

## Identifying Actors in Political Activism over Twitter

On January 25<sup>th</sup>, 2011, the Egyptian people began open protest in a “day of rage” (Timeline: Egypt's revolution 2011). Like during the Tunisian Revolution the previous month, activists used Twitter and other social media to organize group actions, connect with other citizens, spread their message across the world, and engage with the mainstream media. 2 days later, the Egyptian government shutdown all cellular and internet communication within the country because they saw it as a dangerous protest tool. Over the next few days, more and more protesters gathered in Tahrir Square, and on February 11<sup>th</sup>, President Hosni Mubarak conceded to the protests and resigned.

In this instance and others, such as the 2009 Iranian elections and the Occupy Wall Street movement, internet social media has been championed as an important tool for political activism and democracy. By linking people who are otherwise geographically separated and fragmented, these platforms, such as Twitter and Facebook, can create unity that was previously difficult to achieve. Through tweets and status updates, people can call others to act, disseminate information, and express their sentiments on the issues at hand.

Many models exist for various types of group action, with many inspired by Granovetter’s threshold model of collective action (Granovetter 1978). Although these models capture how activity spreads between people, they don’t distinguish between the effects of specific types of actions. In the case of Twitter, journalists and bloggers become involved with the content of a movement without directly committing themselves to its goals and activities. In this paper, I will investigate the role that these actors play in political activism. Although identities are easiest to understand strictly by the labels we use to denote them, I will show a more complex relationship between identity, labels, and roles. By connecting characteristics of

Kevin Leung

network models and previous analysis of retweets, I will show how a person's history influences his or her actions and how those actions dictate chosen identities.

### **Models of Collective Action**

Analyzing network behavior allows us to understand how activity spreads across large groups of people. A network is a set of nodes, such as Twitter users, that are connected to each other via links. In the model I'm proposing, these links are the flow of information through tweets between users. Within a network, activity spreads from a node to its neighbors and onward over the links, and an instance of this is known as a cascade. For example, a retweet cascade begins when a source generates an original tweet, its neighbors retweet it, and the original tweet is further disseminated through retweets. These trees of retweets form the fundamental unit of spreading activity for my analysis.

Various models have proposed methods of how different types of activity can spread through a network. For example, contagions are modeled by individuals stochastically infecting neighbors. Technology adoption is modeled by game theory, with choices based on expected utility from the choices of others.

One model commonly applied to participation in a movement is Granovetter's model of collective action (Granovetter 1978). In this model, people have individual thresholds for a sufficient participation proportion to join themselves. Each person sees the choices of the entire population, which gives a simple formulation of how activity will evolve. The model starts with a group of early adopters. Next, everyone with a threshold below that size will join, increasing total participation. The proportion is now above more thresholds causing more to join. This cycle continues until participation reaches a fixed point, where the number of participants has stagnated because the threshold of everyone else is above current participation.

This model, however, does have limitations as a population model. Navid Hassenpour, in proposing how network disruption actually fueled protest in Egypt, extends this model in 2 ways as the dynamic threshold model of participation (Hassenpour 2011). First, Granovetter's model assumes that each person can see everyone's choices as the total participation proportion. Hassenpour modifies this to fit a network structure by constraining the perspective of a node to only their neighbors. When a certain threshold of its neighbors joins, the node itself will also join. Not only does this addition change the order of participation, it can lead to pockets of activity in communities that aren't well-connected to the rest of the network.

Second, thresholds are no longer fixed and readjust according to neighbor behavior. In addition to pushing a node over its threshold, neighbors can influence nodes by changing the threshold itself. This relationship can lead to oscillations in behavior. Previously, nodes would never stop participating because the participation proportion would never drop beneath a threshold after passing it. However, if thresholds can also change, a node may develop more strict requirements. This adjustment represents the changing opinion of a person after witnessing the actions of others from a previously uninformed stance to a more nuanced view. For example, people's thresholds may drift towards that of their peers because they trust their peers' opinions.

### **Extensions to the model**

Hassenpour uses this model to analyze media disruption, but the model is also a starting point to think about the structure of activism on Twitter. We want to consider the importance of roles on identities, but this model only considers thresholds and connectivity. This model is still too abstract to understand the roles of individuals. We're interested in participation, but tweets can be both acts of commitment to participate and declarations of opinions. More succinctly, the

Kevin Leung

existing model conflates commitment and information dissemination, and we need to separate these to understand information flow.

This distinction may seem somewhat fuzzy: the decision to disseminate information within the network can be thought of as a commitment to act. To differentiate these senses, I will define participation as being physically (and not just virtually) present to and active in the movement. On the other hand, I will define information dissemination as the passing of already present information, which excludes generation of original information. The model that this distinction generates has a structure based on the existing connections on Twitter, and we follow the cascades of retweets as spreading activity. Participation is a related, but distinct, concept from the spreading activity.

By this definition, participating actions occur at the boundaries of Twitter because they aren't explicitly represented in the tweets, which are the network links. I propose that participation is best understood as the origin of cascades in the network. At the origins, people translate real-life participation into original tweets. They perform or observe some newsworthy action and generate content for others to retweet. This creates a concrete difference between commitment and information dissemination in terms of the network model behavior.

Commitment is the origin of a cascade, and information dissemination is the continuation of a cascade through the network.

These 2 activities, however, aren't mutually exclusive, so we can consider each node (representing a Twitter user) along 2 dimensions. These dimensions give us 4 possible defined by 2 characteristics. Ignoring those who are neither committed nor disseminating, we have 3 possible roles to consider. First are people who are both committed to participate and

Kevin Leung

disseminating information in the network. The other 2 classes only engage of one of these 2 activities.

In the following sections, I will align these roles with recognized actor types. Empirical data on actor types will support model distinctions in behavior. By linking these ideas, we can use the dynamics of this model to show how identity can be developed by action and shaped by commitment.

### **Identity on the internet**

Before considering the evidence for this relationship, I want to briefly discuss the nature of identity on the internet. The biggest difference between the real world and the internet is that people don't have physical embodiments on the internet. One important consequence is that people can separate our true identities from our internet identities. Previously, most broadcast internet communication on public forums and chat rooms was done anonymously through handles. This freedom allowed people to form new identities, for better or for worse, and released people from the trappings of the real world.

Recently, however, public internet communities have moved towards using true identities. On social networking sites such as Facebook and Google+, users are required to use their real name. In these contexts, it makes sense as their online connections often match those in real life, compared to the greater mixing in chat rooms before. This trend, however, has extended beyond these services as most individual (not organizational) Twitter users are identified by their real name as well as their internet handle. By linking these identities, people carry more external characteristics onto the internet. No longer identified by just an arbitrary string of less than 20 characters, people can also present their sex, profession, age, personal relationships, and more.

Kevin Leung

These aspects of identity shape the way that people act and react on the internet by giving further background context.

Even with this change, the relationship between real-life and internet identities remains tenuous. The lack of physical presence hasn't totally split identities, but people are still situated in a different world where the consequences of actions are different. For example, people cannot be immediately physically harmed for insulting someone on a public forum.

On the other hand, internet services increase fluidity between these two environments. I can arrange to meet a friend for lunch either face-to-face, on the phone, over email, through Facebook messages, or even with a tweet, basically in the same manner. Many people today thoughtlessly switch between different, often redundant mediums. People now carry old identities onto the internet but also develop new ones within the new setting.

### **Actors within activism through Twitter**

Bringing these ideas of identity back to activism, Lotan et al. identifies several types of actors on Twitter during the Tunisian and Egyptian revolutions and analyzes the spread of information between them (Lotan, et al. 2011). To do this, they looked at the cascades generated by retweeting. Although much of Twitter's activity happens through replies or mentions and not explicit retweets, retweets were the cleanest data to collect. Most of the analysis focused on the activity of just 4 of the 12 types of actors: journalists, bloggers, activists, and others. From the arguments they present, I will discuss the history of each of these actor types and some of the observations of their Twitter behavior. Then, I will connect these actor types to the roles discussed earlier.

Journalists are "individuals employed by [mainstream media] organizations," such as Anderson Cooper of CNN. Previous studies of news production found that journalists have a

Kevin Leung

tight circle in reporting: journalists write to impress editors and a small, select group of people, and editorial staffs imitate the style of the journalists. By cutting out the general populous, they can maintain the quality and integrity of their craft. Although they resist popular opinion, Twitter directly connects journalists with their audience and possible influences. These opposing forces of history and context provide a new opportunity for journalists to define themselves.

Bloggers are “individuals who post regularly to an established blog.” They have no conflict between their online and physical identities because their identities have been shaped by open communication online, through comments and contents even before Twitter. Blogs are constantly active, nights and weekends, to push content to readers, who may rely on blogs for both news and breaking news. Blogs, however, don’t do any reporting and rely on indirect (primarily online) sources for information. Unlike journalists, their identities on Twitter lack the same real-world connection and have been shaped within another online context. They represented about 17% of the actors.

Activists are “individuals who self-identify as an activist, who work at an activist organization, or who appear to be tweeting purely about activist topics to capture the attention of others.” Unlike journalists and bloggers who are committed to covering a movement in the media, activists are committed to direct action and are otherwise unaffiliated in the media. Activists are more diverse than either journalists or bloggers because they individually may employ very different methods in their roles. The common history within activists is a commitment to their movement. They represented about 12% of the actors.

Others are individuals that did not fit within these or several other actor types given. They represent about 25% of the sample and are the largest group. Although their identity isn’t well

defined and likely to be heterogeneous, we can reasonably classify them as the general populous: without a specifically labeled actor type, they could be the target for any of the tweets.

These actor types were coded from the user profile, latest tweets, and searchable details from their profile. Twitter users can provide a 160-character biography, a small window into their identities. For these types described, they have developed an identity and role in Twitter, either online or in real-life, and we can consider how they interact with each other from the statistics given in the paper. Note that all observations are based on these classifications, and these types were determined beforehand and not extrapolated from behavior.

From the data presented in their paper, I argue that these three actor types (journalists, activists, and bloggers) fit into the 3 roles determined by participation and information dissemination. First, activists are participating users who also disseminate information. Second, journalists are participating actors who aren't disseminating information. Finally, bloggers are nonparticipating actors who disseminate information.

In the next section, I will present the data and analysis given in Lotan et al. After that, I will argue for what this connection between actor types and roles means for the development of identity.

## **Observations**

**1. Journalists and activists generated more cascades than bloggers.** Among these actor types, the most cascades started with a tweet from journalists, followed by activists, then by bloggers. This observation matches expectations: journalists are reporting on news and should be the first to know any information. Activists are making news themselves and can be the first source. Bloggers, however, aren't directly connected to real-life activity and can't generate the same type of content as journalists or activists.

**2. Bloggers had the largest median information flow size in Tunisia, but journalists and activists had larger ones in Egypt.** The median information flow size is simply defined as the number of retweets from an original tweet. This shift shows how bloggers played a much larger role in the Tunisian revolution than they did in the Egyptian protests. This shift suggests that journalists and activists were able to move into this space in a relatively short span of time. Regardless, bloggers have a wide influence on the internet, especially in the absence of the other actors.

**3. Journalists and activists were the main sources for any particular retweet, and activists and bloggers were the main retweeters.** When the cascades were broken into source to target pairs of individual retweets, journalists and activists were the primary sources of information, and activists and bloggers were the primary routers of information. As mentioned before, bloggers depend on other sources for their information. Activists were prominent on both ends of each retweet.

**3. Journalists primarily retweeted other journalists.** When journalists aren't generating cascades, they prefer to disseminate information from other journalists rather than other actor types. This behavior is consistent with their previous practices: journalists maintain a preference towards content from other journalists from their prior work. Even in an open, connected space like Twitter, journalists carry over exclusive biases. This previous behavior and interaction remains even in a new context.

**4. Journalists were the primary source of blogger retweets.** Among all of their sources, journalists were the most common source for blogger retweets. This preference shows a direct connection between journalists and non-journalists as well as the method that bloggers receive information.

## **Analysis and Conclusion**

These observations about the behavior of the actors types, the description of their histories, the new context of Twitter as a medium, and roles derived from an interpretation of the network model fit together into a sense of where the identities are derived from for people on Twitter in political activism.

Activists are active both in committing to participation and in disseminating information and therefore should be a source and a spreader in the network. Within Twitter, cascades are their opportunity to reach out to others and give them reason to participate as well. Outside of Twitter, they're also active. As such, the facts that they are both a large source that and have larger median information flows make sense.

Journalists are committed to participate because they have a physical presence in a movement outside of Twitter. Since journalistic ethics require that they be impartial, they aren't invested as activists are, but at the periphery of the network, these behaviors are indistinguishable. Even though they are reporting and activists are acting, the first step into the network is a tweet relating to an event. This is consistent with journalists being a large source, both proportionally and for bloggers in particular.

Journalists, however, are less relevant downstream from the initial reporting. Their role in the middle of cascades are largely contained within the journalistic community by retweeting each other, and cascades can only spread so far within a subset of the network. This bias comes from their history as journalists before Twitter and hasn't been significantly affected by the new context.

Bloggers aren't participating but are disseminating information. As noted above, they were the smallest source, yet seem to have large influence in creating large flows. Without a

Kevin Leung

physical presence and commitment, they don't have the necessary connection to information coming into the network. Even so, they were closely connected to the sources and retweeted journalists who were generating content. This role as a cyberspace middleman carries over from their presence on the internet on blogs.

This portrayal of the actor types leads to a particular network structure from the roles we discussed. Journalists are on the far left of the network and at the head of cascades. They have edges pointing to the right towards bloggers, who are retweeting their content. The bloggers form a well-connected core as they disseminate information to each other but are also pushing content further to the right towards the "others." Activists mingle both within the journalists and bloggers as they execute both roles as sources and disseminators. This idealization is quite different from reality, but it shows us that these differences being discussed can be concretely understood within the network model as well. Note that there seems to be a large gap with this model from what we imagine to be Hassenpour's dynamic threshold model of participation. Information flows through bloggers in the middle, yet they remain uncommitted to participation, and in Hassenpour's model, this gap would be the end of participation propagation.

The network model, empirical data, history of actor types, and analysis altogether show a strong correlation between the labels from their actor types and the actions they perform from their roles. A traditional way to think about identities is that one's label dictates his or her behavior. For example, someone, through previous experience, decides to become a journalist and goes to journalism school, finds a job, and does the job as described by the requirements. This process is similar for other roles, if less formal, but can happen similarly.

This analysis of political activism on Twitter, however, suggests that identity is determined by behavior from history and context. Tweeting isn't a traditional activity for any of

Kevin Leung

these groups, and their tweeting is an extension of what they had done in previous roles. From the Tunisian and Egyptian data sets, journalist and activists overtook bloggers in influence as they embraced their role on Twitter. Although we may have an intuitive sense for what it means to be a “journalist,” “blogger,” or “activist” from that actor label alone, the denotations of these labels can’t capture the diversity of roles that these individuals fulfill, on Twitter or otherwise.

In taking on specific roles within the network, as sources or disseminators, actors are continuing to behave the same way they know from their history, except molded into the new context. Journalists will follow other journalists as they have before. Bloggers will continue to find information using the same workflows. Activists, in looking to extract commitments from others over social networks, have met other actors who have developed roles within the community. Although they’re shaped by history, these identities being presented are only helpful within the context of the community they’re being used in.

This idea doesn’t completely neglect the importance of identity labels: language shapes how people think and behavior. This leads to a converging, iterative refinement of identities. As people notice differences in actors, they begin to label them differently, which gives the actors identities that they can further use to distinguish themselves from others. Similar to the dynamic threshold in the network model, individuals enter with a certain expectation, then allow their neighbors to influence them. Their roles mature as the network moves towards equilibrium.

To summarize, I began with a network model of collective action and interpreted it for cascades of retweets during recent political activism for various roles. By combining that model with observations about existing actor types, I discussed the ways in which identities were formed in this space and the roles they played in activity.

Kevin Leung

### **Works Cited**

Granovetter, Mark. "Threshold Models of Collective Behavior." *The American Journal of Sociology* 83, no. 6 (1978): 1420-1443.

Hassenpour, Navid. "Media Disruption Exacerbates Revolutionary Unrest: Evidence from Mubarak's Natural Experiment." *APSA 2011 Annual Meeting Paper*. 2011.

Lotan, Gilad, Erhardt Graeff, Mike Ananny, Devin Gaffney, Ian Pearce, and danah boyd. "The Revolutions Were Tweeted: Information Flows During the 2011 Tunisian and Egyptian Revolutions." *International Journal of Communication* 5 (2011): 1375-1405.

"Timeline: Egypt's revolution." *Al Jazeera*. February 14, 2011.  
<http://www.aljazeera.com/news/middleeast/2011/01/201112515334871490.html> (accessed November 14, 2011).

"Timeline: Tunisia's uprising." *Al Jazeera*. January 23, 2011.  
<http://english.aljazeera.net/indepth/spotlight/tunisia/2011/01/201114142223827361.html> (accessed November 14, 2011).