Social Media And Anti-government Social Movements in East and Southeast Asia 2013-2015: Application of Four Innovations in Social Media Analysis and Behavioral Prediction

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• There have been huge advancements in methods to collect, compile, and analyze social web (Zafarani, Abassi, and Liu 2014)

• Integration of these methods with general social science theories of communication, structural change, attitude formation, and rational action will increase the ability to use these methods to predict behavior online and offline.
Advantages of General Social Science
Theory-driven Predictive Modeling

• Allows researchers to predict behavior even when conditions have changed greatly from time at which the original data was collected
• Allows data collected in one part of world to provide insights into what will happen in another part of the world
• Provides methods for determining a priori which types of data will be most useful in making predictions
General Social Science Theories that Could Improve Social Media Analysis

- Rational Choice Theories of Behavior
- Endogenous Theories of Network Change based on Group/Coalition Formation
- Conversation Analysis and Ethnomethodology
- Social Psychological Models of Attitude Formation
- Each type of general theory can be readily adapted for analysis of social media.
Rational Choice Models of Online User Behavior

- Across the social sciences, by far the dominant general predictive model of individual action is rational choice (Hechter and Kanazawa 1997; Chai 1997).
- Surprisingly little work on online behavior bases itself on this model.
- Probable reason for this is need to clearly define the online “actor” as well as ways of determining its attitudes (preferences and beliefs).
Defining the Online Actor

• In standardized, “clubhouse” environments such as Facebook, Twitter, etc. this is relatively straightforward: the actor is the registered user.

• On the unstandardized web, a decision has to be made about what domain level or domain path constitutes an actor.

• Generally useful to take the bottom-level domain (host) as a single actor, unless known otherwise.

• Third-party content resource sites (e.g. Alexa) can sometimes be useful.
Determining the Attitudes of Online Actors

- Measurement of Exogenous Preferences and Beliefs of Online Actors
  - Online surveys combined with cultural typologies (e.g. Grid-Group)
  - Text-Mining/Content Analysis of actor-generated content (can lack validity without interpretation of meaning within structural social context – see Conversation Analysis)
Rational Choice Models of Online User Behavior

• Endogenous Determination of Attitudes
  – Diffusion/Learning-based idea propagation models (don’t to capture motivational aspect of attitude formation)
  – Social Psychological models (must be incorporatable into predictive models of action – see Coherence Model)
Endogenous Network Change Based on Coalition Formation

- Long term prediction of user behaviors requires recognition of the dynamic nature of online social networks.
- Existing models of online social network change tend to ignore the agency of the users in determining this change, making it seem monotonic or random.
- Need to incorporate agency into modeling network change, integrating rational choice models with focus on group/coalition formation.
Endogenous Network Change Based on Coalition Formation

- Growing literature in economics on the formation of networked coalitions by rational actors (DeMange and Wooders 2005, Jackson 2010).
- Focuses on how act of creating or destroying a social connection is taken in view of how it affects an actor’s power within a larger group.
- Extending these models to online social behavior requires mapping specific linking actions (following, friending, outlinking) to non-virtual analogues.
Analysis of user-generated online content generally views the meaning of the content as isolated from its social context. This is true not only of most text-mining but even social science content analysis.

Within Sociology, the most prominent theoretical approach to real-world communication is Conversation Analysis (Sacks et al. 1974, Sidnell 2010).

Besides content, also examines surrounding social relationship, talk sequence, and non-verbal information cues as determinants of meaning.
Analysis of Online Content based on Conversation Analysis

- Ordinary focus of Conversation Analysis is on oral conversation – physical setting, body language, rhythm and tone, silences and interruptions
- In order to extend to online communication, suitable analogues can be found, e.g.
  - Turn-taking, adjacency pairs reflected in post sequence and thread structure
  - Sequence expansion boundaries characterized by insertion of hashtags, emojis, “leet” interjections
  - Preference organization distinguished by reposts, favoriting, up and down-voting
Psychological Models of Influence and Attitude Formation

• Accepted with Social Psychology that human attitudes are determined by cognitive and motivational processes that mediate interactions (Eagly and Chaiken 1993, Cialdini 2013).

• Conventional mathematical models of attitude formation (preference and belief) focus on likelihood of exposure to ideas and ignore subjective internal psychological states.

• Existing psychological models need to be integrated and expressed in mathematical form.
General social psychological models of attitude formation focus on the interpreted meaning of a message and the effect of its acceptance on sense of self (Aronson 2010).

There is surprising confluence among theories in what messages enhance sense of self and will thus be accepted. This can be modelled mathematically around the concept of “coherence” (Chai 2001).
A Cross-National Application:
Social Media and New Social Movements in East and Southeast Asia 2014-2015

- 2014 March-April: Taiwan - "Sunflower" Movement against proposed CSSTA special economic arrangements with China and parallel changes to educational content
- 2014 Sept.: Hong Kong - "Umbrella Revolution" against political control from China and weakness and self-censorship of local elites in protecting democratic rights
- 2014 Nov., 2015 April, 2015 Nov.: South Korea Post-Sewol marches against non-responsiveness to Sewol crisis and anti-dissent policies of Park Geun-hye govt.
- 2015 Aug-Sept.: Malaysia – Bersih-led Protests against PM Najib Razak use of funds from 1MDB, endemic corruption in UMNO leadership
- 2015 Aug-Sept.: Japanese – SEALDS-led movement against PM Abe Shinzo’s attempt to reinterpret Article 9 of constitution
2014.3: Taiwan Sunflower Movement
2014.9: Hong Kong Umbrella Movement
2015.4: South Korea Post-Sewol Reform Movement
2015.8: Malaysia Anti-Najib Corruption Movement
2015.8: Japan Anti-Constitutional Revision Movement
Remarkable Convergence in Behavior of these Movements

- Movement leadership is typically young adults, often students.
- Membership are generally novices at organized political activity.
- Offline mobilization is organized via social media using existing online communities.
- Distinctive movement-specific cultural norms and forms of identification develop over time. Includes visual identification.
- Movements set themselves in opposition to both sitting governments and official opposition.
- Action focus is initially on specific policies, but develops into broad attack against status quo political structures.
- Movement efforts are national in political scope but borderless in ideational flow.
Precursor Movements: Slow Growth in Importance of Social Media and Cross-Border Communication

- 1998-200?: Indonesia and Malaysia - Reformasi Movements
- 2002: South Korea – Election of “386 Generation” of former student opposition leaders via “undercover campaigns”
- 2005-6, 2008-10, 2013-14: Thailand – Conflict between "Yellow Shirt" and "Red Shirt", both vs. Military Establishment
- 2009: Iran - “Green Movement” against Negation of the Election of Mir Hossein Mousavi
- 2011: India - Anna Hazare-led Anti-Corruption Movements against both establishment parties and bureaucracies.
Research Questions

• To what extent have these movement converged around common, transnational assumptions, motives, and strategies?

• If this has taken place, can the convergence of movement cultures be traced through analysis of rhetoric and conversations on the public internet?

• Can such process tracing provide predictive tools for future shifts in anti-government movement attitudes and types collective behavior around the Pacific Rim region and world?
Methodological Approach

• Collection of “intelligent snowball” sample of social movement across East Asia beginning from well-known national movement forums
• Trace development of new movement communities by examining cross-posting behaviors and development “pan-movement” forums
• Measure initial attitudes of users by examining conversation analysis interpretation of their posts
• Trace adoption of ideas empirically, using coherence model to predict future changes in attitudes
• Use coherence-based predictions and rational choice coalition-formation models to predict future trends in cross-national social movement activity.
CLASSIC Initial User Interface Screen
Growing Virtual Communities from Seed Sites

Community sites

Candidate sites

Single page

SEED SITE

SEED SITE

LINKS=10
CONTENT=0.65

LINKS=8
CONTENT=0.78

LINKS=10
CONTENT=0.89

Growing Virtual Communities from Seed Sites

Community sites

Candidate sites

Single page
Dictionary
- Keyword association: propositional, affective

Statistical Association
- Univariate or Multivariate predictors of latent coding
- Non-linear model (e.g. back-propagation NN)

Semantic Network
- Propositional content generally extracted from simple parsed triplet
- Related to Cognitive Anthropology “Ethnosciences” Schemas

Memetic
- Word clusters that tend to replicate in synchronicity
- Epidemiological approach to concept spread
Appendix: Main Kinds of Social Movement Frames

• Frames are communications within social movements that shape their attitudes and actions (Snow and Benford 1992)
• Framing tasks classified into Diagnostic, Prognostic, and Motivational
• Frame alignment includes bridging, amplification, extension, and transformation