Running Head: GENRES OF TWITTER PRACTICES

Genres of Twitter Practices:

Content, Engagement and Network Structure

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Abstract

This paper studies the network structure, conversation patterns, and semantic content of socially mediated exchanges via the microblogging service Twitter. The project tracked interactions and messages beginning with a randomly selected user, followed by a snowball sample of the user's network. From 01/24/2010 to 04/24/2010 a total of 5776 unique users were collected, with a total of 3,392,138 tweets. The content of tweets was then examined for two groups: users with a highly centralized (radial) network, and those with a densely interlocked network. The most central English language word pairs were identified through semantic software analysis using the WORDij package, and also subjected to language analysis using the LIWC2007 software. Degree of interactivity between ego and alters was also measured. The findings suggest a relationship between network structure, interaction patterns, and message content that may be described as producing distinct genres of Twitter experience: one practiced by conversationalists, who focus on information sharing and strategic identity construction, and another by protagonists, who are more inwardly focused and performative, with minimal interaction. These genres have implications for scholars interested in the interdependency between technology and human communication behaviors.

Genres of Twitter Practices: Content, Engagement and Network Structure

While early Internet research focused on the technological limitations of the communication medium, or on individual motivations and goals, more recently social scientists have focused on user interactions and social context of computer-mediated communication (Bargh & McKenna, 2004). The rise in popularity of social media—with at least 35% of adults in the United States participating (Lenhart, 2009)—has highlighted the importance of understanding the dynamics of online social networks. The present study examined the microblogging service Twitter for insight into the kinds of user-generated content, interaction patterns, and network structures indicative of emergent contexts of online interaction. The findings suggest that there are multiple distinct genres of Twitter experience, identifiable through these structural and content features.

Literature Review

The primary theoretical and methodological foundations of this study rest in network theories, including both social and semantic networks. It also draws significantly on research related to online identity construction and social expression, as well as previous studies of patterns of interaction in social media environments to identify the social roles played by participants. Genre theory provides a framework for interpreting the findings. Below is a brief summary of the literature that informs the overall framework on which this project builds.

Social Expression and Communication Networks

Social media, or digital tools used to publicly or semi-publicly share user-generated multimedia content, can be seen as part of a complex "converged multimedia

system" (Qvortrup, 2006, p. 350) that emphasizes "the possibilities for connection among and between audience members" (Yzer and Southwell, 2008, p. 10). Social media have proven to be a fertile territory for network analysis, given the public availability of relational data. Several studies have examined the structural characteristics of social media networks. For example, Fu, Liu, and Wang (2008) studied Chinese blogs and social networking sites, and found differences in centrality measures in user's social networks between the two types of sites. They concluded that the structural properties of different media platforms influence both user behaviors and network structures. Huberman, Romero, and Wu (2008) found significant differences between the extended networks of Twitter users—the aggregate of all followers and other users followed—and the network core with whom users regularly interacted.

However, there is not much extant research linking semantic content of communication and social network structure within social media. Somewhat more literature is available on email networks. For example, Aral and van Alstyne (2010) found that network structure predicted information dissemination in email networks. Similarly, Danowski (1986) studied the contents of a discussion forum of communication professionals, finding that users with radial personal networks tended to make evaluative judgments as to "good" and "bad." Mapping of cognitive structures of a sample of community members also revealed individuals in radial networks to have a more strongly polarized first dimension of cognitive space comprised of evaluative judgments. These email studies provide an interesting basis of comparison with the dynamics of social media interaction, which take place publicly rather than within circumscribed networks.

One example of the latter is a review by Himelbolm, Gleave, and Smith (2009) of political discussion groups on Usenet, concluding that information flow in these contexts is mediated by key individuals, whom they termed *discussion catalysts*. These individuals started conversations that attracted numerous participants, and brought in content from mainstream and other social media outlets. Network analysis of interaction within the discussion groups showed that catalysts occupied the center of radial networks, in which other network members are mostly disconnected from one another and linked indirectly through the catalysts. Similarly, Utz (2010) studied the interaction of system-, interpersonal-, and self-generated information in impression formation, which required examining both social structures and interaction content. The present study seeks to further this line of research probing the relationship between communication content and network structure, but with the key difference of focusing on a platform, Twitter, in which communications take place publicly rather than semi-privately via email, and in an extremely abbreviated format that leaves little room for description or explanation.

Twitter and microblogging

Twitter is an online service launched in 2006, through which users can engage in "microblogging": posting short text messages of no more than 140 characters. The service has expanded rapidly, and by July 2010 had been used to post over 20 billion such short messages, or "tweets" (Shaer, 2010). The site is popular among adult users: in 2009, approximately 35% of Twitter users reported their age as 25 or older (Cheng, 2009). Most user accounts are public, with tweets potentially visible to anyone.

Twitter serves as an example of a new communication platform evolved from a model that emphasized broadcast into a means of connection between users. Although Twitter was originally presented as a source of undirected personal status updates, as suggested by the initial framing question of "What are you doing?" ("About Twitter," 2008), which has since been replaced by "What's happening?" ("About Twitter," 2010), users soon adopted conventions to allow conversation to develop. Interactivity became an important dimension of Twitter for many users (Honeycutt & Herring, 2009).

Textual analysis of sentiment and opinions is an emerging field of inquiry, with practical implications for political and organizational communication, among other areas. Given the speed and volume of content posted to Twitter, it has emerged as a key platform form this type of research. For example, O'Connor et al. (2010) examined Twitter posts ("tweets") to determine whether text streams can reliably serve as substitutes for opinion poll data in reporting public sentiment. They found that, while the microblogging service offers a conveniently large dataset, there are numerous challenges in extracting sentiment data from social media text. However, many of the problems they encountered had to do with issues relating to compiling aggregate opinion data for comparison to poll results, and are therefore not applicable to the present study. Asur and Huberman (2010) had a large group of Amazon Mechanical Turk workers rate entire tweets as positive or negative about certain movies, and found they could predict box office receipts better than industry estimates. In a related vein, Bollen, Pepe, and Mao (2010) linked fluctuations in psychometric mood analysis of the aggregate Twittersphere to key social, political, economic, and cultural events, confirming Twitter as a viable source of public trend data.

Some analysis of microblogging has described it as a practice mostly without weight, in which personal communication is commodified and rendered largely without substance (Miller, 2008). Miller argued that the advent of Twitter and other microblogging services accelerated a shift away from substantive content and information sharing to so-called 'phatic' communication: words and phrases that serve only "to express sociability and maintain connections or bonds" (p. 394). Compared to blogging, microblogging can be seen of an extension of this practice that is even more keyed to a culture of immediacy and sharing fleeting thoughts with the world, or with one's extended social network. Miller and Shepherd (2004) used the term *mediated voyeurism* to describe the trend in media to expose details of personal lives that were previously considered private.

However, a term such as "voyeurism" characterizes the readers or viewers of personal media content, rather than the motivations of those who voluntarily engage in disclosure. Describing the purveyors as exhibitionists may be a parallel notion. Yet phatic communication is also an integral part of the general domain of self-presentation, or impression management (Goffman, 1959).

Online identity construction

Much communication that takes place via social media can be attributed to strategies of self-presentation, as participants choose what information to share, conceal, distort, or fabricate based on the image they wish to present (Dalsgaard, 2008; Donath, 2007; Kendall, 2007; Lindemann, 2005; Schau & Gilly, 2003). Miller and Shepherd (2004) suggested that the primary social need satisfied through blogging is the public cultivation and validation of one's identity, in keeping with Walther's (1996)

observation that the asynchronous and anonymous nature of online environments can encourage users to construct idealized public identities. While identity construction is certainly not a new phenomenon, social media can be viewed as a "contemporary contribution to the art of the self" (Miller & Shepherd, 2004).

Decisions about which elements of identity construction to disclose are also dependent on social context. Group-level social identities are particularly important in online environments, which lack many of the social cues present in face-to-face communication (Bargh & McKenna, 2004). In the case of Twitter, tweets in the public timeline may be directed or undirected. Directed tweets address one or more other users, signaled by the conventional format *@username*. Tweets without this notation address all followers and the public at large. It is important to note, however, that "participants have a sense of audience in every mediated conversation," which "is often imagined and constructed by an individual in order to present themselves appropriately" (Marwick & boyd, 2010, p. 12). Twitter users therefore tend to have a sense of who is reading their tweets, whether or not their perception matches the reality of public readership. Other researchers have found that social networking site users tend to be highly aware of at least the potential for a large audience (Schau & Gilly, 2003), and to carefully manage their image (Papacharissi, 2002). Gruzd, Wellman, and Takhteyev (2010) observed that Twitter user networks have the potential to develop into an online community with a shared sense of belonging, even while sustaining a mix of reciprocal and asymmetrical connections. When viewing individual Twitter users and tweets at the aggregate level in this manner, genre theory provides a useful framework in which to situate identifiable patterns of content and network structure.

Genre and online communication networks

Although familiar to most as a literary classification, in the social sciences *genre* is typically a term that describes a recognizable category of social and discursive practices. While most definitions of genre take intrinsic properties of the textual or discursive unit into consideration, social researchers are increasingly focusing on extrinsic factors such as communicative function (Kwasnik & Crowston, 2005). Bakhtin (1981) theorized genre as an organizing principle of both thought and social experience, contextually embedded patterns of behavior and ways of thinking about those behaviors. Genres shape and are shaped by expectations and conventions, and evolve dynamically as a result of changing technologies as well as shifts in practice (Lüders et al., 2010; Jamieson & Campbell, 1982). Genre is thus "an interdisciplinary concept with analytical potential as it connects texts and social organization" that "helps to clarify relationships between texts and media, as well as between texts and society" (Lüders et al., 2010, p. 3).

Genre is a useful means for approaching forms of expression through social media, particularly in the formulation put forth by Bakhtin, as it "emphasizes the material production of social modes of communication that intervene between the individual and the social world" (Druick, 2009, p. 295). Given that social media span the range from personal to mass media (see for example Lüders, 2008), these platforms offer a convenient site for investigating processes of genre emergence that shape and reflect culture as it evolves through these new media.

From an analytical perspective, the ability to identify genres allows researchers to track the emergence and dissolution of communication practices, making it particularly

useful for studying the changing environment of social media. Given the

interdependence of technology and human communication, genre studies allow us to

make sense of the different ways people use social media for personal expression and

social interaction, and develop useful ways of describing these patterns of behavior (see

also Kwasnik & Crowston, 2005). For example, Miller and Shepherd (2004) conducted a

rhetorical genre analysis of blogging, to identify the types of content, formal features,

and social exigencies that allow certain media to be classified as "blogs." They also

acknowledged that various sub-genres of blogging were already emerging at the time of

their study, such as journalism blogs, political campaign blogs, and personal diaries. In

a related vein, Herring, Scheidt, Wright, & Bonus (2005) content analyzed a wide range

of weblogs seeking quantifiable genre characteristics; they concluded that blogs do not

constitute an innovative genre, but instead serve as a "de facto bridge between

multimedia HTML documents and text-based computer-mediated communication,

blurring the traditional distinction between these two dominant internet paradigms" (p.

143). However, in both of these cases, researchers approached genres as classifications

based primarily on textual classifications, rather than the Bakhtinian perspective of

socially embedded practices.

Bakhtin conceived of genres as constructed of "utterances," or contextually

situated verbal expressions (Bakhtin, 1986), which cannot be disentangled from the

historically evolving social practices and the overall fabric of past and future utterances.

In other words, "the utterance is always part of a long chain of utterances. It inevitably

responds to something and addresses itself to a future hearer" (Druick 2009, p. 297).

From a more social scientific perspective, Fairclough (1992) suggested that generic

social conventions represent connections between texts; in a similar vein, Jamieson and Campbell (1982) referred to genres as "constellations" (p. 146) that represent the actualization of certain communication and relational strategies. We build on this notion to argue that genres can be conceptualized as networks, with conventions and expectations (Lüders et al., 2010) linking actors through texts in such a way that they organize into recognizable patterns. If this is the case, then network structure, semantic content, and practices of interaction should all combine in the study of social media to distinguish between genres based on what Wittgenstein (1953) called "family resemblance." The present project is an initial test of this genre approach to social media, seeking to identify identifiable categories of textual and social practices among users of the Twitter microblogging service. Tweets are seen as utterances, connected intertextually and influenced both by other tweets and by the patterns of social interaction in which they are produced.

Methods

Data Sources and Collection

In order to analyze the relationship between the contents of Twitter posts (tweets) and characteristics of Twitter users, we collected a large sample of data from Twitter. A total of 5,776 unique users were collected from 01/24/2010 to 04/24/2010, with a total of 3,392,138 tweets. We also collected the number of users a particular user had in addition to the ids of those followers to the extent the Twitter API allowed. Our data collection used a snowball methodology where we collect information on a beginning "seed" user. Then each of the user's followers' data is collected as well. This iterative process goes on for as long as possible. We used Perl LWP and JSON modules

to interact with the Twitter API to retrieve the necessary data. JSON format was used with all information retrieval. Twitter has two ways of identifying user accounts, a numerical id and a screen name. Our process started with a random generated numerical id as the seed user. We collected this user's tweets (statuses/user_timeline), follower ids (statuses/followers) and information such as screen name and total number of followers (users/show). This user then becomes the "parent" for all of the user's followers. We then collect each of the followers as listed by follower ids previously collected using the same methodology. Each follower then became a "parent" to their own followers when the collection steps are iterated again.

Any user who had contents that weren't publicly viewable was skipped over. Although Twitter does support foreign languages, most tweets collected were English. Tweet samples were limited by the pagination limits of Twitter's API for each user. Samples of follower ids collected and included in the "snowball" were limited to 200 followers per parent id due to the need of collecting twitter information for each follower.

Analysis Methodology

One commonly used feature in Twitter is "mention" which is indicated by the "@" symbol in front of a screen name. These are posts are aimed at specific users, who the poster may be replying to or thinks a tweet is of interest to. Given a network of followers defined by following a single parent, we analyzed how many times each follower was mentioned by all other followers in the network. We defined this statistic to be "cross-tweets". With this statistic, each user was assigned to one of two groups, comprised of those above the median number of cross-tweets and those below median number of

cross-tweets". All tweets collected were then aggregated into two files, one for each of these groups, and word statistics analyzed. We also analyzed followers based on the level of interlock in their follower network. Some networks have a high amount of followers who also follow each other while others show more radial patterns that those in the network were "unaware" of each other. By identifying the degree of connectivity among each ego's alters, the relative interlocking of the networks were indexed. Then a median split was performed on this variable, creating two groups for comparison, egos with either radial or with interlocking networks. Two kinds of semantic analysis were performed on the four groups. One was using a categorical dictionary-based approach, embodied in LIWC2007 language analysis software (Pennebaker, Francis, & Booth, 2007). Differences in the means for the language features were tested with ANOVA.   All of the differences were significant a p < .000. The other method was semantic network analysis using WORDij (Danowski, 2010).

Language analysis is a more holistic method than the semantic network analysis, thus the two methods offer complementary results that can be interpreted together for a richer understanding of the texts. While LIWC2007 assigns word occurrences to categories, WORDij performs a proximity-based semantic network analysis that produces normalized counts of word pairs for words that co-occur with three word positions on either side of each word in the text. No stemming was performed and a small stop list of grammatical function words was used. Words and word pairs that occurred only once or twice were dropped from the analysis. Word order in pairs was maintained.

Findings

The findings are as follows. First, the LIWC2007 language analysis results for the two types of networks are summarized in Table 1.

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Insert Table 1 about here

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Highly radial networks are those with little overlap among follower networks; in the data set examined, these networks were characterized by a large number of @mentions, indicating high interactivity between users and their followers in such networks. The language analysis found that users in radial networks did not refer frequently to their own thoughts, feelings, and sensations, or to specific places and times. These findings suggest that users in radial networks are primarily other-directed, with an emphasis on interaction and the discussion of abstract topics, such as issues, rather than day-to-day activities and events.

Highly interlocking networks, on the other hand, are those with followers who are in turn connected to one another. These networks are perhaps more likely to consist of people who know each other in some other capacity, such as offline friendships, family relationships, or professional ties. They may also indicate a community of people with a given shared interest.

The language analysis shown in Table 1 suggests that, despite the relative lack of interaction with followers, users with highly interlocking networks often discuss social and family topics. Even more so, however, they emphasized discussion of their own thoughts, feelings, perceptions, and experiences: the language analysis found use of "I"

consistent with egocentrism, inward orientation, and narcissism. More interlocking individuals had a higher use of "I" relative to "we, a ratio of .30 for interlockers and .45 for radials (F=11.10, p< .000)", a feature of open-ended text production that was found significantly correlated (Raskin & Shaw, 1988) with the otherwise reliable and valid fixed-choice Narcissism Scale (Raskin & Hall, 1981).

The WORDij semantic network analysis confirmed the LIWC2007 findings that the content of tweets in highly radial networks emphasized impersonal topics. Indeed, the most common substantive word pair found in radial networks was *social media*, supporting previous research that highlighted the tendency of professional social networks on Twitter to discuss the technology itself (Gilpin, 2010b). Table 2 shows the top 50 word pairs in radial networks after removing common grammatical phrases such as *is the*, and those that give little indication of the topic of the tweets (*to get*, *what you*, etc.).

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Insert Table 2 about here

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Questions about and assistance with various tasks are also clearly a key topic of discussion in radial networks, given the prominence of the word pair "how to." Users in radial networks can therefore been as having a tendency to share information and advice about practical topics and issues, including of a professional nature.

Table 3 shows the top 50 word pairs for interlocking networks, again after removing non-substantive pairs.

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Insert Table 3 about here

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Compared to the pairs for radial networks, the word pairs for densely interconnected networks focus less on abstract topics and more on personal pronouns. There was less repetition among word pairs, so that the more substantive phrases about perceptions and feelings identified by the language analysis software did not appear among the most frequent pairs. This result suggests the presence of a greater degree of phatic content, supporting the LIWC2007 findings that densely interlocking networks emphasize personal expression and emotion.

Discussion

The finding that language and textual analyses showed highly differentiated content for different network structures suggests that Twitter practices can be loosely classified into different genres. In this study, one genre identified may be referred to as *conversationalist*: users who focus on sharing information, strategic identity construction, and cultivating interactive relationships with a large array of mostly disconnected followers. Conversationalist networks follow the same pattern of weak ties described by Granovetter (1973) as useful for professional networking. Users with more densely interlocking groups of followers, who likely have stronger ties that originate from or extend into contexts outside the Twittersphere, can instead be described as practicing the *protagonist* genre. These users emphasize self-expression and self-documentation through emotional discourse, with minimal interaction. The protagonist genre is primarily performative rather than dialogic, with a high level of phatic content.

Both types of users engage in identity construction processes, but the techniques they use differ significantly. Those who have more tightly interlocked networks already have, presumably, some sort of relationship with all or most of their followers, and so do not need to use social media to establish or maintain them: they can indulge in more self-directed discourse without fear of alienating their audience. Users with a radial network structure must instead continue to actively interact with followers to build and maintain ties that are fundamentally emotionally-weaker (Granovetter, 1973), and to feed the diffusion of identity-building elements.

There are two different, though possibly overlapping, explanations for the different styles of interaction identified in this study. One is that users with radial networks of followers actively engage because they are more interested in forging relationships with professional and personal contacts and discussing topics of interest; users with highly interlocking networks of followers are instead more interested in documenting the minutiae of their lives and feelings for an assumed audience of primarily friends and family.

However, the use of @mentions in the public space of Twitter can also be seen as a tool for signaling a user's status through the "public display of connections" (Donath & boyd, 2004, p. 72) with a large number of other users, or with others deemed to be of high status. Marwick and boyd (2010) described the phenomenon of "micro-celebrity," a strategic mode of self-presentation aimed at garnering large numbers of followers to increase personal status. They noted that "micro-celebrity practices like interacting directly with followers, appealing to multiple audiences, creating an affable brand and sharing personal information are rewarded, and consequently encouraged, in Twitter

culture" (p. 24). These techniques are largely reflected in the communication style of radial network users in the present study, although paradoxically celebrities in the mainstream society have been found to be significantly more narcissistic than the general population and several other comparison groups, yet on Twitter these users do not exhibit the pronoun usage profile of the more highly narcissistic individual. High social networking activity has also been found to correlate with high scores on personality tests for traits of narcissism and self-esteem, particularly in the presence of self-promotional content (Mehdizadeh, 2010). Nevertheless, many of the Twitter users interviewed by Marwick and boyd described such practices as "inauthentic," and placed higher value on seemingly unfiltered documentation of personal details. Thus those with highly interlocking networks may be striving to achieve an "authentic" voice in their microblogging practices, ironically a narcissistic voice.

This tension between strategic and supposed authentic yet narcissistic self-presentation permeates the entire contemporary mediascape, and is also reflected for example in the realm of reality television (Andrejevic, 2004; Ouellette, 2008; Ross, 2008). Young and Pinsky (2006) found reality television celebrities scored highest on the Narcissism Personality Inventory compared to other celebrities and comparison groups. Some media scholars have begun to note the parallels between personal social media and reality television programming (Gilpin, 2010a; Stefanone & Lackaff, 2009), as both offer the promise of transparency while simultaneously providing powerful tools for narcissistic expression and engineered identity construction. The use of an ephemeral medium such as Twitter, which does not create readily accessible long-term archives (unlike other forms of personal media such as blogs), highlights the sense of

immediacy and, potentially, the perceived authenticity of statements made in the "virtual now." Yet the urge to document experiences through these virtual media also necessarily removes people from experiencing them, so even those whose Twitter practices fall into the protagonist genre are somewhat removed from the lives they are documenting into this virtual mirror.

However, it is also necessary to recognize the value and function of non-informational personal communication of the sort prevalent in the densely interlocking networks: Miller (2008) noted that "in many ways [phatic messages] are very meaningful, and imply the recognition, intimacy and sociability in which a strong sense of community is founded" (p. 395). Thus it is possible that, even without directly engaging with followers in the same manner as users with radial networks, Twitter users who communicate in this manner are building a greater sense of community within their personal network.

Limitations and suggestions for future research

This study has focused on a single platform and social media practice, that of microblogging on Twitter. This focus has limited the scope of the findings. One advantage of a genre-based approach to the study of social media practices is that it is not necessarily tied to specific communication platforms, a distinct advantage in the rapidly changing landscape of social media. The ability to map social networks and track interaction across multiple media offers researchers the possibility of identifying relational patterns that might otherwise go unnoticed. Extending this study to include multiple social networking sites (for example, Facebook, YouTube, Flickr, and others) could both identify new genres—particularly for those networks in which users share

multiple types of content in addition to text—and highlight generic nuances that the present study was unable to distinguish. For example, recent research has suggested that gender differences influence the type of content and networking patterns of social media users (Mehdizadeh, 2010).

If we understand genre as a basis that shapes both behavior and expectations (Jameson, 1981), then the ability to identify genre conventions in practice has significant implications for power relations, social aggregation, and even societal change. Genres therefore offer a useful framework for researchers studying social and semantic networks in social media practices. Given the findings of the present study, which showed strong correlations between Twitter network structures, patterns of interaction, and semantic content, users operate according to different sets of conventions and expectations (Lüders et al., 2010). These findings suggest that microblogging is becoming an embedded form of performative self-expression and low-intensity reinforcement of existing social relations for some users, consistent with the expansion of "reality" media on other platforms, while others focus more on the dialogic properties of the platform to expand their social networks and promote their own position within those networks. Identifying convergences of practices and content using genre classifications that transcend specific platforms can further understanding of media use and contribute to developing theories to explain today's increasingly complex communication environment.

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79

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Table 1

Comparison of language analysis for different network structures

Network type	LIWC2007 finding
Radial networks	*…made fewer references to concepts of physical space* *…made fewer references to concepts of time* *…used less relativistic language* *…made fewer references to perception* *…made fewer references to biological processes* *…used more exclamation points*
Interlocked networks	*…expressed more positive emotion* *…made more social references* *…made more family references* *…made fewer references to work* *…made fewer references to money* *…used the more personal pronouns* *…used the personal pronoun" I" more (showing more egocentrism)* *…had more use of "I" relative to "you" (showing less other orientation)* *…had more use of "I" relative to" we" (showing greater narcissism)* *…made more cognitive/mechanical references* *…used more tentative language* *…used more verbs* *…used the present tense more* *…used more exclamation points.* *…used more adverbs* *…used more positive emotion* *…used more negative emotion*

Table 2

Most frequent substantive word pairs in radial social networks

Pair	Frequency
social media	16871
how to	15826
check out	10742
make money	8331
the best	6617
internet marketing	6036
get music	5790
way to	5314
to money	5163
music jobs	5044
social marketing	4818
media marketing	4713
jobs music	4068
the network	4029
new post	3851
check this	3811
money online	3668
the way	3565
the trump	3542
trump network	3534
your business	3527
news tech	3489
jobs job	3453
real estate	3398
in jobs	3318
jobs in	3269
providence ri	3194
for sale	3150
a business	3146
get jobs	3079
a free	3079
get free	3046
the about	3026
thanks for	3024
find out	3008
can you	2985

a way	2832
freedocastcom live	2794
social networking	2781
what is	2781
ways to	2774
at wwwziingcom	2703
for wwwziingcom	2703
use coupon	2697
like to	2672
make online	2669
how make	2662
the internet	2639
the news	2634
to help	2623

Table 3

Most frequent substantive word pairs in interlocked social networks

Pair	Group 1 Frequency
the world	2990
i love	2039
when you	2025
affiliate marketing	2024
new blog	2010
we have	1730
i like	1728
you think	1570
home business	1557
a little	1412
the one	1386
to our	1368
the right	1367
for me	1334
need a	1282
a look	1279
a few	1279
my i	1271
of day	1246
all of	1240
this free	1236
people to	1225
get in	1223
to start	1222
build your	1204
do a	1200
a man	1184
looking to	1144
the next	1137
trying to	1136
if want	1109
we a	1109
your twitter	1105
the year	1095
i got	1094
may be	1091

on you	1079
right now	1078
is good	1078
now the	1070
of our	1058
see the	1047
they are	1042
up a	1034
the people	1018
part of	1015
you me	1014
to work	1004
get followers	980
is going	958