

The Pennsylvania State University  
The Graduate School  
College of Information Sciences and Technology

**INVESTIGATING COLLECTIVE ACTION EVENTS THROUGH TWITTER  
USAGE: THE CASE OF THE THAI PROTESTS OF 2010**

A Thesis in  
Information Sciences and Technology  
by

Kartikeya Bajpai

© 2011 Kartikeya Bajpai

Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of

Master of Science

August 2011

The thesis of Kartikeya Bajpai was reviewed and approved\* by the following:

Andrea Tapia

Associate Professor of Information Sciences and Technology

College of Information Sciences and Technology

Thesis Advisor

Lynette Kvasny

Associate Professor of Information Sciences and Technology

College of Information Sciences and Technology

Irene Petrick

Associate Professor of Information Sciences and Technology

College of Information Sciences and Technology

David Hall

Dean, College of Information Sciences & Technology

\*Signatures are on file in the Graduate School.

## **ABSTRACT**

Recent years have witnessed multiple international protest movements which have purportedly been greatly affected by the use of Twitter, a micro-blogging platform. Social movement actors in Iran, Moldova, Kyrgyzstan, Egypt and Thailand are thought to have utilized Twitter to spread information, co-ordinate protest activities, evade government censorship and, in some cases, to spread misinformation. I propose a framework for conceptualizing and analyzing Twitter data related to contentious collective action crises. My primary research goal is to delineate a framework informed with a social movements lens and to demonstrate the framework by means of Twitter usage data related to the Thailand protests of 2010. The proposed framework concerns itself with three aspects of protest activities and Twitter usage, namely, the structure and nature of Twitter messages regarding collective action events, and the construct of Twitter ‘protest waves’. I also present preliminary results from a follow-up study which explores the notion of message granularity. In the final section, I describe the status quo and challenges of incorporating new media data in scholarship, and discuss notions of narrativity in the analysis of new media datasets, in general, and data concerned with collective action, in particular.

## TABLE OF CONTENTS

ABSTRACT .....	iii
TABLE OF FIGURES .....	vi
TABLE OF TABLES .....	vii
ACKNOWLEDGEMENTS .....	viii
CHAPTER 1.....	1
INTRODUCTION.....	1
Research Question.....	3
Organization: .....	4
CHAPTER 2.....	5
BACKGROUND.....	5
Twitter .....	5
Social Movements and New Media.....	6
Thai Protests.....	8
Repertoires of Contention .....	9
Twitter: claims and challenges .....	10
CHAPTER 3.....	13
FRAMEWORK.....	13
Twitter Data Collection .....	13
Sample construction .....	14
Social Network Analysis.....	16
Coding Scheme .....	18
CHAPTER 4.....	24
ANALYSIS .....	24
Structural analysis .....	24
Content analysis .....	27
Twitter Protest Waves .....	39
CHAPTER 5.....	44
FOLLOW UP .....	44
Premise.....	44
Methodology .....	45
Preliminary Results .....	46
Movement Granularity .....	54
CHAPTER 6.....	55
DISCUSSION .....	55
CHAPTER 7.....	57
FUTURE RESEARCH.....	57

CHAPTER 8.....60  
CONCLUSION .....60  
APPENDIX .....62  
REFERENCES.....63

## TABLE OF FIGURES

Figure 1. Screenshot of the Twitter interface.....	6
Figure 2. Tweet volume per day, from 04-24-2010 to 05-05-2010 .....	15
Figure 3. Social Network Diagram of Twitter Message Sample .....	16
Figure 4. Structural aspects of twitter data from 04-25-2010 to 05-01-2010 .....	26
Figure 5. Social Movements Core Categories .....	31
Figure 6. New Media Categories .....	34
Figure 7. Locational Granularity.....	47
Figure 8. Tactical Granularity.....	50
Figure 9. Action granularity.....	53

## TABLE OF TABLES

TABLE I. OVERALL GRAPH METRICS .....	17
TABLE II. STRUCTURAL CODING SCHEMA.....	20
TABLE III. CONTENT CODING SCHEMA .....	21
TABLE IV. TWITTER PROTEST WAVE EXAMPLE.....	40

## ACKNOWLEDGEMENTS

This work owes its existence and completion to a number of people. First, I would like to thank my advisor, Dr. Andrea Tapia, for her support and guidance. In addition, I extend my gratitude to my committee members, Dr. Lynette Kvasny and Dr. Irene Petrick, for their feedback throughout the thesis process. I would like to thank Dr. John McCarthy for guiding this work from its inception and for his continued patience and good humor. This thesis also benefitted from the support of a diverse set of individuals at Penn State, namely, Dr. Madhu Reddy, Dr. Clare Hinrichs, Anuj Jaiswal, Suwan Juntiwassarakij, Patrick Rafail and Wendy Fay. I would like to thank my parents and my friends back in India, who made the distances appear insignificant. I would like to especially thank my friend, Arvind Karunakaran, for his companionship and support, and for showing that it is indeed possible to be serious without being somber. Lastly, I would like to thank Ishita Ghosh and Vince Mancuso for their ideas, company and humor, both at work and otherwise.



# CHAPTER 1

## INTRODUCTION

The most elemental definition of collective action conceptualizes it as a group of people involved in a goal directed activity. While this barebones definition includes a vast multitude of behaviors, such as the economic focus on collective goods and the philosophical focus on individuals acting in a collective fashion, this thesis concerns itself with a specific subset of collective action, commonly grouped under the ‘social movements’ label in the sociological literature. The broader characteristics of the contentious collective action associated with social movements are the use of non-institutional channels, collective identities, clearly delineated oppositional camps and collective socio-political goals (Della Porta et al. 1999a; Snow et al. 2005). Developments in Information and Communication Technologies (ICTs) are often leveraged by social movement actors and can take the targets of their contentious activity, usually the State, by surprise (Ganley 1992; Garrett 2006). ICTs have been posited to have been instrumental to various movements, such as the use of faxes and video recording technologies during the Protests in China in 1989 and the use of copy machines, video cassettes and direct dialing systems in the Iranian Revolution of 1979 (Ganley 1992). The most widely cited instances of early internet-based activism by movement actors are the cases of the anti-globalization activists at the WTO Conference of 1999 and the Zapatista movement (Kahn 2004).

In recent years, Twitter, a micro-blogging service, has been widely associated with social movement activity in the popular imagination and media in diverse geo-political contexts

such as Iran, Moldova, Kyrgyzstan, Tunisia, Egypt and Lebanon. “Twitter Revolution” has become common parlance in the media discourse on recent social movement events. Conversely, skeptics such as Malcolm Gladwell (Gladwell 2010), have questioned the efficacy of the weak ties that are the basis of the Twitter medium in effecting actual protest events. However, despite the abundance of dialogue, there is currently a marked absence of theoretically informed frameworks which can be utilized to qualitatively evaluate the various claims attributed to the Twitter platform in the context of protest events. The use of Twitter has not gone unnoticed by the research community at large, however, currently certain domains of inquiry appear to have been accorded greater import, for example, while disaster relief contexts have been the focus of methodological innovation, such as the in-depth analysis of the Red River Floods and Oklahoma Grassfires (Starbird et al. 2010; Vieweg et al. 2010), currently, social movements and protest activities, the most human of crises, have not been the beneficiaries of similar attention.

The case of protest events provides an interesting contrast to the extant work focused on utilizing Twitter data for emergency response purposes, which involves the collective action of relief and response agents after an event such as a natural disaster. In protest events, collective action is the cause of the event, as well as constituting the response. Hence, unlike conventional emergency response situations where the focus of inquiry is directed to the corpus created after the event occurs, in protest events, the build-up of collective action itself has a manifest effect on both scholarship and efforts to provide crisis response. In effect, new media data generated leading up to and during the protest

event is important in understanding the phenomena at play. In addition, recent work on the analysis of protest event related activity on online mediums such as Twitter has been restricted largely to quantitative analysis. Protest is essentially a human event, and the richness of such events cannot be gauged only by the numbers. I believe that Twitter as a medium provides opportunities for both quantitative and qualitative analysis, as the scale of datasets both enrich and constrain research efforts

### **Research Question**

The work presented in this thesis focuses on the following research question:

- (i) What is the nature of messaging on the Twitter medium during contentious collective action events?
  - a. What are the practices, patterns and tactical conventions of protest related Twitter usage?
  - b. What is the intent of protest related messages on the Twitter medium? (i.e. information versus mobilization)
  - c. Based on protest data from new mediums, how can we fashion newer methodological assemblages which can provide a more nuanced examination of protest activity in virtual environments?

Accordingly, I propose an analytical framework for qualitatively exploring Twitter data related to protest events using a social movements lens. The framework attempts to explore the nature and structure of messages on the medium, at various points, during a period of contentious collective action. In addition, I introduce the construct of Twitter 'protest waves'. I utilize Twitter data collected during the Thai protests of 2010 to

demonstrate the framework and discuss the implications and future research avenues in terms of studying contentious collective action events via online mediums. I believe that this framework provides a hybrid model with its methods of analysis which are rooted in ‘manual curation’ (Gaffney 2010), applied to automatic collection contexts. Subsequently, I present preliminary results from a follow-up study which explored the notion of message granularity in relation to three aspects of the framework. Lastly, I discuss the implications of the findings with regards to the extant discourse on protest activity in virtual environments, as well as, the scholarship investigating these phenomena.

### **Organization:**

The remainder of the thesis is organized as follows:

- Chapter 2 details the background for the Twitter medium, Twitter-protests, the protests in Thailand, and the theoretical antecedents of this thesis.
- Chapter 3 describes the data collection, sample construction, social network analysis and coding schema, which comprise the framework.
- Chapter 4 presents the results of the analytical framework applied to the dataset described in the previous chapter.
- Chapter 5 details the preliminary results from a follow-up study which examined message granularity for three aspects of the framework.
- Chapter 6 provides a discussion of the findings in relation to the larger scholarly efforts which investigate social movements and new mediums.
- Chapter 7 describes a preliminary future research agenda.
- Chapter 8 provides a concluding summary of the thesis and its salient findings.

## **CHAPTER 2**

### **BACKGROUND**

#### **Twitter**

Since the framework is based on the Twitter medium, it is de rigueur to have a brief introduction to the platform itself. Twitter is a micro-blogging service which allows its users to broadcast 140 character messages. Micro-blogging is differentiated from traditional blogging by two primary features. Firstly, due to inherent text length constraints microblogs take less time and cognitive effort to compose, and, secondly, users upload micro-blogs with a greater frequency (Java et al. 2007) than conventional new media platforms which do not impose word limits, such as weblogs. Twitter is one of the most prominent additions to corpus of internet based services which redefine the ‘virtual public sphere’(Langman 2005) in terms of who participates, with whom, to what end, and the form of communication itself(Marwick et al. 2011). The medium has seen widespread adoption, with recent estimates projecting up to 18 million unique visitors, and an astounding annual growth rate of 1,444% (NielsenWire 2009). Twitter users have evolved their own distinct forms of participation, with #hashtags added as markers to add a message or tweet to a wider discourse or to project identity.

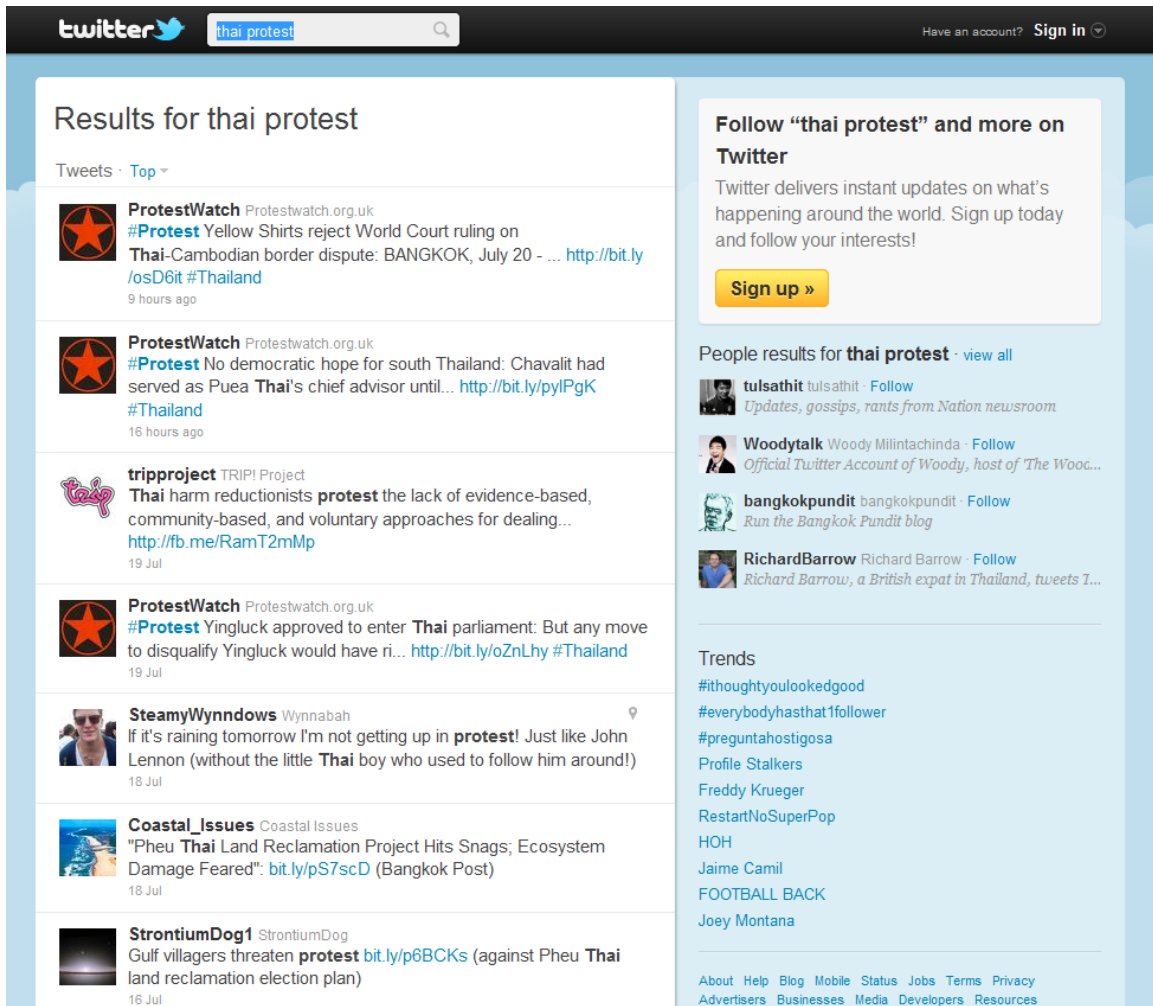


Figure 1. Screenshot of the Twitter interface

## Social Movements and New Media

Social movements have been the subject of much scholarly scrutiny over the last three decades, leading to the creation of conferences and journals dedicated to the study of movements. However, media aspects of social movements have hitherto been sidelined, particularly the so-called ‘new media’ possibilities afforded by the internet. Downing (Downing 2008) identifies five elements of movements which could be the subject of further media centered analysis: (i) social change (ii) mobilization (iii) framing (iv) social networks (v) transnational movements. For the purposes of the framework I focus on the

last four elements, and discuss the first element through the findings. Critiques of the role of Twitter with regards to movements have focused on assertions concerning themselves with the instrumentality of Twitter to movement actors. However, my intent in creating a framework is centered on highlighting the importance of Twitter to researchers, in particular, the possibilities afforded by the medium in drawing the mise-en-scène of collective action events. Hence, ideally, I believe that such a framework would be a useful addition to the methodological toolbox of social movement and crisis management scholarship, as opposed to the source of interesting yet isolated scholarship on internet 'culture'. With such a methodological focus, one could conceivably sidestep cyberbole common to analysis of collective action in online environs, so, for example, rather than focus on how the internet in general and Twitter in particular can be used for mobilization, the framework provides means to describe movement mobilization activities as reflected by Twitter chatter. The automatic collection of Twitter data in real time, provides rich snapshots of movement events and public opinion, reflecting upon phenomena that Urry (Urry 2000) eloquently describes as fluidities, "*the heterogenous, uneven and unpredictable mobilities of people, information, objects, money, images and risks, that move chaotically across regions in strikingly faster and unpredictable shapes*".

The localized descriptiveness afforded by Twitter is believed to have led to the subversion of the dominant political media dissemination model, in which the mainstream media drives public discourse on crisis events. The 'ambient journalism' (Hermida 2010) model can currently be seen in practice in most television and print media where the public discourse on online platforms such as Twitter drives the

news media cycle in emergency situations such as the Mumbai Terrorist attacks of 2009 (Hughes et al. 2010). The extent of Twitter's effect on news gathering and distribution can be gauged by recent classificatory debates in the scholarly community regarding whether Twitter is a social network or news media (Kwak et al. 2010). I believe that the utility of the Twitter medium is not restricted to journalism and can be a beneficial addition to scholarly discourse.

### **Thai Protests**

The protest activities in Thailand stem from the 2006 ousting of then Prime Minister Thaksin Shinawatra (BBC 2010). The pro-Thaksin protestors, represented by the United Front for Democracy Against Dictatorship (UDD), had been protesting against the government of Abhisit Vejjajiva and had banded together under the 'red shirt' label (BBC 2010). The anti-Thaksin protestors, represented by the Peoples' Alliance for Democracy (PAD), supported the government of Vejjajiva and had been successful in toppling two prior pro-Thaksin governments. The People's Alliance for Democracy represents royalists, businessmen, and the urban middle class and have banded together under the 'yellow shirt' label (Reuters 2010). Thailand has been a hotbed of contentious activities in the past half-decade with recent rallies drawing tens of thousands of protestors. In addition, a recent report suggests that, contrary to the other cases of use of Twitter by social movements, in the case of Thailand the pro-government actors have dominated Twitter. In effect, Thailand could prove to be a case of a "Twitter Counter-Revolution" (Morozov 2009b) where pro-government actors use Twitter to spread disinformation or quell social unrest. Nevertheless, I believe the widespread adoption of the platform by opposing factions and the presence of a long standing 'protest culture' in



Thailand(Darling 1974; Missingham 2003) makes this event a suitable candidate for greater scrutiny.

The Yellow-Red shirt activity and protests culminated in 2010. However, the chain of events concerning the protests, which began half a decade earlier with the losses of the Thaksin faction, finally came to an end with re-elections held on 3<sup>rd</sup> July 2011(AFP 2011; Hookway 2011).The Pheu Thai party claimed victory and their prime ministerial candidate Yingluck Shinawatra (the sister of the Red Shirts leader Thaksin) assumed office (AlJazeera 2011; Reuters 2011).

### **Repertoires of Contention**

In a sense, this dissertation tries to understand the current uses and potential usage of Twitter in the repertoires of contention of social movements.Charles Tilly has defined repertoires of contention as the, '*distinctive constellations of tactics developed over time and used by protest groups to act collectively in order to make claims on individuals and groups*'(Tilly 2006a). Tarrow (Tarrow 1998), extending Tilly's initial formulation, distinguishes modular repertoires as "bundles of performances easily transferred from one locality, population, issue, or organization to another"(Tilly 2006b). I believe that the progression of Twitter based collective action provides a strong case for modularity of repertoires. The movements that have co-opted the Twitter medium in their collective action efforts have also co-opted the strategies of the color revolutions of Europe. Hence, the revolutions in Georgia in 2003(velvet), Ukraine in 2004 (orange), Kyrgyzstan in 2005 (pink) had a direct effect on the strategies of the Iranian Protests of 2009 (green) and Thailand in 2010 (red, yellow and green). Interestingly, the dynamics of contention in

these latter revolutions involve the interplay between the earlier co-opted modular repertoires and the new medium of Twitter. Hence, the protestors in Twitter brand their messages with #redshirts to make their tweets part of the larger stream of messages. In this way, users can tap into this real time stream or add to it. Twitter was envisioned as a medium to emphasize the individual, but as like other media such as news, greater volume accounts for relevance in discourse. Hence, to have a #hashtag that trends in the larger streams of Twitter provides a larger exposure to protest activities than was possible as individuals i.e. collective action co-opting a medium designed for individuals for its own collective purposes. In addition #hashtags amplify streams, which makes them easier to find, use and helps create a ‘project identity’. The use of distinctive hashtags for a movement began with Iran (#freeiran,#iranelections) and was carried on to Moldova (#pman) and Thailand (#redshirts, #yellowshirts). The phenomenon of movement actors identifying themselves with specific #hashtags has significant consequences for the data collection and analysis strategy sections. The emphasis of this thesis on the intentionality of Twitter users attempts to add detail to the conceptual repertoires of online contention.

### **Twitter: claims and challenges**

Various claims and challenges have been attributed to Twitter in the context of social movements both by the popular media and the research discourse. First, Twitter has been portrayed as an agent of consensus mobilization. Consensus mobilization has been defined as the movements efforts to popularize and legitimize its viewpoint (Klandermans 1984), i.e. an effective ‘publicity tool’ for social movements (Morozov 2009c). Second, Twitters’ perceived expediency in delivering on-the-ground accounts in crisis situations has been acknowledged by co-optation by major news networks like

CNN (Hughes et al. 2010). In terms of practice theory, Twitter is purported to have altered the dominant ‘news-gathering routines’ (McCarthy et al. 1996), hence altering the cultural production field (Bourdieu et al. 1992) in substantive ways. Another interesting claim in this regard is that protest factions are posited as possibly trying to dominate Twitter streams and hence the global coverage of events (Morozov 2009b). Third, social movements are increasingly being conceptualized as trans-national and location-independent (Della Porta et al. 1999b; Della Porta et al. 2005), these new mobilities have inspired a new set of challenges to the research community. Lastly, Twitter has been touted as a great tool for organizing protestors in repressive political climates (Morozov 2009a; Mungiu-Pippidi et al. 2009) with the Moldovan protests of 2009 cited frequently as a successful example of Twitter based mobilization.

In terms of the proposed framework, I believe that both consensus mobilization efforts on Twitter and the co-optation of the medium by the mainstream media, lend credence to the richness of available Twitter data. In addition, I believe that the presented comprehensive data collection and analysis methodology has the potential to shed light on the threefold complexities resulting from contemporary notions of place, space and networks of social movements (Nicholls 2009). Thirdly, with regards to Twitter as an organizational tool, while the framework does not aim to establish the effect of Twitter on movement events, it does however account for the intentionality of Twitter users. Lastly, my argument for the inclusion of new media data by scholars in the social movements and crisis response communities is based on Appadurai’s assertion that *“from a methodological point of view it is the things-in-motion that illuminate their human and*

*social context*”(Appadurai 2003). Similarly, I believe that focusing on how Twitter may or may not have affected the protest activities is a rather nebulous question, and instead, focus on new media data as individuals sharing observations, information, witticisms and opinions in a specific *contextual imaginary*, with the context itself being the focus of scrutiny rather than the manifest effects of the message on the world.

In the next section, I outline the proposed framework and demonstrate its use by means of data collected during the protests in Thailand from March to May 2010.

## CHAPTER 3

### FRAMEWORK

*“If a fight starts, watch the crowd, because the crowd plays the decisive role”*

E E Schattschneider (Schattschneider 1960)

The proposed framework hopes to embody the spirit of Schattschneider’s proclamation, and to provide a meta-methodological approach towards what George Marcus (Marcus 2009) labels, ‘*problems of the contemporary*’, namely, phenomena which are not best represented using conventional bounds of culture and geography, and require newer methodological and conceptual formulations. I describe the framework in the following fashion, beginning with the data collection of the Twitter API (application programming interface), followed by the sample construction, a brief social network analysis, and concluding with a detailed description of the coding schema.

#### **Twitter Data Collection**

The primary data collection task involved assembling relevant tweets, i.e. messages regarding the Thailand Protests, and archiving these tweets in a format that is conducive for analysis. A program was created to methodically achieve the data collection tasks, namely, a crawler. The crawler utilizes the Twitter API that returns relevant tweets for a seven day period based on user-input keywords (“#redshirt”, “Bangkok” etc.). The Twitter API returns results in its JSON (JavaScript Object Notation) format and these JSON result objects are read and pushed onto a POSTGRES database. The tweets are specifically archived onto a text column. The newly created storage file is parsed and each tweet is then written to a database such that each tweet having the same ID (as

returned by Twitter) appears only once. In addition, since twitter assigns each new re-tweet (i.e. a forwarded tweet) with a different ID, these messages are stored as unique database entries provided re-tweets are returned when querying for a specific keyword.

### **Sample construction**

Data based on a set of keywords specific to the Thai protests was collected over a six month period from April to September 2010. For the purposes of this thesis I illustrate the framework via a subset of tweets which were published over a one week period, from 25th April to 1st May 2010, as illustrated in the figure 2 below. The subset under scrutiny was retrieved based on a single keyword (“redshirt”) search of the archived Twitter data and resulted in 2451 tweets in the final sample. The choice of keyword is simplified by the tendency of social movements to adopt or be associated with a particular #hashtag on the Twitter medium.

The choice for a smaller sample size of a week was driven by the exploratory and proof-of-concept nature of this thesis. The week which forms the sample for this study was chosen due to two rationales. First, although considerably larger maxima were observed in the dataset (for example, the death of Major General Khattiya Sawasdipol resulted in a considerable spike in tweets in the dataset), I wanted to restrict the research scope to smaller scale movement events which I believe have greater significance in terms of grassroots collective action. Second, the week under scrutiny provided three local maxima, which are illustrated along with the associated movement event in figure 1, which I believe provided variety in terms of phenomena and a basis for comparability.

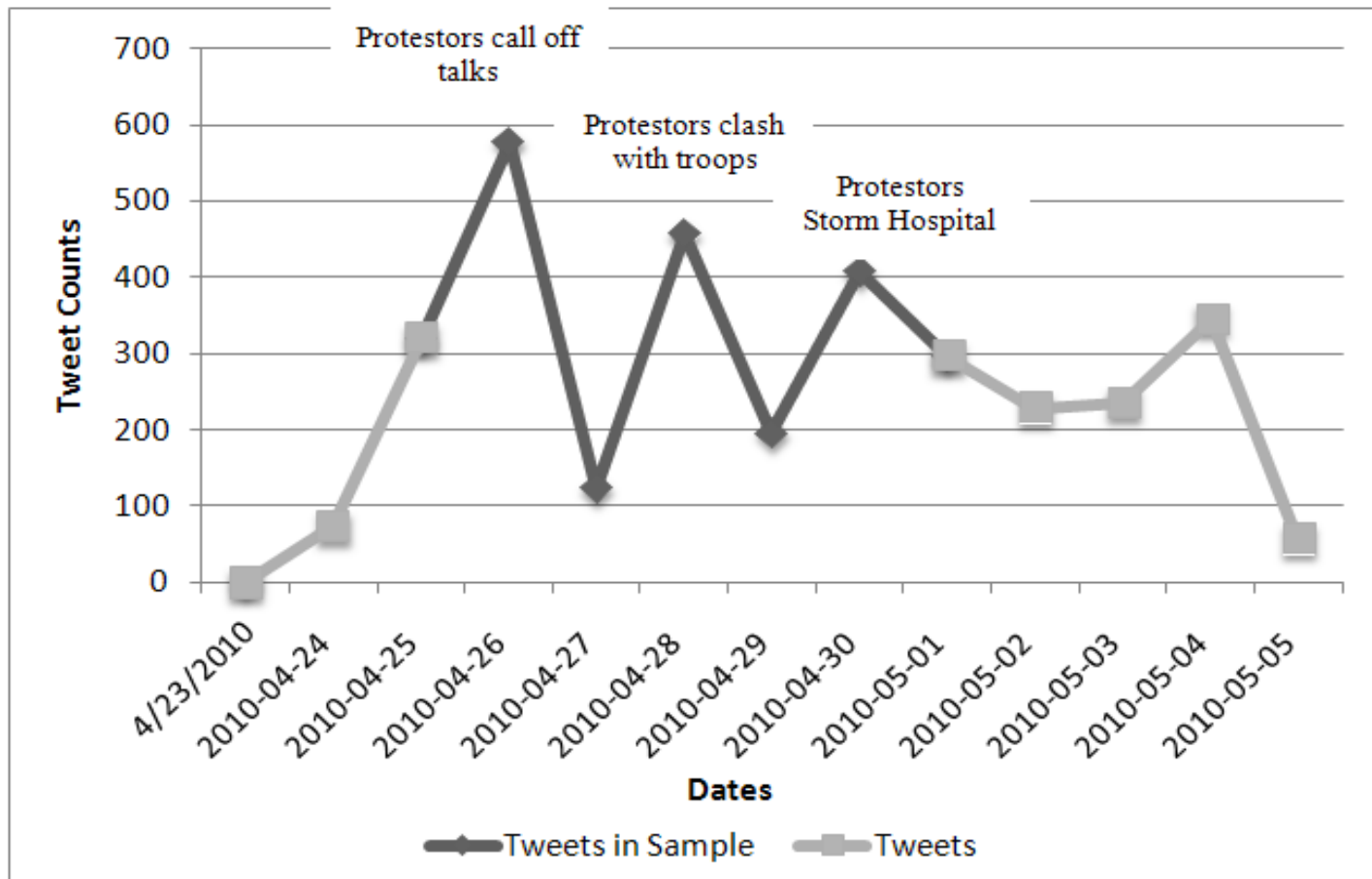


Figure 2. Tweet volume per day, from 04-24-2010 to 05-05-2010

# Social Network Analysis

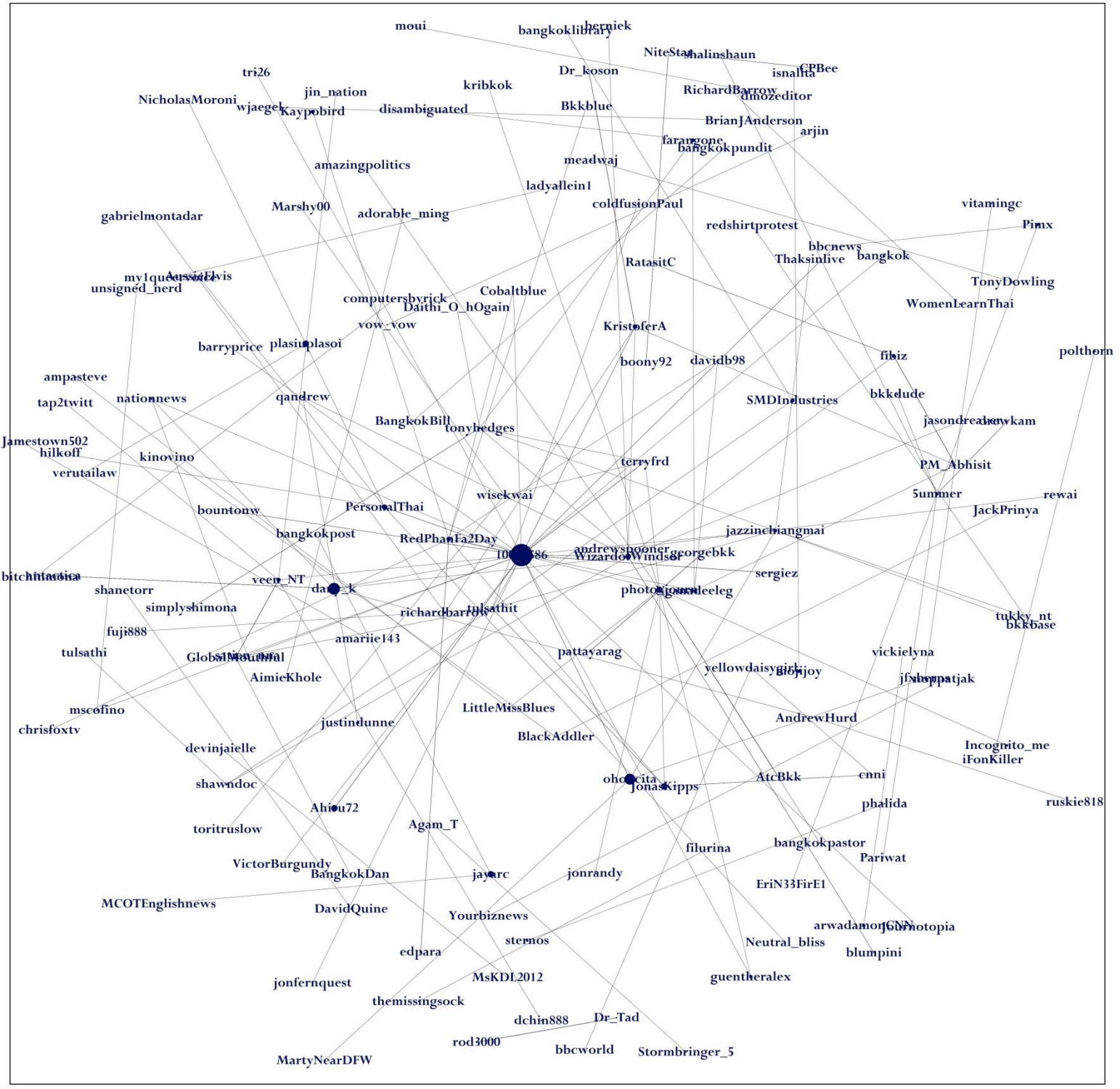


Figure 3. Social Network Diagram of Twitter Message Sample



Figure 3 provides a social network visualization of the dataset created in the NodeXL template (Smith et al. 2009), to provide a sense of the dialogical interactions of the sample. The Fruchterman Reingold algorithm (Fruchterman et al. 1990) was utilized to compute the undirected graph. The assumptions used in creating the graph are as follows:

- i. Edges represent a message from one user to another.
- ii. Only vertices involved in an edge are represented.
- iii. Re-tweets are represented as a single message, and hence are not reflected on the original sender, but on the re-tweeter.
- iv. Vertex size is proportional to total degree (sum of inbound and outbound edges) of vertex.

In addition, Table I presents the overall graph metrics which provide a higher level view of the network structure.

TABLE I. OVERALL GRAPH METRICS

<b>Measure</b>	<b>Value</b>
Vertices	522
Vertices with edges	152
Total Edges	188
Maximum Geodesic Distance	9
Average Geodesic Distance	3.77
Average Closeness Centrality	0.314
Median Closeness Centrality	0.03

The exclusion of re-tweets in the network analysis bears importance with regards to the network behaviors, as Kwak et al. (Kwak et al. 2010) demonstrate with their measure of prominence based on re-tweeting of specific twitter users messages. This line of inquiry could lead to interesting conceptualizations such as alternative measures which accords prominence based on a mix of re-tweets and number of followers data, or on the spread of movement related messages as demonstrated by Lerman et al. (Lerman et al.). However, I believe that the qualitative emphasis of this thesis is best represented by treating re-tweets as independent messages, as re-tweets are still used in the creation of the temporal data corpus. This assumption is important in terms of conceptualizing Twitter as a mobilization medium, as this thesis accord one-on-one messaging with greater import than broadcast messages, and codes forwarded messages as independent entities in the spread of content codes over time.

### **Coding Scheme**

In this section I describe the coding schema, comprising of structural and content coding schemes. The structural coding categories were adapted from the categorization schema developed by Earl (Earl 2006) for the purposes of categorizing protest websites. Jennifer Earl's work explored some of the antecedents of this thesis through the medium of protest websites, providing insights amongst other aspects on intentionality, and artifact networks. However, this study bears some important contrasts with the Earl study, in a sense, extending its scope and applicability. The salient differences between the two studies are:

- (i) The Earl study focuses on how websites link to, facilitate and frame social movement activities, whereas this thesis concerns itself with how messages relate to the movement itself, in terms of the intent and content of the user.
- (ii) The sampling procedures of the earlier study were contingent on the subject of study, websites, and hence utilized Google searches to generate the initial sample. The present study utilized an API to generate a sample of messages from a particular time period of interest.
- (iii) In terms of identifying mobilization, the Earl study had a strictly bound criterion, i.e., a focus on tactical websites which are used for specific tactics such as letter writing, petitions etc. However, this study looks at appeals to participate in social movement activity on the Twitter medium, in a sense providing a precursor phase to the earlier study, with messages appealing for action and linking to a variety of websites, including the tactical websites described by Earl.

The adapted categorization schema utilized to code the tweets is as follows:

TABLE II. STRUCTURAL CODING SCHEMA

i.	Is the tweet relevant?
ii.	Is the tweet providing information about the protests? a. Isthetweet providing localized (generative) information?
iii.	Is the tweet appealing for action?
iv.	Is there a link provided in the tweet? a. Does the link point to unique author resource? b. Does the link point to a non-unique author resource (discussion forums etc.)?
vi.	Is the tweet expressing an opinion?
vii.	Is the tweet asking a question?
viii.	What is the subject of the tweet?

The first seven categories were coded as binary measures. In addition, I added a content coding category (number viii) to provide some measures of both the “nature” of the tweet, as well as, the “subject” of the tweet. For the content coding category (viii), an initial set of codes was decided based in accordance with the dual emphasis specified by Jackie Smith (Smith 2001) in her analysis of the WTO protests, i.e. how movement actors are mobilized and how these members act in specific socio-political contexts. In addition, content codes were generated in an inductive fashion(Miles et al. 1994) through a first iteration of open coding (on English language tweets), which was conducted by two graduate students. Subsequently, the two lists of generated content coding categories

were compared and a final list of coding categories was agreed upon. The final coding schema hoped to provide the maximum coverage while ensuring a logical cohesiveness. The newly constructed coding schema was then used in a definitive coding iteration to generate the final coded document. For the definitive coding iteration, tweets in the Thai language were coded by a colleague from Thailand.

TABLE III. CONTENT CODING SCHEMA

Number	Content code	Description
I	Mobilization	Messages which describe assembling, marshalling or coordination of a group of people.
II	Tactics	Messages which describe the tactics employed by movement and government actors.
III	Leadership	Messages which describe/reflect upon the leadership of protestors and government
IV	Disruption	Disruptions to civic life due to the protest events on commerce, transportation and housing
V	Clashes	Messages describing engagement between movement and government actors
VI	Information Seeking	Information Behavior in terms of asking for local information, clarifications of emerging situations and translation activities
VII	Reflexive	Messages which contain reflections on identity and the medium (Twitter) itself
VIII	Reportage	Photos, videos and eye witness accounts of happenings at the

		ground level
IX	Media	Tweets which describe popular opinion w.r.t actors (movement and government) or reflect/describe mainstream media coverage.
X	Pop-Culture	Messages relating movements events to popular culture and parodying movement elements

The content coding schema is presented above in Table 2, and involves ten content coding categories. The first three categories, mobilization, tactics and leadership, are fairly straightforward in that they are dominant aspects of most social movements. The clashes and disruption categories overlap to a degree, however, the clashes category (referred to by users as a “crackdown”) concerns itself primarily with the engagement of protestors with government actors such as the police and militia, whereas the disruption category reflects on the effect of protest activities on civic life, including but not limited to clashes.

The Information Seeking, Reportage and Reflexive categories are particular to the new media format. The Information Seeking category encompasses the variety of activities users engaged in to seek information regarding the protests, as well as, to clarify and translate emerging information. The Reportage category describes tweets which contain generative localized content in terms of eye-witness accounts in a variety of forms, video, stills and text. The Reflexive category describes tweets which reflect on the Twitter

medium in the context of the protests, and also the identity issues brought forth by the particular repertoires of contention.

The Pop-Culture category covers both attempts at relating movement events with popular culture references, and a variety of humor related content, which is again particular to the Twitter medium. Lastly, the Media category covers reflections on mainstream media coverage, such as the speech by the King appealing for peace, and also opinion based messages. I believe that the final coding categories encompass conventional movement aspects such as mobilization and tactics, as well as, aspects of new media, such as on the ground reportage and popular culture, providing aspects which may prove useful in constructing vivid narratives of collective action.

## CHAPTER 4

### ANALYSIS

This chapter is divided into two sections, while the first section aims to describe the tweets themselves, the second section focuses on the specific content of the tweets i.e. describing what the tweets describe.

#### **Structural analysis**

The dataset under consideration displayed a high degree of relevance, with approximately 85% of tweets being relevant to protest events. However, this may be an artifice of the coding categorization (for example, we code parody and pop culture references as being relevant due to the emphasis on capturing descriptive data), the specific keyword chosen and the time period which forms the basis of the sample. Nevertheless, I believe that the high degree of relevance conveys the situated nature of noise in Twitter data, where smaller protest waves may exhibit greater relevance. The choice of keyword has a manifest effect on the noise (in the current context, defined as relevance in terms of describing the movement), as #hashtags which have been co-opted in the global discourse would be more prone to noise. In addition, 22% of tweets contained links, which is slightly higher as compared to the 13% projected by Java et al. (Java et al. 2007), in their analysis of Twitter usage patterns. Approximately 11% of the tweets were in Thai, which I believe to be a consequence of the choice of an English language keyword. Predominantly, tweets were informational in nature, with 66% of the sample conveying information about protest events. While the informational tweets primarily linked to and reflected upon mainstream media coverage, a surprisingly large instantiation (26% of the sample) of generative, localized information was observed, such as eyewitness accounts



and amateur media. User generated reportage, videos and pictures were not only widely re-tweeted but were interestingly generated by a subset of dedicated users, which is also consistent with Java et al.'s (Java et al. 2007) conception of interest sharing groups on Twitter.

Compared to the informational tweets, there was lesser instantiation of appellate tweets, I believe this is consistent with both the particulars of the Twitter medium as well as appropriate to the specified emphasis on the descriptive power of Twitter data as opposed to the popular conception of Twitter as an action mobilizing tool. Also, the informational character of tweets is consistent with the specified framing of the medium as a primary consensus mobilization medium as opposed to action mobilization, as conceptualized by Klandermans (Klandermans 1984). Considerable opinion based data was also observed, which was in relation to both mainstream media coverage as well as generative content produced on Twitter. While predominantly, links were to unique author content, a large proportion of tweets were to pages which can be construed as being single author yet with a comments section. The ubiquity of commentary sections and forums on content pages provided a classification complication, and with the benefit of hindsight, we coded pages with comment activity, as opposed to just possessing an inactive comment feature, as being non-unique author. While not substantial, there were instances of users question the hive about on the ground events, offer clarifications, actively translate Thai tweets for the benefit of English speakers and coordinate amongst themselves to allocate 'reporters' to areas which witnessed contentious collective action.

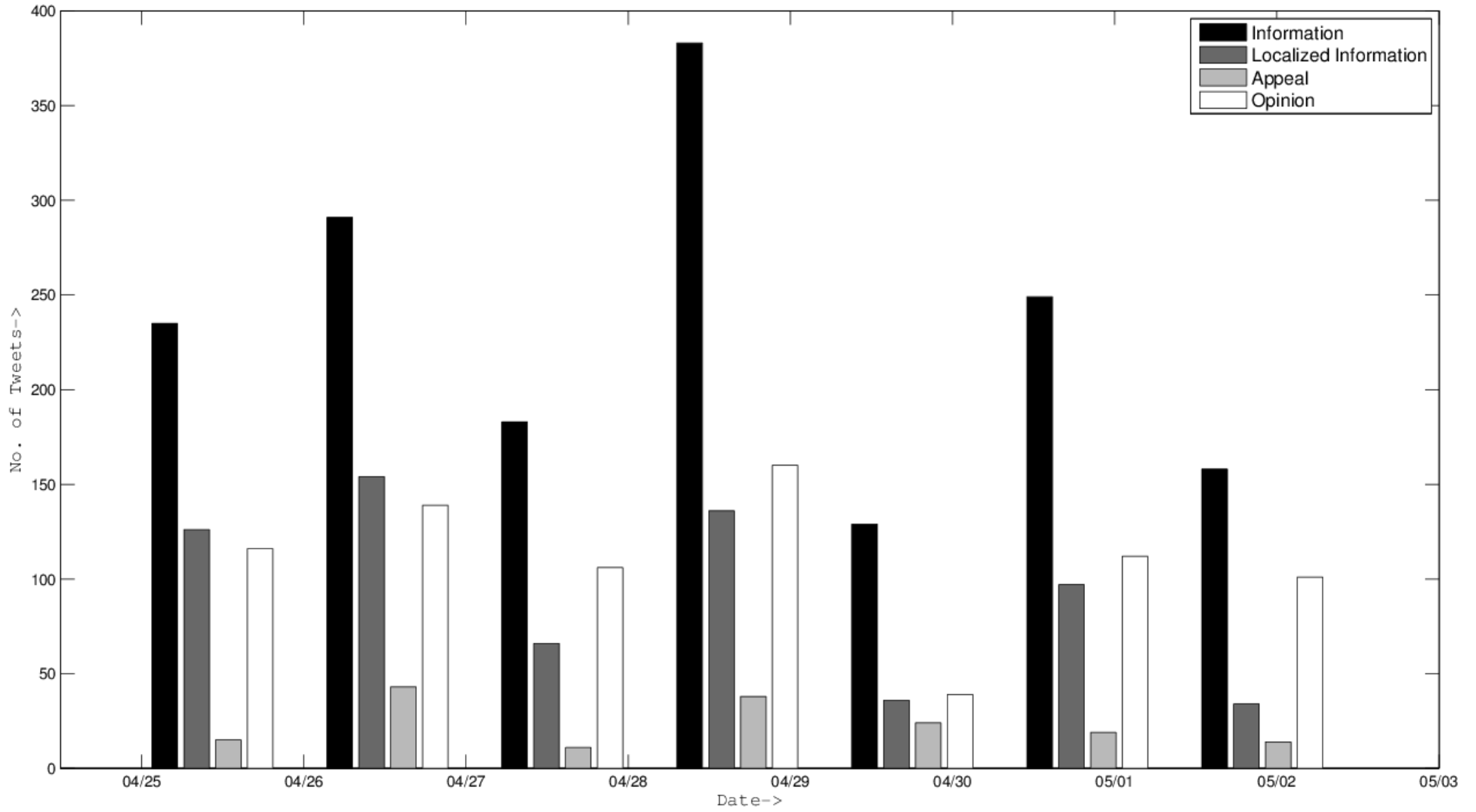


Figure 4. Structural aspects of twitter data from 04-25-2010 to 05-01-2010

To sum up, in terms of the intentionality of users, the primary emphasis was on spreading information, including a rich array of localized media and information. The dataset did not show strong instantiation of calls or appeals to action, which bears importance for projects which, unlike the present study, aim to establish causality or import of new media on the success or presence of protests. Unsurprisingly, there was also large amount of opinion data which reflected both on situations, before during and after their occurrence, as illustrated in Table 2, a prominent example being the outpouring of condemnation in the aftermath of the storming of Chulalongkorn University Hospital. I believe that the availability and classification of the spread of movement related information along with the opinions they elicited at the time of their occurrence, captured in real time, provides a rich repository for collective action scholarship, for with conventional data sources, the opinion data would largely be restricted to mainstream media sources.

### **Content analysis**

The description of the content of the tweets in the sample is divided into two sections. In the first section I illustrate prominent content codes and their distributions, and subsequently, I use this schema to outline my conception of Twitter ‘protest waves’.

#### *Content Code Distributions*

For illustration purposes, I divide the description of the content of the Twitter sample into three subsections, a grouping I utilized in the description of the content coding categories.

Namely:

- 1) Social Movements Core Content categories: Mobilization, Tactics, Leadership, Disruption, and Clashes
- 2) New Media Content categories: Information Seeking, Reflexive and Reportage
- 3) Mainstream Media related Categories: Media, Pop-Culture

The week which constitutes the sample marks a period where the offer for a ceasefire by the Red Shirts was declined by the Government. The end of ceasefire negotiations was followed by an upswing in violent clashes between protestors and government troops, culminating in the storming of Chulalongkorn Hospital in Bangkok city. The following subsections describe the content for the various categories in detail, as an illustration of the framework. As a measure for the privacy and security of the users in the dataset, usernames have been *blacked-out* in the exemplar messages used to illustrate the content categories and their associated phenomena.

#### *Social Movements Core Content*

The mobilization and tactics categories exhibit a similar pattern in terms of volume of messages as can be seen in Figure 3, which is a fairly obvious occurrence, as users described build-up of protestors/government actors along with the tactics that were employed by these collective actors. In contrast, the clashes category spiked predictably leading up to and during the actual occurrence of engagement between the protestors and government forces. Overall, the mobilization and tactics categories echo the trends of the dataset as a whole, with three local maxima each in terms of number of messages. For example, immediately after the dissolution of ceasefire talks, there was a mobilization of

protestors towards the Prime Ministers' residence (as shown below). In addition, the appendage, describing the arrival of the protestors at the site, attached to the original message describing the mobilization, demonstrates an instantiation of the synthetic information production as conceptualized by Starbird et al. (Starbird et al. 2010).

“RT [REDACTED]: Large group of #redshirts moving down Sukhumvit towards PM Abhisit's house right now /via @[REDACTED] // They are here.”

The tactics category similarly displays the tactics of the protestors and the government forces during periods of mobilization. For example, leading up to the clashes of April 28<sup>th</sup>, users described the buildup of the redshirts fortress,

“Just noticed 8 soldiers and a couple of small tyre walls around 100m from the expressway entrance between khae rai and the mall #redshirts”

The descriptive detail provided by the new media platform is best instantiated by the spreading of rumors of the supposed ‘crackdown’ by the police forces after the breakdown of talks, from April 25<sup>th</sup> onwards to April 28<sup>th</sup>, when the protestors and police forces finally engaged. In the following exemplar tweet, the time period of the expected event is provided, the tactical adaptation of the protestors is described and an image is provided to validate the claim, which eventually proved to be a false alarm, 3 days before the actual event occurred.

“Photos of #redshirts changing into multi-color shirts ahead of tomorrow mornings  
expected                      crackdown                      <http://preview.tinyurl.com/████████>”

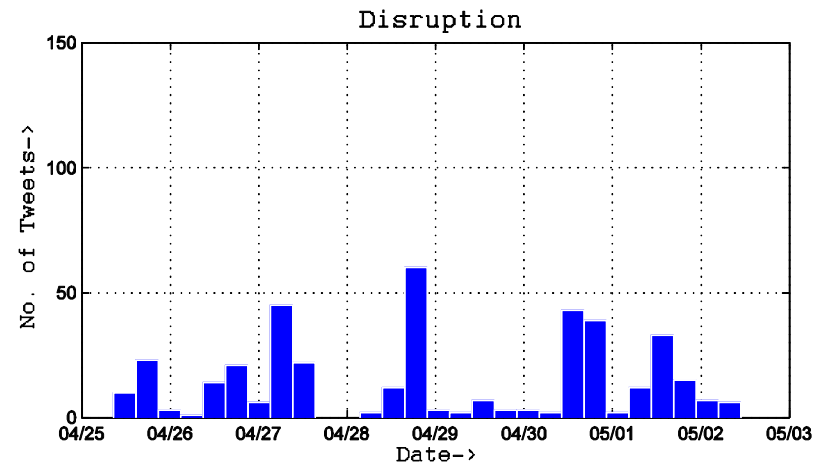
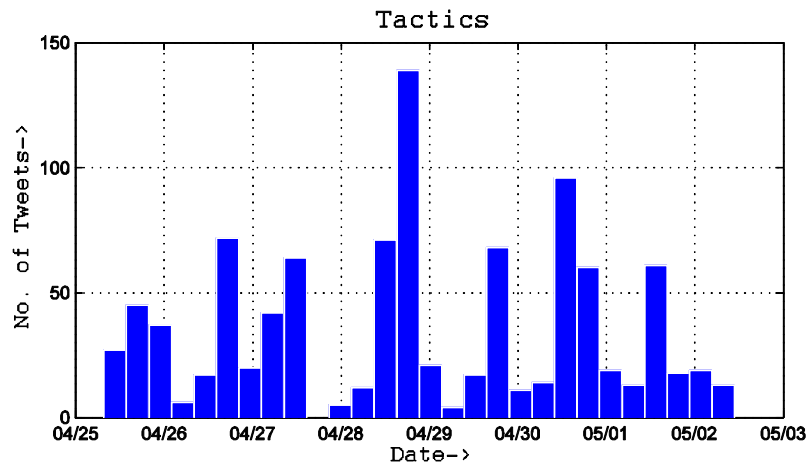
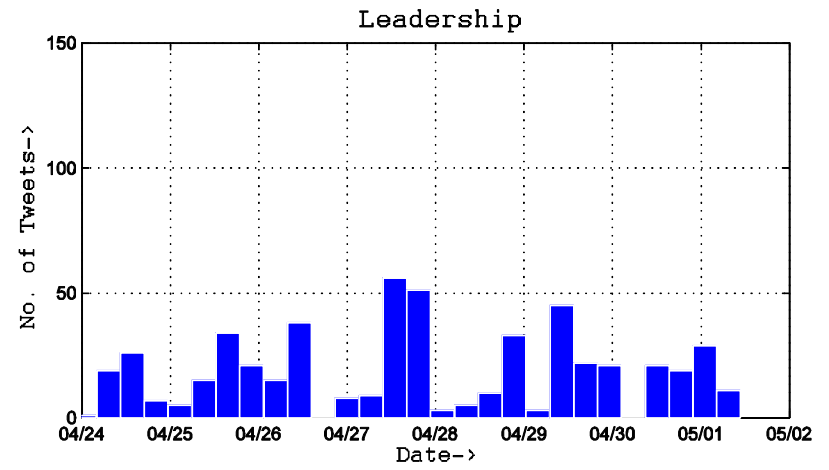
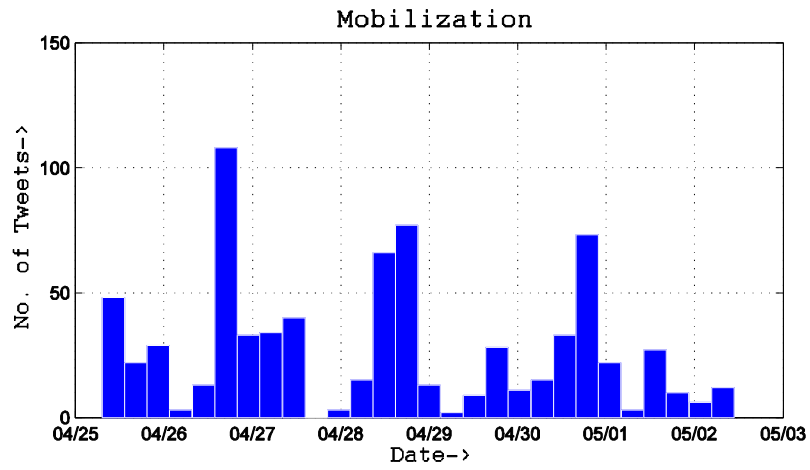


Figure 5. Social Movements Core Categories

The source of this widely re-tweeted message was the official blog of the protestors and their repeated alarms about the crackdown on the horizon eventually raised issues of veracity in the community.

“@██████████ #redshirts How many times has @██████████ predicted a crackdown? Predicts every day. I count 3 times this week. Scaremongers”

While the effectiveness of Twitter as a propaganda medium is debatable, for scholars hoping to document the development of movements, the particularities of their rhetoric and their evolving tactical repertoires, clearly new media datasets provide richness unavailable with conventional data sources such as news-banks, in effect, providing a vivid illustration of frame contestation (Benford et al. 2000) with the variety of framing/counter-framing processes captured in their minutiae.

In terms of the disruption category, while the end of ceasefire talks was source of local maxima, the actual occurrence of clashes and the storming of a local hospital were the source of much content regarding the disruptive effects of protest events on commerce, communication, transport and civic services. For example, after the breakdown of talks, the redshirts mobilized in large numbers across the city, users described the effect on transportation services in great detail, providing a thorough documentation of the spread of protest activities geo-spatially.



“RT @████████: JS100 reports that #redshirts set up 3 checkpoints -one on Mitrapap Rd (km 91) and 2 on Paholyothin Rd (km55-56 &94).”

Lastly, the leadership category covers reflections on and reactions to the leadership of both the protestors, as well as, the government. Specific leadership events, such as the speech by the Thai King, Bhumibol Adulyadej, on April 26<sup>th</sup>, elicited reactions regarding the content of the speech itself and opinions on its expected effect on the crisis, as well as, spawned resurgent and contrarian #hashtags, “#weloveking” and “#welovethai”, emphasizing a common allegiance to the King and a negation of the various color-based factions. I believe that such new media activity provides illustrations of the processes of the expression of collective identities, or ‘identity work’ in the particular expression forms supported by the Twitter medium (Snow 2001). For example, the following tweet expresses an opinion regarding the possible mobilization of the protestors and the government forces and its relation to the King’s speech, underscoring the overlapping nature of the core social movements categories.

“RT @████████: Very doubtfull that any action will be taken today by Govt. or #Redshirts before HM The King speaks at 5pm!”

A similar case of overlapping was instantiated in response the storming of Chulalongkorn Hospital, which resulted in a set of tweets reflecting on the mobilization of protestors, condemnation of the leadership and tactics of the redshirts movement, and, most poignantly, the disruption of medical services and the evacuation of patients. I believe

that the high degree of overlap between these categories justifies this theoretical grouping in practical terms.

### *New Media Content*

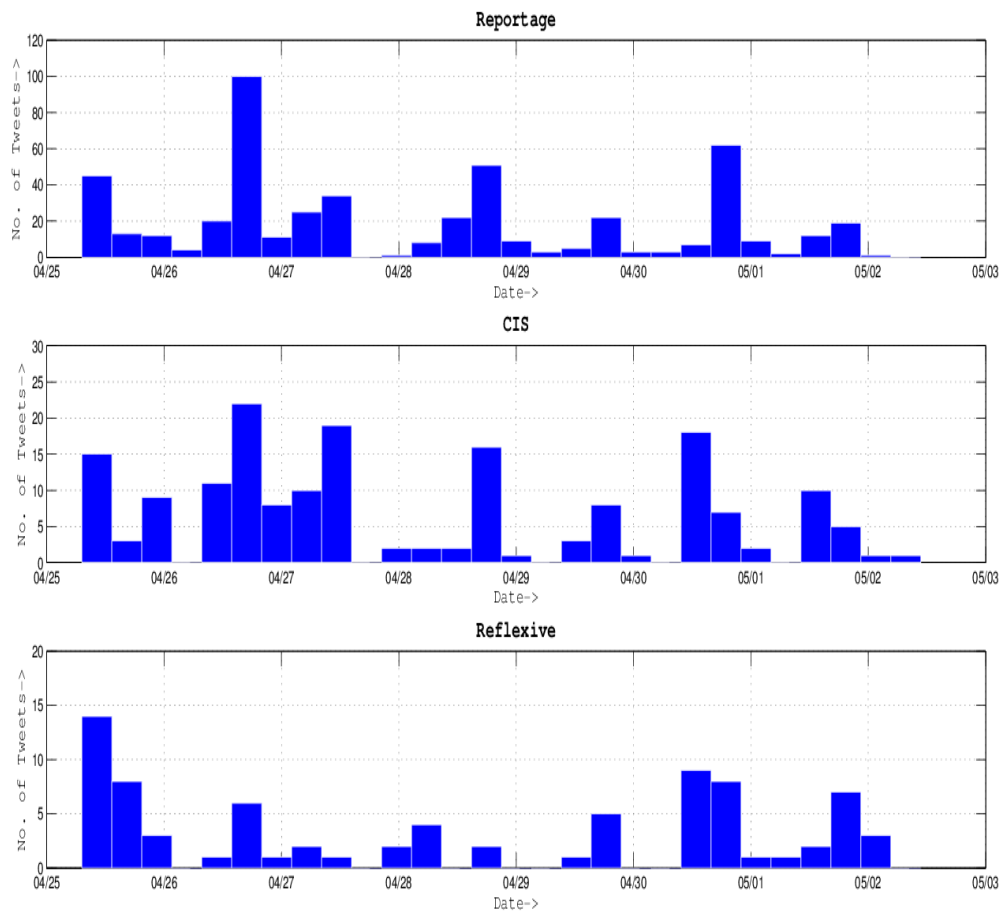


Figure 6. New Media Categories

The new media content categories- reportage, information seeking and reflexive, expectedly saw lesser volume of instantiation. However, I believe that these categories are of import in the context of the larger discussion with regards to the new media artifact and its relationship with collective action actors. In particular, it appears that new media data holds particular promise for examinations of ‘meaning work’ (Benford et al. 2000),

contestations of ideas and meanings, in the forms constrained and contained by the Twitter medium. The reportage and information seeking categories followed the volume patterns of the overall datasets, with users requesting and reporting information regarding emerging events.

The reportage category highlighted a set of users who dedicatedly provided on the ground reports, with an emphasis on video and image content, which were circulated heavily along the medium, as illustrated with the example regarding mobilization towards the Prime Minister's house, in the previous section. However, in a development that would no doubt be of interest to research on the causality of new media on protest efficacy, in a few instances, this small set of users appeared to be coordinating their coverage of events, by combining the information seeking possibilities of the medium to ascertain the presence of Twitter users at protest sites to maximize reportage, as seen in the example below.

“@██████████ #redshirt - if no one's down there now, I'll grab my M9 & see if I can make it down to Rajprasong.”

At all points during the three protest epochs of the dataset, users tweeted information with specifics of presence of movement and police actors at various parts of the city, documented arrests by the police, provided coverage of emerging situations, provided translations for English language users and described the disruption and resumption of civic life in minutiae. Generative content appeared to be circulated more widely than

media based links, such as links to news websites, a form of self-validation within the community. In addition, the importance accorded by the community to visual content appears to be consistent with Gamson's (Gamson et al. 1993) conceptualization of the visual media and its association with 'spectacle, drama and confrontation', only unlike the original medium of television, it is the digital spectacles of modern movements which are the focus of scrutiny. Additionally, the presence of dedicated sets of generative users bears importance in the selection of 'sites' in new media datasets, i.e., establishing means to "*follow the conflict/people/things*" (Marcus 1995) that imbibe the social and cultural meanings of their context in new media environs. In addition, the presence of these super-users reinforces the call by Palen et al. (Palen et al. 2010), for the inclusion of conceptualizations of users as self-organizing and collectively intelligent actor groups in the design of crisis management programs. While there were relatively limited instances of information seeking in the dataset, by and large, such usage was dominated by the set of generative users and responses to these users, as in the example that follows, which shows the putative importance of the medium in gathering localized and generative information to users.

"RT @██████████: #redshirt Any updates on army movements? & nada. my timeline has been quiet :("

Lastly, the reflexive category followed no discernible volume patterns, and was composed largely of observations on the Twitter medium in the context of the crisis. This category displayed a wide variety of usage scenarios, tourists reflecting on using Twitter

to ascertain safe travel regions, opinions regarding the various factions of Twitter users (democratic, redshirts, and the non-denominational- #nocolors groups), opinions on attempts at government censorship, clarifications with regards to the veracity and accuracy of Twitter dialogue, and reflexive dialogue regarding the users posting generative content, as in the example below.

“If shit is indeed going down, please don't go be an amateur reporter. Keep away from the #redshirts, let the professionals take the risks.”

### *Mainstream Media Categories*

The last set of content code categories are centered in relation to mainstream media coverage and comprise of two categories, Media, and Pop Culture. These categories had limited instantiation in the dataset. In a fashion peculiar to the medium, almost one fourth of the total messages linked to unique author resources, comprised largely of mainstream media sources, a feature whose import is best reflected by McCarthy et al.'s (McCarthy et al. 1996) use of Lipskian rhetoric (Lipsky 1968), “*If protest tactics are not considered significant by the media, or if newspapers and television re-porters or editors decide to overlook protest tactics, protest organizations will not succeed. Like the tree falling unheard in the forest, there is no protest unless protest is perceived and projected*”. In the messages contained in this category, users reflected on the crisis coverage by the international media and the local newspaper, television and radio institutions. For

example, in the following tweet, a user questions the discrepancy in the reporting of the death of a soldier in the aftermath of the hospital invasion.

“RT @ [REDACTED]: Slaying or accidental shooting? y difference in reporting between BKK Post & The Nation? #redshirt [http://\[REDACTED\]](http://[REDACTED])

In addition, the data set contained instances of users reflecting on alleged selection bias (McCarthy et al. 1996) of mainstream media sources, providing a new dimension to the idea of selection bias, in that, now scholars could examine perceived bias as opposed to previous conceptions rooted in numbers, such as the number of media mentions of a particular event. For example, in the following message, a user wonders whether the lack of coverage by the BBC of the hospital invasion by the redshirts, has some connotations with regards to their support of the redshirts.

“So #redshirts are even admitting they invaded the hospital and still @bbcnews fails to report it. I just don't get it. BBC=red?”

The Pop-Culture category comprised of references to American popular culture, such as the red shirts in the television series Star Trek, and, more interestingly, memes generated in response to developments in the crisis. For instance, one such meme was initiated in response to the disappearance of Thaksin Shinawatra, the prime ministerial candidate of the protestors, and involved users claiming to have found Thaksin's location and linking to poorly photoshopped images of Thaksin in improbable locations like on the moon,

underwater, route 66, and Antarctica. Another prominent meme involved suggesting new names for the movement after the red shirts decided to abandon their red clothing in response to the expected crackdown by the government forces. The presence of visual gags and jokes about the movement identity would perhaps be most beneficial to the study of the movement culture, however, in their constitution, these phenomena undoubtedly signal the uniqueness of new media data sources. I believe that the Pop-Culture category is relevant to the study of social movements, as they illustrate Tarrow's (Tarrow 1998) notion of movements as consumers of extant cultural artifacts and the producers of new meaning endowed artifacts. In addition, popular culture based cultural artifacts could prove to be the source of public opinion insights, an approach illustrated by Gamson (Gamson et al. 1989) in his examination of nuclear discourse by means of public opinion artifacts.

### **Twitter Protest Waves**

I propose the analytical construct of Twitter protest waves which draws from Koopmans original formulation (Koopmans 1993) of protest waves. As stressed before, I do not focus on Twitter based activism as would be characterized by any number of neologisms like cyberactivism, cyberprotest and hacktivism, rather the emphasis is on analyzing discourse generated on the medium with regards to the movement under scrutiny. I use an example to draw out the conceptual frame.

Table III chronologically lists tweets relating to the arrest and escape of protest leader Kwanchai Praiphana, an event that got negligible coverage in the international English language press. The sequence of events involved Kwanchai being present at a movement

rally, apparently being apprehended by the police and reportedly eventually making an escape via a local McDonalds.

TABLE IV. TWITTER PROTEST WAVE EXAMPLE

(Personally Identifying Information has been blacked out)

Kwanchai is speaking to Nation Chanel: he is hiding under a truck or something!!! #thailand #redshirts #bangkok	Informational
From the Nation Kwanchai a #redshirts leader arrested near Don Muang	Informational
UDD FB “News! Kwanchai is back at the Rajprasong Tent! the Nation Newspaper report of his arrest is untrue” #redshirts	Counter- Informational
Kwanchai, red-shirt leader, is now escaping in the van. The license plate number: N [REDACTED] 3 [REDACTED] U [REDACTED]. #redshirts	Appeal
Waiting for further confirmation of Kwanchai, a red shirt leader, arrested. Hope it's true.... #RedShirts	Opinion
ASTV says Kwanchai fled,leaving #redshirts to fend for themselves. there's always Montenegro w/ someone of similar character	Informational / Parody
McDonalds could well use Kwanchai as a presenter. “You're always safe at McDonalds.” #RedShirts	Parody

In the Twitter chatter, the event of the arrest was first referred to in reference to live television coverage, and was widely re-tweeted. Subsequently, the official Facebook page of the protestors’ party (UDD) published a counter claim refuting the news of the arrest, a



rebuttal which was also re-tweeted extensively. Following the sequence of claims and counter claims, an appeal was circulated on Twitter with the license plate information of the car purported to be the vehicle in which Kwanchai had made his escape. The cycle of messages terminated with parodic messages referencing the supposed foray into McDonalds and the Montenegrin citizenship of the leader of the Red Shirts, Thaksin Shinawatra.

While further analysis is required to establish the variety of progressions followed by Twitter chatter regarding a range of collective action events, I believe that the *'information, appeal/opinion, parody'* cycle aptly illustrates one such Twitter protest wave. Another prominent protest wave found instantiated included the, *"leadership communication, opinion, parody"* wave, as seen in the case of the expression of surprise by the Prime Minister regarding the *"new world where everyone communicates fast"*, and the reaction amongst users to the announcement by the redshirts leadership distancing the movement from the disruption of the Bangkok Mass Transit System (BTS), claiming that the act was perpetrated by *'fake'* redshirts. Lastly, with respect to generative content, particularly video and image content, there appear to be, *"information regarding protest location, multimedia content from site, opinion/clarification"* waves, which hint at activism or at least on-the-ground reportage which appears to be directed by previous chatter on the medium.

My conception of protest waves is an initial step towards the creation of methodologies that attempt to answer the following question- *How can the multitudes of streams of new*

*media data be analyzed in a fashion which mimics the intentionality and awareness of the users that created them?* Alternatively, if individuals share observations, information, witticisms and opinions in a specific contextual imaginary, how can the analysis of these interleaved and most human of patterns, avoid the pitfalls of treating each message on its own individual contents. As yet, the traditional approaches to analyzing these vast swathes of data have tended to follow the logics of the computer science methodologies that are used to harvest, store and manage the data sets themselves, with keywords and structural elements of individual messages dominating the methodological landscape (a tactic employed in sections of this current study as well). Protest waves are a small step towards identifying and, more importantly, analyzing new media datasets through a focus on narrative forms, as opposed to getting wedded to the particularities of platforms, such as re-tweets on Twitter and trace-logs in Wikipedia. Admittedly, protest waves have limitations in their applicability, indeed, the dataset contained long stretches of dialogue that appeared to be disconnected with the dialogue of the moment, such as the re-tweeting of messages which had long since lost their relevance. However, I believe that this is a normative feature of an asynchronous medium and the task of the researcher is primarily to identify streams of relevance, in effect, picking stacks of needles from the proverbial haystack. The conception of protest waves draws heavily from the anthropological notion of assemblage, as deconstructed by George Marcus et al. (Marcus et al. 2006), as “*a resource with which to address in analysis and writing the modernist problem of the heterogeneous within the ephemeral, while preserving some concept of the structural..*”. So, in essence, as a product of modernity, new media data invites applications of constructs which are constantly evolving to cope with ‘contemporary’

problems (Rabinow et al. 2008), and concordantly contemporary methodologies need to evolve to account for the narrativity of the data that they attempt to analyze.

## CHAPTER 5

### FOLLOW UP

#### Premise

While the initial study concerned itself with the prevalence of phenomena such as intentionality and mobilization, I conducted a follow-up study to examine the granularity of a selection of these measures in the data set. The study concentrated on three aspects in particular, namely, i) location (ii) appeals for action and (iii) tactics. The need for a follow-up was emphasized by the results of the initial study which highlighted the complexity of the meaning work involved in the creation, and de-construction of individual messages. I illustrate the different notions of scale and embedded meanings in the single line messages which constitute the dataset by means of the following exemplar tweets.

*(a) #redshirts have partially blocked main road into Bangkok from north. I estimated at least 5km of traffic jams*

*(b) Where will Abhisit live after he dissolves Parliament? Probably not Soi 31! #redshirt*

The first tweet describes the tactics of mobilized protestors, whereas the second refers to the tactics of the leadership, in the form of PM Abhisit. In terms of location, tweet (a) concerns itself with the main road into Bangkok, whereas the second refers to the Prime Ministerial residence. As is evident in the examples, these messages encode information in a fashion not amenable to automated text mining techniques, and require human interlocutors to carry out interpretive work. For the purposes of this study, to establish

granularity of these measures in a scalable fashion, we utilized a crowdsourcing methodology which is described briefly in the next section.

## **Methodology**

For the purposes of the follow-up study (here on also referred to as study 2), I utilized the Mechanical Turk (mTurk) Platform (Buhrmester et al. 2011), which crowdsources micro-tasks to registered workers on the platform. Requesters create tasks (known as Human Intelligence Tasks (HITs) on the system) which are then viewable by workers in the marketplace. The mTurk platform has been utilized successfully in a number of research studies (Alonso et al. 2008; Feng et al. 2009; Little et al. 2009; Marge et al. 2010). For study 2, I utilize the categorization skills of the workers on the platform to qualitatively code each one line message.

I created a modified dataset for study 2 which comprised of 2100 of the original 2451 tweets. Messages in the Thai language were excluded after an initial iteration, which restricted the tasks to mTurk workers geo-located in Thailand, produced low quality results. In addition, a small number of tweets were also removed such as those in languages other than English and spam messages which contained only hashtags or links. Of this reduced sample, I created two sub-samples of 300 tweets (sample 1) and 1800 tweets (sample 2) respectively. The two samples were coded in separate batches. For sample 2, each one line message was coded by one worker. For sample 1, each one line message was coded by two dedicated mTurk workers. Sample 1 was then utilized for the purposes of generating inter-coder reliability, which resulted in an overall reliability rating of 82%.

To ensure increased reliability and trustworthiness of coders, the study used a three point qualification criteria, (i) worker must have approval rating of tasks completed over lifetime of over 98%, (ii) worker must be located in the United States, and (iii) worker must have at least 5000 HITs approved overall. A control was added to filter automated, insincere and bot responses in the form of two layer questions. If a coder responded negatively to the first level question (i.e. one which asked for the presence of a measure), and then responded positively for the granularity of the measure, then the coding response and coder were flagged for inspection. The final coding instrument (provided in Appendix) was generated after five iterations which were tested by workers on the platform in small samples (50-100 tweets each). This iterative approach was employed to ensure comprehensibility of the coding instrument and to provide a check on the quality of responses to the same.

### **Preliminary Results**

In this sub-section I provide a summary of some of the salient initial findings of the follow up study. The results are grouped by the three measures under scrutiny.

#### *Locational granularity:*

Figure 7 provides a Gantt chart of the location codes over the one week period covered by the sample. Coders were asked to indicate whether the Tweet contained or implied a geo-locational context. If the coder indicated that the tweet did contain a geo-locational reference, then a secondary question asked the coder to indicate the scale of the geo-locational reference. The coders were provided a four level location scale, namely, (a) *Country*, (b) *Region*, (c) *City*, and (d) *Street/Landmark*.

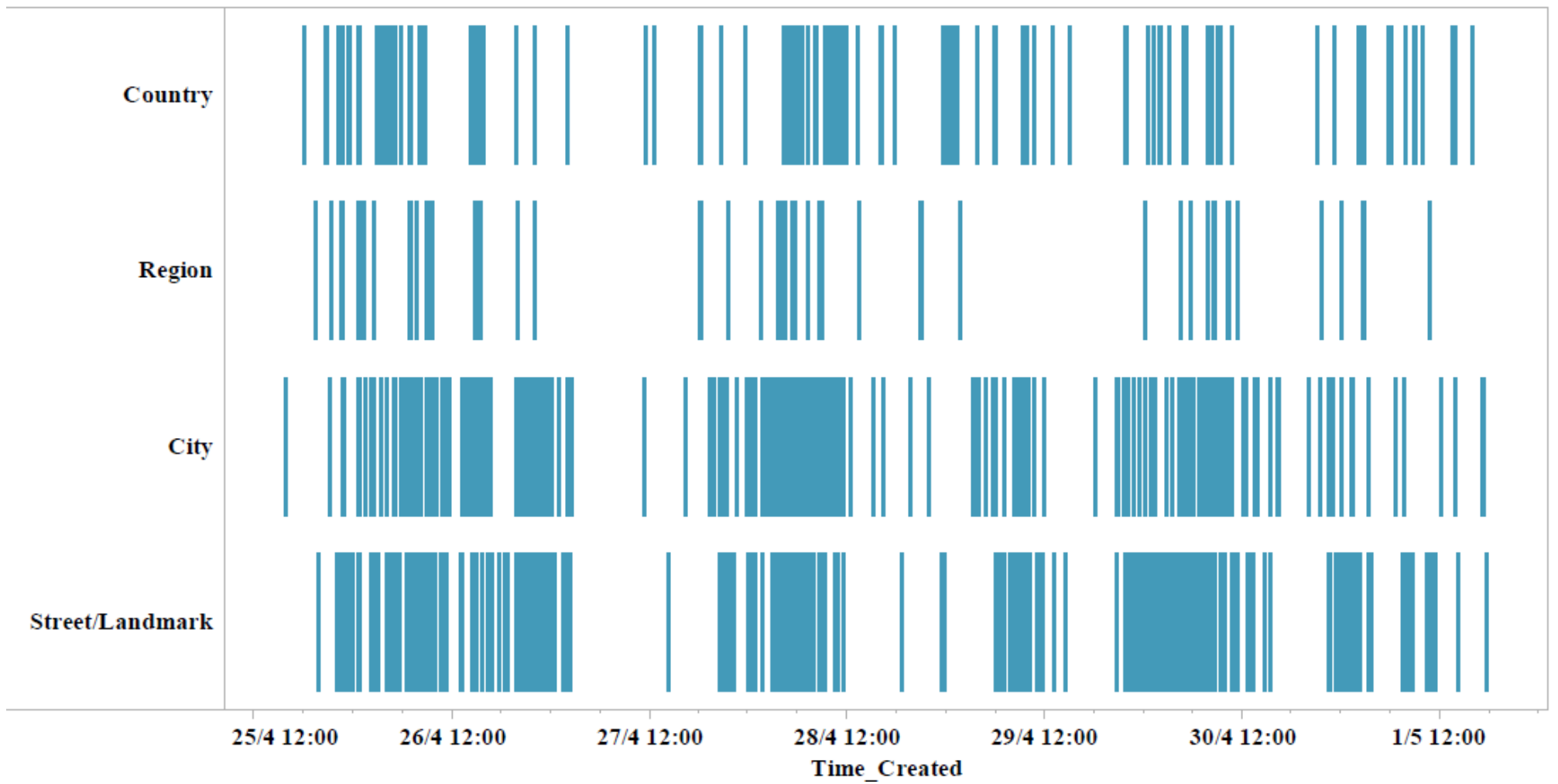


Figure 7. Locational Granularity

In terms of locational scale, there was limited instantiation of the regional category. In addition, messages which discussed the country of Thailand as a whole, were spread evenly across the sample period, and included a large number of links to international media coverage of the crisis. More interesting were the distributions of the two higher granularity categories, in that, messages over the three events covered in the sample evoked messages encapsulating a greater level of locational detail, a finding which strengthens the case for the specificity of Twitter datasets and its consequent usability for the purposes of social movements scholarship. In particular, the City category was instantiated regularly in the lead-up to the crackdown on the 28<sup>th</sup>, which provoked city level commentary on the Twitter medium. The breakdown of ceasefire talks provided both city and street level locational messages. Lastly, the Street/Landmark category had sustained instantiation over all three protest events in the sample, which could be construed as an effective means of approximating mobilization activity geo-locationally. The mobilization towards the Prime Minister's residence on the 26<sup>th</sup> and the storming of Chulalongkorn Hospital constituted messages with high locational granularity and message volumes.

*Tactical granularity:*

For the second measure, tactics, coders were first asked to identify whether the message contained information pertaining to the tactics of either the government or the protestors. If the coder indicated that a tactical measure was described, then a secondary question asked the coder to indicate whether the message concerned itself with the tactics of *Leadership*, or with the tactics of *Followers* (i.e. ground level descriptiveness). The



results for the tactical granularity are presented in Figure 8, in the form of a Gantt chart. Although the initial iterations of the coding instrument included a more detailed measure focused on the type of tactics mentioned, the preliminary results were not encouraging, in that, coders interpreted tactical categorization in an irregular fashion. Consequently, a simpler tactical scale was devised, restricting the categorization to the ownership of the specific tactic described.

As expected, ground level details describing grassroots tactics instantiated themselves at all points in the sample, over all three protest events. The first event, the breakdown of talks, led to the creation of a series of messages detailing the large scale mobilization of protestors and troops, and their concordant tactics. The lead-up to the crackdown by the government, provoked messages detailing both the preparatory tactics by protestors, such as creating fortifications, in anticipation of clashes, as well as, messages which detailed the actual violent confrontation between the opposing factions. Lastly, the events at Chulalongkorn hospital triggered sustained messaging (largely in condemnation) of the tactics employed by the protestors throughout the duration of the event, as well as in its aftermath.

The Leadership category witnessed sustained instantiation during the ceasefire talks and in the aftermath of their cessation. The period after the breakdown of talks also exhibited chatter on the medium relating to the address by the King Bhumibol. The King's speech provides an interesting case for exploring two notions, (i) the importance accorded to the royal address, which proved decisive in the protests of 1992, and (ii) whether Thailand's

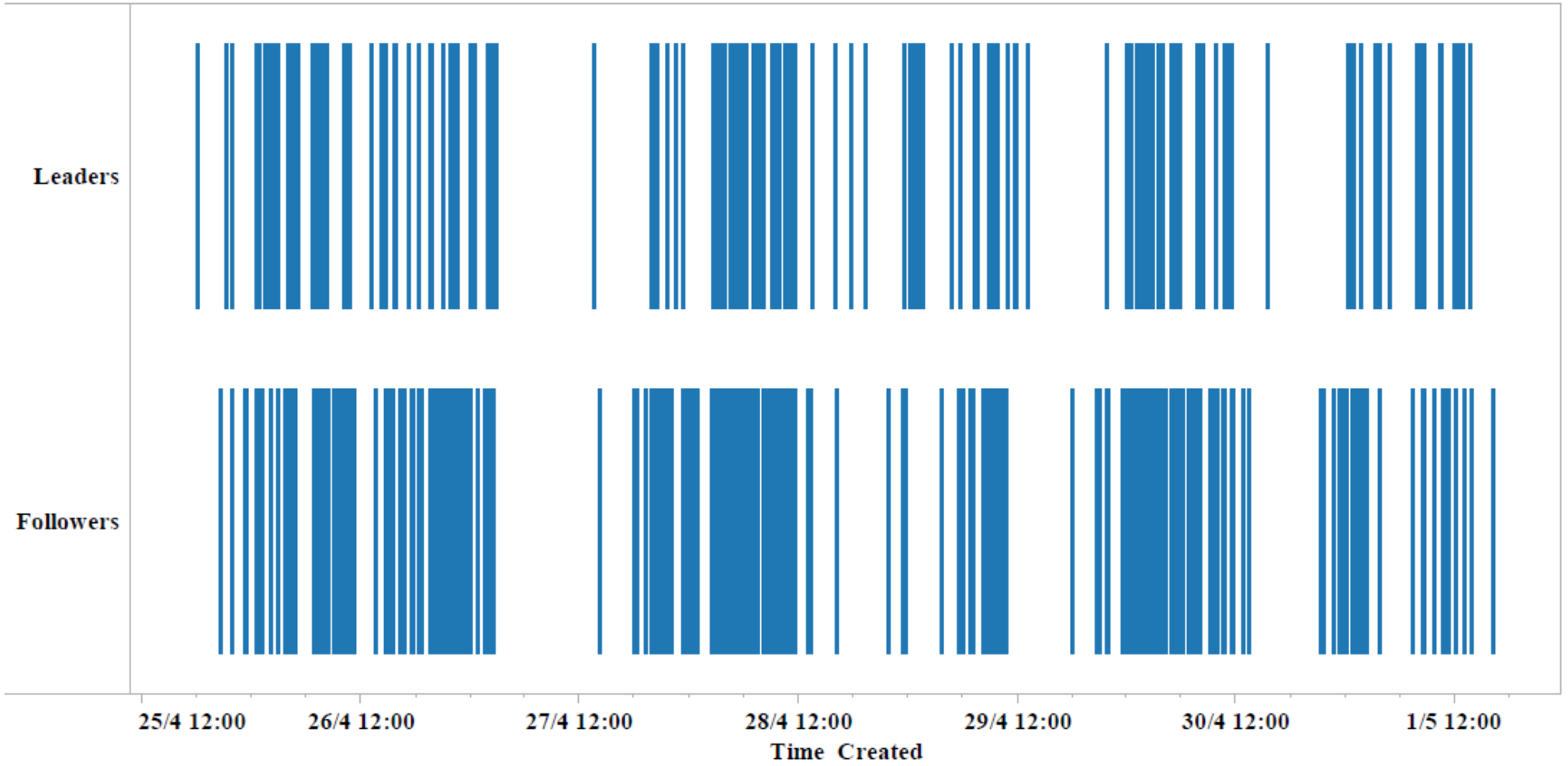


Figure 8. Tactical Granularity

strict Lèse majesté laws (Ockey 2005; Streckfuss 1995) (which forbid critiquing the royal family) have a manifest effect on messages on the Twitter medium. In addition, the hospital invasion provided messages on the medium relating to Leadership tactics during the periods *before and after the event*. The messages prior to the event occurring described allegations of the presence of government troops at the hospital by the redshirts leadership, and the messages after the event described leadership tactics of the redshirts which tried to distance themselves with the hospital invasion, for e.g. blaming ‘fake’ redshirts for the events, as well as, ordering the protestors to help with the clean-up activities at the site.

*Action granularity:*

In terms of action granularity, coders were asked to indicate whether the tweet asked the *reader of the message* to perform an action (as opposed to simply describing an action). If the coder indicated that the message asked for an action to be undertaken, then a secondary question asked the coder to indicate whether the specified action was *virtual* (i.e. to be performed online, such as an online petition or a request to re-tweet the message), or *real* (i.e. a manifest physical action, such as a request to mobilize to a geo-location). The results for the action granularity of the data set are presented in figure 9, in the form a Gantt chart.

Overall, as indicated by the initial study, there were limited appeals for actions in the dataset. The Real category saw a flurry of activity before the expected crackdown on the 28<sup>th</sup>, with the UK and Australian governments advising against all unessential travel. In

addition, this category saw limited instantiation of appeals to appear at a rally on the 30<sup>th</sup> organized by the pro-democracy coalition.

The virtual action category was similarly sparse in instantiation. The majority of the content coded in this category concerned itself with requests to re-tweet messages, and requests to send in eye-witness accounts of the protests to crowdsourced new websites and established international news organizations which include twitter conversations in their regular coverage.

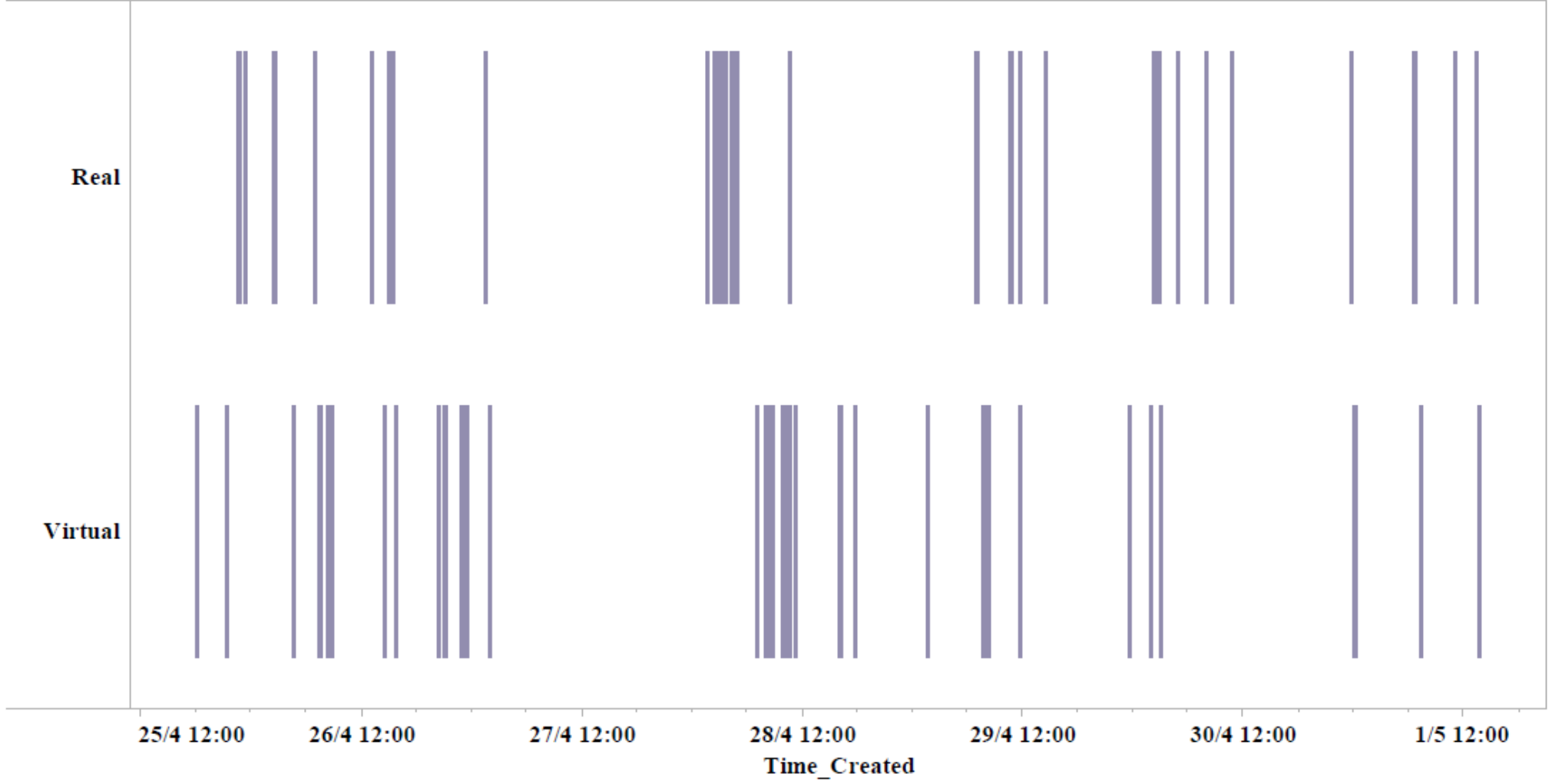


Figure 9. Action granularity

### **Movement Granularity**

In summary, according to the preliminary results of the follow up study, certain granularity measures (such as location granularity) proved more important and yielded more insight than others (such as action granularity). However, I believe that the next logical extension of establishing the type of chatter pervasive on the Twitter medium regarding protests would be to choose the prominent measures and examining them in greater detail and in a variety of contextual domains. Our experience with the mTurk micro-task platform is encouraging, in that, it belies hope for scalable analytical methodologies which can conceivably deal with the massive amounts of new media data which is available instantly, cheaply and freely across multiple mediums.

## CHAPTER 6

### DISCUSSION

This paper hopes to serve two goals, firstly, establishing the importance of Twitter data to the scholarship on contentious collective action crises, and secondly, providing a theoretically informed framework for conceptualizing and analyzing these datasets. The methodological contribution is focused on understanding the use of the medium in the context of collective action and to introduce notions of narrativity and granularity in the analysis of the same. The larger goal, is to distinguish between the recent skepticism with regards to the instrumentality of Twitter to the success of contentious collective action events, and the focus of this thesis on the richly descriptive and automatically collected Twitter datasets.

However, to problematize the medium by a process of defamiliarization (Bell 2006; Bell et al. 2005), it would perhaps be prudent to ask the question, *what is Twitter in the context of collective action?* The stance adopted in this thesis is best reflected by Woolgar's (Woolgar 2002) rules of virtuality, in particular, the conception of the virtual as a supplement rather than a substitute. It appears that while the medium has much to offer in terms of scholarship regarding multi-sited, transnational, and generally unbounded and amorphous contemporary phenomena, the addition of new media data can only supplement traditional methodologies, rather than replace them wholesale. Also, the discontents of simulation (Turkle 2009) need serious examination in the context of new media spaces, and the cyber-utopian rhetoric where repressive regimes can be toppled with re-tweets, and where liberation is always just a click away, need to be grounded in

empirical examinations rather than opinion pieces. In addition, the development of tools and methodologies to analyze and interpret new media data need to be wary of believing the volume graphs and network structures to be incontestable social facts, for, as much as new media has the powers to amplify social patterns, so too can it distort and deceive.

This thesis, admittedly with a relatively small dataset, suggests that Twitter is primarily a medium geared towards critique. The limits of existing vocabularies such as hacktivism(McCaughey et al. 2003), smart mobs(Rheingold 2003) and netwar, imply that the users of new media platform are geared towards action and that this action-frame results in tangible collective goods, however, it is not the credibility of this notion I question, rather the lack of a suitable methodology to establish the same. Online groups in new mediums might be coordinating action in multifarious creative ways, a phenomenon evident even in a small portion of the dataset, however, the dominant discourse appears to be driven by spreading the word about events, negotiating meaning and identities, and spreading and interpreting the mainstream media discourse. So perhaps, Twitter data in isolation is best suited to questions of collective identities (Castells 2004; Snow 2001), frame creation, negotiation and resonance (Benford et al. 2000) and public opinion garnered by movement events in the ever-present now-ness of Twitter data(Gamson et al. 1989; Gamson et al. 1993). Lastly, new media data provides an interesting avenue of exploration in terms of the existing conceptualizations of media and movements as dialectical systems, especially in terms of the redistribution of power relations between these two classes of institutions(Bennett 2003).



## CHAPTER 7

### FUTURE RESEARCH

In terms of furthering the conceptual basis of frameworks dealing with collective action online, I refer to Raymond Williams (Williams 1977) notions of the dominant, emergent and residual. I believe that while computational models of analysis of Twitter data can be useful in gauging the dominant and, to some extent, the emergent, nuanced qualitative analyses are required to draw out the residual aspects of collective action events, a project which cannot be conceivably be undertaken solely within the confines of the new media form. The residual category encompasses the imprint of past events and cultures on the present and has significant relevance in terms of establishing the culture and discourse of the movement under study and their distinct repertoires of contention. While the framework lays the groundwork for the curation and preliminary analyses of Twitter datasets, the inclusion of media studies theory would be a necessary first step towards establishing a productive framework which can adequately capture and describe the distinctive cultural detail of collective action groups. In particular, establishing the '*cultural commodity forms*' (Willis 2000) of new media spaces, such as Twitter, would perhaps be important in answering the defamiliarizing question, and in understanding the socio-symbolic relevance (or even the lack thereof) of such mediums.

Secondly, as discussed briefly in the protest waves subsection, aspects of narrativity of new media data are a prominent challenge to the effective utilization of new media data. Two approaches which would be essential to establishing narrative forms in new media datasets suggest themselves. First, as in the follow up study, the usage of crowd-sourcing

platforms such as Mechanical Turk (mTurk), which distribute tasks to an online hive of workers, appears inevitable in the quest for increasing the scale of tasks such as identifying relevance, classifying messages and, most importantly, constructing narratives of message streams. Second, effective visualizations are a necessity towards viewing these diverse set of streams as being narratively coherent. Existing solutions such as the E-Data Viewer (Starbird et al. 2010), while creating innovative ways of immersion in the data, are dependent on a vocabulary (“thousands of data points”), which emphasizes individual users and individual messages, rather than dialogical interactions. For in the context of online communities, especially within domains of collective action scholarship, *a user is more than the sum of his/her tweets*, and it is their contextual positioning in the dialogue of the moment which accords them significance. Conceivably, micro-task platforms such as mTurk could be harnessed to utilize human expertise in doing ‘meaning work’ to identify messages in a Twitter timeline which are part of the same conversation, and effective visualizations of these conversations could provide narrative streams of new media data, instead of user streams. While re-introducing narrativity to datasets which are themselves narrative products is an admittedly difficult task, I believe it is a fight worth fighting to ensure that the social lives of new media data (Brown et al. 2000) are not relinquished in the quest for ease of storing, searching and retrieving messages.

On a more pragmatic note, norms need to be established for research with Twitter datasets, which take into consideration the security and privacy of users who may be resident in relatively repressive climes and hence may be put at risk due to their

association with contentious collective action events(Burns et al. 2009; Morozov 2009c). As mentioned earlier, Thailand enforces strict *Lèse-majesté* laws, and the uptake of new mediums such as Twitter provides an interesting policy conundrum to users, researchers and government officials. A point in case being the arrest of Wipas Raksakultha(AFP 2010), a Thai Facebook user who was arrested on lèse-majesté charges after a post by him on the popular social networking site was charged as being critical of the royal family. As this event occurred during the sample period, it found mention and circulation in the dataset, emphasizing the circular nature of new media conventions and content.

In the process of writing this paper, due to the absence of established norms, I was forced to make a series of judgments calls with regards to the suitability of including actual messages and the forms of their representation. While recent work (Marwick et al. 2011) on the medium has begun to evaluate aspects such as privacy and identity management in these spaces, the domain of contentious collective action perhaps provides the phenomena in extremis, and would likely require alternative approaches to scholarly investigation. The intent of this work is to provoke further discussion on new-media based research and the concordant dualities of the politics of representation and the representation of politics in these emergent mediums(Hutcheon 2002).

## **CHAPTER 8**

### **CONCLUSION**

Crises involving contentious collective action have linked with social media in the popular imagination as well as the research literature, however, currently there is a need for conceptual work tying the rich canon of social movement research with the large amounts of data available on new media platforms such as Twitter. I provide a preliminary framework for conceptualizing and analyzing Twitter data related to contentious collective action events and demonstrate its usage with data related to the protests in Thailand. The results suggest a number of features of the medium in the context of collective action, such as the informational character of most messages, the notion of Twitter as a consensus mobilization tool, and most importantly, the cultural interactions and minutia provided by new media data sets for scholars of social movements and crisis management. I present the conceptualization of Twitter protest waves as an introductory element of the focus on narrativity in new media data, and as an expression of the intent to provoke discussion on the cultural and communication forms of the medium, as opposed to the current dialogue centered on platform particularities. Further, I provide preliminary results of a follow-up study which investigates granularity of three measures in the framework and provides an illustration of using the mTuk crowdsourcing platform for data analysis. Lastly, I discuss the methodological challenges for scholarship dealing with new media spaces and draw a preliminary future research agenda. The overarching hope is that this work is part of a larger conversation which explores notions of scaling, validation and meaning in analytical spaces where, much like

how William Wordsworth defined a poet, new media messages are treated as those from,  
*“a man speaking to men”* (Owen et al. 1974).

## APPENDIX

Please categorize the following one line message regarding protests in Thailand, by answering the following simple multiple choice questions.

### **Tweet**

Q1) Does the message supply information related to protests in Thailand?

a.Yes                      b.No

Q2) Does the message request the reader of the message to perform an action related to the protests?

a.Yes                      b.No

Q2.a) If yes, is the action requested virtual (for e.g. to re-tweet, or sign online petition) or physical ( for e.g. go to a location or report on an incident)?

a.Virtual Action                      b.Physical Action

Q3) Does the message contain a location (ignore hashtags such as #thailand, #bangkok)?

a.Yes                      b.No

Q3.a) If yes, at what scale is the location described?

a.Country      b.Region      c.City      d.Street

Q4) Does the message describe tactics (of protestors or government troops), for e.g. roadblocks, attacks or rallies?

a.Yes                      b.No

Q4.a) If yes, whose actions does the message primarily describe (leave blank if neither)?

a.Leaders                      b.Followers

## REFERENCES

- AFP "Thai man arrested for Facebook post about monarchy," 2010.
- AFP "US hails 'robust' Thai participation in key election," 2011.
- AlJazeera "Thaksin party wins Thai election ", 2011.
- Alonso, O., Rose, D.E., and Stewart, B. "Crowdsourcing for relevance evaluation," *SIGIR Forum* (42:2) 2008, pp 9-15.
- Appadurai, A. *The Social life of things : commodities in cultural perspective* Cambridge University Press, Cambridge [England]; New York, 2003.
- BBC "Q&A: Thailand protests," 2010.
- Bell, G. "The age of the thumb: A cultural reading of mobile technologies from Asia," *Knowledge, Technology & Policy* (19:2) 2006, pp 41-57.
- Bell, G., Blythe, M., and Sengers, P. "Making by making strange: Defamiliarization and the design of domestic technologies," *ACM Trans. Comput.-Hum. Interact.* (12:2) 2005, pp 149-173.
- Benford, R.D., and Snow, D.A. "Framing Processes and Social Movements: An Overview and Assessment," *Annual Review of Sociology* (26) 2000, pp 611-639.
- Bennett, W.L. "New Media Power: The Internet and Global Activism " in: *Contesting Media Power*, N. Couldry and J. Curran (eds.), Rowman and Littlefield. , New York, 2003.
- Bourdieu, P., and Johnson, R. *Field of Cultural Production : Essays on Art and Literature* Polity P., 1992.
- Brown, J.S., and Duguid, P. "The social life of information," Harvard Business School Press, Boston, 2000.
- Buhrmester, M., Kwang, T., and Gosling, S.D. "Amazon's Mechanical Turk," *Perspectives on Psychological Science* (6:1), January 1, 2011 2011, pp 3-5.
- Burns, A., and Eltham, B. "Twitter Free Iran: An Evaluation Of Twitter's Role In Public Diplomacy And Information Operations In Iran's 2009 Election Crisis," Communications Policy & Research Forum, 2009.
- Castells, M. *The Power of Identity (The Information Age)* Blackwell Publishers, Inc. [2004.
- Darling, F.C. "Student Protest and Political Change in Thailand," *Pacific Affairs* (47:1) 1974, pp 5-19.
- Della Porta, D., and Diani, M. *Social movements : an introduction* Blackwell, Oxford; Malden, Mass., 1999a.
- Della Porta, D., Kriesi, H., and Rucht, D. *Social movements in a globalizing world* Macmillan Press ;' St. Martin's Press, Houndmills, Basingstoke, Hampshire; New York, 1999b.
- Della Porta, D., and Tarrow, S.G. *Transnational protest and global activism* Rowman & Littlefield publ., Oxford, 2005.
- Downing, J. "Social Movement Theories and Alternative Media: An Evaluation and Critique," *Communication, Culture & Critique* (1:1) 2008, pp 40-50.
- Earl, J. "The dynamics of protest-related diffusion on the web," *Information, communication & society* (13:2) 2006, p 209.
- Feng, D., Besana, S., and Zajac, R. "Acquiring high quality non-expert knowledge from on-demand workforce," in: *Proceedings of the 2009 Workshop on The People's Web Meets NLP: Collaboratively Constructed Semantic Resources*, Association for Computational Linguistics, Suntec, Singapore, 2009.
- Fruchterman, T.M.J., Reingold, E.M., and University of Illinois at Urbana-Champaign. Dept. of Computer, S. *Graph drawing by force-directed placement* Dept. of Computer Science, University of Illinois at Urbana-Champaign, Urbana, IL, 1990.

- Gaffney, D. "#iranElection: quantifying online activism," in: *Web Science 2010*, Raleigh, NC, 2010.
- Gamson, W.A., and Modigliani, A. "Media Discourse and Public Opinion on Nuclear Power: A Constructionist Approach," *The American Journal of Sociology* (95:1) 1989, pp 1-37.
- Gamson, W.A., and Wolfsfeld, G. "Movements and Media as Interacting Systems," *Annals of the American Academy of Political and Social Science* (528) 1993, pp 114-125.
- Ganley, G.D. *The Exploding Political Power of Personal Media* Norwood, New Jersey: Ablex., 1992.
- Garrett, R.K. "Protest in an Information Society: A Review of Literature on Social Movements and New ICTs.," *Information, Communication and Society* (9) 2006, p 22.
- Gladwell, M. "Small Change: Why the revolution will not be tweeted.," in: *New Yorker*, 2010.
- Hermida, A. "Twittering The News: The emergence of ambient journalism," *Journalism Practice* 2010.
- Hookway "Thai Military Accepts Election Result ", Wall Street Journal, 2011.
- Hughes, A.L., and Palen, L. "Twitter adoption and use in mass convergence and emergency events," *International Journal of Emergency Management* (6:3-4) 2010, pp 248-260.
- Hutcheon, L. "The politics of postmodernism," Routledge, London; New York, 2002.
- Java, A., Song, X., and Finin, T.T., B. "Why we twitter: understanding microblogging usage and communities," in: *WebKDD/SNA-KDD '07*, 2007, pp. 56-65.
- Kahn, R. "New media and internet activism: from the 'Battle of Seattle'to blogging," *New media & society* (6:1) 2004, p 87.
- Klandermans, B. "Mobilization and Participation: Social-Psychological Expansions of Resource Mobilization Theory," *American Sociological Review* (49:5) 1984, pp 583-600.
- Koopmans, R. "The Dynamics of Protest Waves: West Germany, 1965 to 1989," *American Sociological Review* (58:5) 1993, p 637.
- Kwak, H., Lee, C., Park, H., and Moon, S. "What is Twitter, a social network or a news media?," in: *Proceedings of the 19th international conference on World wide web*, ACM, Raleigh, North Carolina, USA, 2010.
- Langman, L. "From Virtual Public Spheres to Global Justice: A Critical Theory of Internet worked Social Movements," *Sociological Theory* (23) 2005, p 32.
- Lerman, K., and Ghosh, R. "Information Contagion: an Empirical Study of the Spread of News on Digg and Twitter Social Networks,").
- Lipsky, M. "Protest as a Political Resource," *The American Political Science Review* (62:4) 1968, pp 1144-1158.
- Little, G., Chilton, L.B., Goldman, M., and Miller, R.C. "TurKit: tools for iterative tasks on mechanical Turk," in: *Proceedings of the ACM SIGKDD Workshop on Human Computation*, ACM, Paris, France, 2009.
- Marcus, G.E. "Ethnography in/of the World System: The Emergence of Multi-Sited Ethnography," *Annual Review of Anthropology* (24:1) 1995, pp 95-117.
- Marcus, G.E. "Introduction: Notes toward an Ethnographic Memoir of Supervising Graduate Research through Anthropology's Decades of Transformation.," in: *Fieldwork is Not What it Used to Be: Learning Anthropology's Method in a Time of Transition*, J.D. Faubion and G.E. Marcus (eds.), Cornell University Press, Ithaca, New York, 2009.
- Marcus, G.E., and Saka, E. "Assemblage," *Theory, Culture & Society* (23:2-3), May 1, 2006 2006, pp 101-106.
- Marge, M., Banerjee, S., and Rudnicky, A.I. "Using the Amazon Mechanical Turk for transcription of spoken language," *Acoustics Speech and Signal Processing (ICASSP)*, 2010 IEEE International Conference on, 2010, pp. 5270-5273.



- Marwick, A.E., and Boyd, D. "I tweet honestly, I tweet passionately: Twitter users, context collapse, and the imagined audience," *New Media & Society* (13:1) 2011, pp 114-133.
- McCarthy, J.D., McPhail, C., and Smith, J. "Images of Protest: Dimensions of Selection Bias in Media Coverage of Washington Demonstrations, 1982 and 1991," *American Sociological Review* (61:3) 1996, pp 478-499.
- McCaughey, M., and Ayers, M.D. *Cyberactivism: online activism in theory and practice* Taylor and Francis, Bristol, PA, 2003.
- Miles, M.B., and Huberman, A.M. *Qualitative data analysis : an expanded sourcebook* Sage., Beverly Hills, 1994.
- Missingham, B.D. *The Assembly of the Poor in Thailand* Silkworm Books, Chiang Mai, 2003.
- Morozov, E. "Moldova's Twitter Revolution," in: *Foreign Policy*, 2009a.
- Morozov, E. "Technology's dubious role in Thailand's protests," in: *Foreign Policy*, 2009b.
- Morozov, E. "Think Again: Twitter," in: *Foreign Policy*, 2009c.
- Mungiu-Pippidi, A., and Munteanu, I. "Moldova's "Twitter Revolution"," *Journal of Democracy* (20:3) 2009.
- Nicholls, W. "Place, networks, space: theorising the geographies of social movements," *Transactions of the Institute of British Geographers* (34:1) 2009, pp 78-93.
- NielsenWire "Twitter Grows 1,444% Over Last Year; Time on Site Up 175%," in: *nielsenwire*, 2009.
- Ockey, J. "Monarch, monarchy, succession and stability in Thailand," *Asia Pacific Viewpoint* (46:2) 2005, pp 115-127.
- Owen, W.J.B., and Smyser, J.W. (eds.) *The prose works of William Wordsworth*. Clarendon Press, Oxford, 1974.
- Palen, L., Anderson, K.M., Mark, G., Martin, J., Sicker, D., Palmer, M., and Grunwald, D. "A vision for technology-mediated support for public participation & assistance in mass emergencies & disasters," in: *Proceedings of the 2010 ACM-BCS Visions of Computer Science Conference*, British Computer Society, Edinburgh, United Kingdom, 2010.
- Rabinow, P., Marcus, G.E., Faubion, J.D., and Rees, T. *Designs for an anthropology of the contemporary* Duke University Press, Durham, 2008.
- Reuters "Q+A: Thailand's escalating color-coded crisis," in: *Reuters*, 2010.
- Reuters "Thaksin's return divides Thailand after vote," 2011.
- Rheingold, H. "Smart Mobs : The Next Social Revolution," Cambridge, EUA : Perseus, 2003.
- Schattschneider, E. *The Semi-Sovereign People: A Realist's View of Democracy in America* Holt, Rinehart and Winston, 1960.
- Smith, J. "Globalizing resistance: The battle of Seattle and the future of social movements," *Mobilization* (6:1) 2001, p 1.
- Smith, M.A., Shneiderman, B., Milic-Frayling, N., Rodrigues, E.M., Barash, V., Dunne, C., Capone, T., Perer, A., and Gleave, E. "Analyzing (social media) networks with NodeXL," in: *Proceedings of the fourth international conference on Communities and technologies*, ACM, University Park, PA, USA, 2009.
- Snow, D. "Collective Identity and Expressive Forms," 2001.
- Snow, D.A., Soule, S.A., and Kriesi, H. *Mapping the terrain*, 2005.
- Starbird, K., Palen, L., Hughes, A., and Vieweg, S. "Chatter on The Red: What Hazards Threat Reveals about the Social Life of Microblogged Information " CSCW 2010, Savannah, Georgia, 2010.
- Streckfuss, D. "Kings in the Age of Nations: The Paradox of Lèse-Majesté as Political Crime in Thailand," *Comparative Studies in Society and History* (37:03) 1995, pp 445-475.
- Tarrow, S. *Power in Movement. Social Movements and Contentious Politics*, (2nd edition ed.), Cambridge: Cambridge University Press, 1998.
- Tilly, C. "The Contentious French," Harvard University Press, 2006a.

- Tilly, C. *Regimes and Repertoires* Chicago IL: Chicago University Press, 2006b.
- Turkle, S. *Simulation and Its Discontents*, 2009.
- Urry, J. "Mobile sociology," *The British Journal of Sociology* (51) 2000, pp 185-203.
- Vieweg, S., Hughes, A.L., Starbird, K., and Palen, L. "Microblogging during two natural hazards events: what twitter may contribute to situational awareness," in: *Proceedings of the 28th international conference on Human factors in computing systems*, ACM, Atlanta, Georgia, USA, 2010.
- Williams, R. *Marxism and literature* Oxford University Press, Oxford [Eng.], 1977.
- Willis, P.E. *The ethnographic imagination* Polity ; Blackwell, Cambridge, U.K.; Malden, MA, 2000.
- Woolgar, S. *Virtual society?: Technology, cyberbole, reality*, 2002.