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Tweet, Tweet, Retweet: Conversational Aspects of Retweeting on Twitter

danah boyd

Microsoft Research
dmb@microsoft.com

Scott Golder

Cornell University &
Microsoft Research
sag262@cornell.edu

Gilad Lotan

Microsoft
giladl@microsoft.com

Abstract

Twitter—a microblogging service that enables users to post messages (“tweets”) of up to 140 characters—supports a variety of communicative practices; participants use Twitter to converse with individuals, groups, and the public at large, so when conversations emerge, they are often experienced by broader audiences than just the interlocutors. This paper examines the practice of retweeting as a way by which participants can be “in a conversation.” While retweeting has become a convention inside Twitter, participants embrace it for diverse reasons and using varying styles. Our data and analysis reveal the messiness of retweeting by highlighting how issues of authorship, attribution, and communicative fidelity are negotiated in diverse ways. Using a series of case studies and empirical data, this paper maps out different conversational aspects of retweeting.

1. Introduction

A conversation is most commonly bounded in time, space and social context. Whether sitting around a table or talking on the telephone, conversations typically include a known, fixed set of participants who are assembled in real time in a particular social context for the purpose of talking to one another.

The growth of computer-mediated communication, social media and networked publics has shown that conversations can take place asynchronously and unbounded in space or time, but they are most often nevertheless bounded by a reasonably well-defined group of participants in some sort of shared social context.

One kind of conversation that does not have a bounded set of participants is the kind described by marketers, celebrities, and politicians when they seek to be “in conversation” with their customers, fans, or constituents. These conversations do not typically involve direct dialogue, but a public interplay of voices that gives rise to an emotional sense of shared conversational context. Thus, the participants are no

longer bounded except by a loosely shared social context.

Because of Twitter’s structure, which disperses conversation throughout a network of interconnected actors rather than constraining conversation within bounded spaces or groups, many people may talk about a particular story at once, such that others have a sense of being surrounded by the story, despite perhaps not being an active contributor in the conversation. The stream of messages provided by Twitter allows individuals to be peripherally aware of discussions without being contributors.

Various behavioral conventions have arisen over time and come to be inscribed in the Twitter technology, such as public yet directed messages using the @ symbol and hashtags (#’s) to mark tweets with topical keywords. Both of these conventions have clear conversational purposes. Honeycutt and Herring [8] examine the conversational aspects of messages with the @ symbol. However, a third behavioral convention known as the “retweet”, or the copying and rebroadcasting of another participant’s message, enables conversations in a different manner.

In this article, we argue that, as with link-based blogging [13], retweeting can be understood both as a form of information diffusion and as a structure within which people can be part of a conversation. The spread of tweets is not simply about getting messages out to new audiences, but also about validating and engaging with others. As a result of retweeting, some users get a sense of being a part of a broader conversation even when they themselves do not contribute.

Retweeting is also an important practice to analyze because of the issues it raises concerning authorship, attribution, and communicative fidelity. In an environment where conversations are distributed across the network, referents are often lost as messages spread and the messages themselves often shift. What participants value and the strategies they use when retweeting reveal salient aspects of the conversations they seek to create on Twitter.

Thus, the goal of this article is to map out different aspects of retweeting as a conversational practice. We

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begin by describing Twitter and the mechanics of Twitter. We then describe the different data we use, locating retweeting in a broader context. Using these data, we analyze the syntax of retweets, how people retweet, why they retweet, and what they retweet. We then turn to a series of case studies to look closer at specific conversational practices. In aggregate, this paper serves to highlight the diverse ways by which participants embrace retweeting.

2. Twitter

2.1. Twitter background

Twitter is a microblogging service that was founded in early 2006 to enable people to share short textual messages—“tweets”—with others in the system. Because the system was originally designed for tweets to be shared via SMS, the maximum length of a tweet is 140 characters. Though the service evolved to include more uses besides SMS, such as web and desktop clients, this limitation persisted, and so was re-narrated as a feature. Twitter’s Creative Director Biz Stone argues, “creativity comes from constraint” [16].

Twitter is not universally adopted—only 11% of American adults use Twitter or similar tools [12]. Yet, with millions of active users, many of whom are quite passionate, Twitter supports an active community with its own set of unique practices that are valuable to examine.

Twitter combines elements of social network sites [3] and blogs [13], but with a few notable differences. Like social network sites, profiles are connected through an underlying articulated network, but these connections are directed rather than undirected; participants can link to (“follow”) others and see their tweets, but the other user need not reciprocate. Like blogs, participants’ Twitter pages show all of their tweets in reverse chronological order, but there is no ability to comment on individual posts. User profiles are minimal and public, but users can make their tweet stream public or protected (a.k.a. private); the default and norm is public.

The central feature of Twitter, which users see when they log in, is a stream of tweets posted by those that they follow, listed in reverse chronological order. Participants have different strategies for deciding who they follow—some follow thousands, while others follow few; some follow only those that they know personally, while others follow celebrities and

strangers that they do not know, but simply find interesting.

Although people can interact with Twitter directly through the website, there are many third party applications available, ranging from mobile and desktop Twitter clients to tools that allow participants to track popular topics, who un-follows whom, and how popular different users are. The ecosystem around Twitter is extensive because Twitter makes an API available for developers. For a more detailed guide to Twitter, see [14].

2.2. Twitter conventions

Twitter participants are constrained to expressing themselves in 140 characters. As participants embraced the technology and its affordances, a series of conventions emerged that allowed users to add structure to tweets. For example, users developed ways to reference other users, converged on labels to indicate topics, and devised language to propagate messages.

To address one another, Twitter participants began using the @ symbol to refer to specific users (e.g., @amandapalmer). This syntax convention stems from an older IRC practice and serves two purposes: 1) to direct messages to specific people as though sending the message to them (also known as @replies), which Honeycutt and Herring refer to as “addressivity” [8]; and 2) to obliquely reference another user (e.g. “I saw @oprah’s show today”).

Topics are indicated through the combination of a hashtag (#) and a keyword. The practice of using keywords to label tweets most likely parallels the use of “tags” to freely categorize web content. Tagging gained visibility with social bookmarking [5], but has expanded to other social media genres, including blogs. The practice of using hashtags may stem from a history among computer programmers of prefacing specialized words with punctuation marks, such as \$ and * for variables and pointers, or the # sign itself for identifying HTML anchor points.

Retweeting, the focus of this paper, is another emergent practice. Unlike @replies and hashtags, the conventions for retweeting are hugely inconsistent. The prototypical way of retweeting is to copy the message, precede it with RT and address the original author with @. For example:

```
A: Hello world!  
B: RT @A: Hello world!
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Retweet data is far messier and more complex than this example. There is no consistent syntax to indicate a

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retweet, attribution is inconsistent, the 140-character limitation and other factors prompt users to alter the original message, and adding commentary is prevalent. Furthermore, people use retweet language to reference content from other media and when paraphrasing others' tweets. As a result, the text and meaning of messages often change as they are retweeted and the inconsistent syntax makes it difficult to track the spread of retweets. In tracking and examining retweets, we had to account for these issues.

While these practices were not built into Twitter, Twitter responded to some user convention by building the collectively established syntax into the system. @user now results in a hyperlink to that user's Twitter page, and a special page exists so users can see all the @messages mentioning them in a single page; users are also provided with a button to @reply to any given message which helps track the referent. Hashtags show up in Twitter search and in its "trending topics." Retweeting has not been integrated into Twitter in any form.

Third-party services also extend these practices through tracking (e.g., hashtags.org tracks hashtags) and providing buttons that format a retweet and include the original tweet. Yet, third party apps use a variety of different syntax conventions, adding to the messiness of retweeting.

3. Data

The arguments in this paper draw on four distinct but complementary data sets.

3.1. Random sample of tweets

The first dataset is a random sample of 720,000 tweets captured at 5-minute intervals from the public timeline over the period 1/26/09-6/13/09 using the Twitter API. This sample includes tweets from 437,708 unique users, but does not include tweets from those with protected accounts. This data set provides valuable insight into the prevalence of a variety of Twitter practices. Using this data, we found that:

- 22% of tweets include a URL ('http:')
- 36% of tweets mention a user in the form '@user'; 86% of tweets with @user begin with @user and are presumably a directed @reply
- 5% of tweets contain a hashtag (#) with 41% of these also containing a URL

- 3% of tweets are likely to be retweets in that they contain 'RT', 'retweet' or 'via' (88% include 'RT', 11% include 'via' and 5% include 'retweet')¹

3.2. Random sample of retweets

Our second set of data is a random sample of 203,371 retweets captured from the Twitter public timeline using the search API over the period 4/20/09-6/13/09. This sample is only from those who have public accounts and includes tweets from 107,116 unique users. This second set of data was captured independently of the first set through explicit queries for retweets of the form 'RT' and 'via'. While other syntax is often used to indicate retweeting and we certainly missed many retweets, these two variants still provide a diverse dataset of retweets. Analyzing these, we found that:

- 52% of retweets contain a URL
- 18% of retweets contain a hashtag
- 11% of retweets contain an encapsulated retweet (RT @user1 RT @user2 ...message..)
- 9% of retweets contain an @reply that refers to the person retweeting the post

3.3. Selected topical stories and threads

In analyzing retweets, we found that some were part of larger stories or events. Thus, using the search API, we examined a selection of topical stories and the retweets embedded with them. We developed a series of tools that allowed us to analyze the threads of retweeted content inside these stories. Then we selected stories with particular characteristics that helped provide insight into diverse practices, highlighting specific features of retweeting.

3.4. Data on people's practices

Our final data set consists of qualitative comments on Twitter practices. We posted a series of questions on Author A's public Twitter account which has over 12,000 followers. The followers are not representative of Twitter as a whole nor are those who responded necessarily representative of Author A's followers; this sample is explicitly a convenience sample. Nonetheless, the varied responses we received provided insight into the diversity of different practices

¹ Our regular expression scripts include variations like 'RT:' and 'retweeting' and exclude words like 'art'.

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and motivations and we use them to provide topological context. The following questions were asked:

- “What do you think are the different reasons for why people RT something?” [99 responses]
- “If, when RTing, you alter a tweet to fit under 140 chars, how do you decide what to alter from the original tweet?” [96 responses]
- “What kinds of content are you most likely to retweet? (Why?)” [73 responses]

When we quote specific responses in this paper, we attribute their contributions using the @user format to reflect the most pervasive retweeting attribution style.

4. Retweeting practices

Retweeting is inconsistent and messy. While conventions have emerged, they have not yet stabilized. Participants have different beliefs about how retweets are “supposed” to work and this results in varied, and often conflicting, conventions. This is further complicated by third party apps that use different syntax to mark retweets. Before analyzing how retweeting operates conversationally, we start by mapping out different aspects of retweeting to highlight the variations in this practice. What follows is a discussion of the different syntax used to mark a retweet, how respondents modify retweets, what content they choose to retweet, and their motivations for doing so.

4.1. The syntax of a retweet

There is no universally agreed-upon syntax for retweeting, though the prototypical formulation is ‘RT @user ABC’ where the referenced user is the original author and ABC is the original tweet’s content. In our data, we also found the following syntax used to mark retweets:

RT: @	(via @)	HT @
retweeting @	RT (via @)	r @
retweet @	thx @	🔄 @

Users have different reasons for choosing these different styles. Some default to the style of the third-party client they use. Others use different conventions depending on what they wish to achieve (e.g., @nav_ee: *If I paraphrase/ remove words I say “via” instead of RT. I’m hopin this is ok Twitettiquette*). Each style also has a different convention for locating it in the retweet, which influences some people’s practices.

While most of these appear before the content, ‘(via @user)’ and ‘thx user’ typically come at the end.

Participants’ interpretation of RT and via may also have to do with the ways in which these practices are similar to ones involving earlier media. RT can be seen as analogous to email forwarding—a message is re-sent to others, verbatim, due to its unique content or insight. This model centers on the original author. In contrast, via is more akin to weblogging practices where knowing who shared the content is key. In such a model, it is common to link to the source and then add content.

We observed that the majority of participants attribute the tweet to its original author, using the @user format. However, 5% of retweets that contained RT were not followed by @. In some cases, this was because the user didn’t use the @ convention (e.g., ‘RT: username’). In other cases, there was a URL but no apparent attribution (e.g., ‘RT http://url.com’) or ‘RT’ followed by a quote and attributed to ‘Anonymous.’ Perhaps these individuals used the retweet syntax as a request for others to retweet or perhaps they simply did not feel as though attribution was necessary.

When retweeting, some participants add additional content, either before the retweet (e.g., ‘LOL! RT @user ...’) or in parentheses or brackets afterwards (e.g., ‘RT @user ... [Me: LOL!’). Some also quote the original text to be clear. Of retweets in the format ‘RT @user’, we found that 11% contained text before the RT; these appear to mostly be commentary on the retweeted content.

Like email chain letters, Twitter users retweet tweets that have already been retweeted by others. There does not seem to be a clear standard on how—or whether—to acknowledge all those who came before, just the first, or just the most recent. While not all participants provide second-order attribution, we found that 11% of retweets contain an encapsulated retweet (e.g., ‘RT @user1 RT @user2 ...message’).

While some conventions have formed, it is clear that some participants do not understand or choose to reject the conventions of Twitter. For example, our data includes formulations like ‘RT #y’ where ‘y’ is a hashtag topic. Participants also use retweet language to quote statements people say verbally or on other social media where there is no origin tweet. The syntax of a retweet is further complicated by the ways in which people alter the content of the original tweet. All of these factors contribute to the ways in which retweeting syntax is frequently ambiguous and wildly variable.

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4.2. How people retweet

The increased ambiguity about behavior surrounding retweeting likely comes from the fact that retweeting has more structural complexity than @replies and #hashtags. The idea of tagging a message with a descriptive keyword or sending a message “to” another user via an @reply is fairly straightforward; essentially, information is being added to a message without altering the content of the message. In contrast, and somewhat counterintuitively (since the message is typically copied verbatim), the information content of a retweet is changed. Yet, the constraints surrounding the 140-character limit become pronounced when considering retweeting. Since many users make full use of the 140 characters available, adding “RT @user” to a retweet can require ten or more characters that are not available. As a result, the retweeter must somehow shorten the text of the tweet in order to make it fit. This is even more significant if the retweeter wants to not only rebroadcast another’s tweet, but also add commentary.

Since it is not immediately clear how to address the issues presented by retweeting, users have adopted different strategies. Some alter or delete content; others paraphrase. Still others simply do not retweet messages that would necessitate some kind of shortening (e.g., @eslchill: *Tweets of 130+ characters are too long to be RTed*). There are even those who believe that it is up to the twitterer to leave room for the “RT @user” to be added. This may add a strategic dimension to twittering where if one wants to be retweeted, they must make it easy for others to retweet them.

The remainder of this section accounts for some of the most prominent ways in which people address the limitations in determining how to retweet.

4.2.1. Preservers and adapters. In deciding how to adjust a tweet for retweeting, a significant divide arises between respondents who seek to preserve as much text of a tweet as possible and those who are willing to adapt retweets by removing various parts of the tweet that were, in their opinion, nonessential.

“Preservers” emphasize maintaining the original intent, context, and content (e.g., @DanMerzon: *I shorten words, del unnecessary [punctuation,] ... but don’t change meaning or attribution.*). Among “preservers,” there is a continuum from preserving the content to preserving the meaning of the tweet being retweeted (e.g., @danielbeattie: *[I change] whatever seems to not alter the original intent.*).

Those who fall into the category of “adapters” are willing to remove various parts of the tweet to suit their own purposes. For example, some who use Twitter to share URLs see this as the only essential piece of content and opt to remove some or all of the original tweeter’s comment. It is also common—both descriptively and empirically—for users to write their own text that paraphrases the original tweet. Another type of adapter simply truncates the original message to make it fit, regardless of the contextual implications (e.g., @korinuo: *I guess is ok to delete the last parts of the message to make it fit and substitute with . . .*).

In editing, a retweeter can change the intellectual ownership of the substantive content of the message, and retweeters sometimes serve more as “authors” of ideas than “curators” of others’ work. Of course, modification is also the basis for how messages get transformed as they are spread across the network, sometimes resulting in a change of meaning as people with different expectations for how one should tweet retweet content.

4.2.2. Shortening retweets through deletion. The most common alteration of a tweet for retweeting is the deletion of individual characters or entire words. This practice is not unique to Twitter; it echoes practices in other media genres (e.g., texting and IM [1]). Since Twitter began with a focus on the 160-character SMS messaging platform, it follows that some Twitter conventions resemble those on that platform. Furthermore, many Twitter users are familiar with SMS and are likely to be regular users. Accordingly, it is unsurprising that abbreviation by speaking “txt spk” is prevalent. Such abbreviations include replacing “to” with “2”, “for” with “4”, “and” with “&”, and “are” with “r”. While this approach is interpretable, some users find it objectionable (e.g., @PeterKretzman: *best judgment—but NOT text msg style!*).

The explicit removal of vowels has a second point of origin in the practice of ‘disemvoweling.’ A play on the word ‘disemboweling,’ disemvoweling rose to prominence on the popular *BoingBoing* blog; the community manager sought to partially censor offensive comments, but since removing the entire post felt too much like outright censorship and lacks the ability to make a public show of punishing deviance, vowel removal served as a middle ground in which offensive posts were visibly punished such that their “emotional sting is neutralized” [10].

While disemvoweling in retweeting is not a social sanction the way it is in actively managed online forums, the linguistic convention is similar and some

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users may derive their practice from these roots. Disemvoweling makes content more difficult to read, but the words remain interpretable with a little bit of extra cognitive effort.

An arguably more significant method of shortening a retweet includes removal of entire words. While many users do this, their strategies differ. The goal is typically to remove “extra” or “unnecessary” words (e.g., @pfsorenson: *I cut out all the unnecessary words—like (old-fashioned) telegrams: no conjunctions, articles, only critical adjectives, etc.*). Respondents reported removing several parts of speech, including prepositions, articles, adjectives, adverbs (e.g., @tokenliberal: *Articles can go, extraneous prepositions, etc.*), but it is worth noting that no respondents suggested removing nouns (except pronouns) or verbs.

4.2.3. Authorship, attribution, and addressivity. As messages are altered, it can be difficult to discern who is being addressed and who is being cited. Ambiguities abound, both with respect to pronoun usage in the content of messages and in conjunction with the attribution protocols surrounding retweeting. For example, when a message is retweeted, the authorship of the message changes, adding ambiguity to personal pronouns. Who is the “I” in a retweet? Is it the retweeter, or the retweeted? Consider the following example:

A: I like piña coladas.
B: RT @A: I like piña coladas

B’s goal here is ambiguous. Is the reader intended to learn the fact that A likes piña coladas, or is the reader supposed to interpret B as saying “I [too] like piña coladas”? Resolving these ambiguities is a challenge.

As retweets are spread, the use of layered attribution introduces a second set of concerns. Consider the following example:

A: Hawaii is beautiful!
B: RT @A: Hawaii is beautiful!
C: RT @A: Hawaii is beautiful! (via @B)

A reader who sees only C may not know if the original was said by B and retweeted by A or vice versa.

A third issue emerges because multiple attributions require additional characters in a constrained environment. Some users believe that it’s critical to attribute the chain of authors who passed along the message because this provides context and credit. Some chop the text such as to exclude multiple attributions (e.g., @eileen53 *first cut is the string of sources if it’s already been RT’ed*). However, it is not clear to whom, or to how many people, credit is owed. In some cases, users choose to attribute only the initial

author while in other cases, it means attributing the last referent. This latter convention suggests that the appropriate thing to do is to include only one step backwards in the chain of retweets to the most recent “transmitter.” However, this quickly gets messy when someone who removes attribution is retweeted. This is how retweeted messages are sometimes attributed to someone other than the person who wrote them.

4.3. Why people retweet

Retweeting is not a universally adopted practice on Twitter and those who do retweet are not necessarily representative of all types of Twitter users. There are many different incentives for using Twitter [11] and those who are using Twitter for “daily chatter” are less likely to be retweeting than those who are trying to engage in conversations or share information. Yet, among the subpopulation that does retweet, there are diverse motivations for doing so. Based on responses to Author A’s questions about retweeting and other informal conversations with Twitter users, we found ten salient motivations users have to retweet:

- To amplify or spread tweets to new audiences (e.g., @rootwork: *RT sees value and amplifies it and @lazygal: that which I think the majority of my “followers” haven’t seen already*)
- To entertain or inform a specific audience, or as an act of curation (e.g., @jmccyoung: *to inform or amuse the handful of people who follow me*)
- To comment on someone’s tweet by retweeting and adding new content, often to begin a conversation (e.g., @anitsirk: *to start a conversation about the content of the tweet*)
- To make one’s presence as a listener visible (e.g., @doctorlaura: *it shows that one is not just talking, but also listening*)
- To publicly agree with someone (e.g., @rzouain: *retweets are the ‘me too’ 2.0*)
- To validate others’ thoughts (e.g., @amandapey: *because sometimes, someone else just says it better*)
- As an act of friendship, loyalty, or homage by drawing attention, sometimes via a retweet request
- To recognize or refer to less popular people or less visible content (e.g., @laurelhart: *to support under-recognized people or topics*)
- For self-gain, either to gain followers or reciprocity from more visible participants (e.g., @gravity7: *to increase own followers, as a favor, possibly for the return favor (from influencer)*)

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- To save tweets for future personal access (e.g., @peteaven: *so I can find the tweet later by searching on myself, checking my updates*)

While retweets are a valued component of Twitter, some participants lament others' selfish motivations for retweeting (e.g., @earth2marsh: *at best retweets altruistically propagate interesting info with credit to originator. At worst it's pandering for social capital*) and @argonaut: *educated gossiping meets karma whoring*). In doing so, they acknowledge that retweeting can be both a productive communicative tool and a selfish act of attention seekers.

4.4. What people retweet

What people retweet is also varied, although heavily connected to the reasons for why they retweet. In asking people what they retweeted, some reported favoring retweets of time-sensitive material and breaking news. However, there is disagreement as to what type of time-sensitive material is worth spreading (e.g., @DavidCRoberts: *Everything is urgent so only the fun and interesting stuff gets the RT*).

Breaking news stories tend to come in the form of links to articles in media sources. However, links of many kinds are sent, including material that is of enduring interest to friends or topically relevant to those interested in a particular topic.

One interpretation of Twitter's value derives from the real-time nature of the conversations it supports. Its search and "trending topics" functionality captures public conversations in real time from its entire user population, and this temporality has moved Google to spend more effort considering "real time search" [15]. This may influence what some users choose to retweet.

4.4.1. Retweeting for others. While some users retweet content of general interest, others are more concerned about the audience to whom they are retweeting (e.g., @viller: *most often when I see a link from someone that I think is interesting to ppl who follow me ie. close(ish) ties*). In choosing what to retweet, these participants often think explicitly about who follows their tweets. Though Twitter users can access a list of who follows them, this is not necessarily their actual audience. As such, participants must contend with an imagined audience, just as they do when using other social media [2]. This is only further complicated when people must account for the overlap in their followers and that of those who they follow. Granovetter [6] points out that, despite modern fascination with the idea of small worlds, the point

behind Milgram's experiment was that pairs of people were surprised when they learned they share a contact, remarking on what a small world it is. Granovetter further points out the cognitive effort required to keep track of not only alters, not to mention the ties between that set of alters, is immense.

When participants choose to retweet messages they see from followers, there may be an overlap between their potential audience and the potential audience of the originator, but the retweeter is unlikely to know what that overlap might be.

Compounding this, potential followers and friends is not necessarily the best method of measuring who is paying attention to whom. Huberman, et al [9] point out that users who @reply one another form a more significant network of ties. Given the inherent difficulty in following these messages, since they may or may not be visible to other parties, keeping track of who truly pays attention to whom is hopeless.

Nevertheless, respondents consistently sought to account for their audience when choosing what to retweet (e.g., @simoncolumbus: *links i think most of my followers don't know* and @viller: *I sometimes hold back if I think that many of those who follow me also follow the same person I am RTing*). As such, the intended audience plays a role in shaping what some people retweet.

4.4.2. Retweeting for social action. Many retweets appear to encourage different types of "social action." Some have serious requests in them, such as calls to protest or donate. For example, some users retweeted @suzymiles' tweet "*is going to the Arctic to raise 10k for the Willow Foundation <http://URL> (pls RT/donate to help)*." These calls can be quite effective. Hundreds of users retweeted the message "*RT @StopAhmadi Bring down Khomeini's website*" with a link to his site; shortly later, the site faltered.

Other social action retweets involve demonstration of collective group identity-making. For example, in the first 24 hours after the shooting of George Tiller, nearly 400 users retweeted the message, "Pro-life leaders condemn murder of abortionist", and many of these tweets contained the text, "RETWEET THIS UNTIL IT TRENDS". That is, the retweeters were attempting to make the topic so popular that it would appear on Twitter's "trending topics" page and thus be broadcast to a wide number of twitter users who might otherwise not encounter it. This is an example of Twitter use attempts to manipulate the Twitter system itself in order to effect social action.

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Another type of social action stems from the power of Twitter as a “crowdsourcing” mechanism. Users retweet messages that request help to leverage the knowledge, skills, and contacts of their followers (e.g., @billsimmon: *crowdsourcing answers to questions and group problem solving deserve RTs*).

Retweeting for social action is most successful when the retweeter has a large network and occupies structural holes, or gaps in network connectivity between different communities [4]. In order to be able to spread information to new people, the individual must be connected to those to whom the source of the information is not connected already. Additionally, celebrities and other highly followed users are in a particularly good position to broadcast content for social action.

Social action retweets are purposeful in nature and thus what people retweet is often tied to why they retweet. In short, the content people retweet is inextricably tied to the goals they have related to self-image and self-promotion, supporting conversation and building community.

5. Example retweeting conversations

Amidst the messiness, retweets knit together tweets and provide a valuable conversational infrastructure. Whether participants are actively commenting or simply acknowledging that they’re listening, they’re placing themselves inside a conversation. Even when they are simply trying to spread a tweet to a broader audience, they are bringing people into a conversation.

The types of conversations that emerge on Twitter through retweeting are as diverse as the conventions upon which they reside. Like those conversations that take place through @replies [8], some retweet conversations are small and local while others prompt a huge thread. Additionally, retweeting is sometimes used to take what could be an @reply conversation and bring in broader audiences. Of course, not all retweeted conversations retain their original meaning. This section contains four sets of case studies that reveal some of the dynamics we have mapped out thus far.

5.1. The flow of a retweet thread

When a topic captures the attention of a group of people, they may want to share the topic with others as well as offer their own commentary. However, as the topic is shared and reshared through retweeting, the conversation can morph in several interesting and

unpredictable ways. Consider two tweets by @zephoria posted ten days apart:

- 1) *qotd: "Facebook is for old people!" (exclaimed by 14yo when I asked her why she preferred MS over FB; complete w/ look of horror)*
- 2) *@zephoria: new blog post "Is Facebook for old people?" is based on interviews w/ teens in Atlanta last week <http://bit.ly/v0aPS>*

These two posts were retweeted or referenced in others’ tweets approximately 130 times in a little over two weeks, and throughout the process were changed several times along the way, with added comments, deletions, and so on.

The commentary often consisted of a brief note placed at the beginning of the retweet just before “RT”, usually endorsement (e.g., “*fascinating*”), “*mhmm. ha!*”, and “*true, that*”) or brief summary (e.g., “*class matters*”). When comments were brief, such as these, they most often appeared at the very beginning, but longer comments typically followed, rather than preceded, the retweet. For example:

@ptanthos: RT @zephoria: new blog post "Is Facebook for old people?" <http://bit.ly/v0aPS>. What r others seeing? Are adults causing kids to flee?

In this retweet, the additional description about the Atlanta field site is removed completely in order to make room for the retweeter’s commentary. Such comments might at once demonstrate retweeters’ access to interesting content, as well as their desire to stimulate discussion among their own followers.

In analyzing specific stories, it is clear that not all retweets are formally marked as such. This is particularly true when messages are paraphrased rather than directly quoted. Yet, such messages can still serve the function of a retweet even if they are not marked as such. Consider:

@brianeisley: Librarians interested in Web 2.0 should pay close attention to @zephoria. Case in point: <http://bit.ly/v0aPS>.

Two elements make this likely to be a retweet: 1) @brianeisley follows @zephoria; 2) @brianeisley’s tweet uses the same shortened URL as in @zephoria’s original post. The latter point is notable because URLs that are shortened have their own signature; the reuse of a shortened URL suggests a reference. While we found such cases in our story data, accounting for these examples in broader datasets is challenging.

To illustrate the multiplicity of ways a retweet can be constructed and the differences in how attribution and comment propagation, consider one retweet thread:

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- 1) @mStonerblog: RT @zephoria: new blog post "Is Facebook for old people?" based on interviews w/ teens in Atlanta <http://bit.ly/v0aPS>. Always insightful!
- 2) @jtoddb: RT @mStonerblog RT @zephoria: new blog post "Is Facebook for old people?" based on interviews w/ teens in Atlanta <http://bit.ly/v0aPS>.
- 3) @sparepixel: RT @mStonerblog: new blog post "Is Facebook for old people?" based on interviews w/ teens in Atlanta <http://bit.ly/v0aPS>. Always insightful!
- 4) @AndreaJarrell: Via @mStonerblog: RT @zephoria: new blog post "Is Facebook for old people?" socioecon & race are most interesting here <http://bit.ly/v0aPS>.

The first retweet copies the post verbatim, includes the "RT @user" convention, and includes a brief comment at the end, following the link. The second is a retweet-of-a-retweet, and the retweeter has chosen to keep the names of both the previous retweeter and the original author, but has dropped the first's commentary. The third is actually mirrors the first's content but, in doing so, makes it clear who the author of the commentary is.

The fourth example is slightly more complex. It also references the first, using both the RT and via conventions, perhaps to distinguish the original retweet and who sent it along. Yet, in this example, the content has morphed in ways that reflect neither the original post nor the referenced retweet. Rather, @AndreaJarrell is putting her own spin on the story but not distinguishing it from the original or the referenced retweet. In this way, the authorship of the content becomes ambiguous.

In another example, @mStonerblog's tweet is passed out without the original reference to @zephoria:

@sparepixel: RT @mStonerblog: new blog post "Is Facebook for old people?" based on interviews w/ teens in Atlanta <http://bit.ly/v0aPS>. Always insightful!

In this example, the original author is completely removed and the most recent transmitter is RT'ed. Note that this tweet is structurally identical to the first one from @mstonerblog above; if in the former, it was interpreted that @zephoria was the blog post author, then the same is true here, and a reader might interpret @mstonerblog to be the author of the blog post that is referenced. The retweeter here likely meant no harm, but this example illustrates how different models of attribution (credit the previous transmitter versus credit the original author) can lead to serious confusion about

who is responsible for what. Retweeting attribution adds a new twist to the death of the author.

5.2. Requesting a retweet

Retweeting can be a political act, especially amongst those who wish to get their voices heard. It is not unusual for users to ask for their messages to be retweeted. Indeed, some of their followers may oblige their requests. While some may retweet altruistically, there are plenty who seek attention from the person they retweet as well as those who hope that doing so will be reciprocated in the future. What becomes clear in this dynamic is that visibility and status matter.

In response to the post-election street uprisings in Iran, @zaibatsu posted: "Citizen journalist media Pls RT this video channel <http://bit.ly/Gae8i>". In the hour that followed, over three dozen users retweeted his message. Not all who did follow him directly and many of the retweets contain embedded retweets. This suggests that the message is reaching new and broader audiences. Examining the Twitter streams of those who retweeted reveals that this message is part of a larger conversation on the Iranian election. Many, but not all, who retweeted this message were tweeting regularly about the Iranian election. The primary contribution of this tweet is the link provided, a link to amateur videos of street protests in Iran. It is clear that @zaibatsu wishes to get this information out, in part to get people talking about the Iranian elections. But not all who retweet his message are engaged in the election in the same way. Thus, the tweet and its subsequent retweets simultaneously contribute to a broader conversation and create a conversation around the link itself.

5.3. Ego retweeting

Over 9% of all retweets include a reference to the retweeter's handle. In other words, A retweets B when B's message refers to A. Some see this practice as "narcissistic" or "self-serving," while others see it as a way of giving credit to and appreciating the person talking about them. For example, @the1secondfilm suggests that retweeting references to oneself is "Sort of a shout out to a shout out." Consider this example:

@LoriMoreno: I'm glad that You Smiled Colin! RT @EditorColin @LoriMoreno I looked at and smiled. Thanks for making that happen

At one level, @LoriMoreno is responding to the tweet. Yet, if this was all she wished to do, she could have @replied directly to @EditorColin. By retweeting, she

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brings her audience into a conversation, helping them understand the context of what is being discussed before adding her own commentary.

Ego retweeting is also a way publicly appreciate someone else's attention, especially when the original author has more visibility than the person referenced. For example, after @Themelis_Cuiper included @StephenWinfield in his #followfriday list of who to follow, @StephenWinfield retweeted the list and added: "Thanks 4 the #followfriday tweets". In doing so, he acknowledged @Themelis_Cuiper's status and visibility while also marking his appreciation.

Marketers also use ego retweet when consumers mention positive or interesting things about their brand. As such, their Twitter stream includes the voices of consumers validating them. For example, @southwestair tweets messages like "RT @Jaunted: Penguins on an @southwestair plane!" This can backfire. While @Jaunted is following @southwestair and presumably welcomes the attention, not all who find their messages retweeted by brands appreciate this; many marketers wish to be in conversation with their consumers, not all consumers are looking to be in conversation with marketers.

5.4. The broken telephone effect

Not all retweets are an accurate portrayal of the original message. When people edit content to retweet, they may alter the meaning of the original. Even when the content was not altered, taking a tweet out of context can give it a life of its own. Consider these two abbreviated tweets:

- 1) @eszter: store clerk: "My boyfriend broke up with me w/text messages..." Ouch!
- 2) (a follower): RT @eszter My boyfriend broke up with me w/text messages..

In shortening the message, @eszter's follower shared what she believed to be the most interesting part of the tweet, but she changed the meaning in the process. Concerned at how others might interpret this, @eszter contacted her follower who deleted the retweet and posted a new tweet apologizing to @eszter and blaming the technology by noting "Darn 160 characters and on my phone." While this case may have been accidental, such incidents regularly occur.

When altered retweets spread virally, conversations can become gossip. Consider these abbreviated tweets:

- 1) @sstacinator: Al Green died? Auto accident? WTF? ... TRUE OR NOT TRUE?...

- 2) @aplusk: Have you heard that Al Green died in a auto wreck a little while ago? SAD... (via @sstacinator) is this true?

- 3) @emeraldjane: RT @aplusk: Have you heard that Al Green died in a auto wreck a little while ago? SAD...

As @aplusk's message was retweeted, his question was dropped and the message became fact. Further, @aplusk became the source of this story. Yet, Al Green had not died (although a different Al Greenz did); when @aplusk posted a correction, it was barely retweeted.

These cases highlight how misinformation can spread through Twitter as stories, either through misinterpretation or alteration. They also show how the conversations people are in on Twitter are not necessarily coherent. Participants do not all hear the same messages or share the same social context. In this way, conversations on Twitter can sometimes take the form of a glorified game of "Broken Telephone" as individuals whisper what they remember to their neighbor and the message is corrupted as it spreads.

6. Retweets as conversational practice

Conversations are messy, even in groups that are bounded in space, time and participant group. Conversations in bounded groups derive order from turn taking and reference to previous statements (see [7]), but when the conversation is distributed across a non-cohesive network in which the recipients of each message change depending on the sender, these conversational structures are missing. The result is that, rather than participating in an ordered exchange of interactions, people instead loosely inhabit a multiplicity of conversational contexts at once.

In this paper, we have described several variations in the practice of retweeting messages on Twitter and the ways in which varying styles lead to ambiguity in and around authorship, attribution, and conversational fidelity, especially as the content of messages morph as they are passed along.

Though the 140-character format is a constraint, it need not be seen as a limitation; while participants often shorten and otherwise modify tweets to fit into 140 characters, this characteristic of Twitter can also be seen as an advantage. The brevity of messages allows them to be produced, consumed, and shared without a significant amount of effort, allowing a fast-paced conversational environment to emerge. The varied approaches users take in addressing constraints

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reveal what they value in specific messages and in Twitter as a conversational environment. Participants' social and informational goals vary, and accordingly, so do their retweeting practices. Regardless of why users embrace retweeting, through broadcasting messages, they become part of a large, perhaps messy, conversation.

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