

Methods to the Madness: an exploratory analysis of influencers within the ego network of a cult leader

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Introduction

YouTube is an important digital medium for the diffusion of ideology, and has played a powerful role in the modern online growth of extremist propaganda (Klausen et al 2012). Cult leaders in particular are increasingly harnessing the video sharing site to promote ideology and attract new members, a tactic which is especially effective among young people and has led to a substantial number of criminal acts (Lamoureux 2017). Indeed, recently YouTube “has become a secret weapon for cult recruitment” (Lamoureux 2017).

The formation of cult ideology is comprised of two steps, religious innovation and social acceptance, and in this way “often involves entrepreneurial action” (Bainbridge 1979, p. 290). This entrepreneurship is often influenced by other cults, traditional religious sects, controversial personalities, and other groups (Bainbridge 1979). Therefore, authorities may arise within a cult network, as will be illustrated in the below analysis of a cult leader’s ego network. By taking into account each node’s centrality and attributes, we can determine the composition and structure of the network and identify its most influential actors. Furthermore, we can investigate the prevalence of channels belonging to members of particular groups of interest. Overall, analysis of this kind helps lend insight into who the most central users likely are within the network of YouTube’s cults.

Literature Review

Conventional wisdom posits that social media creates a positive ideological feedback loop, and is therefore to blame for recent increases in polarization. However, studies have shown that individuals with active social media accounts are more likely to be exposed to a wide variety of opinions than those who stay offline (Bail 2018). In general, there are two types of contrarian information networks which are often mistakenly interchanged: epistemic bubbles and echo chambers (Nguyen 2018). Epistemic bubbles, as suggested by the name, are fragile; contradictory evidence or opinions are completely absent, and once they are made known, the bubble “bursts” (Nguyen 2018). Echo chambers, in contrast, are much more robust to opposition. Counter arguments are not censored, but rather are systematically discredited by authoritative members; in this way, exposure to outside voices actually reinforces the echo chamber (Nguyen 2018).

Prior network analyses of important nodes within echo-chamber-like groups on YouTube have focused primarily on content produced by alt-right groups and religious extremists. One study found that YouTube “has become the chosen vehicle for the posting of jihadist videos and other content for the obvious reason that the multi-lingual and audio-visual format suits the purpose” (Klausen et al 2012, p.37). Investigations have also been conducted to determine the extent to which the site’s video recommendation algorithm constructs a path from mainstream channels to radical content, and to identify nodes positioned on this pathway to radicalization (Ribiero 2019). In this respect, the importance of the Intellectual Dark Web (IDW) has recently been made apparent. Coined by Eric Weinstein in 2018, the term refers to “a collection of iconoclastic thinkers, academic renegades and media personalities...touching on controversial issues such as abortion, biological differences between men and women, identity politics, religion, immigration, etc” (Weiss 2018). The IDW differs from alt-right groups in that its members typically do not espouse particular stances around these issues, though it often

serves as a kind of gateway from mild to radical content on various social media platforms (Ribiero 2019).

Findings from these prior studies are invaluable, though they often lack richness in terms of the social, rather than purely algorithmic, aspect of the networks of contrarian content and echo chambers. Additionally, digital cults have received considerably less attention than the alt-right in these academic endeavors, despite their consistent presence and societal disruptions in recent years; indeed, “online radicalization is now a factor in many destructive and egregious crimes, and the need to understand it is gaining in urgency” (DiResta 2018).

This research will focus on the central nodes within the ego network of a cult leader, and will diverge from prior work in three main ways. First, the cults are distinct (though likely not disconnected) from the alt-right movement, which has received a torrent of academic attention. Second, the emphasis is placed on a network of deliberately constructed ties (i.e., subscriptions), rather than those which are formed via YouTube’s algorithms. Third, whereas prior research has focused primarily on pathways from mild to radical content, and therefore scopes from the outside in, this research is oriented in the opposite direction; subscriptions originate from the ‘inside’ out. In analyzing this ego network, its composition, structure, and most important nodes can be identified. While these findings may not be generalizable to all cults which have formed on YouTube, they still allow for better understanding of the main influencers within the ego network of a “successful” digital cult leader, and may ultimately lend insight into the nature of the complete network of cults on YouTube.

Data

One of the major challenges involved with analyzing online social network data is related to scalability constraints. YouTube is one of the fastest growing sites on the web; therefore, even computationally expensive analyses of large YouTube networks may be quickly rendered irrelevant and out-of-date (Mislove 2007). For this reason, a smaller network made up of a cult leader's channel subscriptions will be utilized for feasible analysis.

The cult leader selected for this analysis is the late Sherry Shriner, founder of a cult which spouts teachings about the New World Order (in which reptilian aliens are threatening to take over the planet) (Lamoureux 2017). Shriner's cult is one of YouTube's most notorious, and until her death, Shriner was very active and well-connected on social media, making her network a convenient selection for analysis.

Data was collected via the YouTube Data Tools website, developed by University of Amsterdam's Digital Methods Initiative group. The tool allows users to scrape data from YouTube via the platform's API, and includes modules for obtaining descriptive and network information about videos and channels. For the purposes of this research, the channel network module was used. In contrast to the video network module, this constructs networks based on channel owners' intentionally formed connections (subscriptions to other channels), rather than via YouTube's video recommendation algorithm, and is therefore more suitable for *social* network analysis. In the resulting network, each node represents a channel, and each directed edge represents a subscription from one channel to another.

A "seed" (in this case, Sherry Shriner's YouTube channel) is entered into the program as the starting point for the construction of the network, and a "crawl depth" parameter indicates to the search engine the extent to which the site's content is indexed. In this case, a crawl depth of 0 collects information only about Shriner's channel. A crawl depth of 1 additionally collects information about the channels which Shriner is subscribed to, as well as who among those channels are subscribed to one another. A crawl depth of 2 collects the same information as a crawl depth of 1, plus relations among Shriner's subscribed channels' subscribed channels. Increases in crawl depth therefore lead to exponential growth in the amount of data collected. For this analysis, the crawl depth was set at 1; had it been increased to 2, two problems would have arisen:

- 1) The subscriptions of popular, mainstream channels (for example, Katy Perry) would have added irrelevant noise to the analysis at hand
- 2) The resultant network would no longer be an ego network (as it would collect information about the subscriptions of Shriner's subscriptions, to whom Shriner is not herself subscribed)

After removing ego (Shriner) from the resulting directed network, we have the cult leader's ego network of subscriptions, comprised of 152 nodes and 247 edges.

Methods

First, the structure and size of the entire ego network is analyzed. Its average degree, diameter, clustering coefficient, and the number of isolates and connected components are calculated to provide information about the ego network's general structural characteristics. However, minimal inference can be drawn from these metrics.

The emphasis of this analysis is placed on identifying the most important or influential nodes in the ego network. For this reason, measures of centrality are the most relevant. In particular, measures which take into account directional relationships are of interest, as the ties in this network (i.e., subscriptions) are not inherently reciprocal (a source channel may follow a target channel *without* the target channel electing to follow the source channel).

One way to measure centrality in a directed network is by calculating each node's in-degree. Whereas a node's degree refers to the number of neighbors it has (i.e., the number of nodes it is tied to), in-degree only counts the number of ties pointing *to* that node (in this case, the number of channels which are subscribed to that particular channel). This allows for an indication of which nodes have the greatest following. However, the number of nodes pointing in to a particular channel does not necessarily reflect that channel's influence; it may be popular among nodes irrelevant to the network of interest, and therefore hold minimal influence over cults and other radical channels.

For this reason, the most important measure in this analysis is that of authority (and related, hub) score. These metrics, developed with the rise of the Internet, allow for the identification of influential web pages. A hub is a web page which links to a large number of relevant pages, and an authority refers to a page which is linked to by good hubs (Deguchi et al 2014). Hubs and authorities are calculated via the HITS (hyperlink-induced topic search) algorithm, and are jointly determined in the following manner:

For a node v , its authority score a_v and hub score h_v are determined by:

$$a_v = \sum h_u, \text{ for each node } u \text{ which points to } v$$

$$h_v = \sum a_u, \text{ for each node } u \text{ which is pointed to by } v$$

At a basic level, in-degree is associated with authority score, and out-degree with hub score. For the purposes of this analysis, the authority score is of most interest, although hub scores and in-degree are presented as well to provide context for the determination of authorities. In this case, authorities are the producers of relevant content in the cult leader's ego network, and hubs are subscribers of said content. A node's authority score adds substance to measures of influence in this network; whereas in-degree is a crude measure of a node's overall popularity, the authority score indicates whether a node is popular among strong hubs, and is therefore more relevant and informative for the network of interest.

For simplification, since many channel names did not transparently communicate the kind of content they published, the ego network's 152 nodes were categorized into topic-based groups. This was done by first qualitatively analyzing channel descriptions and video titles, manually recording common phrases and subjects, and then grouping channels which mentioned similar topics together. This resulted in eight broad categories, detailed in Table 1.

Table 1. Category Descriptions

Category	Description
Alternative Media	Conspiracy theorists, alt-right groups, and fake news sources (often in combination with one another)
Christian	Mainstream Christian content
Christian Fringe	Radical Christian content
Conservative	Mainstream politically conservative content
Cult	Cult content distinct from that of Shriner
Entertainment	Music, pop culture, celebrity gossip, comedy, etc
Reptile Cults	Cults which appeared to be directly related to that of Sherry Shriner
Other	Channels which did not fit into any category above

In the case of Christian YouTube channels, radical and mainstream content creators were placed in separate groups, as the tone and content of their channels were wildly different; for example, the former includes users who express belief in white supremacy or similar sentiments, while the latter does not. Similarly, a distinction was made between cults who appeared to be directly influenced by Shriner (e.g., directly referenced reptilian aliens) and others, in order to account for the fact that Shriner may seek out and subscribe to her own followers and that their general influence may therefore be overrepresented in this network.

These categories will be used to help determine which kind of content is most prevalent and influential in the network, by examining the in-degree and authority score of each category and ranking the top 10 most authoritative nodes. Finally, the role of the Intellectual Dark Web in this network will be examined, by comparing its metrics with those of the other channels.

Results

Structure

First, we have a general description of the ego network. Little inference can be drawn from this information, as the structural characteristics of ego networks tend to deviate substantially from complete networks (Gupta et al 2015). However, these metrics are helpful for quantifying the overall organization of the ego network and providing context for the position of its central nodes.

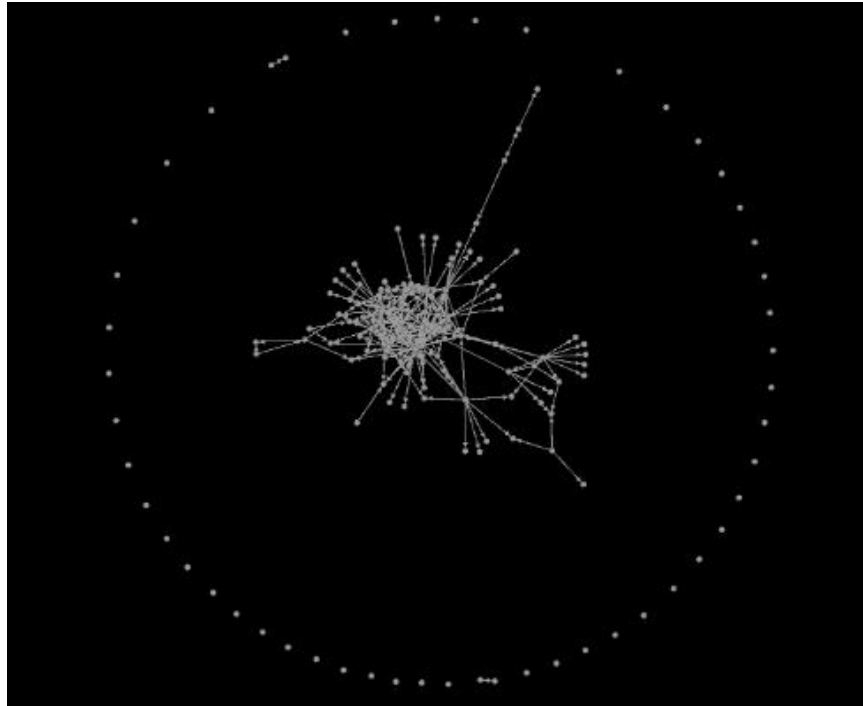
Table 2. Ego Network Structure

Number of nodes	152
Number of edges	247
Diameter	8
Average degree	3.25
Average in-degree, out-degree	1.625, 1.625
Strongly connected components	135
Weakly connected components	50
Number of isolates	47
Clustering Coefficient	0.0764

The diameter indicates that the two most distant nodes in the network are eight edges apart. Each node is connected to approximately 3 other nodes on average, with half of those ties being sent out from the node (out-degree) and half being received by the node (in-degree). This network has a relatively low clustering coefficient, indicating that the nodes do not tend to cluster together; this is due in part to the fact that roughly 30% of the nodes are isolates (are not connected to any other nodes aside from ego).

Based on the graph visualization in Figure 1, the network appears to have a core-periphery structure: there is a dense, highly connected center, and a periphery which is not connected to the core.

Figure 1. Shriner's Ego Network



There are 135 strongly connected components (i.e., sets of nodes in which each node is 'reachable' by the other nodes) and 50 weakly connected components (i.e., sets of nodes which are located on a single path, regardless of direction). The largest weakly connected component is made up of 101 nodes and can therefore be classified as a giant component (since it contains more than 50% of the nodes in the network). The giant component has a higher average degree and clustering coefficient than the larger ego network, as the isolates are excluded from this set of nodes.

Table 3. Giant Component Structure

Number of nodes	101
Number of edges	245
Average degree	4.85
Average in-degree, out-degree	2.4257, 2.4257
Clustering Coefficient	0.1149

Composition

Using the categorization described in Table 1, we may now explore the composition of the entire ego network, the giant component, and the isolates (results are shown in Table 4). The Alternative Media group is the largest overall, comprising 36% of the total ego network and

41% of the giant component. A large majority of the isolates (approximately 79%) belong to the Alternative Media, Entertainment, Cult, and 'Other' groups. However, within each of these groups, most nodes are connected to the giant component: three-quarters of the Alternative Media channels, two-thirds of the Entertainment and 'Other' channels, and half of the Cult channels are included in the giant component. Approximately 80% of both the Christian fringe and Conservative channels are connected to the giant component, whereas only a third of the mainstream Christian channels are included in the giant component. The giant component is comprised primarily of Alternative Media, Entertainment, and Cult channels (accounting for over 60% of its nodes). The Alternative Media group is therefore the most prevalent overall, within the giant component, and among the isolates.

Table 4. Composition of Entire Ego Network, Giant Component, and Isolates

Category	Whole Ego Network		Giant Component		Isolates	
	Number of nodes	% of Total	Number of Nodes	% of Total	Number of nodes	% of Total
Alternative Media	55	36.2%	42	41.6%	13	27.7%
Christian	6	3.9%	2	2.0%	4	8.5%
Christian Fringe	10	6.6%	8	7.9%	2	4.3%
Conservative	9	5.9%	7	6.9%	2	4.3%
Cult	20	13.2%	11	10.9%	9	19.1%
Entertainment	30	19.7%	16	15.8%	10 ¹	21.3%
Other	14	9.2%	9	8.9%	5	10.6%
Reptile Cult	8	5.3%	6	5.9%	2	4.3%
Total	152	100%	101	100%	47	100%

¹In addition to the 47 isolates, the network contained two sets of dyads: *KatyPerryVEVO* and *Katy Perry*, and *TheSportster* and *TheTalko*. All four of these belong to the Entertainment group, and therefore are unlikely to add insight to cult-centric network analysis.

Table 5. Node Counts and Average Measurements by Channel Category

Category	Ego Network Averages					Giant Component Averages				
	Subscriber Count	In-degree	Out-degree	Hub Score	Authority Score	Subscriber Count	In-degree	Out-degree	Hub Score	Authority Score
Alternative Media	206,473	1.65	2.31	0.0089	0.0071	260,902	2.17	3.02	0.0116	0.0093
Christian	34,898	0.67	1.83	0.0081	0.0029	84,150	2.00	5.50	0.0244	0.0086
Christian Fringe	207,056	2.80	1.00	0.0044	0.0129	230,004	3.11	1.11	0.0049	0.0143
Conservative	407,526	2.89	1.56	0.0073	0.0128	599,100	4.33	2.33	0.0109	0.0192
Cult	232,442	2.55	1.60	0.0073	0.0105	290,041	3.19	2.00	0.0091	0.0131
Entertainment	2,535,607	0.80	0.27	0.0008	0.0024	97,819	2.00	0.55	0.0023	0.0066
Other	24,151	0.64	0.21	0.0001	0.0012	36,929	1.29	0.43	0.0002	0.0024
Reptile Cult	7,354	1.75	5.25	0.0225	0.0063	7,354	1.75	5.25	0.0225	0.0063
Total	647,485	1.625	1.625	0.0066	0.0066	225,988	2.43	2.43	0.0099	0.0099

Importance

Next, we come to the concept of importance; in particular, we are interested in which nodes are the most important, or central, in Shriner's ego network. There are a variety of methods to determine centrality, but for the purposes of this study, we are most interested in authority score: authorities are the producers of content, while hubs merely follow channels which produce good content. In-degree and hub scores are included below for completeness (as each of these affects a channel's authority score).

As discussed previously, the Alternative Media group is the largest and most prevalent group in overall. However, as shown in Table 5, its average in-degree (1.65 within the ego network, 2.17 within the giant component) is only slightly above the average in-degree for the network as a whole (1.625) and slightly below that of the giant component (2.43). In the overall ego network, the Alternative Media group is surpassed in this metric by the Reptile Cult, Cult, Christian fringe, and Conservative groups (with respective average in-degrees of 1.75, 2.55, 2.80, and 2.89). Similarly, within the giant component, the Alternative Media group's in-degree is beat by that of the Christian fringe, Cult, and Conservative groups (with average in-degrees of 3.11, 3.19, and 4.33).

In terms of in-degree, the Conservative group is the clear winner, both overall and within the giant component. The value of this metric is enhanced when comparing the subscriber count and in-degree of Conservative YouTubers with Entertainment channels: the former has an average of about 407,000 subscribers and an in-degree of 2.89, while the latter has 2.5 million subscribers on average and an in-degree of 0.80 (which is much higher than its out-degree). This illustrates why popularity is not necessarily equivalent with importance or influence in a particular network.

The Christian, Reptile Cult, and Alternative Media have the highest out-degrees within the giant component (at 5.50, 5.25, and 3.02 respectively), with the Reptile Cult group taking the lead for the overall network (with an in-degree 220% higher than the network average). Similarly, in the overall ego network, the Reptile Cult group overwhelmingly takes the top spot for hub score (0.0225), with the Alternative Media group in second place (0.0089). However, when analysis is restricted just to the giant component, the Christian group has the highest hub score (0.0244), followed by Reptile Cults, Alternative Media, and Conservatives (0.0225, 0.0116, and 0.0109 respectively).

Table 6. Percentage Above Average Authority Score by Channel Category

Category	% Above Network Average	% Above Giant Component Average
Alternative Media	7.59%	-6.07%
Christian	-56.80%	-13.58%
Christian Fringe	94.80%	44.29%
Conservative	93.95%	93.95%
Cult	58.74%	32.29%
Entertainment	-63.40%	-33.45%
Other	-82.20%	-76.26%

Reptile Cult

-5.10%

-36.74%

The measure most of interest in this analysis is that of authority score. As shown in Table 6, different patterns arise depending on whether analysis is restricted just to the giant component or to the ego network as a whole. Although the Alternative Media group is the largest overall, it is the fourth-highest in terms of overall authority score (0.0071), while two of the smallest groups (Christian fringe and Conservative) are far and above the highest scoring in authority overall. In the ego network as a whole, the Christian Fringe group has the highest average authority score (0.0129), and is rivaled only by the Conservative group (0.0128). When analysis is restricted to just those within the giant component, however, the Conservative group is the obvious leader, with an authority score 94% higher than average. In both the overall network and the giant component, these are clearly the top two groups in terms of authority, followed next by the Cult group and Alternative Media, with Christian, Entertainment, Reptile Cult, and 'Other' groups trailing behind.

Table 7. Top 10 Channels by Hub Score, with Authority Score and Additional Metrics

Channel	Category	Hub Score	Authority Score	Out-Degree	Subscribers (1000s)
<i>Steve Motley</i>	Alternative Media	0.0979	0.0006	22	46.5
<i>DESTRUCTION BY DESIGN</i>	Reptile Cult	0.0970	0.0065	23	14.5
<i>Joey Averidge</i>	Alternative Media	0.0863	0.0124	16	2.42
<i>unstitchedmouth</i>	Alternative Media	0.0828	0.0000	17	0.87
<i>faceintree</i>	Reptile Cult	0.0691	0.0113	14	17.8
<i>SGTreport</i>	Alternative Media	0.0658	0.0392	15	579
<i>marinodelfino</i>	Cult	0.0643	0.0141	14	50.9
<i>The Next News Network</i>	Conservative	0.0554	0.0249	10	1310
<i>Truthnever sleeps</i>	Cult	0.0535	0.0216	10	96.4
<i>The Honeybee</i>	Christian	0.0487	0.0097	11	22.3

Table 8. Top 10 Channels by Authority Score, with Hub Score and Additional Metrics

Channel	Category	Authority Score	Hub Score	In-Degree	Subscribers (1000s)
<i>Jason A</i>	Christian Fringe	0.0427	0.0000	8	1080
<i>Mark Dice</i>	Conservative	0.0423	0.0000	10	1540

<i>SGTreport</i>	Alternative Media	0.0392	0.0658	10	579
<i>secureteam10</i>	Cult	0.0368	0.0000	10	2090
<i>Thescariest-movieever</i>	Cult	0.0350	0.0000	8	471
<i>Lisa Haven</i>	Alternative Media	0.0316	0.0000	7	429
<i>The Alkhemist1111</i>	Alternative Media	0.0307	0.0000	5	7.2
<i>FisherOfMen</i>	Christian Fringe	0.0275	0.0000	5	228
<i>TheStarspirit123</i>	Reptile Cult	0.0254	0.0000	4	24.1
<i>The Next News Network</i>	Conservative	0.0249	0.0553	16	1310

Tables 7 and 8 display the top 10 channels by Hub and Authority Scores respectively. The channel with the largest hub score is *Steve Motley*, a member of the Alternative Media group. Four of the top 10 hubs belong to the Alternative Media category. The Reptile Cult group takes second place in terms of hub score, with channels at the second and fifth position. Cult channels appear twice, at the bottom of the ranking, and Conservative and Christian groups each contribute a single channel in the top 10 hubs list. Interestingly, however, according to Table 5, the hub scores of the Christian and Reptile Cult groups rank higher than Alternative Media. These groups may have more channels with high hub scores than Alternative Media does, even though the latter appears most often in the top 10 listing.

The channel with the highest authority score is that of *Jason A*, a producer of radical Christian content. Next we have *Mark Dice*, a popular conservative. These findings are consistent with Table 5; Conservative and Christian Fringe groups are clearly highly influential in terms of authority. These channels are very popular in general, with *Jason A* and *Mark Dice* boasting over a million subscribers each. However, they are not obviously cult leaders or members; rather, they post ideologically distinct content. Three of the next five channels belong to the Alternative Media group and two to the Cult group. The ranking ends with one more Christian Fringe and Conservative channel each, and one Reptile Cult channel.

Lastly, in order to illustrate the role of the IDW in this network, we investigate the metrics of *JRE Clips*, one of its leading members. Though this channel is connected to the giant component and ranks highly in terms of popularity (at nearly 4 million subscribers), it is ranked 40th for hub score (0.0102) and 46th for in-degree (2). It appears not to be an authority in this network, with a score of 0.0000, though its hub score is above average.

Discussion

Based on the structural measurements of the ego network, we can see that it clearly has a core-periphery structure, made up of 47 isolates, a giant component of 101 nodes, and two sets of disconnected dyads. The largest group overall is the Alternative Media category (which includes conspiracy theorists, alt right activists, and other radical channels); however, although three of its channels appear in the top 10 authorities ranking, Alternative Media is not the single most authoritative group in this network, perhaps due in part to its mediocre average in-degree. That distinction belongs to the Christian fringe and Conservative categories. This indicates that, while Alternative Media is clearly a prevalent group, this does not necessarily equate to influence; the true authorities are radical Christian groups and mainstream conservative content creators. The Alternative Media group is perhaps more influential as a source of hubs than authorities.

The top two authority channels, *Jason A* and *Mark Dice*, belong to the Christian Fringe and Conservative groups respectively, reflecting the fact that these two groups had authority scores much higher than average in both the ego network overall and in the giant component. Each of these channels has a very large number of subscribers, and a substantial in-degree. However, neither outright espouses cult ideology; rather, they produce content which may be more accessible to a greater variety of people (extreme but more traditional religious ideology relative to cults, and mainstream though aggressive conservative content). Somewhat surprising also is the fact that the Cult category, while boasting an above-average authority score in both the ego network and giant component, trails behind the top authority groups, Christian Fringe and Conservatives. In this sense, it appears that the most authoritative channels, while well-connected to cult channels (as evidenced by the fact that they have such high in-degree scores, and that approximately 80% of the channels in each group are connected to the giant component), are distinct from the cults themselves.

In order to investigate the role of the Intellectual Dark Web in this network, the channel of Joe Rogan (*JRE Clips*), one of the IDW's most popular leaders, was analyzed. Consistent with expectations, the IDW displayed a rather quiet presence on the periphery of this network. This channel has a high number of subscribers but low in-degree and authority score. Its hub score, on the other hand, is above average. The IDW is often located on the periphery of fringe content, and serves as a kind of gateway from mainstream to radical subject matter. It is therefore logical that *JRE Clips* is not central to this ego network; its importance likely comes from its position on the periphery of radical content, potentially serving as a bridge to more mainstream channels.

Overall, radical religious content, and mainstream conservative content, were found to be the most authoritative groups and to have a high number of channels connected to the giant component, at least within this ego network. Perhaps fringe Christian and mainstream conservative ideology share commonalities with cult leaders to a greater extent than conspiracy theorists or alt-right groups. However, much of this is speculation and requires further investigation to confirm.

Limitations

While analyzing an ego network is a computationally feasible way to undertake analysis of the network of YouTube's cults, this approach is not free from limitations. Since an ego network is constructed around a single user, the network being analyzed only captures what is visible from Shriner's "point of view"; in other words, there may be structural relationships which exist outside the scope of Shriner's ego network. Therefore, centrality measures may not

actually hold true for the complete network. Furthermore, since the edges in this network refer to subscriptions, there is no weight attached to them, and the strength of relations between nodes cannot be directly inferred. In addition, users may be influenced by channels to which they do not have a tie; one is not required to subscribe to a particular YouTube channel in order to watch that channel's videos, for example. Lastly, Shriner's ego network is likely not identical to the ego networks of other cult leaders. For these reasons, it is important to approach inference and generalization of these findings with caution. Future work may analyze the ego networks of other cult leaders to determine whether similar structural, compositional, and influential patterns arise, or to qualitatively examine the content of the most authoritative channels in Shriner's network for richer insights.

Conclusion

This analysis allowed for insights into the structure of a cult leader's network and its influential nodes. The leading influencers in Shriner's network were found to be Conservative and extremist Christian content creators. Conspiracy theorists, alt right groups, and other radical actors were more prevalent in numbers, and served primarily as hubs. Furthermore, analyzing who is connected to the dense inner core and who makes up the periphery presented clues as to which channels are most central and well-connected. The fact that these connections were deliberately made by channel owners provides keener insight into the social relationships and sources of influence than those generated by a recommendation algorithm. As cult followings continue to grow in the digital realm, understanding who its influential players are is increasingly relevant and important.

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