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Two Sides of the Same Coin? A Largescale Comparative Analysis of Extreme Right and Jihadi Online Text(s)

Weeda Mehran[a], Stephen Herron[b], Ben Miller[c], Anthony F. Lemieux[d] and Maura Conway[e]

[a]Department of Politics, University of Exeter, Exeter, UK; [b]School of Social Sciences, Education and Social Work, Queen's University Belfast, Belfast, UK; [c]Department of English, Emory University, Atlanta, Georgia, USA; [d]Department of Communication, Georgia State University, Atlanta, Georgia, USA; [e]School of Law and Government, Dublin City University, Dublin, UK

ABSTRACT

This article describes and discusses a comparative semiotic analysis of online text collected from eight extreme right websites and four violent jihadi groups' online magazines. The two datasets, which comprise just over 1 million words each, were analyzed using LIWC software. The core issues explored were the shared and different linguistic patterns used among extreme right and violent jihadi extremists and the emotional, cognitive, psychological, and social dimensions of the online textual discourses of each ideological grouping and what function these played in their overall political rhetoric. The findings bring to light some nuanced differences and similarities in the cognitive, social, psychological, and temporal dimensions of language used by each. For example, while both types of ideological text showed the same level of certainty in arguments as a cognitive process, the language depicting social and emotional processes, and religion were used more often by the violent jihadi extremists (VJEs) than the extreme right. The findings also point to the fact that VJEs were more likely than right-wing extremists to discuss the future and promise change as motivational incentives.

For almost two decades violent jihadi extremism (VJE) was headline news. Study of al-Qaeda and linked groups, including their online activity, dominated post-9/11 amongst terrorism researchers too and was surpassed only by attention to the self-described 'Islamic State' (IS), especially following their June 2014 announcement of their so-called 'Caliphate.' IS was portrayed as the first truly social media-savvy terrorist outfit, with their online content routinely characterized as 'slick' by journalists[1] and researchers[2] alike. Having said this, an eruption of hateful content online in 2015 and 2016 drew some scholarly attention, which became more focused in the wake of events at the mid-August 2017 'Unite the Right' rally in Charlottesville, Virginia, USA. Concerns about the political fallout of online extreme right activity, including disinformation and radicalization, continued to receive attention throughout 2018—at least partially due to a series of attacks and failed attacks in the U.S. that appeared to have significant online components.[3] A raft of media stories swiftly emerged drawing

CONTACT Weeda Mehran w.mehran@exeter.ac.uk Department of Politics, University of Exeter, Exeter, UK

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attention to the similarities between extreme right and jihadi online activity, including a *New York Times* editorial entitled 'The New Radicalization of the Internet.'[4] The Internet-centric 15 March, 2019 Christchurch terrorist attack mainstreamed these concerns. A string of similar subsequent attacks[5] only heightened attention to right-wing extremists' use of the Internet further, as did the increase in extreme right online activity during the Covid 19 pandemic.[6]

'Widening' extremism and terrorism research beyond IS, was one of the 'Six Suggestions' made by Conway in her 2017 article on how research on determining the role of the Internet in extremism and terrorism might be fruitfully progressed.[7] This widening was necessary, she said:

> …if for no other reason, than to allow for comparative research…to ask how what the jihadis do is different from, but also how it may share similarities with, what other violent extremists are doing online and to come up with explanations for these, especially as pertaining to the alleged effectiveness of violent jihadis' online radicalization strategies (p.83).

Widening what was at that time a very narrow focus on not just violent online jihadism, but in effect IS, "to encompass a variety of other contemporary violent online extremisms" would, Conway stated, "allow us to engage in much-needed cross-ideological analysis," which she asserted was "the minimum necessary level of comparative research" in this area (p.83). She pointed to variants of the online extreme right as ripe for such comparison (p.82). In addition to widening and comparison, 'upscaling' was another of Conway's 'Six Suggestions.'[8] This was the term she used to describe "improving our capacity to undertake 'big data' collection and analysis."[9]

While online and 'real world' events have ensured that much greater attention to the online and offline extreme right is now apparent versus when Conway penned her suggestions, scholarly analyses comparing the extreme right and VJEs are still relatively few and fall into just two broad categories. The first category is composed of empirically grounded contributions focused on the similarities and differences in each movement's online activity,[10] along with similarities and differences in the responses of online platforms to this activity.[11] The second category of comparative studies are those that explore the interaction between the extreme right and VJEs more broadly, so both online and in the 'real world.' This research is characterized by an emphasis on "far right and Islamist extremism as reciprocal and correlative threats."[12] Summing-up, the comparative research in this area finds that there are broad similarities, but also specific differences, between the outlooks and—in the literature to-date, largely online—activity of extreme right and violent jihadi extremists and their supporters.

The last number of years have seen an increase in large-scale or 'big'—at least in social science terms—data analyses undertaken by online extremism and terrorism researchers. The most obvious examples of this regarding jihadi online content and activity are those contributions that draw on sizeable Twitter datasets. Mitts' research into online radicalization and support for IS in the West that is based on a Twitter account seed set of "about 15,000 ISIS activists" along with their c.1.6 million followers, which results in a dataset of "tweet-level information on over 100 million tweets posted by these users over the course of several years,"[13] is an outlier in terms of the scale of the data but numerous studies are based on at least tens of thousands of data points.[14] Jihadi magazines have also been the subject of extensive research,[15] with some

addressing the rhetorical appeals contained in these.[16] With respect to extreme right online activity, while Stormfront has been the subject of research for more than two decades now,[17] recently some large-scale computer-assisted analyses of its postings have begun to appear.[18] As regards the variety of other extreme right online spaces, some of the most obviously 'big data' research in the online extremism and terrorism sub-field has been undertaken by computer scientists.[19]

Relatively easy access to large amounts of online text produced by extremists and terrorists and their supporters has also driven an increase in studies employing linguistic content analysis, particularly utilizing the text analysis tool known as LIWC for 'Linguistic Inquiry and Word Count.' In an early study, focusing on groups such as Al-Qaeda, and Hizb ut-Tahrir, Conway and Conway utilized LIWC to illustrate that, when compared to the rhetoric used by non-terrorist control groups, terrorist rhetoric is more social in nature, more likely to reflect control and power, and "lower on multiple measurements of rhetoric complexity."[20] Baele questions this blanket statement on the simplicity of terrorists' rhetorical complexity however and, through an analysis of texts produced by lone-actor terrorists compared to those penned by a group of nonviolent radical activists, illustrates that lone-actor terrorists are characterized by both high-anger and a high-level of cognitive complexity.[21] Other studies using LIWC have brought to light nuanced inter-group differences. For example, Vergani and Bliuc's LIWC-based comparative analysis of jihadi magazines Dabiq and Inspire illustrates that IS's Dabiq is higher in authoritarianism and religiousness than Al-Qaeda's Inspire.[22] Numerous other articles reporting findings from research utilizing the tool to analyze tweet text.[23] The above-mentioned Stormfront has also been subject to analysis utilizing LIWC.[24]

All of this being said, we are aware of just one study that utilizes LIWC for purposes of comparing right-wing extremist and VJE online content. While analyzing some 1.1 million words of text, Buckingham and Alali's work comparing the manifestos of the July 2011 Oslo attacker, Anders Breivik's 'manifesto,' and the March 2019 Christchurch attacker, Brenton Tarrant's, 'manifesto' with 13 issues of IS's Rumiyah magazine suffers from the extreme right content being authored by just two individuals and IS once again being held up as the exemplar of violent jihadism.[25] Buckingham and Alali's article nonetheless supplies a careful and detailed corpus linguistic analysis of the similarities and differences between the ideational and emotional make-up of online text produced by extreme right users versus jihadis.

Our article speaks to this line of literature by doing a linguistic content analysis using LIWC. By undertaking comparative analysis of the language used by VJEs and the extreme right, this article aims to increase our understanding of the language and messaging strategies that are shared among or distinguish between these actors. While the article builds upon Buckingham and Alali's research,[26] it goes beyond it in at least three important ways. First, it broadens the range of ideological content analyzed, particularly by extending the VJE corpus beyond IS-produced text to include Al-Qaeda, Taliban, and Tahrik-e Taliban-e Pakistan (TTP) content also. Second, this is a truly 'big data' analysis, encompassing nearly three million words of text. And is, to the best of our knowledge, the largest such comparative analysis produced to-date. The Internet remains an incomparable source of such 'big data' even if, as in this case, the focus of the research is not at first glance the Internet or online activity *per se*.

Third, in addition to its comparative aspect, this study also turns the spotlight back on official (i.e. in the case of extreme right groups' both website and magazine content and the jihadis' magazines) and/or otherwise heavily trafficked long-form content (e.g. Daily Stormer). Websites, in particular, have been side-lined as data sources in favor of a focus on social media in the last decade or more, but increasing focus on online extremist and terrorist ecosystems and their component parts are bringing them—and other types of online spaces—back into the spotlight.[27]

This article reports on a systematic largescale comparative analysis of extreme right and VJE online text(s). The particular focus of this article is the cognitive, psychological, and temporal processes apparent in the sampled text data, which it analyzes from the perspective of collective action framings. The article is divided into four sections. It opens by outlining our theoretical framework and follows-up with discussion on the scope of the study. Section three outlines our data and methods while the fourth and final substantive section details our findings. The latter illustrate that despite the differences in political outlook of right-wing and jihadi extremists, they share similarities in psychological and cognitive processes. The major differences between the groups lie in the amounts of text that depict religion, psychological processes, risks, and cognitive processes, such as insight and causation. Furthermore, the groups' temporal outlooks vary, with jihadi texts more likely than extreme right to focus on the future.

Theoretical Approach: Cognitive and Emotional Framings for Collective Action

There is a long tradition of political psychology research that focuses on cognitive processes and political attitudes such as nationalistic attachments, and ideological commitments and prejudices, and scrutinizes how these attitudes might inform and endorse political action and even violence.[28] Nonetheless, it is only recently that investigating cognitive and psychological processes in textual material has received due scholarly attention.[29] Beyond individual level analysis, these studies can also inform our understanding of the cognitive and psychological motivations in textual material in the context of collective action theories and political interest groups.

Analyzing the textual discourses of extremist groups is important. What is written illustrates the thoughts of the narrator and shows whether the idea has been processed in depth or only superficially.[30] Speakers' linguistic choices reflect their conceptualizations of particular events and their realities. Their use of particular words shows attention to and focus on those concepts; the information structure reveals speakers' representations of what they perceive as important or whether they want to send a message implicitly or explicitly.[31] Linguistic analysis also shows the flexibility and range of problem-solving strategies, and the impact of situation and discourse context. Emotion-based sentiment analysis, cognitive analysis, and social and psychological processes reflected in text have long been investigated by experts in computer sciences, psychology, communication, and health care.[32] In the same vein, political psychology has a tradition of studying flexibility and its connection with ethnocentrism, tolerance, and political attitudes.[33] While at the individual level, the use of language can be

revealing about a person's cognitive and emotional status, within the context of a movement or group, exploring cognitive and emotional aspects of language can inform us about their framing processes. To account for this contextual factor, we turn to studies of collective action framings.

The concept of framing has been applied extensively to the study of collective action.[34] Framing processes are regarded as the central dynamic in understanding social movements.[35] Frames, as defined by Erving Goffman, are "schemata of interpretations" that enable individuals to "locate, perceive, identify and label" life events and render these occurrences meaningful.[36] Per Snow and Benford, collective action frames perform an interpretive function by simplifying or condensing various aspects of the "the world out there," in ways that are also "intended to mobilise potential adherents and constituents, to garner bystander support, and to demobilise antagonists".[37] Collective action frames are constructed around identifying a problem (i.e. "diagnostic framing"), what should be done about it (i.e. "prognostic framing"), and motivating bystanders to act (i.e. "motivational framing").[38]

The rationale and justification for collective action is an indispensable part of collective action framing. Diagnostic framing identifies some events or conditions as problematic and in need of amelioration. Such frames provide answers to the question of what is wrong and who/what is to be blamed for it.[39] How these explanations are framed and how promoted actions are justified can be indicative of the political outlook of a group/movement and essentially show how the latter intends to influence its audience and garner potential recruits. For example, research shows that individuals who have doubts about their personal significance and efficacy seek unambiguous and absolute answers and are prone to adopting extreme ideologies.[40] Hence, motivational framings that provide absolute and unambiguous answers will be appealing to such an audience. It can therefore be hypothesized that language indicating cognitive processes characterized by certainty, lack of ambiguity, and causation will be a prevalent trait of an extremist group. Whether right-wing and violent jihadi extremists differ in this respect, is a question we explore herein.

In addition to cognitive factors, emotional factors also influence endorsement of extreme pro-group/movement actions, such as harming others and self-sacrificing for the group/movement.[41] In fact, motivational frames provide a 'call to arms' or the rationale for collective action.[42] Such frames center motives for overcoming the fear of risk, which is often associated with collective action.[43] For example, in his analysis of the 1979 Iranian revolution, Salehi illustrates that motivational framings by clerical leaders portrayed the protests as a "religious obligation by subjecting the political situation to religious definitions and interpretations."[44] Furthermore, painting a vision of what can be achieved also helps with proposed courses of action. According to Jasper, it is important for collective action to have an impact and often this desire comes from a moral vision or ideology suggesting that the world should be different from the way it is.[45] Anticipation of an impact, especially having a future-focused and hopeful outlook, is perhaps the greatest spur to action.[46]

A significant part of motivational frames are emotions and sentiments. Emotions "are generated in crowds, are expressed rhetorically, and shape stated and unstated goals of social movements."[47] According to Collins' conflict theory, emotions draw people to collective action.[48] For example, anger can be a "gut surge of panic over

something in the shadows" or "an elaborated indignation over the insensitivity towards government."[49] Emotions can indicate feelings of approval and disapproval based on moral intuitions and principles and when they indicate feelings of "right" or "wrong" are important in the study of collective action framings.[50] Feelings of belonging and community can also motivate participation in action. Identification with a group and collective identity creates affective loyalties.[51] This raises questions such as: What kind of emotions are used by extremists to motivate their audience? What are the temporal dimensions of extremist texts—do they focus on past grievances or future visions? Are cognitive and psychological motivations used differently by different groups?

Prior to addressing the above questions, it is worth pointing out here that extremists have already been shown to share several characteristics regardless of ideology. Political psychology research shows, for example, that extreme right- and extreme left-wing activists share personality and cognitive qualities. Milton Rokeach[52] and H.J Eysenck[53] were some of the earliest researchers to highlight that ethnocentric thinking is associated with cognitive rigidity and inflexibility. Individuals with more categorical and inflexible thinking styles tend to adhere to ideologies in a more strict or extreme fashion.[54] What Rokeach and other scholars observed in the first half of the twentieth century is confirmed by more recent studies, which show that individual-level cognitive inflexibility predicts extremist attitudes and the willingness to harm others.[55] According to Zmigrod, Rentfrow, and Robbins, regardless of the right or left direction of political views, cognitive rigidity is a specific antecedent of extremist attitudes.[56]

Ideological attachments subsequently motivate individuals to endorse or pursue hostile, including violent, actions against perceived threats.

Critics may argue that some of the extremists we have included under the umbrella term 'extreme right' do not necessarily endorse violence, while jihadis openly call for violent action. Worth highlighting here is that the recent increase in right-wing terrorism has brought to the fore the issue of how extreme right discourses and narratives may influence and inspire violence.[57] None of the text employed in this research was sourced from social media, where fairly extensive deplatforming of right-wing extremists has been underway for some time and was ramped-up considerably from early 2021, in the wake of the 6 January events at the U.S. Capitol; this does not mean that other online service providers could not interfere with the online activity of the extreme right actors described in the next section and indeed some have already done so.[58] In addition, British right-wing extremists have a high level of awareness of the ability for them to be prosecuted for hate and violence promotion and so have an even greater incentive to avoid this, especially in relatively open online spaces such as those our data was drawn from. Violence advocacy is not therefore one of the analytical categories we used to gauge the discursive similarities and differences between right-wing extremists and VJEs. The focus of our study is on psychological motivations, temporal outlook, cognitive, personal, and social processes rather than text indicative of or encouraging violence. Hence, while the specifics of right-wing and jihadi extremists' political outlooks clearly differ, what is at issue herein is whether the cognitive and psychological underpinnings of their political rhetoric share similarities.

Case Selection

J.M. Berger's conceptualization of extremism was utilized for case selection purposes. Berger takes the view that all extremists—of whatever variety—structure their beliefs on the basis that the success and survival of the in-group is inseparable from the negative acts of an out-group and the in-group are, in turn, willing to assume both an offensive and defensive stance in the name of their success and survival.[59] We thus conceptualize right-wing extremism as a racially, ethnically, and/or sexually defined nationalism, which is typically framed in terms of white power and/or white identity (i.e. the in-group) that is grounded in xenophobic and exclusionary understandings of the perceived threats posed by some combination of non-whites, Jews, Muslims, immigrants, refugees, members of the LGBTQI + community, and women, especially feminists (i.e. the out-group(s)). In turn, jihadism is conceptualized by us as a religiously defined exclusivism, oftentimes framed in terms of a commitment to violent imposition of jihadi interpretations of *sharia* (i.e. Islamic law) (i.e. the in-group), which is grounded in exclusion of all those, Muslims and non-Muslims alike, opposed to such processes (i.e. the out-group(s)).

Eight predominantly British and American extreme right online spaces for data collection were chosen based on the above conceptualization (see Table 1). In alphabetical order, these were: American Renaissance, a monthly white supremacist online 'magazine' that regularly features eugenicists and proponents of, especially anti-black, racism; the website of the British nationalist group Britain First (estbd. 2011), which is known for organizing rallies and protests, including what the group refers to as 'mosque invasions,' throughout the U.K.;[60] the Daily Stormer, a notorious U.S. neo-Nazi website, which went offline for a period in 2017 after its publisher, Andrew Anglin, wrote articles for the site mocking and abusing Heather Heyer, the woman murdered at the Charlottesville rally, calling for harassment of mourners at her funeral, and praising her killer; David Horowitz's U.S.-based Front Page Magazine, which has a conspiratorial Islamophobic agenda, and includes contributors such as Ann Coulter, Katie Hopkins, and Robert Spencer; Heritage and Destiny website, which hosts a bi-monthly racist magazine of the same name that has been described as "Britain's leading non-party racial nationalist publication;"[61] the U.K.-based Knights Templar International (estbd. 2015) site, which espouses counter-jihadism and has links across Europe and around the world, including connections to right-wing paramilitaries in Hungary;[62] Rebel Media, a Canadian extreme right website, chosen for its high profile within North American right-wing extremist politics, as well as its connections with other extreme right organizations and individuals, especially in the U.K.;[63] and Gates

Table 1. Alphabetical listing of extreme right online data sources with URLs.

Name	*URL*
American Renaissance	https://www.amren.com/
Britain First	https://www.britainfirst.org/
Daily Stormer	https://dailystormer.su/[80]
Front Page Magazine	https://www.frontpagemag.com/
Heritage and Destiny	http://www.heritageanddestiny.com/
Knights Templar International	https://www.knightstemplarorder.com/
Rebel Media	https://www.rebelnews.com/
Gates of Vienna	https://gatesofvienna.net/

Table 2. VJE online magazine data sources (in chronological order based on year of publication of each group's first magazine).

Group	*Magazine Name*	*No. of Issues*	*Publication Dates*
Al-Qaeda	Inspire	17	July 2010 – November 2016
	Al Risalah	4	July 2015 – January 2017
	One Ummah	2	September 2019 – June 2020
	Al Shamukh	1	April 2011
Total No. of Issues of Al-Qaeda Magazines		*24*	
Taliban	Azan Magazines	6	March 2013 – August 2014
Total No. of Issues of Taliban Magazines		*6*	
Islamic State (IS)	IS News	2	June 2014
	IS Report	4	June 2014
	Dabiq	15	July 2014 – July 2016
	Rumiyah	13	September 2016 – September 2017
	Voice of Hind	13	February 2020 – May 2020
Total No. of Issues of IS Magazines		*34*	
Tahrik-e Taliban-e Pakistan (TTP)	Ihyaye Khilafat	1	October 2014 – December 2014
	Sunnat-e Khola	2	January 2017 – October 2017
Total No. of Issues of TTP Magazines		*4*	
Total No. of Magazines in Dataset		**80**	

of Vienna, a counter-jihad blog, which was drawn from and 'recommended' by Norwegian terrorist Anders Breivik in his 'manifesto.'[64]

The English-language online magazines of four groups meeting the above-described criteria for jihadism were chosen for inclusion in this study (see Table 2).[65] The group's selected were Al-Qaeda, the Afghan Taliban, IS, and Tahrik-e Taliban-e Pakistan (TTP). The least well known of these on the world stage is the TTP, which comprises local groups with local commanders, but that broadly shares Al-Qaeda and IS's worldviews, publicly swore allegiance to the Taliban's Mullah Omar, and has been active in Pakistan and Afghanistan since 2003.[66]

Issues of four Al-Qaeda magazines, Inspire, Al Risalah, One Ummah, and Al Shamukh, were included in the dataset. The earliest publication included was the first issue, from July 2010, of Al-Qaeda's Inspire magazine and the most recent issue included the June 2020 issue of its One Ummah publication. Of the 24 issues of Al-Qaeda magazines included in the dataset, Inspire was also the most heavily represented with 17 issues that appeared over the longest timeframe (i.e. seven years) in the dataset. Unsurprising, given the very large overall volume of online content produced by them, is that the group with the largest number of issues of their magazines included in the dataset was IS, with 34 issues drawn from five different titles. Like Al-Qaeda's Inspire, the most well-known IS magazines were Dabiq and Rumiyah, which also accounted for the bulk of issues (i.e. 24) of IS magazines in the dataset. In contrast, just six issues of the Taliban's Azan magazine and four issues of TTP magazines—including two of their female-focused Sunnat-e Khola publication—were included.

Methodology

Data

To overall goal of a comparative analysis of the linguistic patterns contained in the writings of violent jihadi extremists versus right-wing extremists required that we first

Table 3. Overview of corpora.

	Publisher	Magazine Name	Word Count
Violent Jihadi Extremist Data	IS	Dabiq	369,848
		IS News	1,172
		IS Report	4,256
		Rumiyah (Rome)	273,051
		Voice of Hind	100,048
	Al-Qaeda	Al-Shomukh	
		Al-Risalah	76,181
		Inspire	361,091
		AQ in Arabian Peninsula	
		One Ummah	37,191
	TTP	Sunat-e Khola	45,403
		Ihyae Khilafat	16,879
	Taliban	Azan	201,763
	Total word count	**1,491,779**	
	Publisher	**Total Word Count**	**5% Sample**
Extreme Right Data	American Renaissance	39,957,624	1,997,881
	Daily Stormer	22,009,858	1,100,493
	Heritage and Destiny	436,296	21,815
	Frontpage Magazine	42,551,064	2,127,553
	Gates of Vienna	13,823,883	691,194
	Knights of Templar International	1,398,255	69,913
	Rebel Media	9,420,457	471,023
	Britain First	84,374	4,219
	Word counts	**121,203,411**	**6,484,091**

collect representative data from each group and balance the two data sets in terms of their size and number of sources. That balancing of scale and sources is important for the analytic stage, which will be described later.

The jihadi extremist data is exclusively based on magazines, which were sourced from www.jihadaology.net. In total, 81 files, each representing a single magazine issue and ranging in size from 3KB to 239 KBs, were either collected in plain text or transformed from PDF to plain text format. A complete list of analyzed documents and the number of words of text collected for each group is provided in Table 3.

The extreme right data was scraped from the eight different URLs listed in Table 1 between Jan-December 2019. This text took the form of articles, blog posts, comments, and updates published by these groups. Because each site used a different site structure and format, in each case, unique code was written by the project team to collect the text and its related metadata. As an example, the code to collect data from American Renaissance conducted multiple passes. The first pass collected all of the site's internal URLs. It then categorized those URLs based on the type of content: article, commentary, comments, or news. Another pass was then undertaken, collecting the text and relevant metadata. In the case of American Renaissance, this amounted to nearly 40 million words. The metadata included the specific URL of the post or comment, title of the post (when available), date of publication, and author (when available). Additional descriptive data related to word counts was later added to the data set. Word counts were generated using the wordcount function from the ngram package in the statistical programing language, R.

Because our method of analysis produces statistics that are ratios of terms per file, and because the extreme right corpus was approximately 81 times larger in terms of words than the violent jihadi extremist data and vastly larger in terms of

the number of files (e.g. the Daily Stormer data comprises 671 files, the American Renaissance data comprises 29,666 files), we implemented two sampling strategies. First, to reduce the discrepancy in word count size between the two datasets, we randomly sampled 5% of the extreme right data. Next, to identify appropriate comparisons from the perspective of how many words per source, from within that sampled dataset, we selected files from the extreme right corpus approximating the word count for each file in the violent jihadi extremist data. Given that the files are all plain text, files of the same size will each contain approximately the same number of words. Therefore, for each file of a given size in the violent jihadi extremist data, we selected a file of the same size from the extreme right data. Ultimately, in roughly balancing the sources, number of files, number of words per file, and number of words per corpus, the total number of observations (i.e. files) in the final corpus was 144, with 81 files in the violent jihadi extremist corpus and 63 in the extremist right per corpus, with a total word count of approximately three million.

Methodological Approach & Data Analysis

The goal of this analysis is to identify conceptual features that distinguish the two extremist groups' writings, compare those strategies, and to better understand the psychosocial motivation strategies employed by each group. To elicit data about these strategies from the writings of each group, we employed a mixture of quantitative and qualitative data analysis. The quantitative strategies identified the proportions of language within each document and in each corpus that corresponded to various conceptual categories. This first step was accomplished with the well-known Linguistic Inquiry and Word Count (LIWC) tool. LIWC, described in more detail below, provides as output the representative presence of conceptual categories in a document as represented by the words in each document. Second, we ran three types of statistical analyses to see which conceptual categories were contributing to the conceptual identity of each group's writing: a correlational test, a test of variance inflation factors, and a regression analysis, the first of which was conducted in STATA and the second two in R. Finally, with that descriptive and analytic data directing our search toward significant conceptual categories, we turned to the qualitative research tool NVivo to identify relevant examples based on the terms LIWC associated with each category for discussion herein. This three-stage process allowed us to empirically identify significant patterns for each of the ideological lexicons, test the correlations between those patterns and the overall linguistic identity of each ideological grouping, and then interpret the results through reference to the text produced by each ideological grouping.

Each of these steps is outlined in more detail below.

Step 1, Text to Data: LIWC is designed to analyze text documents at the word and typographic levels by comparing a document's words to a reference dictionary, sorting those words and tokens into predefined categories, and outputting the proportional representation of each category within a document. It ultimately outputs data on 92 categories ranging from the typographic, such as the proportion of commas and other punctuation marks, to the stylistic, such as the proportion of "netspeak," to the categorical, such as the proportion of language related to sadness. The categorical dictionary,

built upon a standard English dictionary and thesaurus, indicates which words should be counted and the category in which they fall.[67] The LIWC 2015 Dictionary is composed of 6,400 words, word stems, and emoticons. A word stem is the base form of a given family of words. For example, run- would be the stem for run, running, ran, and runs. Each word included in the dictionary was qualitatively sorted and judged by a group of 4 – 8 raters to determine its fit for a specific category. This process generated more than 60 built-in categories such as "cognitive processes," "social processes," "psychological processes," and so forth. Words can be part of more than one category. Hence, when a selected word (i.e. the word in the document that is being analyzed) fits in different categories, both categorical scores for the document under analysis will be incremented.[68] LIWC's outputs are in the form of percentages of words in a particular category per file.

One major limitation with LIWC when working with corpora containing non-English words is that the software does not allow researchers to add any new words or categories of words to its existing built-in dictionary. To ready our data for analysis using LIWC, it was therefore necessary to translate non-English words in the jihadi texts into English. To do this, we ran a simple content analysis using NVivo, which counted the number of most prominent words. We then translated all the most prominent Arabic words into their English equivalents (e.g. *Jihad* (holy war), *hadith* (sayings of the Prophet), *shariah* (Islamic law), *jannah/jana/janna* (heaven)).

We used the LIWC categories listed and described in Table 4 as our main variables.

Step 2, Correlational and Regression Analysis: Using the proportional categorical data generated by LIWC, in this step we performed two types of statistical analysis. First, we ran a correlational analysis to determine if there were any statistically significant differences between the far-right extremist and the violent jihadi extremist writing, in terms of their usage of the categories indicated in Table 4. Second, using the proportional categorical data described in Table 4 as independent variables, we ran a linear regression to understand the extent to which each category contributed to the linguistic identity of each group and differentiates them.

Table 4. Relevant LIWC categories with descriptions and examples.

LIWC Categories	Description and examples
Social Processes	Includes a large group of words that denote social processes such as human interactions (e.g. talking, sharing, etc.) as well as all pronouns except first person singular pronouns. For example, we, your, talk, mate, etc.
Psychological Processes	This variable is measured through the following sub-categories: ***Anxiety***: this category includes words such as worried, fearful, concerned, anxious, etc. ***Sadness:*** includes words such as sadness, crying, tears, grief, etc.
Cognitive processes	Subcategories: ***Insight***: includes words such as think, know, etc. ***Causation***: because, effect, result, etc. ***Discrepancy***: should, would, etc. ***Certainty***: always, never, etc.
Temporal outlook	***Focus on the past***: ago, did, talked, verbs in past forms, etc. ***Focus on the present***: today, now, is, etc.
Personal Concerns	***Religion***: altar, church, God, Quran, etc. ***Death***: burry, coffin, kill, martyr, etc. ***Reward***: take, prize, benefit, etc. ***Risk***: danger, doubt, etc.

Table 5. Variance inflation factors.

Variable	VIF Value
Social Processes	3.41
Focus on Past	2.63
Risk	2.72
Insight	3.07
Focus on Future	2.01
Discrepancy	2.70
Certainty	2.14
Causation	1.75
Death	1.75
Anxiety	1.59
Sadness	1.98
Reward	1.75

First, we ran analysis on all the independent variables to determine multicollinearity. Collinearity is the degree to which multiple variables share the same relationship relative to the outcome.[69] This can potentially lead to difficulty in establishing stable estimates and reliable findings and would limit interpretation of findings. To measure the impact of multicollinearity among the variables in our regression model, we calculated the variance inflation factor (VIF). VIF helps identify which input variables (i.e. our LIWC categories) are collinear, by providing the degree to which the R_i^2 varies based on each variable.[70] That variance, or VIF, indicates which variables are producing the most independent change in values, and which produce change together. Although there is no formal VIF value to determine the presence of multicollinearity, the rule of thumb is that when the overall VIF values are high for any of the variables in the model, this indicates multicollinearity. 'High,' has been variously interpreted as more than 10 or sometimes more than 4.[71] We adopted a stringent approach relative to the literature, and only included variables with a VIF lower than 4.[72] Table 5 includes our list of variables and their VIF values and shows that multicollinearity should not affect the present analysis and interpretation. One variable from Table 5 that we dropped prior to running the regression was Religion. That variable in and of itself strongly distinguishes between the writing of the two groups, with a mean score of 3.8 for the violent jihadi extremists and 1.1 for the extremist right groups. That marked difference is sufficient to overwhelm the VIF calculation and cause the regression to not converge. Therefore, while recognizing Religion as a significant marker of difference between the groups, we chose to focus on other, more subtle markers of difference and comparison.

Subsequently, we ran multivariate regression analysis. The independent variables are all the categorical variables detailed in Table 4. Our dependent variables are the ideologies subscribed to by the texts' authors, a binary classification where right-wing extremism is coded as 0 and violent jihadism as 1. Once we removed issues of collinearity, we ran a logistic regression analysis with ideology as the dependent variable, such that extreme right was the negative condition versus violent jihadi extremism as the positive condition, and the independent variables as listed in Table 5.

Step 3, returning to the text: The built-in lexical model that LIWC uses to analyze social and psychological dimensions of texts only gives proportional counts of words. To explore these differences in the source texts, we had to locate these words in the text and the context in which they were used. To do so, we used Nvivo software.

Table 6. Regression analysis of selected independent variables for VJEs and right-wing extremists.

Independent variables	Coefficient Estimates	Robust Standard Errors
Social Processes		
(Reference category = Far right data)	1.33***	(0.32)
Psychological Processes:		
Anxiety	−1.57	(1.83)
Sadness	8.68*	(0.32)
Cognitive Processes:		
Insight	−2.78***	(1.34)
Causation	1.86	(1.47)
Discrepancy	−4.92***	(1.74)
Certainty	−1.99*	(1.22)
Temporal outlook:		
Focus on the past	−1.92***	(0.55)
Focus on the future	4.19***	(1.35)
Personal Concerns:		
Death	4.77***	(1.42)
Reward	0.23	(1.06)
Risks	−0.63	(2.70)
Constant	5.46	(4.42)
N	144	

Standard errors in parentheses.
$^{*}p < 0.05$.
$^{**}p < 0.01$.
$^{***}p < 0.001$.

For example, we searched for words in the "causation subcategory" using NVivo, and then we qualitatively analyzed all excerpts containing those words. After explaining the quantitative results, the Findings and Discussion section qualitatively explores these examples. That exploration illustrates what is meant by the numbers and figures presented in the quantitative analysis, clarifying through sample text what differentiates the right-wing extremist and violent jihadi extremist writings.

Findings and Discussion

Table 6 presents the results of the regression analysis. A positive coefficient value indicates that the category was more prevalent in violent jihadi extremist writing; a negative coefficient indicates that the category is more strongly identified with the writing of the far right. As illustrated in Table 6, four out of twelve variables *did not* indicate a statistically significant association. This finding essentially means that both the extreme right and VJEs use these particular conceptual categories and their associated words or phrases in a similar manner. The categories that were statistically significant were Social Processes, Insight and Discrepancy from Cognitive Processes, Focus on the Past and Focus on the Future from Temporal Outlook, and Death, from Personal Concerns. Insight, Discrepancy, and Focus on the Past and, to a lesser degree of certainty, Certainty, all signaled right-wing extremist authorship. Social Processes, Focus on the Future, Death, and to a lesser degree of certainty, Sadness, all signaled violent jihadi extremist authorship.

In the discussion of these findings below, we include qualitative data samples. For the variables that illustrate statistically significant associations, we provide qualitative data samples for the ideology that has shown significantly higher values to illustrate how the concept is evoked in their writings. When the ideologies do not differ based

on a particular independent variable, we provide and analyze data samples for both right-wing extremists and VJEs.

Social Processes

As Table 6 indicates, violent jihadi extremist text was more likely than right-wing extremist text to contain lexical references to social processes, such as words referring to family and friends, and to social relations such as talking, sharing, and so forth. Creating group cohesion, socializing members into group norms and values, and portraying group support were important themes in VJEs' textual narratives. For example, an article in the very first issue of al-Qaeda's Al Risalah magazine read:

> At that time al Qaeda had not spoken much on the issue of women making holy trip and Jihad…A good friend of the family knew my intentions to move to and so introduced me and arranged lines of communication to a brother who was already in…To my surprise he was willing to take on me a widow with my three kids.

The above text clearly points to the importance of social relations in supporting and aiding recruits to make *hijra* and join jihad. While emphasizing the role of social relations and bonds, some jihadi groups also warned against socializing with the 'wrong crowd,' however. For example, an entry in Issue 7 of IS's Dabiq magazine stated: "Keep yourself above having poor character and befriending immoral people…. a better outcome is greater than committing a sin and then fearing its consequences and the religion revolves around patience."

Psychological Processes

Psychological processes are characterized by words depicting various states of emotion. We measured two subcategories, words depicting anxiety and words that illustrate sadness. While the extreme right and VJEs do not differ in the frequencies of words indicating anxiety, VJE texts contain more words that indicate sadness and grief than the right-wing extremists. (Table 6 shows a coefficient of 8.68, which is significant at $p < 0.05$). For example, Tahrik-e Taliban-e Pakistan wrote: "We shall take care of our orphans, widows, martyrs, oppressed, injured and imprisoned. I request all my [fellow Muslims] to not feel sad or cut themselves off from the fields of Jihad." To evoke reaction and attract recruits, based on such emotions, the passage immediately continued "Let's all come together and avenge our martyrs, and everyone knows who our enemies are, and they are Pakistan Army, Democratic politicians, followers of the West and peace committee militias."[73] As such, emotional frames whether positive or negative, can provoke action.[74] Organizers of any collective action try to arouse emotions in order to attract new recruits and discipline those already in the movement.

Cognitive Processes: Diagnosing Issues and Prognosing Solutions

Central to the discourse of any movement are its explanations of situations and events, and how it rationalizes arguments to promote certain actions. One question prompted by this understanding of discourse is whether political views are rigid or leave room

for debate and inquiry. LIWC categorizes words such as 'inform,' 'logic,' 'inquiry,' 'knowledge,' 'analyze,' 'afterthought,' and so forth as "insight." VJE-produced text contained fewer words indicating insight, causation, discrepancy, and certainty as cognitive processes. While right-wing and jihadi extremism differ in frequencies of language pointing to insight, discrepancy and certainty, the rates of using lexicons that point to causation is similar between the two. Table 6 shows that the coefficient estimates (-2.78) of words indicating insight decreased for violent jihadi extremists relative to right-wing extremists, and this relationship was statistically significant at p-value of <.001. This suggests that it is a feature usable to distinguish between the writings and hence also the discourses of the two ideologies. An excerpt from the right-wing extremist Front-Page Magazine illustrates this:

> Islamic gunmen were careful to separate Christians from Muslims before beginning the carnage said eyewitnesses…Collins, vice chairman of the student union said he could hear from inside his room where he was hiding the gunmen opening doors and inquiring if the people inside were Muslims…if you were a Christian you were shot on the spot.

Analysis of lexicons depicting cognitive processes indicates that VJEs were less likely to provide insights into their arguments. For example, we read in Dabiq 10:

> And do not think – may Allah guide you – that having a beard or wearing a Qandahāriyyah is a factor that prevents takfir and makes your husband infallible.

Other text-based indicators of cognitive processes such as discrepancy (e.g. 'should,' 'would,' 'could,' 'besides,' 'hopefully') and certainty (e.g. 'always,' 'never,' 'absolutely,' 'complete,' 'confidence') were used at the same level by both VJEs and the extreme right. For example, analyzing the category of causation in the Taliban's magazines illustrates how the group enforced in-group out-group discourse:

> Thus, the Muslims and the Kuffar are two armies that have always been ranked in war against each other. One has always been helped by the army of angels and the other has always been helped by the army of satans [*sic*]. The gates of success and victory have always been opened for the former while there only humiliation and ignominy remained for the latter.[75]

In comparison, the rate of word usages indicating discrepancy and certainty in arguments were similar between the ideologies. The following is an example illustrating certainty drawn from the extreme right Gates of Vienna website:

> Islam will return to rule over Europe and the West. Does the conquest need to be done by the sword? No, not necessarily. There is something called a "Quiet Conquest." This strong message broadcasted by Yusuf Al Qaradawi, the most influential cleric in the Muslim world is heard openly all over the world. Quietly…the International Islamic Caliphate is expanding, its objective is to impose Sharia Law on the entire world. The dream of Islamic Caliphate concentrates its attention on the US…. In 50 years, this country will be an Islamic State.

As indicated in the passage above, Gates of Vienna exhibited a high degree of certainty in predicting how the Islamic State would expand to take-over the U.S. in a 50-year time period in a gradual, undetectable process. The implication here is the spread of an Islamic Caliphate through immigrants and sympathizers in the West. VJEs' textual material displayed similar levels of certainty in explaining events,

analyzing situations, and making assertions. According to Tahrik-e Taliban-e Pakistan in Sunat-e Khola Magazine, for example:

> Regretfully I, instead of reading and understanding Islam thought of it as comprising of only some forms of worships and rituals; hence, I rejected it completely and as a result I missed out on the blessings, which I could have enjoyed otherwise.

Personal Concerns and Drives

For individuals to overcome risks associated with joining violent jihadi or extreme right groups or movements—both of which are controversial options—certain incentives and drives must be in place. Incentives tap into personal concerns and can be persuasive tools; concerns about death, risks and rewards were some of the common themes in the text we studied. Dangers of death, as discussed above by IS, need to be overcome by individuals' beliefs and religion. LIWC's category of death as a personal concern, includes words such as 'bury,' 'autopsy,' 'corpse,' 'death,' 'die,' 'demise,' 'lethal,' 'kill,' 'massacre,' and 'slaughter.' Encouragement to kill, destroy, and/or inflict pain on the enemy was a prominent theme in VJE text. While VJEs and right-wing extremists' language does not differ when it comes to concerns such as risk and rewards. The findings illustrate that VJEs are more likely than the far right to use language that depicts death (coefficient of 4.77, which is significant at $p < 0.001$),

For example, an article in Al-Qaeda's magazine Inspire, Issue 15 read:

> The sparks and flames of Jihad roared in Afghanistan…And once again they lost hope and died in their own rage and wrath when they saw the gathering of Muslims all over the world. Muslims rushing down to the streets just after the announcement of his killing cheering shouting and repeating the now famous quote we are all Osama…We are a nation which does not know how to surrender. A nation that never dies with the death of its men or leaders.

To give an example of words in this category on the extreme right, we present some text from Britain First:

> Migrants have been crossing the channel in small boats in the hope of reaching Soft Touch Britain. Kent is a target region for Britain First and campaigns and days of action will be held in this important county on a regular basis…Party leader Paul Golding then gave a speech about the treason of our political elite. He concluded by stating that unless the British people build a powerful political movement in the next twenty everything we love will be lostforever.

Consider the language related to rewards (e.g. 'prize,' 'benefit,' 'gain,' 'award') appearing in text also excerpted from the Britain First website:

> …sometimes influenced no doubt by media propaganda people feel the need to let rip (be angry). It happened this morning to the West team as they were leafleting. An angry man stormed out of his house swearing and apparently upset at the leaflet dropped through his letterbox. As ever in such situations our activists walked avoiding unnecessary conflict and thought no more of it. But then… a little bit of Christmas magic…a woman came bearing gifts, a chocolate selection box to be precise. She explained that she was a relative of the angry man and wanted to [do] this for his actions. Our activists graciously accepted the giftand invited the kind lady to join Britain First

Similarly, VJE text contained information about rewards and what could be gained from joining those groups. For example, an article in Sonat-e Khola, TTP's magazine for women reads:

> Then for the sake of Allah jihad martyrdom are blessings with so much reward that we cannot imagine. We do not have that much understanding and foresight that we can comprehend the blessings and the reward hidden in these.

To further investigate these themes, we explore the temporal outlook of both extreme right and VJEs, which allowed us to determine if these ideologies focus more on the past or the future in their online writings.

Temporal Outlook

The findings in this category are compelling. LIWC's temporal category, "Focus on Future," includes phrases such as 'going to,' 'will,' 'might,' 'must,' 'ought to,' and 'should.' In contrast, the subcategory "Focus on Past" contains a wide range of verbs in the past form. We found that VJEs are more likely than the extreme right to invoke the "Focus on Future" category and less likely than right-wing extremists to discuss the past. As illustrated in Table 6, the coefficient for the focus on future is 4.19 which is significant at $p < 0.001$, and the focus on past is −1.92, which is significant at p.<0.001).

Our data shows that a focus on the past and commenting on historical and contemporary events was a common theme across both ideologies, but that the rhetoric of right-wing extremists was mainly concerned with lamenting over past events as instances of injustice, while less was written about what 'shall,' 'should,' or 'shouldn't' be done. The range of past injustices drawn on by the extreme right were diverse, relating to historic events, election outcomes, immigration, and so forth. Other prominent themes, and more relevant to our discussion here, were foreign policies and the threat of terrorism. An example drawn from the Knights Templar was as follows:

> Finally [there is] the influence of the Muslim Brotherhood and the influence of Saudi Arabian [*sic*] on many Republicans and mainstream media outlets. These people look at Putin and see the man who blockedtheir effort to destroy the government of Syria and turn the cradle of Christianity into a Caliphate. And then along comes the upstart elected in a peaceful popular revolt that shook the political and media elites of the entire Western world to their rotten core.

In comparison, VJE text was more likely to include words that focused on the future. For example, Al-Qaeda in Al Risalah, Issue 3, encouraged potential recruits to join jihad and view themselves as future suicide attackers:

> You are going to be in the vehicle shortly and behind enemy lines and all that willseparate you from this world and the Hereafter is maybe the click of a button that you are willingly going to press…If I describe my last moments before carrying out a martyrdom operation, I see myself penetrating the line of defence of the disbelievers and destroying them sending them where they belong; Hellfire.

Some future-focused common themes emergent from the text of the different VJE groups were the calls to jihad and *hijra*, which were prominent across all VJEs;

promises of establishing a caliphate for IS, TTP and, to a certain degree, Al-Qaeda, or an Islamic Emirate (i.e. Taliban); promises of liberation of Islamic lands from foreign forces, prominent examples of which were Afghanistan and Palestine.

Conclusion

Drawing on two large datasets of online text, this research explored trends in the discursive patterns of right-wing extremists and VJEs. Found were a series of similarities and differences between extreme right and jihadi extremist online narratives, particularly in association with cognitive processes, psychological processes, personal concerns, and temporal outlook. While both types of ideological texts indicated similar levels of certainty in arguments as a cognitive process, the language depicting social and emotional processes, on the one hand, and religion, on the other, were used more often by VJEs than right-wing extremists.

The findings point to VJEs being more likely than the extreme right to discuss the future and promise change as motivational incentives. In fact, research shows that hopeful anticipations of an impact and the promise of a different future are perhaps the greatest spur to action.[76] VJEs showed aptitude in painting a flourishing future for their followers based on their interpretation of religion. To reach such aims however, it was accepted that sacrifices would be required; not surprisingly therefore there was a greater likelihood of discussion of risks in VJE texts than in extreme right texts. In order to justify risks and instigate action, VJEs relied heavily on religion and used religiously associated language more than right-wing extremists.

Research within the field of linguistics also shows that cognitive flexibility or lack of it is connected with ethnocentrism, tolerance, and political attitudes.[77] Our findings in this article point in a similar direction. Furthermore, psychological motivations, such as anxiety and sadness as a result of victimization, were found to be common across both ideologies in the promotion of their causes. While language indicative of anxiety was more prevalent in the extreme right texts, VJE texts contained more words related to sadness. As observed by Jasper, emotions help energize actions, so knowing what kind of emotions are expressed by extremist groups is crucial in formulating (online) counter-narrative and other relevant preventing/countering violent extremism (P/CVE) strategies.[78]

This research also speaks to a long tradition of political psychology research that focuses on cognitive processes and political attitudes such as nationalistic attachments, ideological commitments, and prejudices and scrutinizes how these attitudes might inform and endorse political action and even violence.[79] In particular, this article introduces to the debate questions relating to shared and different linguistic trends in extreme right and VJE online texts. Until now, most research has focused on analyzing violent jihadism and the extreme right in isolation and as diametrically opposed. However, future research must go beneath such differences to better understand the fundamental reasons as to why and how they attract supporters. This future work should include moving beyond narratives and language to explore the visual imagery and symbolism used by adherents of the different ideologies to attract (online) support and followers. Increased attention to the potential for online actions to move into offline violence and what in particular 'motivates' users to carry out acts of physical violence is also

warranted. A greater understanding of the narrative and visual symbolism used by extremists and how particular online content motivates offline violence could aid in predicting potential acts of violence and thus stop or reduce such acts occurring.

Notes

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8. Conway, "Determining the Role of the Internet in Violent Extremism and Terrorism," 87–88.
9. Conway, "Determining the Role of the Internet in Violent Extremism and Terrorism," 77.
10. See, for example, Paul Gill, Emily Corner, Maura Conway, Amy Thornton, Mia Bloom, and John Horgan, "Terrorist Use of the Internet by the Numbers: Quantifying Behaviors, Patterns, and Processes," *Criminology & Public Policy* 16, no. 1 (2017): 107.
11. See, for example, Maura Conway, "Routing the Extreme Right: Challenges for Social Media Platforms," *RUSI Journal* 165, no. 1 (2020): 108–113; Mikhail Myagkov, Evgeniy V. Shchekotin, Sergey I. Chudinov, and Vyacheslav L. Goiko, "A Comparative Analysis of Right-Wing Radical and Islamist Communities' Strategies for Survival in Social Networks," *Media, War & Conflict* 13, no. 4 (2020): 425–447.
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ORCID

Weeda Mehran http://orcid.org/0000-0003-0207-919X