

Who Is Tweeting on #PRU13?

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Abstract

The popular microblogging platform known as Twitter has become a legitimate and frequently used communication channel in the Malaysian political arena. While the 2008 Malaysian general election was notable for the use of social media by the opposition parties during their campaigns, the 2013 general election saw a level playing field in which the Barisan Nasional coalition had quickly caught up in its use of social media. This study draws on a content analysis of election-related Twitter messages collected under the #pru13 hashtag to describe the key patterns of activity and the thematic foci of the election's coverage on this particular social media site. The dataset is collected from Twitter's public timeline from May 1 to May 6, 2013. What emerged from this analysis is there are evidently intensified and amplified campaign messages polluting the #pru13 hashtag from accounts that are questionable in their origin. This study adds to the literature that has questioned the predictive power of social media in an election.

Keywords: Malaysia, election, political communication, new media, Twitter, social media

1. Introduction

Social media has increasingly played an important role in shaping political discourse around the world (Aday et al., 2010; Benkler, 2006; Sunstein, 2006; Tumasjan, Sprenger, Sandner, & Welpe, 2011). For instance, the 2008 U.S. presidential campaign of Barack Obama witnessed the establishment of Twitter, Facebook, MySpace, and other social media as an integral part of its political campaign strategy.

With respect to the facts mentioned above, applications of Web 2.0, including Twitter, are currently influencing the nature of online participation; the audience is not merely passively reading web content, but is actually contributing to and creating the content (Sweetser & Lariscy, 2008). This connection between social media and political participation makes microblogs like Twitter a center of interest for policy makers, political scientists and news organizations (Small, 2011).

In this regard, using social media for political discourse is increasingly becoming a common practice, especially during an election period. Arguably, one of the most interesting aspects of this trend is the possibility of forecasting public opinion almost instantaneously (Metaxas, Mustafaraj, & Gayo-Avello, 2011). Most of the online social media services provide APIs wherein such data can be collected, allowing researchers to test and predict electoral results using social media.

However, scholarly research reveals ambivalent results regarding the predictive power of Twitter. There are studies that have concluded that Twitter can echo the actual vote share found in traditional election polls (O'Connor, Balasubramanyan, Routledge, & Smith, 2010; Tumasjan, Sprenger, Sandner, & Welpe, 2011), but others conclude that such forecasts are coincidental (Metaxas, Mustafaraj, & Gayo-Avello, 2011).

One major argument that weakens the predictive power of social media, particularly Twitter, is that it can be easily manipulated. For example, spammers and propagandists can write programs that create fake accounts, using them to amplify their Twitter message and to pollute the Twitter sphere (Metaxas & Mustafaraj, 2010). Ratkiewicz et al. (2011) argued that Twitter can be used to propagate political Astroturf—an artificial political campaign on microblogging platforms that may look like the real thing, but it is orchestrated by politically motivated individuals and organizations through the usage of multiple centrally controlled accounts aimed at creating the appearance of widespread support for a candidate, party or opinion. In other words, they are

“political campaigns disguised as spontaneous grassroots behaviors” that, in reality, are “carried out by a single person or organization” (Ratkiewicz et al., 2011, p. 297).

In the case of the 2013 Malaysian political campaigns, #pru13 was the most prominent Malaysian political hashtag used prior to the 13th Malaysian general election. It has been a site of diverse interaction among elected representatives, journalists, individual bloggers and interest groups. This political hashtag served the function of aggregating, distilling and directing political information. Contributions to a hashtag’s flow of information may be regarded as another form of participation in democratic politics (Warner, McGowen, & Hawthorne, 2012).

This research presents an analysis of how the members of the public who utilized the #pru13 hashtag followed, discussed and commented on the election campaigns. It then analyses information regarding the credibility of tweets propagated by power users of #pru13.

1.1 Media, Internet and Political Communication: Malaysian Experience

The mainstream media in Malaysia, which is comprised of the national newspapers and broadcasters, is known to be closely regulated by the government (George, 2007). The commercial newspaper in Malaysia, for example, has to adhere to the permit system under the Printing Presses and Publications Act; it requires all print media in Malaysia to obtain a license from the government and to abide by its regulations. Similarly, television and radio content are subjected to the requirements of the Communication and Multimedia Act.

For the reasons stated above, the Internet has proven to be particularly hospitable to alternative media. Although any information posted on the Internet is also subjected to laws such as the Defamation Act, the Official Secrets Act and the Seditious Act, no license is required for individuals or groups intending to set up online content platforms.

This lack of control over the Internet is part of Malaysia’s effort to establish itself as a haven for information technology investment (George, 2007). It was initiated by the former Prime Minister, Mahathir Mohamad, who launched the Multimedia Super Corridor (MSC) in 1995; among other things, it is aimed at establishing a Silicon Valley-style territory south of the capital city, Kuala Lumpur. As part of a strategy to attract foreign investors, the project included a commitment that there would be no censorship of the Internet in Malaysia (Abbott, 2012).

The Malaysian general elections held on March 8, 2008 are regarded as an important event in the Malaysian political arena. The opposition group called Pakatan Rakyat (PR), which consists of the Democratic Action Party (DAP), the Pan-Malaysia Islamic Party (PAS) and the Keadilan (Justice) Party, managed to break the incumbent Barisan Nasional (National Front) coalition’s two-thirds parliamentary majority. The news media is seen as a critical factor explaining the opposition coalition’s 2008 success (Liow, 2012). Azizuddin (2009) also contends that the coverage and reports by the new media had a significant influence that swayed people to vote for the opposition party in the 2008 general elections. The increased number of hits on alternative media websites such as Malaysiakini, Malaysia Today and Malaysian Insider, as well as the increased usage of social media sites, particularly Facebook, were a strong signal that, in 2008, Malaysians were exploring alternative sources of political news (Liow, 2012).

As a result, the National Front parties, who had underestimated the critical role that new and alternative media would play in the 2008 elections, began robustly embracing the power of the Internet. Prominent leaders in the Barisan Nasional coalition, such as Prime Minister Najib Razak, Khairy Jamaluddin, and the former Prime Minister, Mahathir Mohamad, have started blogging and using Twitter to communicate with their supporters on a regular basis (Liow, 2012; Surin, 2010).

For that reason, the 2013 election was dubbed as Malaysia’s first “social media election” (Lim, 2013; Zahiid, 2013). This view is echoed by Najib Razak, who noted that sites like Facebook and Twitter would be a key battleground for the Barisan Nasional parties to regain the territories they lost in the 2008 election. In addition, there are more than 13 million Facebook users in Malaysia (Mahadi, 2013) and it is among the top countries on Twitter, ranked by the growth in account owners (New Media Trend Watch, 2013). As a result, the Internet is seen as an effective campaigning platform, not only for opposition groups, but also for the Barisan Nasional coalition, which consists of several component parties, the main ones being the United Malay National Organisation (UMNO), the Malaysian Chinese Association (MCA), and the Malaysian Indians Congress (MIC).

Furthermore, to ensure that the Barisan Nasional coalition is ready to conquer the social media platform, a new media unit was created after the 2008 election under the United Malays National Organization’s (UMNO) youth wing. Its head, Tun Faisal Ismail Aziz, explained that the unit was formed to catch up with opposition groups in winning the hearts and minds of young and urban voters who were said to have backed the Pakatan Rakyat heavily in 2008 (Teoh, 2011). Former member of the Supreme Council of the United Malays National Organization

(UMNO), Saifuddin Abdullah, similarly admitted that cyber troopers across social media platforms played a crucial role in determining the ruling coalition's success in the 2013 general elections (Darwis, 2013).

1.2 Twitter and Political Communication

Scholarly research reveals mixed results regarding the predictive power of social media. A study by Tumasjan, Sprenger, Sandner & Welpé (2011) directly addressed the question of whether elections can be predicted using Twitter data; they concluded that Twitter can be considered to provide a plausible reflection of the actual vote and that its predictive power even comes close to traditional election polls. Additionally, O'Connor, Balasubramanian, Routledge & Smith (2010) reported that a sentiment analysis of Twitter data revealed a significant correlation with the index of Presidential Job Approval, but the correlation was not significant when compared with pre-electoral polls in the 2008 U.S. presidential race.

Metaxas, Mustafaraj and Gayo-Avello (2011), however, concluded that such predictions are no better than chance. Based on a study of several Senate races in the United States Congressional elections, they put forward two arguments. First, the validity of an unfiltered sample obtained from social media data, including the Twitter, Facebook, Myspace or other popular social networking services, is highly questionable. They dispute the reliability of the data on the basis that a certain random sample of likely voters cannot be obtained solely from those who have Twitter or Facebook accounts.

Secondly, social media allows manipulation through the creation of fake accounts, which is the issue that is the main interest of this paper. Groups of spammers or propagandists use the Twitter platform to amplify their messages and to pollute the Twitter sphere (Metaxas & Mustafaraj, 2010). This also means that the content of social media can be readily manipulated, a concern about which the press and the general public have been unaware.

This phenomenon also is known as a Twitter bomb. Similar to email spam, the bomb technique has been used during election campaigns. A study by Metaxas (2012) of the 2010 race for the U.S. Senate in Massachusetts shows that Twitter bombs that were created in the final days of the campaign produced 1,000 tweets and were retweeted 60,000 times. The concern over the Twitter bomb practice also was highlighted during the 2013 U.S. presidential election; some feared that social media might be used to create a flood of false information that could lead people to wrongly believe that there was a groundswell of opinion behind one man over another (Euronews, 2012).

An earlier study by Metaxas and Mustafaraj (2010) of the 2009 Massachusetts special election described a concerted, deceitful attempt to cause a specific website to rise to prominence on Twitter through the use of a network of nine fake user accounts. These accounts produced 929 tweets over the course of 138 minutes, all of which included a link to a website discrediting one of the candidates. Their study revealed that, within hours, a substantial portion of the targeted users retweeted the link, which was spread by the Google search engine.

This more sophisticated effort to create a fake grassroots movement is often referred to as *AstroTurf* (Ratkiewicz et al., 2011). *Astroturf* describes a political campaign on microblogging platforms in which politically motivated individuals and organizations use multiple centrally controlled accounts to create the appearance of widespread support for a candidate or opinion. It is a political campaign disguised as spontaneous "grassroots" behavior that, in reality, is carried out by a single person or organization (Ratkiewicz et al., 2011).

Political Astroturf is not identical to spam. While the primary objective of a spammer often is to persuade users to click a link, those interested in propagating an AstroTurf message want to establish a false sense of group consensus regarding a particular idea. This process is related to the fact that users are more likely to believe a message that they perceive as coming from several independent sources or from an acquaintance (Jagatic Johnson, Jakobsson, & Menczer 2007).

2. Method

Since its inception in 2006, Twitter has become one of the most popular social networking sites and is regarded as the fastest growing one (Wang, 2010). Twitter is a social networking and microblogging site on which users can post 140-character messages, or *tweets*.

Apart from broadcasting tweets to an audience of *followers*, Twitter users can interact with one another through two primary public methods known as *retweets* and *mentions*. *Retweets* act as a form of endorsement, which allows individuals to rebroadcast content generated by other users, thereby raising the content's visibility (Boyd, Golder, & Lotan, 2008). *Mentions*, the second primary public method through which tweeters interact, functions differently by allowing someone to address a specific user directly through their public feed, or to a lesser extent, by referring to an individual in the third person (Honeycutt & Herring, 2009). These two means of

communication on Twitter serve distinct and complementary purposes, but together, they act as the primary mechanisms for explicit, public user-user interaction on Twitter (Conover et al., 2011).

Furthermore, *hashtags* are considered to be another important feature on the Twitter platform. This is simply because they allow users to annotate tweets with metadata specifying the topic or intended audience of a communication. Each hashtag identifies a stream of content and users' tag choices denote participation in different information channels (Conover et al., 2011).

Hashtags are central to the organization of information on Twitter. Through the use of hashtags, tweets can be sent to an audience larger than one's followers. Indeed, one does not have to be a Twitter user to follow the conversation because hashtags are visible to anyone. Hashtags are searchable through Twitter, Google and trending sites (Small, 2011).

In this study, the core discussion is about the 2013 Malaysian general election. It was organized around #pru13, which quickly emerged as the central hashtag for political discussion. The act of affixing a hashtag to one's tweets, such as the political hashtag #pru13, may be seen as a thoughtful attempt by the user to contribute to a hashtag debate that is visible to all the users who follow it.

Although other debates regarding the Malaysian election may have taken place through non-hashtagged messages on Twitter, the absence of the #pru13 hashtag resulted in less visibility for those posts (Bruns & Burgess, 2011). Therefore, this paper presents an analysis of how the members of the public who utilized the #pru13 hashtag followed, discussed, and commented on the election campaign and its results, as mentioned above.

This study employs a content analysis method to analyze the tweets on #pru13. An archive of all the tweets bearing the hashtag #pru13 between May 1 and May 6, 2013 was accessed through a *third-party* tool that collects Twitter search results, Twitter Archivist.

Table 1. Sampling

Type	No of Tweets	Random Sampling (10%)
1 May (from 12.01 am)	9086	909
2 nd May	7919	792
3 rd May	9284	928
4 th May	11359	1136
5 th May	11942	1194
6 th May	6510	651
Total	56100	5610
Missing values		99
Total Twitter Analyzed		5511
Number of users		2996

Table 1 shows the number of tweets by day; there were 56,100 tweets sent between May 1 and May 6, 2013. Each day, 10% of the tweets were randomly selected from the data set. Excluding the missing values, this provides a total of 5511 samples of tweets sent by 2996 users. The unit of analysis for the content analysis was the individual tweet.

This study was undertaken with the understanding that using this tweet set as a sample for analysis involves two limitations. First, there was no definitive method to determine if the tweet set was completed. Twitter Archivist relies on Twitter's API archiving service; it is reasonable to assume that some tweets were missed. Given the sheer size of the data set, however, it is unlikely that the missing tweets would significantly impact the results.

Second, this data set likely excluded a large number of the politically-related tweets sent by Twitter users. Since many Twitter users tweeted "on-the-go," it is likely that many did not include the #pru13 hashtag. While this excludes a potentially significant number of tweets from the tweet set, it does not exclude many that were clearly intended for politically active Twitter users. Thus, the #pru13 tweet set should be sufficient to evaluate the use of Twitter during the 13th Malaysian General Election.

Table 2. Coding sheets

Variables	Percent Agreement	Krippendorff's Alpha
Type of Tweet	100	1
Target Person	88	0.767241379
Target Group	84	0.743107363
Slant	88	0.801536919

As shown in Table 2, there are four important variables in the coding sheets. The first variable is the type of tweet and indicates whether it is original, @reply or retweeted. The second and the third variables are the target person and the target group. The last variable is the slant of the tweet towards both the target person and the target group.

An intercoder agreement was calculated via Krippendorff's alpha using ReCal, an intercoder reliability service. As shown in Table 2.0, the intercoder reliability for all variables is more than 0.7. Five undergraduate students, who were trained extensively, served as coders for this research.

3. Results

The findings, as displayed in Table 3, show that Malay language tweets dominated the #pru13 tweet set with 86%, while the English language was utilized in only 14% of the tweets. This, to a certain extent, challenges the argument that the usage of social media in Malaysia or on the Internet in general is limited to those who are English-educated and have better access to economic resources (Wong, 2001).

Table 3. Language

Type	Frequency	Percent
Malay	4752	86.2
English	753	13.7
Others	4	0.1
Total	5511	100

Table 4 shows the distribution of the total sample by type of message (original, @reply or retweet, as discussed above). Retweets were the most common with 55%, followed by original posts with 37% and @reply or directed messages with 8.2%.

Table 4. Type of tweets

Type	Frequency	Percent
Original post	2015	37.2
Retweet	3010	54.6
@reply or directed post	450	8.2
Total	5511	100

It can be argued that the level of addressivity in the messages is an indication of the exchange of ideas on Twitter. Assuming that '@-mentions' indicates interactions between users, roughly 8% of the messages in our sample were direct messages, which indicates that people were engaged in interactive discussions (Tumasjan, Sprenger, Sandner, & Welpe, 2011).

It is clear that at least two types of retweets exist. Firstly, there are retweets that copy the original tweet verbatim and only add the original author. This type of tweet primarily serves the goal of information diffusion. Secondly, there are retweets that quote the original tweet and its author, but add other text (in the form of comments) with the goal of participating in the diffused conversation.

Our analysis indicates that only 1.3 % or 400 retweets out of 3010 retweets had additional text on the retweeted posts. This reveals that the retweeted posts on #pru13 primarily served the goal of information diffusion. It should be noted in this context, however, that Twitter also has recently introduced new automatic retweeting functionality which enables users to retweet the entire original message using a "retweet button." Doing so does

not add “RT @[username]” in front of the retweeted message. Our data gathering approach did not permit us to capture such “new-style” retweets, and therefore, they are not included in our analysis. If such “new-style” retweets had been analyzed, the frequency of retweeted posts may have been much higher than what was observed in this study.

Retweets could be likened to users on Twitter forwarding messages to their followership. These so-called retweets often contain information that the sender finds noteworthy, such as links to other websites. Consequently, the rate at which messages are retweeted indicates whether the information they contain is considered interesting.

Table 5 shows that tweets by the leader of the opposition group, Anwar Ibrahim, were retweeted 94 times, almost double the tweets by Prime Minister Najib Razak. However, the retweets of both Najib and Anwar constituted less than 3% of the overall sample.

Table 5. Retweets

Political Leaders	Frequency	Percent
@najibrzak	57	1
@anwaribrahim	94	107

Table 6 shows that Najib was the most frequently mentioned political leader on Twitter, with 8.7% of the overall sample. In contrast, Anwar was mentioned less than one-third of that percentage, with 3%. This is followed by the prime minister’s wife, Rosmah Mansor, and Anwar’s daughter, Nurul Izzah, who also is a current member of Parliament.

Table 6. Target person

Target Person	Frequency	Percent
Najib Razak	478	8.7
Anwar Ibrahim	159	2.9
Rosmah Mansor	58	1.1
Nurul Izzah	55	1.0
Celebrities	55	1.0

When we cross tab between a target person and the slant of tweets, as shown in Table 7, Najib was mentioned positively in 95% out of 478 tweets that mentioned him. However, the majority of tweets that mentioned Anwar, 82%, had a negative slant. His case was similar to other opposition political leaders (Nurul Izzah, Nik Aziz, Husam and Lim Kit Siang), who were primarily mentioned negatively in tweets that targeted them.

Table 7. Target person * slant cross tabulation

Target Person	Slant (%)			Frequency
	Neutral	Positive	Negative	
Najib Razak	0.6	95	4.4	478
Anwar Ibrahim	0	17.6	82	159
Rosmah Mansor	64	10	26	58
Nurul Izzah	12.7	12.7	75	55
Nik Aziz	0	16	84	50
Husam	0	6	94	33
Lim Kit Siang	0	23	77	13
Hishamuddin	0	98	2	44

As shown in Table 8, the Barisan Nasional (BN) coalition was the most frequently mentioned on #pru13 with 43.7% of overall tweets, more than double the tweets that mentioned Pakatan Rakyat (PR) or Parti Keadilan Rakyat (PKR). PAS (Pan-Malaysian Islamic Party), DAP (Democratic Action Party) and SPR (Election Commission of Malaysia) were mentioned in less than 8% of overall tweets.

Table 8. Target group

Target Group	Frequency	Percent
BN/Government	2407	43.7
PR/PKR	1043	18.9
PAS	205	3.7
SPR	107	1.9
DAP	96	1.7

When we cross tab between target groups and the slant of tweets, as shown in Table 9, most of the tweets that mentioned BN were positive, with 94%. More than 50% of tweets that mentioned PR/PKR were negative. Similarly, most tweets that mentioned DAP and PAS were negative.

Table 9. Target group * slant cross tabulation

Target Group	Slant (%)			Frequency
	Neutral	Positive	Negative	
BN/Government	0.4	94	5.6	2407
PR/PKR	1.8	45	53	1043
DAP	6.2	12.5	81.3	96
PAS	2.9	20	77.1	205
SPR	30.8	30	39.2	107

Table 10 shows the 60 most active Twitter users on #PRU13, based on a sample of Twitter posts from May 1 to May 6, 2013. Twitter posts from these users, a mere 2% out of 2996 users, constituted more than 22% of the overall sample tweets. One can argue that this concentration of Twitter users shows that political deliberation on Twitter is led by a few “political junkies” rather than the wider general public (Burns & Burgess, 2011). This also supports the argument that there is low equality of participation in the political debate on Twitter (Tumasjan, Sprenger, Sandner, & Welpe, 2011). The content analysis shows that posts from 58 of the accounts were mainly pro-BN and only two showed support for opposition groups.

Table 10. Power users

Twitter ID	N	Political affiliation
1 @tectonic_h	83	Pro BN
2 @NikHayazi	38	Pro BN
3 @BN4PRU13	35	Pro BN
4 @ge13info	33	Pro BN
5 @Miss_Linda1	33	Pro BN
6 @wanhakimi3	29	Pro BN
7 @MatSamat	28	Pro BN
8 @RosliZahir	28	Pro BN
9 @MimieSalina	27	Pro BN
10 @tkhaidir	27	Pro BN
11 @PakatanRosak	26	Pro BN
12 @TantianaDin	26	Pro BN
13 @Johny_Sabu	25	Pro BN
14 @cherascity	24	Pro opposition
15 @hausaaaa	24	Pro BN
16 @MeriLatif	24	Pro BN
17 @NikitaRaman	24	Pro BN
18 @Rosehayati48	24	Pro BN
19 @Samad_Yus	24	Pro BN

Twitter ID	N	Political affiliation
20 @eddyraz10	23	Pro BN
21 @tie_yong	23	Pro BN
22 @gerakangov	22	Pro BN
23 @jailani_JJ	21	Pro BN
24 @LokmanHaq	21	Pro BN
25 @nasirhassan12	21	Pro BN
26 @mawarni87	20	Pro BN
27 @nathenyo	20	Pro BN
28 @wan_amran	20	Pro BN
29 @ZacharySoros	20	Pro BN
30 @Rusna10	19	Pro BN
31 @so_animal	19	Pro BN
32 @taipanmaster	19	Pro BN
33 @los_amantes	18	Pro BN
34 @Zainol31	18	Pro BN
35 @ErniNajwa85	17	Pro BN
36 @mizz_liyana10	17	Pro BN
37 @Awe_KB	16	Pro BN
38 @ChzChe	16	Pro PR
39 @FaziraRusdi	16	Pro BN
40 @mallaccra	16	Pro opposition
41 @RohayaRamli	16	Pro BN
42 @bapaksingle	15	Pro BN
43 @parangpanjang2	15	Pro BN
44 @SafhieMalik	15	Pro BN
45 @AsiahIsa	14	Pro BN
46 @fandinorman	14	Pro BN
47 @KamariaDaud	13	Pro BN
48 @Iiewj24	13	Pro BN
49 @RioRempit	13	Pro BN
50 @Ssiti_Lina	13	Pro BN
51 @1_Agenda	12	Pro BN
52 @pokku_dir	12	Pro BN
53 @DRosli	10	Pro BN
54 @faiz_am	10	Pro BN
55 @IsaJuwita	10	Pro BN
56 @Jerome_Rashid	10	Pro BN
57 @JulianaAziz	10	Pro BN
58 @pooja_divaj	10	Pro BN
59 @ukppu3malaysia	10	Pro BN
60 @zarina_zaman	10	Pro BN
TOTAL	1229 (22% of tweet samples)	

However, further examination of the analysis reveals that more than three-quarters of the Twitter users in the list of the top 60 were primarily retweeting without comments. The analysis also shows that the messages that were being retweeted primarily originated from similar accounts. Looking back at the Twitter population from which the sample was taken, the posts of 33 out of 60 of the top users' accounts displayed very suspicious behavior.

These 33 accounts generated a significant number of tweets on #pru13. In addition to posting Twitter posts that were evidently pro-Barisan Nasional, these accounts exhibited similar behavior.

First, they were primarily retweeting posts that originated from three accounts, namely, @1_Agenda, @BN4Jelebu and @RosliZahir. The Twitter account @1_Agenda belongs to an organization known as “1Malaysia Social Media Agenda.” Although the Twitter posts that originated from @1_Agenda were evidently campaigning for Barisan Nasional, it described itself as “an NGO which [is] involved in conducting and monitoring social media activities in Malaysia” (About Us 1Agenda, 2009). @BN4Jelebu belongs to the Jelebu district, which is headed by Rais Yatim, a Member of Parliament representing a constituency in the state of Negeri Sembilan. The Twitter account @RosliZahir did not reveal any information about its owner, but its Twitter posts revealed that this account primarily retweeted posts from the Twitter account of Rais Yatim.

Secondly, these Twitter accounts did not produce any original tweets; if there were any, they were very small and the tweets did not include any of the conversation typical in normal human tweets. Normal human tweet accounts typically include tweets about the posters in which they talk about their day, reach out to and engage with their friends, and reply to conversations (Madden, 2010). A human user usually records what he is doing or how he feels about something on Twitter; he uses Twitter as a microblogging tool to display himself and interact with friends (Chu, Gianvecchio, Wang, & Jajodia, 2010).

Thirdly, examinations of Table 11-Table 13, which show a portion of the tweet sequences of three of those accounts, namely, @MimieSalina, @Nik Hayazi and @tkhaidir, reveals that identical post sequences with same messages were retweeted from the same accounts that were mentioned above. Table 11-Table 13 also show that there were only slight differences, i.e., a couple of seconds, in the times of posts. These posting behaviors were similar in all of the other accounts, with some minor variations in the posts and the times of the tweet sequences.

Table 11.

USER: @MimieSalina		
DATE/TIME OF POST		TWEETS
5/4/2013 12:48:58 AM	RT @1_Agenda:	#PRU13 BN Dijangka Terus Perintah Perak Dengan Majoriti Mudah http://t.co/1dZFmU92H7 #NajibMyPM
5/4/2013 12:49:53 AM	RT @1_Agenda:	#PRU13 Gelombang Merah Jana Peluang Untuk BN Menang Di Kelantan http://t.co/KoN20akkS5 #NajibMyPM
5/4/2013 12:50:45 AM	RT @1_Agenda:	#PRU13 Peluang BN Tawan Semula Kedah http://t.co/tw6jHpQq3t #NajibMyPM
5/4/2013 12:51:48 AM	RT @1_Agenda:	#PRU13 Masyarakat India Pulau Pinang Jangan Terpedaya Dengan Muslihat Pembangkang-PPP http://t.co/Blk5ZQ6r8E #NajibMyPM
5/4/2013 12:52:42 AM	RT @1_Agenda:	#PRU13 BN Negeri Sembilan Yakin Raih Sokongan Pengundi 'Atas Pagar' http://t.co/2EEdtBtlh3 #NajibMyPM
5/4/2013 12:53:46 AM	RT @RosliZahir:	@DrRaisYatim BN Dijangka Terus Perintah Perak Dengan Majoriti Mudah http://t.co/AbBshfMcWW #PRU13 #NajibMyPM
5/4/2013 12:56:08 AM	RT @RosliZahir:	@DrRaisYatim Gelombang Merah Jana Peluang Untuk BN Menang Di Kelantan http://t.co/i6tdqJiMtZ #PRU13 #NajibMyPM
5/4/2013 12:57:36 AM	RT @RosliZahir:	@DrRaisYatim Peluang BN Tawan Semula Kedah http://t.co/cB47htmz80 #PRU13 #NajibMyPM
5/4/2013 12:58:46 AM	RT @RosliZahir:	@DrRaisYatim Masyarakat India Pulau Pinang Jangan Terpedaya Dengan Muslihat Pembangkang-PPP http://t.co/jG8btJ1IIK #PRU13...
5/4/2013 2:04:53 AM	RT @1_Agenda:	#PRU13 Anwar Gagal Hadir Ceramah Di Stadium Sultan Abdul Halim http://t.co/6uaEMj1brs #NajibMyPM

Table 12.

USER: @NikHayazi		
TIME/DATE OF POST		TWEETS
5/4/2013 12:48:57 AM	RT @1_Agenda:	#PRU13 BN Dijangka Terus Perintah Perak Dengan Majoriti Mudah http://t.co/1dZFmU92H7 #NajibMyPM
5/4/2013 12:49:53 AM	RT @1_Agenda:	#PRU13 Gelombang Merah Jana Peluang Untuk BN Menang Di Kelantan http://t.co/KoN20akkS5 #NajibMyPM
5/4/2013 12:50:45 AM	RT @1_Agenda:	#PRU13 Peluang BN Tawan Semula Kedah http://t.co/tw6jHpQq3t #NajibMyPM

USER: @NikHayazi

5/4/2013 12:51:48 AM	RT @1_Agenda: #PRU13 Masyarakat India Pulau Pinang Jangan Terpedaya Dengan Muslihat Pembangkang-PPP http://t.co/Blk5ZQ6r8E #NajibMyPM
5/4/2013 12:52:41 AM	RT @1_Agenda: #PRU13 BN Negeri Sembilan Yakin Raih Sokongan Pengundi 'Atas Pagar' http://t.co/2EEdtBtlh3 #NajibMyPM
5/4/2013 12:53:45 AM	RT @RosliZahir: @DrRaisYatim BN Dijangka Terus Perintah Perak Dengan Majoriti Mudah http://t.co/AbBshfMcWW #PRU13 #NajibMyPM
5/4/2013 12:56:07 AM	RT @RosliZahir: @DrRaisYatim Gelombang Merah Jana Peluang Untuk BN Menang Di Kelantan http://t.co/i6tdqJiMtZ #PRU13 #NajibMyPM
5/4/2013 12:57:34 AM	RT @RosliZahir: @DrRaisYatim Peluang BN Tawan Semula Kedah http://t.co/cB47htzm80 #PRU13 #NajibMyPM
5/4/2013 12:58:45 AM	RT @RosliZahir: @DrRaisYatim Masyarakat India Pulau Pinang Jangan Terpedaya Dengan Muslihat Pembangkang-PPP http://t.co/jG8btJ1I1K #PRU13...
5/4/2013 2:04:53 AM	RT @1_Agenda: #PRU13 Anwar Gagal Hadir Ceramah Di Stadium Sultan Abdul Halim http://t.co/6uaEMj1brs #NajibMyPM

Table 13.

USER: @tkhaidir

TIME/DATE OF POST	TWEETS
5/4/2013 12:48:50 AM	RT @1_Agenda: #PRU13 BN Dijangka Terus Perintah Perak Dengan Majoriti Mudah http://t.co/IdZFmU92H7 #NajibMyPM
5/4/2013 12:49:46 AM	RT @1_Agenda: #PRU13 Gelombang Merah Jana Peluang Untuk BN Menang Di Kelantan http://t.co/KoN20akkS5 #NajibMyPM
5/4/2013 12:50:38 AM	RT @1_Agenda: #PRU13 Peluang BN Tawan Semula Kedah http://t.co/tw6jHpQq3t #NajibMyPM
5/4/2013 12:51:41 AM	RT @1_Agenda: #PRU13 Masyarakat India Pulau Pinang Jangan Terpedaya Dengan Muslihat Pembangkang-PPP http://t.co/Blk5ZQ6r8E #NajibMyPM
5/4/2013 12:52:34 AM	RT @1_Agenda: #PRU13 BN Negeri Sembilan Yakin Raih Sokongan Pengundi 'Atas Pagar' http://t.co/2EEdtBtlh3 #NajibMyPM
5/4/2013 12:53:38 AM	RT @RosliZahir: @DrRaisYatim BN Dijangka Terus Perintah Perak Dengan Majoriti Mudah http://t.co/AbBshfMcWW #PRU13 #NajibMyPM
5/4/2013 12:56:00 AM	RT @RosliZahir: @DrRaisYatim Gelombang Merah Jana Peluang Untuk BN Menang Di Kelantan http://t.co/i6tdqJiMtZ #PRU13 #NajibMyPM
5/4/2013 12:57:28 AM	RT @RosliZahir: @DrRaisYatim Peluang BN Tawan Semula Kedah http://t.co/cB47htzm80 #PRU13 #NajibMyPM
5/4/2013 12:58:37 AM	RT @RosliZahir: @DrRaisYatim Masyarakat India Pulau Pinang Jangan Terpedaya Dengan Muslihat Pembangkang-PPP http://t.co/jG8btJ1I1K #PRU13...
5/4/2013 2:04:46 AM	RT @1_Agenda: #PRU13 Anwar Gagal Hadir Ceramah Di Stadium Sultan Abdul Halim http://t.co/6uaEMj1brs #NajibMyPM

All of the 33 accounts are still active and have continued to display similar behavior since this article was written. Examining these accounts approximately four months after the election, 20 of the accounts primarily exhibit identical Twitter timelines. The rest of the accounts, although they still retweet their posts from pro-BN accounts, display some variety in their timeline of posts.

Based on the evidence discussed above, this study contends that the activity of these 33 accounts between May 1 and May 6, 2013 exhibit the characteristics of political astroturf. The creation of at least 20 accounts that clearly involve an impersonation of normal users and the posting of content that establishes a sense of group consensus about a particular idea are the behaviors that constitute political astroturf (Ratkiewicz et al., 2011). Other Twitter users are more likely to believe a message that they perceive as coming from several independent sources or from an acquaintance.

Other accounts among the top 60 users also exhibit behaviors making it questionable whether genuine Twitter users handle them. @tectonic_h, for example, is the user with the highest number of Twitter posts on #PRU13 between the 1st and the 6th of May 2013. This user only retweeted posts from users that showed support for Barisan Nasional and did not engage in any conversation.

What makes this account suspicious is the rate at which it retweets. As shown in Table 14, the time lapse of the retweets from one post to another was only one second. At one point, there were two posts that were released from the account at the same time. This is an indication that a bot may control the account. The same characteristic also was exhibited by others among the top 60 accounts, namely @BN4PRU13, @ge13info, @so_animal, @tie_yong, @pooja_divaj, @DRosli, @1_Agenda, @liewj24, @RioRempit, @RohayaRamli, and a pro-Pakatan Rakyat account, @cherascity.

Table 14.

USER: @tectonic_h

TIME/DATE OF POST	TWEETS
5/2/2013 10:33:41 PM	RT @heytonyfong: DAP rasis, PAS parti islam, PKR cacamerba...macamana diaorg ni nak bersatu eh?! #GE13 #PRU13
5/2/2013 10:33:42 PM	RT @mansur_arshad: People have decided-"Saya pilih Najib Razak" https://t.co/o8wn2vH4vE #PRU13 #GE13 #BetterNation #NajibMyPM
5/2/2013 10:33:43 PM	RT @AfdhalZZairi: [Video] People have decided-"Saya pilih Najib Razak" https://t.co/siu6ugJw8N #PRU13 #GE13 #BetterNation #NajibMyPM
5/2/2013 10:33:44 PM	RT @Lan_Budu: People have decided-"Saya pilih Najib Razak" https://t.co/It4IA9RkIO #PRU13 #GE13 #BetterNation #NajibMyPM
5/2/2013 10:33:45 PM	RT @aidenabdullah: People have decided-"Saya pilih Najib Razak" https://t.co/ChckTXM8vD #PRU13 #GE13 #BetterNation #NajibMyPM
5/2/2013 10:33:45 PM	RT @DannyAshburn: People have decided- https://t.co/puUrYs7KyG #Vote4BN #NajibMyPM #GE13 #PRU13 #BetterNation
5/2/2013 10:33:46 PM	RT @abdrzk1: I agree with 1st NKEA in making greater KL/KV liveable n rise in city economic growth! More jobs 4 me! #GE13 #PRU13
5/2/2013 10:38:34 PM	RT @SitiNajwaAhmad: People have decided- https://t.co/53xegJ5ToJ #Vote4BN #NajibMyPM #GE13 #PRU13 #BetterNation
5/2/2013 10:46:05 PM	RT @DannyAshburn: People have decided- https://t.co/6wgFeCYZg1 #Vote4BN #NajibMyPM #GE13 #PRU13 #BetterNation
5/2/2013 10:46:06 PM	RT @ammarfaizo: [Video] People have decided-"Saya pilih Najib Razak" https://t.co/Gkj9dTTCIT #PRU13 #GE13 #BetterNation #NajibMyPM
5/2/2013 10:46:07 PM	RT @husmaat: [Video] People have decided-"Saya pilih Najib Razak" https://t.co/2lJtS88Jdr #PRU13 #GE13 #BetterNation #NajibMyPM

Although @Gerakangov, @PakatanRosak, @IsaJuwita, @ukppu3malaysia, @faiz_am @parangpanjang, @Jerome_Rashid, @ChzChe, @mallaccra, @bapaksingle, @fandinorman, @Ssiti_Lina, @KamariaDaud and @taipanmaster did not exhibit the behavior of retweeting at "inhuman rates," they still displayed peculiar Twitter behavior, including an excessive automation of tweeting, automatic updates of blog entries, the posting of tweets that included URLs to redirect visitors to external webpages, and the posting of tweets not containing original, intelligent, specific and human-like contents. (Chu, Gianvecchio, Wang, & Jajodia, 2010).

It is not certain whether these accounts among the top 60 users on #PRU13 are operated by human or bots and proving that was not the aim of this study. Based on the analysis above, at least half of these accounts fulfill part of the criteria indicating that they may be operated by a bot; this is demonstrated by the lack of intelligent or original content, solely retweeting the tweets of others or posting messages that indicate a lack of originality, and excessive updates of posts from other accounts (Chu, Gianvecchio, Wang, & Jajodia, 2010). Another argument is that these accounts may be operated by a cyborg: a human-assisted bot or a bot-assisted human. As explained by Chu, Gianvecchio, Wang & Jajodia (2010), a typical cyborg account may contain contents displaying human-like intelligence and originality mixed with automatic updates.

4. Discussion

The results of the May 5th general election show that the Barisan Nasional coalition won a simple majority of the seats in the Parliament, 133 out of 222, whereas the opposition, a three-party coalition called Pakatan Rakyat, won 89 seats. This marks the second time since the 2008 election that the Barisan National coalition was unable to regain its two-thirds majority in the Parliament.

The results of the content analysis of the most prominent hashtag during the 2013 Malaysian general elections demonstrate that the Barisan Nasional coalition has absolute domination of the Twitter sphere compared with the opposition group, but this domination did not reflect its vote share in the election. A report by the electoral commission shows that, with a high turnout of 85% of the country's 13.3 million voters, the Barisan Nasional coalition won 47% of the popular vote, while the opposition group won more than 50% of the popular vote (The Star, 2013). The analysis of this study, to some extent, is in line with the argument of Metaxas, Mustafaraj and Gayo-Avello (2011) that the predictive power of Twitter does not match that of traditional election polls.

Based on the analysis of the top users of the #pru13 hashtag, one of the reasons that may have contributed to the failure of the #pru13 hashtag to reflect the vote share in the election was the deluge of messages produced by what appears to be bots or cyborgs instead of human beings. This concerted effort, by what appears a campaign machine, particularly in the pro-Barisan Nasional camp, also may be regarded as characteristic of an astroturf political campaign, in which multiple centrally controlled accounts created the appearance of unprecedented support for the coalition's candidates or opinions.

The Barisan Nasional coalition has been explicit regarding its employment of "cybertroopers" as part of its political campaign strategy. In November 2011, Prime Minister Najib Razak launched the *1Malaysia Social Media Convention* aimed at employing voluntary social media practitioners, which he regarded as "the armies of the virtual world" for the coalition party (Ng, 2011; Sivanandam, 2011). A *1Malaysia Social Media Volunteers Club* known as *MyVoice* was launched at the same time and is said to have garnered more than 2,000 social media practitioners who were tasked with battling opposition groups' cybertroopers.

Seven such social media conventions were held in different states to facilitate the Barisan Nasional campaign. A year before the election, Rais Yatim, who was then a Malaysian Information, Communications and Culture Minister, stated that he expected 10,000 new Twitter accounts to start disseminating information to the masses on BN's behalf (Anand, 2012).

This does not mean that the opposition parties, which consist of the Democratic Action Party (DAP), the Pan-Malaysia Islamic Party (PAS) and the Keadilan (Justice) Party, did not employ cybertroopers, and possibly, the manipulation of social media during the election. The analysis showed that two out of the top 60 accounts on #pru13 were pro-Pakatan Rakyat; they exhibited suspicious posting behavior characteristic of a political astroturf. Future studies should be carried out to compare hashtags that are pro-opposition with those that are pro-ruling government to provide a more inclusive conclusion regarding the practice of social media manipulation in political campaigning.

Nevertheless, what is remarkable about #pru13, arguably the most neutral and the most widely-affixed hashtag during the 2013 Malaysian general election, is that it reveals the amount of control that the Barisan Nasional political campaign has over the Twitter stream.

On one hand, it may be said that the Barisan Nasional social media strategy has been successful in creating widespread support on Twitter; on the other hand, as this study demonstrates, there are clear and troubling signs of the manipulation of public opinion by political campaigns and special-interest groups that are using scores of fake Twitter accounts to create the impression of broad grass-roots political expression.

The results of this study do not negate the benefits of the new media in political deliberation and participation. Diamond (2010) passionately argues that information and communication technology (ICT) and the Internet enable "citizens to report news, expose wrong doing, express opinions, mobilize protest, monitor elections, scrutinize government, deepen participation, and expand the horizons of freedom" (Diamond 2010, p. 70). Surin (2010) similarly contends that the emergence of the new media means that neither established media organizations nor the government exercise total control over media content any longer. Therefore, the social media, in particular, has shifted the power to control information from the establishment to the individual. This is in line with the concept of "liberation technology," which is considered to be any form of ICT that can expand political, social, and economic freedom (Christensen, 2011).

The results of this thesis, however, highlight the problems arising from the "leveling and enabling" of the news media and the Internet. Unlike authoritarian governments such as those in Iran and China, the Malaysian government does not restrict the use of social media by citizens by employing filtering technologies to block certain websites, blocking access to specific sites or simply "switching the internet off" (Abbott, 2012). However, since the new media platforms are, in fact, value-neutral, which makes them susceptible to manipulation by powerful groups, the new media tools also may be used to effectively control public opinion (Liow, 2012) as shown in this study of #pru13. In this case, rather than acting as an equalizing factor in the contest of information, Twitter also may be deployed as an instrument of control that serves the interests of the powerful by shaping

public awareness through the distortion of public information.

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