

A Study of Performative Hactivist Subcultures and Threats to Businesses

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ABSTRACT Performative hactivism is the use of the Internet for expressing extreme political dissent online. It differs from cyber harassment in that performative hactivism is politically motivated. We found that there are contagion and other social effects among hactivists and that hactivism exhibits feature patterns that define them as subcultures. To conduct our research, we created a provocative Website and blog and then promoted it on the Internet. Using sentiment analyses and logistic regression, we identified features associated with performative hactivism. We then studied the blog remarks and used Website analytics to gain a better understanding of the implications for business security. The results from this work should help business and information security researchers (especially in social engineering), as well as business practice managers, strategists, and security analysts, to predict the lifecycles and impacts of hactivism on their operations and assist them in the creation of interventions.

KEYWORDS cyber hacking, hactivism, occupy movements, online dissent, online harassment

INTRODUCTION

By and large, given the totality, Internet users are reasonably well-behaved. However, there are cases where some people find it irresistible for making mischief due to the anonymity it can afford, exacerbating the proclivity of some people toward objectification of others. For instance, extortionists, cyber criminals, cyber harassers, and cyber stalkers have all used the Internet as a weapon against their victims for a variety of reasons such as for financial gain or to satisfy some neurotic or narcissistic need (Workman, 2012).

Conversely, hactivism (the combination of hacking and activism) represents ideological motives that are manifest in cyberspace as a means to a political end. It represents a social movement rather than individualistic action (Wright, Taylor, & Moghaddam, 1990). Consequently, factors and outcomes may differ between cyber harassment at-large and hactivism, and further investigation is required because hactivism has come to represent a significant organizational and security issue.

Although social media providers have generally used social media data for beneficial or benign purposes, social engineers and hactivists have been able to use deep mining techniques with technologies such as LingPipe (<http://alias-i.com/lingpipe>) may circumvent traditional privacy and protection

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that interfaces, waging a type of cyber-social warfare against their targets by finding exploitable information, such as that which can be used to tarnish individuals and/or corporate brands over political disagreements (Kim, 2012).

To illustrate, the media reported an incident during the 2012 U.S. presidential campaign in which Westgate Resorts CEO David Siegel announced that if Barack Obama were elected, he would initiate “massive layoffs” in the company. A later post on a prominent travel Website blog noted on November 3, 2012, about Westgate Resorts read: “I stayed in their rat infested pig stall on Turkey Lake Road – it sucked, and also a girl was abducted from there and killed, so it’s not safe!” This post was unlike previous ones on that Website, and this post also coincided with a ratings plummet of Westgate Resorts on various resort rating Websites compared with previous ratings shown in the Website rating histories during that same period. Concomitantly, there were also many threats posted on blogs about boycotting Westgate Resorts along with multiple Website defacements; these were followed by Westgate’s own report of a reduction in number of guests during that quarter compared with previous quarters. Eventually, Siegel issued a retraction and offered employment reassurances to employees about future employment prospects (WKMG Channel 6, 2012). This example demonstrates that making political statements online may result in organizational consequences no matter which side of an issue one may find oneself. In spite of reputation management efforts, this also illustrates that online sentiments are hard to suppress and their consequences to organizations are hard to ignore.

The research literature on activism has focused almost exclusively on an overt action aimed at disrupting or disabling intended targets using cyber attacks (Mills, 2012; Skelton, 2012). A lesser body of sociological literature has mainly dealt with activism in terms of societal impacts (Furnell, 2002; Samuel, 2004). Consistent with these two perspectives, Denning (2000) noted that activism can be divided into nonnormative and normative activism. Nonnormative activism (also called political cracking) as described by Samuel includes active attacks such as Website defacements, Website redirects, system denial-of-service (DOS) attacks, information theft, and corporate sabotage. Normative activism, also called performative activism by Denning (2000), includes posting abusive or libelous rhetoric about a target with efforts to drown out an online conversation by sheer volume, along with attempts to suppress or intimidate dissention by using

extreme forms of ridicule (Taylor, Bedeian, & Klumper, 2012).

There are voluminous online postings, articles, manuscripts, and book chapters on both performative and nonnormative activism (see Holt, 2012, and the more than dozen referenced in Scopus alone). Our review of this body of literature, however, indicated that the work on performative activism has been either anecdotal or purely descriptive, or it has presented a fragmented theoretical picture (Lindgren & Lundström, 2011). Thus the purpose of this article is to integrate the various theoretical perspectives on performative activism posited in the literature into a model of performative activist subcultures for empirical testing. To accomplish this, we developed a political blog during the 2012 political campaign in the United States and seeded it with commentary on businesses and politics. We then conducted analyses to identify performative activism features to help determine the implications of performative activism for businesses and security. Ultimately, our goal was to articulate patterns that emerged from a specific context so that operative responses may be formulated by organizations.

EXTANT LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Various Internet-based news services have shown a wide array of changes in the way that news is produced, disseminated, and consumed. What seems to distinguish online commentary from most of its printed counterparts is its ability to allow producers to create nonvetted narratives potentially consumed by a massive audience (Lee, 2012). Moreover, a determined foe, using social media, may effectively drown out an opponent by means of sheer volume of rhetoric on the Internet and through various “promotion” schemes. Given the availability bias (Tversky & Kahneman, 1983) where a preponderance of commentary is assumed by many people to be true, this is especially concerning to organizations. In addition, for the most part, when people adopt a belief, the belief often becomes insulated against alternative hypotheses even in the face of disconfirming evidence (Reyna, 2012). As a result, social media has become a powerful force in the spread of ideas, even if false, and in provoking subsequent actions. Although many theories help to describe or explain the phenomenon of activism, we found that three primary bodies of literature and theory that most informed our study of performative activism: (1) social contagion

theory, (2) collective action theory, and (3) counter-culture theory.

Social Contagion Literature and Theory

The literature on social contagion theory (Jones & Jones, 1995) has posited that people have each experienced the effects of contagions, whether as a biological virus, a computer virus, or as a social event, such as the spread of laughter at a comedic episode (Coombs, 2002). Social contagions, as with biological viruses, may opportunistically solicit benign constituents to become their accomplices; sometimes these contagions attach themselves to seemingly disjoint or orthogonal entities in an effort to propagate through diversity (Gerhart & Kirschner, 1997; Skyttner, 1996).

All contagions have a primary mission, which is to spread for their own set of purposes (Gerhart & Kirschner, 1997; Jones & Jones, 1995). Social contagion theory (Jones & Jones, 1995) germinated in the psychology literature with Heider (1944) and then developed in the sociological literature (e.g., Aarts, Gollwitzer, & Hassin, 2004). The body of literature asserts that members of nations, geographies, societies, organizations, and other groups maintain beliefs and values that determine collective norms, customs, and behaviors (Hofstede, 1998) that resemble biological counterparts involving the human immune system (Burt, 1986).

The human immune system is substantially based on a function of identifying *self* from *nonself* (Iqbal & Maarof, 2005). Anything identified as nonself is treated as an invader and attacked by the immunology. This is accomplished, for example, by macrophages that flow through a human body seeking out pathogens, which are identified as nonself. When a macrophage engulfs the pathogen it destroys it. Then the macrophage attaches some of the pathogen (antigen) along with its “self” *marker* to its surface. This serves as an advertisement and recruitment method for T-cells or B-cells in the body to search out and mount a “search and destroy campaign” with confederate pathogens.

Cells within human bodies are organic components that maintain information in the form of proteins and various chemicals that are used to propagate, insulate, and communicate. As such, reactions within these components enable the exchange of information among other cells in the body such that DNA within cells communicate information about how to make proteins to other cellular structures by

sending mRNA messages, and genes encompassed by the chromosomes in the DNA are turned on and off by means of these chemical messages, which determine the cell’s state or condition, including behaviors such as whether to divide into new cells (produce more) or to process food proteins (exercising intrinsic controls and expression regulation). These biological expressions are manifest in socio-behavioral analogs (Bandura, 1986).

Social contagion theory posits (similar to cellular membranes) that identity bounds social influences, and these are expressed as peer-regulated norms, analogous to gene expression (Gerhart & Kirschner, 1997; Jones & Jones, 1995). In other words, from a sociological perspective, Dawkins (1976) described this phenomenon as a *meme pool*, referring to ideas or sentiments that catch on in a local society or grouping that are then propagated and eventually become widely accepted in a society. These leave upon a society, culture, or subculture, an impression, a defining set of identifiable features. Moreover, social contagion theory supports that people will often “troll” for similar-others beyond their immediate geographic range (Aarts, et al., 2004), such as in social media and blogs (Slade, 2003), analogous to the immune system seeking out pathogens throughout the body. Therefore we hypothesize that:

H1: *Performative hactivism will be expressed based on like-unlike mindedness.*

Collective Action Literature and Theory

The literature on collective action (LeBon, 1897) has developed into two major strains: social identity and normative theories (e.g., Tajfel, 1982; Tajfel & Turner, 1979) and counteractive/counterculture theories, such as relative deprivation theory (e.g., Walker & Pettigrew, 1984). Social identity theories are concerned with subcultures and how membership in these groups are determined. It involves the processes of categorization, identification, and comparison of in-group with out-groups, along with subsequent in-group collective actions (Chen, Brockner, & Katz, 1998). The theories also present that social spreading activation of collective action involves intensive communication of attitudes and values expressed in stories, symbols, and peer pressures used to exert normative influences for gaining approval of the in-groups or for avoiding rejection by them. These theories also involve informational influences that stem from efforts to acquire accurate perceptions, such as in seeking opinions or advice. Together, this social spreading activation is known as social prevalence

(Brunsting & Postmes, 2002; Lindgren & Lundström, 2011). The formation of strong identification from social prevalence often leads to an “us versus them” mentality (Tausch et al., 2011).

Social identity theories encompass the information permeability of in-group boundaries, along with the ease or the difficulty in joining the group (Heald, Contractor, Koehly, & Wasserman, 1998). The more elite a group is perceived (i.e., the thicker its boundaries), the more people desire to belong to it. One way people often express this longing is by mimicking the behaviors and espousing the ideology of the group to which they aspire (Johnson, Rice, & Geels, 2011).

Additionally, the more people come to identify with a group—known as *deindividuation* (Deutsch & Gerard, 1955), the more normative influence group members have over each other. In the case of strong identity, people may choose to go along with the group on some action even if they believe it to be wrong, and would not otherwise participate in that action (Janis, 1982; Gass & Seiter, 1999; Suzuki, 1997). Finally, in highly deindividuated groups, when one member communicates a threat to another, that threat is usually taken more seriously than when an outsider communicates the same threat (Lee, Lee, & Lee, 2006). Consequently, we formally hypothesize that:

H2: *Performative hactivism will be based on high versus low social prevalence.*

Counter-Culture Literature and Theory

Counteractive/counterculture theories are outward facing and aim at undermining perceived advantaged out-groups (Guimond & Dube-Simard, 1983), which intensifies with hyperbole and social prevalence (McQuail & Windahl, 1993). Groups who perceive themselves as disadvantaged are motivated to correct the “injustices” because their disadvantage “arouses feelings of anger and evokes action tendencies to move against the offender” (Tausch et al., 2011, p. 2). If the perceived injustice goes unresolved, feelings of contempt may develop. Although anger and contempt are similar in that they reflect emotions that imply negative appraisals of others’ intentions and they are outwardly hostile (Frijda et al., 1989), there are important differences between these emotions in terms of their effects on psycho-social relationships.

Fischer and Roseman (2007) presented that anger tends to be found in relations that are more personal

and intimate, where there is some degree of interdependence with the other person and where reconciliation is ultimately desired. In this way, “rather than leading to destructive action, which would be maladaptive for relationships, anger tends to result in short-term (mostly verbal [or written]) attacks that are aimed at changing the other person’s behavior and will ultimately result in an improvement of the relationship” (Tausch et al., 2011, p. 3). Antecedents to operative behaviors of this sort include defensive and offensive argumentation, patronage, and negative normative actions (i.e., those actions taken within the bounds of socially functional norms, such as protestations) (Tausch et al.).

Alternatively, contempt targets others who are “objectified,” that is, dehumanized and where reconciliation is not sought (Fischer & Roseman, 2007). For example, research (e.g., Wilkowski & Meier, 2010) has shown that contempt may occur in response to the same instances of behavior as anger but often develops further by building upon it. One way this may happen is when prior angry incidents continue with the same person and intransigently remains unresolved.

As a result, perceptions and impressions crystallize in negative beliefs about the other person or group (Staub, 1990); thus, contempt frequently produces derogation of the object of contempt, the deterioration of the relationship, and ultimately exclusion (Fischer & Roseman, 2007). Operative behaviors from contempt include disdain, derision, scorn, threats, and nonnormative actions (i.e., those involving persecution, or extreme alienation) (Tausch et al., 2011). As such, we hypothesize that:

H3: *Performative hactivism will manifest based on expressed positive or negative affect intensity.*

METHOD

Participants

For reasons we explain in the Procedures section, we created a Website that we hosted from our own Internet-exposed server. This Website had an intrusion-detection and monitoring system that would allow us to gather some information about “visitors.” It also had data analytics software that helped us to identify information about systems that connected to the Website such as Internet Protocol (IP) addresses, along with the standard information contained in an HTTP session. We used this information for our secondary analyses.

This Website was promoted on the Internet with the help of a Website promotion professional services company

and included “pay-per-click” and cross-site listings on high-volume Websites, globally to enhance its visibility. We also included keywords embedded in the Website to be easily found by search engines along with other techniques suggested by the Website promotion company. To help attract global participation, we embedded the babelfish translator service (<http://babelfish.altavista.com>; http://babelfish.yahoo.com/free_trans_service) in our Web page so that the Website and blog could be translated between English and other languages.

Even though we allowed both a “registered” and an “anonymous” user to post to the blog, we used our Website data analytics software to identify (based on IP addresses) the locations of bloggers. However, even if blog posters used an IP anonymizer to try to hide their IP addresses (which our analytics showed as “unidentified”), our Website had server-side executables such that when someone connected to our Website, it allowed us to extract HTTP session data often yielding system information such as operating system, browser, types of files the browser would accept, and other useful information to help us uniquely identify a “signature” and general location of the blogger for our analyses.

Once a poster accessed the Website, a policy was displayed which included an advisory about “free speech rights” such as stating an opinion, and also a warning about making defamatory comments—similar to that posted by ratemyprofessors.com and uncommongoods.com and other similar rating-based blog sites. We then presented an “Agree” button that required affirmative selection before allowing a user to post to the blog, as advised by our Institutional Review Board (IRB), equating to an informed consent.

Once a poster accepted this, the post was transparently routed circuitously from our own host server through to a staging host proxy and then to a host with an anonymous registration not identifiable from *Whois*. This helped us ensure that no cyber-cracking attacks could transit the multilayered security scaffolds to affect any other system in our realm. This procedure was also necessary to shield our research purpose and to protect against leakage or spill-over effects from hactivism attacks.

Procedures

While multiple studies have mined performative hactivism sentiments (e.g., Asur & Huberman, 2010) from social media in the Internet, we wanted to have more control over our data rather than rely on the unpredictable

social media landscape (e.g., Twitter, Facebook, Internet blogs) and also to avoid invasion of privacy. Thus, as indicated earlier, we approached our study by creating and promoting on the Internet, a provocative Website and blog and seeded it with extreme (positive and negative) positions on issues related to business and politics during the 2012 U.S. presidential campaign to give us a bounded population. For example, we took up issues related to monetary policy (corporate bailouts), campaign financing by corporations, corporation citizens (*Citizens United v. Federal Election Commission*) and corporate ownership of personal information (e.g., Facebook policies of ownership).

As a particular thematic in a blog dialog progressed, we provoked participants by adding inflammatory topics and by posting agitating rebuttals on both sides of an issue (without using defamatory statements, e.g., posted as opinions as required by our IRB approval). We allowed posters to both rate a sentiment (using thumbs up / thumbs down) and to blog about it (which we analyzed with natural language processing and an associative context and sentiment analysis). We used the up/down scale to triangulate the positive/negative sentiments mined from our analysis, as described in the next section.

Processes

For our analysis processes, we set out to accomplish three goals: (1) to find an efficient way to prune the noise and mine out meaningful data (data cleansing) to make the data (and their associations) amenable for further analyses. This was because there were simply too much data for us to perform a manual content analysis at the collection stage; (2) to group our data into related clusters (classification) for extraction and comparative purposes; and (3) to determine the degrees of sentiments relative to the outcome measure in our model.

To accomplish these goals, we began with a context analysis using a software application we developed using LingPipe (<http://alias-i.com/lingpipe>) and the LingPipe classifiers combined with an associative context analyzer (Danescu-Niculescu-Mizil, Gamon, & Dumais, 2011). LingPipe is an open-source JAVA framework for classification and sentiment analysis, the most common of which implements logistic regression to sort phrases into subjective and objective statements and to determine favorable or unfavorable statements (Asur & Huberman, 2010; Pang & Lee, 2004).

Next, we used LingPipe’s natural language processing (NLP) classes for segmentation and sorting. NLP

works on morphemes, which are the smallest pieces of a word to “carry meaning.” Word stems (the “root” of the word), prefixes, and suffixes are morphemes. Morpheme segmentation is one process that NLP systems carry out. For instance, the word “unbelievable” has three parts which refine the meaning: “un,” “believe,” and “able.”

Following this segmentation, NLP refers to the syntax structure of passages to help determine the meaning through the structural relationships, as in (a) visiting in-laws ARE boring versus (b) visiting in-laws IS boring. The subject-verb agreement allows NLP to disambiguate that in-laws *ARE* versus visiting *IS*. However, to get an accurate read, sufficient “training” of the NLP application is required. Training in this sense means gathering sufficient data so that patterns can be statistically recognized.

However, even after sufficient training had reached saturation (consistently repeated patterns), we encountered several limitations with the LingPipe NLP classifications. In particular, we discovered a problem related to words that may carry multiple meanings when they are spelled the same way, as illustrated by the phrase *she ran to the bank*. The meaning is different depending on whether she needed money versus she was anxious to get to the river’s edge. We determined these semantics with further content analysis as needed, which often required context from other paragraphs such as, “. . . *the bank needed a bailout because they ran out of money* . . . *she ran to the bank*.”

Stage One Analysis

In organizing our data for analyses, nouns, verbs, adverbs, and adjectives were automatically extracted and arranged into verb phrases (VP) or noun phrases (NP) comprising subject-predicate triples (e.g., stripped of conjunctions). Our program used the term similarity theorem such that a related concept c and terms t related as expressed as follows (1):

$$\text{sim}(t, c) = \Pi (\delta + \log (f(c, k_i) \times idf_c) / \log n) idf_i$$

$$k_i \in t \quad (1)$$

where n is the number of associated passages ranked by concurrence, and $f(c, k_i)$ quantifies the correlation between a concept and the semantically related terms as given by (2):

$$f(c, k_i) = \sum^n pfi, j \times pfc, j$$

$$j = 1 \quad (2)$$

where pfi, j is the frequency of semantic terms that operationalize a concept in a passage and pfc, j is the frequency of a concept in a message posting. The inverse frequency factors are computed (3):

$$idf_i = \max (1, (\log_{10} N / npi / 5))$$

$$idf_c = \max (1, (\log_{10} N / npc / 5)) \quad (3)$$

The construct is such that N represents the number of passages, and npi is the number of passages containing terms k_i and npc is the number of passages containing the concept c . The factor δ is a constant used to preclude a value equal to zero. This enabled us to yield concordant and discordant term-blog vectors.

Next, we trained the model using blog data collected over a concurrent three months using the Huffington Post blog (<http://www.huffingtonpost.com/theblog/>). In our analysis, we discarded all blog posts that were not related to both politics and companies. This gave us a corpus (and subsequent term thesaurus) of nearly 500,000 blog passages and 389,272 unique user blog posts which were organized dichotomously into positive and negative sentiments.

We found that this model reliably rendered concepts and sentiment relationships from synonymous terms found in and among the universe of our blog passages, and where Unfavorable/Favorable sentiments were relatively accurately derived according to our generated sentiment matrix of adverbs and adjectives, paired with their sentimentality index of thumbs up and thumbs down (Chronbach’s $\alpha = .78$). To illustrate this transformation method, the analysis reduced the semantics to associated triples with added sentiments, such as:

Mormon -is not- Christian :: Unfavorable (in context)
Mitt Romney -is a- Mormon :: Unfavorable (in context)
Versus
Republicans -want to- Cut Taxes :: Favorable (in context)
Mitt Romney -is a- Republican :: Favorable (in context)

To expand upon this illustration, relative deprivation theory asserts that someone deprived of something wanted may result in an angry response: deprivation \rightarrow anger, which may be derived from the following subjective (opinion) statement: *<those rich bastards should pay their fair*

share of taxes *like* the rest of *us*>, which may be reduced to: Rich -should pay- Fair Taxes :: Unfavorable (in context).

Stage Two Analysis

In our secondary analysis, since the sentiments are not bimodal (favorable/unfavorable) and instead reflect degrees of favorable or unfavorable, we conducted a refined content analysis to assess how blog views were expressed for linguistic features, tone, and color (Danescu-Niculescu-Mizil et al., 2011; Whitman, Townsend, & Hendrickson, 1999) and to determine the degrees of expressions from the classifications and sentiments. To do this, we worked from the results of our application, which sorted topics and sentiments with pointers to the full blog passages, such as in Table 1.

Thus in our content analysis, the use of expletives in this example should indicate an angry unfavorable response, where in the previous example, a “have-not” (deprived) holds toward the “haves” (privileged) an angry sentiment. In other words, from this, we should find that angry deprived individuals are likely to conduct performative hactivism (e.g., to write harassing commentary toward their targets) to support our model’s theoretical proposition for that pathway. In this secondary analysis, we developed descriptions to provide enriched explanations for the results. To do this, we followed the procedures outlined by Strauss and Corbin (1998) for semantic analysis of the blog contents.

The Strauss and Corbin (1998) inductive (emic) approach is appropriate for qualitatively elaborating on a phenomenon (Locke, 2007). It is designed to be both descriptive and interpretive and therefore tends to produce formative conceptions (Weick, 1979). Consequently, the method is suited to questions such as: What coping

strategies do people use in times of crises? How are attributions made about actor behaviors? What are the antecedents that lead to conflicts? Most importantly to our research question, what are the qualitative aspects pertaining to performative hactivist subcultures?

Using this method in our secondary analysis, we began with an open coding process to look for initial categories and concepts. By definition, a category is a unit of information composed of events, happenings, and instances. For example, the term “capitalists” was co-associated with “bourgeoisie,” and the term “rich” was co-associated with “wealthy” and inverse with “poor”; thus, examples of categories were: “Rich corporate raiders always take advantage of the poor working class” and “The sniveling poor people always blame the wealthy when in fact they are either too dumb or lazy to get a job.” These represent the concept that “the poor blame the rich.”

From these concepts, the method guides one to look for positions from which to “dimensionalize” the data. Dimensional coding strives to determine how “strongly” one expresses his/her sentiments. This procedure is followed by an axial coding, which reassembles concepts after the open coding is completed. Axial coding attempts to find a central theme (called a central phenomenon) that leads one to identify consequences and outcomes and to guide the researcher to look for causal and intervening conditions via strategies and contexts described or produced. Following this, selective coding is done whereby a storyline is developed. A storyline takes the theme and ties the temporal order of causal conditions with intervening conditions, along with strategies used, contexts, and consequences. A final narrative both describes and explains the observations.

Final Stage Analysis

We used three experts in linguistics and language as raters to separately judge our interpretations of the data in our secondary analyses. Specifically, they validated our coding of categories and concepts by comparing the frequencies of categories used in the assignment of concepts, from which we ran a series of chi-square (χ^2) analyses. None of these tests was statistically significant, indicating that there were no statistical differences in how raters assembled concepts from the categories.

After satisfying this checkpoint of the concept coding, we (collectively) then examined expressions of intensity (the dimensionalization), which ranged from minor polite disagreements or benign commentary to intense

TABLE 1 Example

Triple	Sentiment	Blog Post
Rich - should pay - Fair Taxes	Unfavorable (in context)	Romney and the rest of those rich bastards should pay their fair share of taxes like the rest of us. Look at how he used Bain Capital to make millions off the backs of working people.

statements filled with ridicule or hatred, and in some cases, wishes of harm or threats. To code this, we graded responses on a 7-point scale that ranged from minor disagreement (1) to extreme statements (7).

We then ran the *rwg* correlation within group statistic (James, Demaree, & Wolf, 1993) to infer inter-rater agreement. Similar to other reliability indices, *rwg* indicates convergence among raters on variables associated with a component (where 1 is agreement). All *rwg* computed in this analysis resulted in positive scores above .88, indicating good inter-rater reliability (James, et al., 1993). From these assessments, we were confident to proceed with our interpretive analyses.

RESULTS

Primary Analysis

The first stage of our analysis tested three hypotheses using logistic regression. The Hosmer and Lemeshow test for goodness-of-fit was $\chi^2 = 79.47$, $p < .00001$, indicating good model fit (Hosmer, Hosmer, Cessie, & Lemeshow, 1997) between the actual values for the cases on the performative hactivism dependent variable with the predicted values on the dependent variable. The Nagelkerke r^2 was 0.56, which estimates of the variance accounted for by the model. In other words, 56% of the variance was accounted for by the three independent measures on the dependent outcome (see Table 2).

Hypothesis one stated that performative hactivism would be expressed based on like-unlike mindedness (self/non-self). This was supported ($\beta = .73$, Wald = 10.14, sig < .001, $r^2 = .21$). Hypothesis two stated that performative hactivism would be based on social prevalence. This was supported ($\beta = .83$, Wald = 19.13, sig < .0001, $r^2 = .30$). Finally, hypothesis three stated that performative hactivism would manifest based on expressed positive or negative affect intensity. This too was supported ($\beta = .59$, Wald = 05.27, sig < .05, $r^2 = .13$). Given the confirmation of our main hypotheses, we now present our interpretive secondary analyses (Table 3).

TABLE 2 Model Fit

–2 Log Likelihood	108.633
Goodness-of-Fit	190.638
Cox & Snell	0.386
Nagelkerke r^2	0.564
Hosmer and Lemeshow	79.469, $p < .00001$
Model χ^2	

TABLE 3 Logistic Regression Results

H1: Like-Mindedness	$\beta = .73$	Wald = 10.14	$p < .001$	$r^2 = .21$
H2: Social Prevalence	$\beta = .83$	Wald = 19.13	$p < .0001$	$r^2 = .30$
H3: Affect Intensity	$\beta = .59$	Wald = 05.27	$p < .05$	$r^2 = .13$

Secondary Analyses

In a social contagion sense, virology refers to how sentiments grow (are cultured) in a community (e.g., a society) and are spread among communities by agents of like-mindedness. Although many theorists and speculators (e.g., Ferdinand, 2001; Friedman, 2005) have held that the Internet democratizes online discourse, we found that the “world may not be [so] flat” (a supposition supported by Oates, Owen, & Gibson, 2006). We observed that topics had lifecycles, shelf life, and were subject to spatial (e.g., proximal) influences. This last aspect is particularly interesting in that geo-spatial subcultures have been associated with like-mindedness (Hofstede, 1983; Suzuki, 1997; Tajfel, 1982, Triandis & Gelfand, 1998). In other words, we found that influences traveled spatially, partly linguistically, and in time lapse.

To highlight this, we present the example that follows regarding the blog with the topic: “We welcomed the Recording Industry Association of America (RIAA) before, and now hooray for the proposed Stop Online Piracy Act (SOPA) and Protect IP Act (PIPA) legislation –we gotta earn, and you gotta learn!” This topical post was initially discovered by a hactivist who went by the moniker, “Underdabus” with an IP address (and triangulated with information we gathered from the HTTP connection) that located him/her near Atlanta, Georgia.

Underdabus began with a commentary and then quickly moved to threatening more malicious “redirect” attacks using what Underdabus called “a madkow disease” in an apparent nod to the “Cult of the Dead Cow,” a well-known hactivist group who had earlier released “Back Orifice.” Back Orifice is malware that enables hactivists to take control of one’s computer.

By following (and analyzing the content of) the blog postings and attempted computer and network attacks as detected by our intrusion detection system, which included attempts at Website defacements, distributed DOS attacks, and various forms of malware injections, we were able to trace the spreading activation from the epicenter in Florida through concentrations up from the East Coast of the

United States, including the Mid-Atlantic area, New York, and parts of New England, followed by points in Northern California and Canada. At this initial stage, we noted Website visitations and blogging that originated from the Midwest (e.g., Chicago in particular and parts of Ohio), migrated West (e.g., Texas and Colorado), and then subsequently moved to the West Coast from California to Washington.

The topic then mutated from information ownership to the exploitation of consumers. During one topical exchange, Underdabus (and others of like-mind) made several statements to the effect that celebrities needed publicity for making their fortunes, and yet constantly complained about publicity as an invasion of privacy” – “Can’t have it both ways [Expletive removed] . . .” began one of Underdabus’ remarks, “. . . give us your [Expletive removed] for free and we will get off your [Expletive removed] (paraphrase: *backs*). Otherwise, go home to your mansions and cry about how hard your lives are because of us little people who buy your [Expletive removed].”

As the topic progressed, we noted similar patterns as the communications went global, spreading primarily through the United Kingdom, Germany, Australia, New Zealand, Argentina, Brazil, Colombia, Sweden, Norway, the Netherlands, Belgium, the Russian Federation, France, Spain, Poland, Czech Republic, and Israel. The topic then again mutated with a pivot from a blogger known to us as “Ichbin” who wrote: “Who is interested in how the people kept rich, I am tired from them to ask me to send my money to poor people in the third world countries.” This elicited many responses (and tirades) against American “celebrities” from clusters located in Brazil, Canada, Japan, Poland, Romania, Germany, Sweden, Great Britain, China, South Korea, United Arab Emirates, and Singapore.

As illustrated in the previous example, the overall patterns we observed were similar to human immune system. In the human immune system, specific pathogens elicit specific immune responses. Also, interferons mount a two-pronged attack—one to protect cells that are not yet infected and the other to destroy the source of the problem. For example, as an infected lymphocyte, macrophage, or other type of body cell dies, it secretes one of several types of interferons. When released, an interferon will diffuse into neighboring cells and stimulate the production of proteins that block pathogens from copying themselves. Pathogens, however, may also shed proteins that cause mutations in the pathogen itself to avoid being recognized

by the immune response, or create mutations in adjacent normal cells causing them to ignore the interferon.

Similarly, as a social-contagion, we found that specific topics elicited geographically and linguistically adjacent responses. The spreading activation elicited a two-pronged attack, as Denning (2000) surmised, one that sought to insulate a position on a topic against the opposition (performative hactivism), and the other to that sought to destroy the computing system itself (political cracking). In cases where sufficient neutralizing blog posts were made, blog posters would often mutate the topic, which caused further geographically and linguistically oriented spreading activation.

The next set of patterns we observed indicated that whereas societal norms were reflective of beliefs and values of cultures, subculture norms were embedded or situated within the larger societal norms. Norms in a society, for instance, may include an expectation of politeness in discourse, whereas a group within the larger society may have a norm that promotes rudeness as form of rebellious expression against the societal norm (Lee et al., 2006). Thus certain groups of hactivists showed distinct norms that encouraged vociferous expressions and reflected a counter-culture and pent-up hostility toward the establishment, which they saw as conventional and oppressive (Lake, 2011).

These analyses indicated that the greater the cluster insularity (thick subculture boundaries), the greater the tendency it was to see “outsiders” as inferior as determined by their discourse. This served as a basis for rationalizing behaviors that may produce direct as well as collateral damage. In our study, insularity tended to cohere (or cluster) around geopolitical culture and ideology (owing to our blog topics), but the normative behaviors relative to performative and nonperformative hactivism may reveal a larger pattern that interacts with topics within other geopolitical contexts that are embedded in a culture. In this sense, hactivists in our study appeared similar to those in cyber harassment more generally (Workman, 2010).

We also found that clusters showed clear signs of reinforcement (I agree with . . . That is so true . . . Who can argue with that . . .) of positions and in terms of expression that in many cases ran counter to the espoused cultural norms of the larger society in which these subcultures were embedded (Hofstede, 1983; Whitman et al., 1999). For example, we observed an exchange from a cluster that cut through Northern France including Paris and into Belgium (we denoted cluster 296E), which according

to Hofstede (1983) are cultures oriented toward high tolerance of uncertainty, that instead were strongly supportive of the institution of rules, laws, and regulations to dictate how corporate officers should be compensated relative to (*nonunion*) underlings.

There were also clear signs of boundary permeability, as determined by whether bloggers in clusters, overall, would change positions based on counter arguments from an “outsider” from those supported by the cluster. To highlight this point, we noted that a blogger (from the cluster 296E) known to us as “VoiciCliché” was initially strongly supportive of intellectual property rights, regulations, and controls, but changed positions after the blogger known to us as “Underdabus” posted a series of logically forceful arguments that led to the conclusion that *all knowledge is derivative and therefore is owned by no one*. This showed an evaluative hierarchy indicative of that culture’s larger penchant toward logical rationality (Hofstede, 1983; Javidan, Dorfman, de Luque, & House, 2006).

What became further obvious in our findings was that there was structure in terms of normative function, and that group versus societal norms were permeable to varying degrees depending on the “thickness” of cluster (subculture) boundaries, and finally, the extent to which one became disembodied (*deindividuated*) within the cluster determined the thickness of the boundaries. This is consistent with both social influence and social identity theories (Deutch & Gerard, 1955; Suzuki, 1997; Tajfel, 1982).

Also consistent with our theoretical framework, we observed patterns relative to linguistic forms and affect. Morphology refers to the structure and function of words in language (Chomsky, 1979). This was important to us because how situations are phrased (framed) influences human affect (Tversky & Kahneman, 1983). In other words, how concepts are stated will influence what people feel and therefore how people will respond. For example, people responded differently to the same statistically connoted blog when the blog used the term “economic stimulus” versus “bank bailout”—the former eliciting more positive responses compared with the latter framing. Thus in our study, we found that the tone and color of a blog post influenced the degree of emotion in responses.

We additionally noted in our analyses that clusters in which there were the most extreme performative activism expressions also tended to exhibit the greatest relative proportion of political cracking attempts that we were able to measure. In other words, subsequent to heated exchanges, we observed elevated cracking attempts such as Website

defacements, and other attempted breaches including password cracking, FTP uploads, http exploits, and SQL injections. We compared our geographical analytics from both the performative and nonperformative activism with a geometric fit analysis to the McAfee attack maps (<http://www.mcafee.com>; McAfee Security Center, Version 11.0, Build 11.0.654), and we found concordance. We also determined that performative activism tended to precede nonnormative activism.

DISCUSSION

We utilized a two-phased analysis to draw conclusions about performative activist subcultures. The tests of our hypotheses showed that performative activism would be expressed based on like-unlike mindedness (self/nonself). This means that there was a “strength in numbers” effect in relation to the instances of performative activism in the blog. Next we found that performative activism would be based social prevalence. That is, affinity among bloggers cohered around perceptions of political ideology congruence, where increases in affinity led to greater performative activism. Finally, we found that performative activism was manifest based on expressed affect intensity. Strongly expressed affect (positive or negative) led to greater instances of performative activism. To better understand the implications of these findings, our secondary analysis examined the content and contexts of these data.

From our secondary analyses, we determined that social spreading activation features resembled the human immune system in so far as the opportunistic discovery of the Website and blog, which was propagated first to tightly knit and then to loosely knit communities. This resembles human immune “effector” cells that propagate antigen alarms using interleukins that subsequently enlist T-cells and/or B-cells to overwhelm nonself targets through the *force of masses*. Within and between the clusters we identified, we determined that (1) contact intensity unfolded mainly by both geographical and geopolitical boundaries, indicating that proximity weighted the preferred “spreading paths” initially but that clusters formed around ideology and culture rather than country or nation state; (2) the intensity in the expressions of dissent were associated with geopolitical customs and culture more so than by geography; (3) some clusters showed signs demographic influences in so far as areas known for moderate incomes and moderate to high education levels tended to be more rational and polite in their dissent than in clusters

where demographics showed a large proportion of potentially disaffected youth or political repression; and (4) there was an association between intensely blatant and vociferous performative hactivism and instances of political cracking. On this last point, we differentiated an opinion as having certain qualitatively discernible characteristics, such as “I think this [is wrong—or is expletive]” versus that “[I bought X from Y and Y took my money for X, which I never got, and therefore X is a thief].”

Perhaps one of the most interesting findings from our secondary analysis was that we discovered an association between affect intensity and communication intensity. To illustrate, “You commie bastards . . .” one passage began and continued with hostile and even threatening language over the proposed Stop Online Piracy Act (SOPA) and Protect IP Act (PIPA) legislation in the United States. What began as a single post by one blogger expanded into a narrative that took aim at government regulation in general.

A clear emergent theme from this, and the other such episodes, was that when performative hactivists felt their freedoms were in jeopardy, they became rebellious and libelous in blog postings. This finding is consistent with Brehm’s (1972) theory of *reactance*. Reactance is the concept where people will often go against the grain of a prevailing sentiment if they feel their freedom is being threatened (Brehm & Brehm, 1981). As noted by Asch and Zukier (1984), gaining allies is a means to help overcome the feeling of *being a lone voice*; in other words, having others on one’s side may help overcome pressures toward conformity to a conventional position by reassuring a person of the “rightness” of his or her protest. Said another way, even if one does not hold a dominant position, perceived self-righteousness derives from shrill threats to give an illusion of might (Umbeck, 1981).

Implications

The term *organization* is now virtually synonymous with globalized entities (Grover & Kohli, 2012). Ironically, globalized corporations are often “seen with suspicion [because people tend to view global corporations] as threatening to destroy . . . modes of life, value systems, ecological balance, and political autonomy of all cultures they invade” (Gergen & Whitney, 1996, p. 331). This sentiment has profound implications for business and performative hactivism.

The literature on performative hactivism has been mainly focused on societal issues and is mainly descriptive

in nature. However, our study posits several interpretations to define hactivist subcultures. First, there has been an assumption in the literature that cultural power distance regulates normative expressions and that these expressions are geographical (e.g., Hofstede, 1983). We found consistency with clusters in terms of power distance when affect intensity was low. In other words, in general, cultures that were identified as high power distance also tended to reflect more polite commentary, whereas those identified as having lower power distance tended to reflect hostile and aggressive commentary. This is consistent with the findings of Gergen (1973) and Sampson (1977), in which they asserted that obedience and needs for conformity temper how people express themselves—holding strong desires to be liked and accepted. Thus when there was dissension, the dissension was expressed in more socially desirable forms.

However, in contrast to this, when affect intensity was high, that assumption did not hold in our study. We found that social media produced a new stratum based on geopolitical ideology when people felt strongly about a position. For instance, many blog postings such as: “I do not think that challenging authority in open hostility online is the right approach” and “Maybe compeny [sic] know best” were posted in a cluster in Sweden, typically associated with low power distance (Hofstede, 1983). On the other hand, we found a large proportion of blog postings such as: “I am believing that companies have duty to be fair to employees” and “people at companies are companies” were posted in a cluster in India, typically associated with high power distance (Hofstede, 1983).

Next, we found that both clusters and affect intensity centered within individualistic and collectivistic cultures. However, there was a twist. While cultures considered by Hofstede (1983) as collectivistic expressed lower frequency in negative comments in the blog than did those considered individualistic, those same collectivistic cultures expressed greater intensity in their negative comments when they were expressed. Given this intriguing finding, we postulate that the degree in which performative hactivists reinforce traditional masculine work roles of self-reliance, personal achievement, individual control, and power interacts with their individualistic or collectivistic normative behaviors online.

Finally, although high uncertainty avoidance conformity may provide a sense of security, high tolerance for uncertainty may be accompanied by a willingness to tolerate differences in what people believe and do (Javidan, Stahl, Brodbeck, & Wilderom, 2005). Our findings were consistent with this notion in relation to clusters associated

with high versus low uncertainty avoidance. Specifically, from both linguistic and geographical analyses, when associated with low uncertainty tolerance, we found a higher frequency of blog postings with substantially greater affect intensity about unpopular positions, such as if those positions advocated taking advantage of tax loopholes, using “offshore” bank accounts, defeating attempts at regulating the “free market” and using “lobbies” to get special treatment. Conversely, clusters across geographical boundaries that were associated with high tolerance for uncertainty tended to qualify their sentiments as opinions and were less frequently rude or threatening.

Limitations

A major limitation we faced was that it is difficult to demarcate a line that separates the expression of opinions and performative hactivism. We determined this by using criteria that differentiates opinion-speech from harassments and threats. This is not an exact science. Another limitation we faced was the difficulty in acquiring a diverse yet bounded population. We chose to host our own blog as opposed to convenience sampling through the Internet. There is some tradeoff between the ecological validity of the latter approach, and having some control over the variables (e.g., topics).

CONCLUSIONS

The “online” community, in all of its many forms, may not be easily silenced whether by governments, by corporations, or by social media providers. Attempts to wrestle away control of “speech” through popular means such as strategic lawsuits against public participation (SLAPP) may ultimately fail because the rebellion itself, claimed by Locke (2007), may be deeply embedded within the human spirit. Organizations thus need new methods for dealing with performative hactivism, even as online political expression continues to find a new voice (Wattal, Schuff, Mandviwalla, & Williams, 2010).

Many academic institutions and organizations have initiated ethics programs in their curricula and mantras. Yet many fail to set proper examples; and without proper role models, it is difficult to imagine systemic change. Beyond this, even well-meaning dissenters and activists may create unintended consequences to businesses and employees by means of their hactivism. Noted by Gergen and Whitney (1996), as organizations “go global” they face an increasing weight of expressions from a distance, where “. . . losses in

management’s capacity to direct or compel forms of everyday activity” (p. 331) are constricted. Attempts to spread a set of values, ideals, or goals of a globalizing institution will be met equally (as in every action invites and equal and opposite reaction) by a brute force that may lend its weight to voices otherwise suppressed (Gergen & Whitney). What is important to note about performative hactivism is that discourse propounds an appealing narrative in theory, but in practice it often has many complications and collateral damages. Consequently, some nation states have gone so far as to try to create methods and requirements for reporting “illegal” (and in some cases, simply “controversial”) online content (Christodoulaki & Fragopoulou, 2010).

Blog posters often remark on multiple listservs, through expanding email distribution lists, on multiple blogs, and in other social media such as Facebook and Twitter and this can lead to an availability bias. An availability bias is the fallacious assumption that the more prevalent a phenomenon (such as commentary), the more likely it is assumed by most people to be true (Tversky & Kahneman, 1983). Interestingly, unlike the frequent claims in the late 1990s and well into the 21st century touting the Internet as a means for the democratization of communications (e.g., Ferdinand, 2001), that assumption may be at least partially false. Conversation domination occurs in innumerable ways among many Websites, crosslists of them on other high-traffic Websites, and the spreading of messages through myriad of direct and indirect means.

Consumers of information from the Internet must become more astute and knowledgeable about determining the veracity of information and the credentials of disseminators before coming to conclusions about an assertion, just as people are now becoming more astute about phishing emails. In the mean time, educators and researchers must continue to teach about information found on the Internet they may use for decision making, and practitioners must help by steering away from anecdotal claims without evidence.

Finally, performative hactivism appears to be largely a “Western” phenomenon and, from our experience, primarily originating from the United States, Spain, Germany, Great Britain, France, and Canada, all countries associated with high degrees of comparative freedom. That said significant number of incidents of performative hactivism we witnessed arose from non-Western societies. What shall we take away from these findings? Have societies who are used to “extensive freedom” become so stultified in the beliefs as to simply accept freedom as eternally afforded inalienable right (Brehm & Brehm, 1981)? Have

societies who have traditionally been repressed found a new voice (Whitman et al., 1999)? These present interesting questions for further investigation.

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