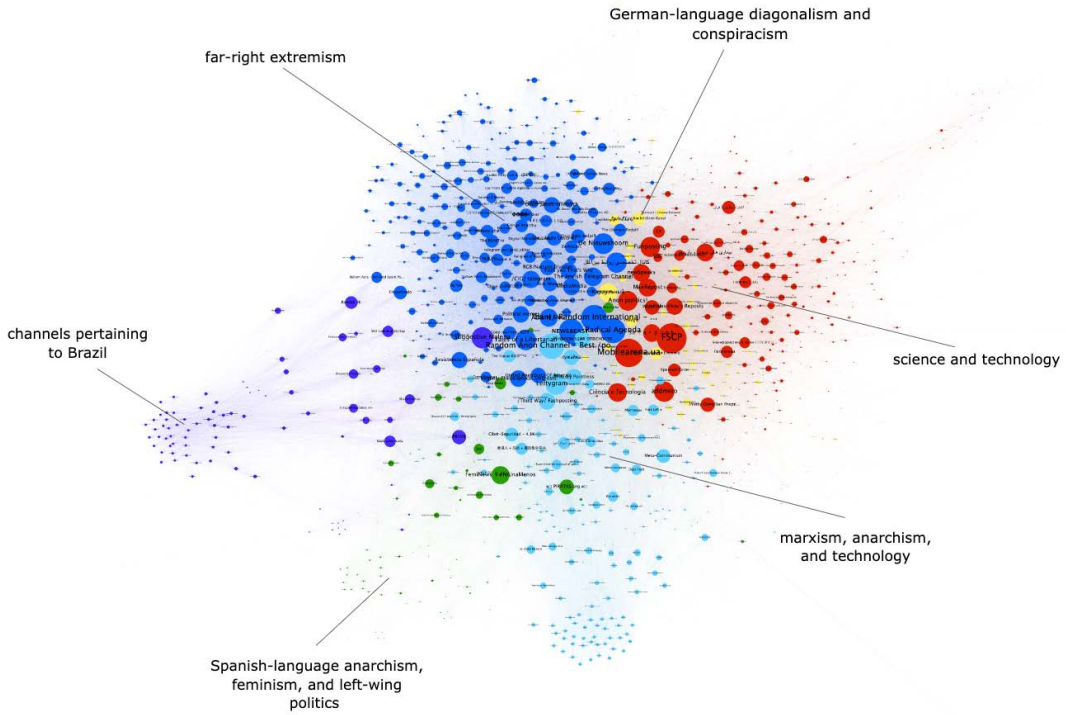
15 Dangzhi Zhao and Andreas Strotmann, *Analysis and Visualization of Citation Networks*, Synthesis Lectures on Information Concepts, Retrieval, and Services (Cham: Springer International Publishing, 2015), https://doi.org/10.1007/978-3-031-02291-3, https://link.springer.com/10.1007/978-3-031-02291-3; Rafael Ball, "Introduction," in *Handbook bibliometrics*, ed. Rafael Ball (De Gruyter, 2021), 1–3.

16 Willaert, *Recontextualized Knowledge and Narrative Coalitions on Telegram*.

17 Jason Priem, Heather Piwowar, and Richard Orr, *OpenAlex: A Fully-open Index of Scholarly Works, Authors, Venues, Institutions, and Concepts*, June 2022, https://doi. org/10.48550/arXiv.2205.01833.

18 Vincent D. Blondel et al., "Fast Unfolding of Communities in Large Networks," *Journal of Statistical Mechanics: Theory and Experiment* 2008, no. 10 (October 2008): P10008, https://doi.org/10.1088/1742-5468/2008/10/P10008.

Figure 1: Visualization of bibliographic coupling network of Telegram channels.[19] *Nodes represent channels, weighted edges the bibliographic coupling frequency (BCF) between two channels based on OpenAlex sources cited by both channels. Only edges representing a BCF higher than or equal to 2 are retained. Nodes are coloured according to Louvain communities (narrative coalitions). Node positioning: ForceAtlas2 algorithm, Node size: node degree.*



A key outcome of the aforementioned study, is that a bibliographic coupling analysis of politically extreme Telegram channels reveals coherent clusters of channels that may be referred to as "narrative coalitions".[20] Based on an examination of the names of the channels in each cluster, these narrative coalitions can be identified as pertaining to the themes of (i) scientific and technological imaginaries, (ii) far-right extremism and antisemitic conspiracy theories, (iii) anarchist and Marxist discourse, (iv) anti-vaccination conspiracy theories, (v) feminist and anti-feminist discourse, and (vi) national politics.

Research questions

Our previous work effectively constitutes what the literature refers to as a "distant reading" of Telegram channels through the lens of knowledge.[21] Contrary to an in-depth, "close" reading of channel messages, a "distant" reading is primarily concerned with the trends and patterns that characterize large collections of digital data, which in this case amounts to a macro-level mapping of how knowledge sources link channels together into coherent intellectual communities. While it is clear that some of these intellectual or narrative communities are extreme in nature, and openly flaunt antisemitic conspiracy theories, this "distant reading" raises three further research questions that warrant a more detailed, "close reading" of the communities' contents:

19 Visualization reproduced from Willaert, *Recontextualized Knowledge and Narrative Coalitions on Telegram*.
20 Willaert, *Recontextualized Knowledge and Narrative Coalitions on Telegram*; Maarten A Hajer, "Discourse Coalitions and the Institutionalization of Practice: the Case of Acid Rain in Great Britain," in *The Argumentative Turn in Policy Analysis and Planning* (Routledge, 2002), 51–84.
21 Franco Moretti, *Distant Reading* (London and New York: Verso, 2013); Ted Underwood, *Distant Horizons: Digital Evidence and Literary Change* (Chicago and London: University of Chicago Press, 2019).

— With which scientific knowledge sources do extreme narrative coalitionson Telegram engage?

— In support of which narratives are these sources referenced?

— What are the discursive and rhetorical techniques used to frame thesources enlisted in support of these narratives?

In order to address these questions, the present paper directly engages with the data and results of our previous work,[22] and advances the investigation by subjecting the contents of the network mapped in Figure 1 to a qualitative content analysis.

Data and methodology

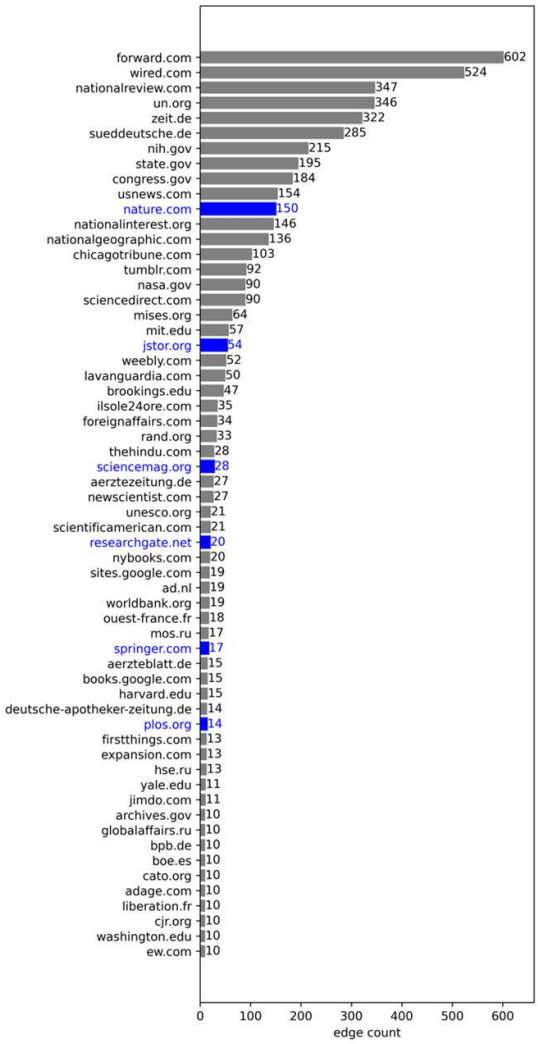
Methodologically, this paper aims to bridge the gaps between a "distant" and "close" reading of communities of Telegram channels that engage with shared knowledge sources. This is achieved by means of a series of quantitative data reduction and sampling steps that allow us to identify a subset of messages that can be subjected to a closer, qualitative analysis and inspection. In a first step, we thus narrow down our analysis to a single narrative coalition identified in Figure 1, namely the coalition of channels that engages explicitly with far-right extremist discourse. This choice is motivated by our interest in how claims to scientific sources and evidence might contribute to the formation and adoption of extreme narratives. Our analysis thus starts from a community of approximately 245 interconnected Telegram channels.

In a next sampling step, we extract a subset of these channels by filtering the graph based on shared-knowledge edges of particular interest. In order to do so, we produce an overview of knowledge sources that are shared between channels and count the number of edges in which each of these sources occur (Figure 2). From this initial analysis, it follows that many of the connections in our community of extreme channels are established through shared references to news websites and other media sources. The latter is indicative of the channels' focus on current topical events and news. As a small number of these news sources occur in a large number of edges, we omit them from our analysis so as not to overshadow the relevant scientific sources.[23]

22 Willaert, *Recontextualized Knowledge and Narrative Coalitions on Telegram*.

23 This notably concerns the domains "nypost.com", "yahoo.com", "telegraph.co.uk", "washingtonpost.com", "newsweek.com", "archive.org", "usatoday.com", "time.com", "economist.com", and "foward.com".

Figure 2: Overview of frequent knowledge sources for the selected community by number of edges in which they occur, after filtering out top 10 most frequent nonacademic sources for readability. The scientific knowledge sources on which we focus our investigation are marked in blue.



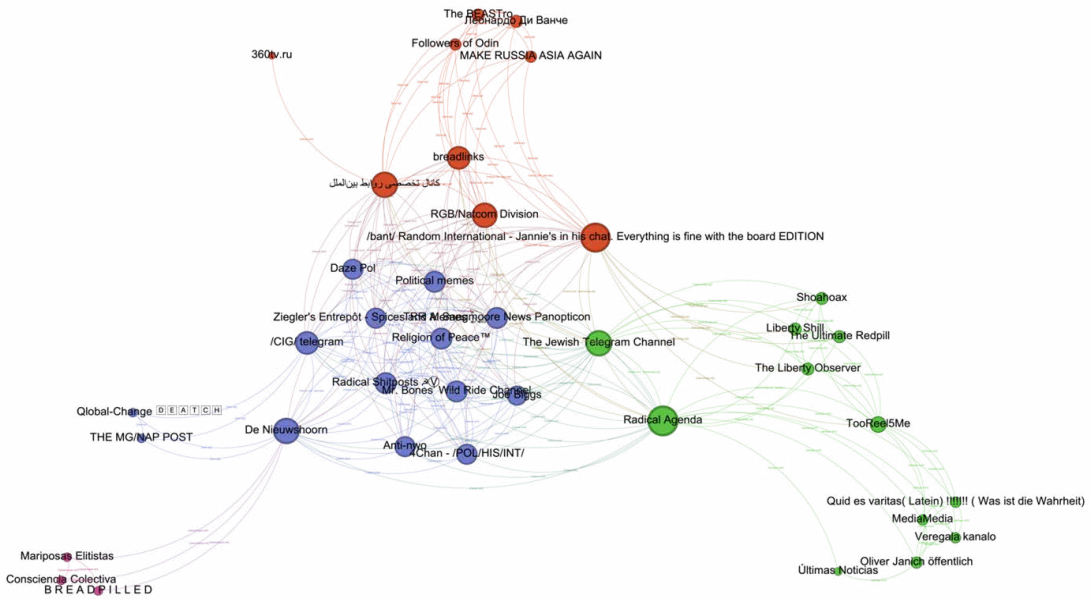
Based on this overview, we limit the remainder of our analysis to those channels that refer to the following scientific knowledge sources: "nature.com", "sciencemag.org", "springer.com", "jstor.org", "plos.org", and "researchgate.net". We thus capture references to two of the most prominent academic journals in the natural sciences (Nature and Science), a leading publisher of scientific journals (Springer), an open-access mega journal (PLOS, public library of science), a repository of academic papers with a notable focus on the humanities (JSTOR), and an academic social networking platform that also allows researchers to share publications (ResearchGate). We argue that this selection is representative of the diverse types of sources that make up the ecosystem of scholarly communication. After filtering the extreme community for edges containing references to these sources, we are left with a bibliographic coupling network of 38 channels.

As visualized in Figure 3, this reduced network of Telegram channels contains explicit traces of holocaust denial ("Shoahoax") and channels that propagate conspiracy theories surrounding the "New World Order" ("Antinwo"). Some channels also explicitly refer to the QAnon Conspiracy theory ("Qlobal-change"), as well as radical politics (e.g. "Radical Agenda"). The network furthermore contains channels with names that directly evoke vernacular web platforms such as 4chan ("4Chan / POL/HIS/INT"), and the far-right meme of the "red pill" (e.g. "The Ultimate Redpill"), which finds its origins in the 1999 science fiction movie *The Matrix*, and refers to

a process in which "taking the red pill" leads to an "awakening" or an "epiphany about the rightness of white nationalism".[24] In line with this right-wing and white nationalist discourse, the cluster also contains references to Germanic mythology ("Followers of Odin").

In a final but key step of our analysis, we conduct a close reading of the channel messages in this remaining network of 38 channels. Our objective here is not to be exhaustive, but rather to provide an empirically-informed overview of discursive dynamics and devices that might lead to a better understanding of how extreme conspiracy narratives form and subsist. In what follows, we thus present key observations resulting from our reading of channel messages that contain references to one or more of the five academic sources presented earlier. We specifically zoom in on a subset of 128 messages that contain URLs referring to these sources.

Figure 3: Far-right and antisemitic narrative coalition from Figure 1 filtered by channels that share references to the scientific knowledge sources "nature.com" (Nature), "sciencemag.org" (Science), "springer.com" (Springer), "jstor.org" (JSTOR), "plos.org" (PLOS), and "researchgate.net" (ResearchGate). Nodes are coloured according to modularity class. Node positioning: ForceAtlas2 algorithm, node size: node degree.



24 Sal Hagen, *Reactionary Wokeness: How Redpilling Became a Thing on Reddit –OILab*, https://oilab.eu/reactionary-wokeness-how-redpilling-became-a-thing-on-reddit/, May 2020, accessed February 29, 2024.

Findings

The observations resulting from our close reading can be organized according to three dimensions that directly speak to our research questions. First, we offer a description and characterization of the types of scientific knowledge sources that figure in the retrieved messages, devoting specific attention to the kinds of scientific journals that are cited, the disciplines these cover, and the types of research questions they address. Second, we provide an overview of the different narratives that might be supported or opposed by invoking these sources. Third, we offer a description of some of the discursive techniques that are used to frame references to scientific sources in these messages, highlighting how these might be revelatory of the selected Telegram channels' attitudes towards science more generally.

Scientific knowledge sources cited

While our earlier "distant" reading has mainly centered on hyperlinks referring to domain names,[25] a "close" reading generates opportunities for investigating in more detail the types of scientific publications that are hosted on these domains. A first observation that can be made here, is that the dataset is marked by publications from a variety of research fields, including history, archaeology, area studies, evolution, religion, linguistics, anthropology, psychology, genetics, and criminology. Publications are associated with genres ranging from full research articles, over book chapters, to position papers and news updates, such as those published on JSTOR Daily, a website that contextualizes current events by highlighting research available in the repository. Furthermore, most of the publications found in the dataset are contemporaneous to the posts that mention them, although examples can also be found of messages highlighting research from earlier periods, such as a paper on the "Ogham Character and Alphabet" from the 1847-1850 *Proceedings of the Royal Irish Academy*.

The cited publications thus cover a variety of fields and genres over a relatively long period of time. Yet they are also connected by a number of shared preoccupations. One thread that runs through the dataset, for instance, comprises papers concerned with the cultural origins of European society (e.g. "From Germania to Europe: the Evidence of Language and History"), as well as with the connections between ethnicity and history more generally ("Ethnic Constructs in Antiquity: The Role of Power and Tradition"). In addition to retracing historical and linguistic origins, papers cited in these selected Telegram channels also aim to identify groups by retracing shared genetics (e.g. "The genomic history of the Iberian Peninsula over the past 8000 years", "Genomic structure in Europeans dating back at least 36,200 years", "Genetic origins of the Minoans and Mycenaeans"). A second trend that can be discerned in the data, is an emphasis on research concerned with sex and gender. This mainly concerns studies or scientific position papers that critically assess the concept of gender, such as "A sex difference in the human brain and its relation to transsexuality", "Baby X: The effect of gender labels on adult responses to infants", or "Parent reports of adolescents and young adults perceived to show signs of a rapid onset of gender dysphoria", "Sexualities of initial teacher education applicants in the Republic of Ireland: addressing the hidden dimension of diversity in teaching". Likewise, the corpus contains research concerned with (biological) differences between men and women ("Sex Differences in Infants' Visual Interest in Toys", "Testosterone Administration Reduces Lying in Men", "Male Microchimerism in the Human Female Brain"). A third strand of cited research is concerned with highlighting differences between groups on the grounds of intelligence or other features ("The Comparison of Mean IQ in Muslim and Non-Muslim Countries",

25 Willaert, *Recontextualized Knowledge and Narrative Coalitions on Telegram*.

"Political ideology predicts involvement in crime"), with as an extreme example messages in which entire archives of articles establishing a link between genetics and intelligence are cited. Finally, we also find traces of articles in which scientific practices as such are critically examined, specifically those from the social sciences ("Evaluating the replicability of social science experiments in Nature and Science between 2010 and 2015").

It is not the objective of the present paper to evaluate the scope, quality or findings of this research as such, even though many of the cited articles might strike the reader as dealing with contentious topics in their own right. Rather, we are interested here in the dynamics that emerge from this research being grouped together in networks of politically extreme Telegram channels. Given this context, it is clear that the scientific work cited here might be read as dealing fundamentally with questions of identity and difference, or, more specifically, with grouping people into categories to the exclusion of others.

Extreme narratives supported by references to scientific knowledge sources

The abovementioned research papers are cited in support a number of far-right narratives that are prevalent within the politically extreme Telegram communities under investigation. In line with previous observations, these narratives are explicitly aimed at entrenching "us" *vs.* "them" divisions.[26]

Telegram channels concerned with retracing the genetic or cultural origins of Europeans for instance, (implicitly or explicitly) propagate notions of an imaginary past in which this culture was more "pure" and free of "outside" contamination. This recalls a larger, over-arching narrative that has been referred to as the "great replacement" conspiracy theory, that is: the false story that the white population of Europe is deliberately being replaced by non-white people, mostly from Muslim countries.[27] The Telegram channels under investigation aim to lend credibility to this narrative by referring to papers that demonstrate a gradual "mixing" of genes over time (e.g. "Ancient Egyptian mummy genomes suggest an increase of Sub-Saharan African ancestry in post-Roman periods"). Likewise, the channels refer to scientific articles dealing with declining reproductive activity and reproduction more generally, with the aim of supporting the great replacement narrative's premise that a demographic replacement is taking place because white women are not having enough children (e.g. "Declines in sexual frequency among American adults, 1989–2014", "The importance of physical attractiveness to the mate choices of women and their mothers").

Discrepancies with "outsider" groups are further shaped through a series of racist and Islamophobic narratives. As was previously mentioned, these narratives predominantly rely on studies demonstrating ties between intelligence and genetics, which are read as establishing a hierarchy in which populations from Muslim countries are presented as inferior. In addition to these racist and Islamophobic narratives, the dataset also contains traces of anti-feminist and misogynistic narratives. In one message, a link to the article "Testosterone Administration Reduces Lying in Men" is for instance framed by the sentence "higher Testosterone makes you a better man - more honest, sorry Feminists", implying that women are less honest because they have lower testosterone levels (message posted October 1, 2018 in the "Radical Agenda" channel). The examples cited here demonstrate dynamics in which scientific research is used in support of highly divisive narratives.

26 Willaert et al., "Disinformation Networks: A Quali-Quantitative Investigation of Antagonistic Dutch-speaking Telegram Channels"; Benjamin Lee, "Radicalisation and Conspiracy Theories", in *Routledge Handbook of Conspiracy Theories* (Routledge, 2020), 344–356.

27 Nellie Bowles, "'Replacement Theory': a Racist, Sexist Doctrine, Spreads in FarRight Circles," *The New York Times*, March 2019, accessed April 26, 2024, https://www. nytimes.com/2019/03/18/technology/replacement-theory.html.

Rhetorical and discursive framing techniques

On a general level, the scientific sources that we discuss here become ideologically and politically marked by virtue of the context in which they are cited, that is, a network of Telegram channels that is explicitly associated with politically extreme discourses and narratives. Zooming in on individual messages, however, we can furthermore distinguish a number of more granular framing techniques through which scientific sources are enlisted to support these extreme discourses.

One such recurring device consists of undermining the credibility of the "mainstream" system of scholarly communication. This mechanic is succinctly illustrated by a message posted in the "Folkright" channel (May 8, 2019), urging the reader to "Always read all modern academia with a skeptical eye. Look for clues and facts while being aware of inserted political opinion". This looking for "clues" and "facts" directly resonates with a conspiracist epistemology in which disparate facts are to be puzzled together and nothing should be taken at face value. In its more extreme forms, this type of rhetoric openly recalls conspiracy theories, as illustrated by a comment about a paper on online content moderation from the same channel: "Here is the full article outlining approaches to combat "hate users" on social media. We really are dealing with inhuman reptilians. Look at how they view, analyze, and assess online human interaction." (message posted on August 30, 2019 in the "Folkright" channel). The term "reptilians" here refers to the "reptoid" conspiracy theory propagated by David Icke, which claims reptile-like aliens have taken over control of the world.[28] By equating researchers (and internet researchers in particular) with "reptilians", the system of scholarly communication is cast into doubt, opening up possibilities for online actors to pick and choose information that resonates with the dominant narratives of the channels.

This mechanism of "cherry picking" evidence is illustrated by a message posted in the "Radical Agenda" channel on October 1, 2018. This message highlights two quotes from a Nature paper on genetic determinism: "DNA isn't all that matters but it matters more than everything else put together", and "Nice parents have nice children because they are all nice genetically." These quotations support some of the narratives discussed earlier, but rather than being actual assertions made in the cited article, they are claims that are attacked by the paper's author, who actually takes a critical stance against genetic determinism (hence its title "Genetic determinism rides again: Nathaniel Comfort questions a psychologist's troubling claims about genes and behaviour"). This suggests that in some cases, links to scientific articles are inserted in Telegram posts to give the impression that they have some scientific backing, whereas the actual contents of the articles might run contrary to the message that is propagated.

Another framing device observed in the data aims to present the reader with a seemingly overwhelming amount of evidence that certain claims are true. Examples include longer posts that contain numbered lists of "facts", each of which might be substantiated by a selection of academic papers. In some cases, authors include links to entire search result pages in their messages, in order to lay claims to established knowledge. This is illustrated by the following message from the "/CIG/ telegram" channel, posted February 24, 2019: "Ever had problems with some dumbass lefty denying that intelligence is genetic? It's one search away on the biggest peer reviewed and most respected journal out there. https://www.nature.com/search?q=intelligence+gene."

28 Barkun, *A Culture of Conspiracy*, p. 123.

Discussion

Our "bibliometric" reading of politically extreme Telegram channels reveals some of the types of knowledge cited by these communities, the narratives these citations support, and the rhetorical devices that are used to frame prior scientific work. Beyond offering an empirical mapping of some of these dynamics, our findings have some important repercussions for the study of online conspiracy theories and other extreme discourses more generally.

First, by addressing how online conspiracy discourses select, collate and recontextualize established scientific knowledge, we shed light on an aspect of conspiracy narratives that increases their overall "truthiness".[29] What we mean by this, is that conspiracy theories are presented as "commonsense" discourses that are embedded within networks of references, which makes them *seem* true and acceptable. This contributes to what Tommaso Milano calls the "infectious communicability" of extreme narratives and discourses. In our dataset, we for instance observed how extreme discourses such as the "great replacement" conspiracy theory are "substantiated" with references to scientific papers from fields ranging from linguistics and history to behavioural psychology and genetics. The creation of such associations is facilitated by Telegram's affordance of allowing the inclusion of hyperlinks in the textual bodies of posts, as well as the availability and accessibility of scientific research online.

A second implication of our findings, is that any parallels between the system of scholarly communication and the citation practices of online conspiracy communities should be established with caution. While there are indeed some superficial similarities between both systems (such as a preference for scholarly work that is openly available through *open access* publishing, a practice explicitly lauded in some posts in our dataset), it is clear that they operate on the basis of very different logics. Whereas the system of scholarly communication supports a scientific method geared towards falsification of hypotheses, the citation practices of online conspiracy theories follow a logic of persuasion, in which only evidence supporting claims is considered. In the same vein, those papers or findings contradicting the narratives that are being pushed are either neglected or cast into doubt.

Finally, our findings point towards the reality that research can be taken out of context, without proper acknowledgement of the original argumentation and intent of an article. As academic research seeks to be openly shared and discussed, this is an inherent risk, part and parcel to the work, and imposing restrictions on access to research might defeat the purpose of knowledge production and discussion.

29 Milani, "No-Go Zones in Sweden," p. 14.

Conclusions and avenues for future research

In this paper, we have zoomed in on citations of scientific knowledge sources in a far-right network of public Telegram channels. We find that this community engages with publications from a range of academic fields, including history, archaeology, area studies, evolution, religion, linguistics, anthropology, psychology, genetics, and criminology. What ties these publications together, is a shared interest in questions of ethnicity, race, gender, religion and other topics associated with identity and difference. These sources are cited in support of a range of narratives aimed at grouping people into categories, to the exclusion of others. In our data, we thus find traces of Islamophobic, racist, misogynistic and otherwise extreme discourses. Through rhetorical devices such as "cherry-picking" only those sources that might support the narrative, or by overwhelming the reader with troves of so-called evidence, owners of conspiracy channels on Telegram enlist scientific research to make extreme narratives seem rooted in scientific fact, which contributes to their overall communicability.

While this empirical work contributes to our understanding of far-right conspiracy theories, we might wonder whether additional dynamics regarding the use or abuse of science might be revealed when we examine other communities illustrated in Figure 1, such as those dealing with technological imaginaries or far-left discourse. Along similar lines, a comparative, cross-platform analysis might foreground how communities on different social media engage with knowledge. Platforms that are image-based (e.g. Instagram) or videobased (e.g. YouTube) might for instance refer to previous knowledge through mechanisms other than the primarily textual ones that have been investigated here. It should likewise be pointed out that our analysis has addressed only one aspect of the interaction between the system of scientific knowledge production and that of online conspiracy discourses, that is how science is perceived online. Further research might address how the papers cited in these subcultural communities online are received within the scientific community itself. In particular, one might wonder whether correlations can be observed between the status of a paper within the scientific community and its performance in extreme networks online.

Finally, by revealing instances of a selective recontextualization of scientific knowledge sources, this paper contributes to our understanding of why some conspiracy theories successfully propagate online. Our findings thereby speak to an erosion of the established system of scientific research that has been registered in previous literature on disinformation studies.[30] We hope that the observations reported here might benefit societal efforts aimed at counteracting this dynamic. ●

30 Tuters, Willaert, and Meyer, "How Science Gets Drawn Into Global Conspiracy Narratives."

Data and software availability

The Pushshift Telegram dataset analysed in this study is available in its entirety on Zenodo via https://zenodo.org/record/3607497. Instructions for downloading data from the OpenAlex knowledge graph are available via https://docs.openalex.org/. The Python scripts accompanying this paper are hosted on GitHub (https://github.com/willaertt) and may be made available upon request to the corresponding author.

Ethics and personal data

No user information was processed for the present research: only message contents and channel names were analysed.

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