Twitter Hashtags from Ad Hoc to Calculated Publics[1]

Axel Bruns and Jean Burgess

Introduction

From its early beginnings as an instant messaging platform for contained social networks, Twitter's userbase and therefore its range of uses increased rapidly. The use of Twitter to coordinate political discussion, or crisis communication especially, has been a key to its legitimisation, or 'debanalisation' (Rogers, 2013), and with the increased legitimacy has come increased journalistic and academic attention—in both cases, it is the hashtag that has been perceived as the 'killer app' for Twitter's role as a platform for the emergence of publics, where publics are understood as being formed, re-formed, and coordinated via dynamic networks of communication and social connectivity organised primarily around issues or events rather than pre-existing social groups (cf. Marres, 2012; Warner, 2005).

The central role of the hashtag in coordinating publics has been evident in contexts ranging from general political discussion through local, state and national elections (such as in the 2010 and 2013 Australian elections) to protests and other activist mobilisations (for example, in the Arab Spring as well as in Occupy and similar movements). Twitter hashtags have also featured significantly in other topical discussions, from audiences following specific live and televised sporting and entertainment events to memes, in-jokes and of course the now banal practice of live-tweeting academic conferences.[2]

[1] This chapter is an updated and expanded version of Bruns, A., & Burgess, J. E. (2011). *The use of Twitter hashtags in the formation of ad hoc publics.* Paper presented at 6th European Consortium for Political Research General Conference, August 25–27, University of Iceland, Reykjavik. Retrieved from http://eprints.qut.edu.au/46515/. Project website: http://mappingonlinepublics.net/.

[2] On this last, see also singh, Chapter 20, this volume.

Research into the use of Twitter in such contexts has also developed rapidly, aided by substantial advancements in quantitative and qualitative methodologies for capturing, processing, analysing and visualising Twitter updates by large groups of users. Recent work has especially highlighted the role of the Twitter hashtag as a means of coordinating a distributed discussion among large numbers of users, who do not need to be connected through existing follower networks.

Twitter hashtags—such as **#ausvotes** for the 2010 and 2013 Australian elections, **#londonriots** for the coordination of information and political debates around the 2011 unrest in London, or **#wikileaks** for the controversies around Wikileaks—thus aid the formation of ad hoc publics around specific themes and topics. They emerge from within the Twitter community—sometimes as a result of preplanning or quickly reached consensus, sometimes through protracted debate about what the appropriate hashtag for an event or topic should be (which may also lead to the formation of competing publics using different hashtags). But hashtag practices are therefore also far from static, and may change over time: the prominent role in organising ad hoc discussion communities which existing studies have ascribed to hashtags may now be changing as users are beginning to construct such communities through different means, and as Twitter as a platform curates and mediates hashtags more actively.

Backdrop

Australia, 23 June 2010: rumours begin to circulate that parliamentarians in the ruling Australian Labor Party (ALP) are preparing to move against their leader, Prime Minister Kevin Rudd. Rudd was elected in a landslide in November 2007, ending an 11-year reign by the conservative coalition, but his personal approval rates have slumped over the past months, further fuelling his colleagues' misgivings over his aloof, bureaucratic leadership style. In spite of the fact that opinion polls continue to predict a clear victory for the ALP in the

upcoming federal elections later that year, that Wednesday evening, Labor members of parliament are considering the unprecedented—the replacement of a first-term prime minister, barely 2½ years after his election.

As rumours of a palace revolution grow, Australia's news media also begin to cover the story—special bulletins and breaking news inserts interrupt regular scheduled programming. Amongst the key spaces for political discussion that evening is Twitter: here, those in the know and those who want to know meet to exchange gossip, commentary, links to news updates and press releases, and photos of the gathering media throng. The growing crowd of Twitter users debating the impending leadership spill includes government and opposition politicians, journalists, celebrities, well-known Twitter micro-celebrities, and regular users; by midnight, some 11,800 Twitter users will have made contributions to the discussion.[3]

Events such as this demonstrate the importance which Twitter now has in covering breaking news and major crises; from the killing of Osama bin Laden through the Sendai earthquake and tsunami to the disappearance of Malaysia Airlines flights MH370 and MH17, Twitter has played a major role in covering and commenting on such events. The most widely recognised mechanism for the coordination of such coverage is the hashtag: a largely user-generated mechanism for tagging and collating those tweets which are related to a specific topic. Senders include hashtags in their messages to mark them as addressing particular themes. For Twitter users, following and posting to a hashtag conversation makes it possible for them to communicate with a community of interest around the hashtag topic without needing to go through the process of establishing a mutual follower/followee relationship with all or any of the other participants; in fact, it is even possible to follow the stream of

[3] The 11,800 used the **#spill** hashtag (see below); many more may have tweeted about the event without using the hashtag itself.

messages containing a given hashtag without becoming a registered Twitter user, and these days, a curated version of the hashtag stream may even be broadcast alongside television news coverage or displayed on a public screen. In its potentially network-wide reach, hashtagged discussion operates at the macro level of Twitter communication (Bruns & Moe, 2014), compared to the structurally more insular exchanges through the personal publics (Schmidt, 2014) of follower networks at the meso level, and to targeted public @replying between individual users at the micro level.

In the case of the ALP leadership challenge, Twitter users quickly settled on the hashtag **#spill** (Australian political slang for a party room vote on the leadership); during 23 June 2010 alone, the 11,800 participating Twitter users generated over 50,000 tweets containing **#spill**—not particularly large numbers by today's standards, but a dramatic spike at the time. The majority of those tweets are concentrated between 19:00 and midnight, as the rumours were further amplified by mainstream media coverage; between 22:00 and 23:00, **#spill** tweets peaked at more than 4,500 per hour (or 75 per minute), while activity prior to 19:00 barely reaches 10 tweets per hour (Bruns, 2010a, 2010b). This fast ramping-up of activity in the evening also demonstrates Twitter's ability to respond rapidly to breaking news—an ability which builds not least on the fact that new hashtags can be created ad hoc, by users themselves, without any need to seek approval from Twitter administrators. As we will argue in this chapter, this enables hashtags to be used for the rapid formation of ad hoc issue publics, gathering to discuss breaking news and other acute events (Burgess, 2010; Burgess & Crawford, 2011).

But not all hashtags are topical, and not all topical hashtags are used to facilitate the gathering of ad hoc publics. As preferences for the use of Twitter as a social medium change over time, and as the hashtag is employed and appropriated for various strategic and tactical means by a range of stakeholders, it is possible that the role of the hashtag in public

communication is also changing. This may cause it to lose its utility in coordinating topical public discussion on an ad hoc basis.

A Short History of the Twitter Hashtag

In the early phases of adoption following its launch in 2006, Twitter had almost none of the extended functionality that it does today. Twitter users were invited to answer the question 'What are you doing?' in 140 characters or less, to follow the accounts of their friends, and little else (see Burgess, 2014). Many of the technical affordances and cultural applications of Twitter that make its role in public communication so significant were originally user-led innovations, only later being integrated into the architecture of the system by Twitter, Inc. Such innovations include the cross-referencing functionality of the @reply format for addressing or mentioning fellow users, the integration of multimedia uploads into Twitter clients and—most significantly for this paper—the idea of the hashtag as a means to coordinate Twitter conversations.

As a concept, the hashtag has its genealogy in both IRC channels and the Web 2.0 phenomenon of user-generated tagging systems, or 'folksonomies', common across various user-created content platforms by 2007, with Flickr and del.icio.us being the most celebrated examples. The use of hashtags in Twitter was originally proposed in mid-2007 by San Francisco–based technologist Chris Messina, both on Twitter itself and in a post on his personal blog, entitled 'Groups for Twitter, or a Proposal for Twitter Tag Channels' (Messina, 2007a). Messina called his idea a 'rather messy proposal' for 'improving *contextualization, content filtering* and *exploratory serendipity* within Twitter' by creating a system of 'channel tags' using the pound or hash (#) symbol, allowing people to follow and contribute to conversations on particular topics of interest. The original idea, as the title of Messina's post indicates, was linked to proposals within the Twitter community for the

formation of Twitter user groups based on interests or relationships; counter to which Messina argued that he was 'more interested in simply having a better eavesdropping experience on Twitter'. So rather than 'groups', hashtags would create *ad hoc channels* (corresponding to IRC channels) to which groupings of users could pay selective attention. While Messina went on to propose complex layers of user command syntax that could be used to manage and control these 'tag channels' (including subscription, following, muting and blocking options), the basic communicative affordance of the Twitter hashtag as we know it today is captured in his vision for the 'channel tag':

> Every time someone uses a *channel tag* to mark a status, not only do we know something specific about that status, but others can *eavesdrop* on the context of it and then join in the channel and contribute as well. Rather than trying to ping-pong discussion between one or more individuals with daisy-chained @replies, using a simple #reply means that people not in the @reply queue will be able to follow along, as people do with Flickr or Delicious tags. Furthermore, topics that enter into existing channels will become visible to those who have previously joined in the discussion. (Messina, 2007a)

At first there was little take-up of Messina's idea—until the October 2007 San Diego bushfires demonstrated a clear use-case (and partly as a result of Messina's activism during that event, urging people to use the hashtag to coordinate information—see Messina, 2007b). Over time, the practice became embedded both in the social and communicative habits of the Twitter user community and in the architecture of the system itself, with the internal cross-referencing of hashtags into search results and trending topics. Of course, like most successful innovations, the hashtag's original intended meaning as an 'invention' has long since become subverted and exceeded through popular use; this is largely attributable to its stripped-down simplicity and the absence of top-down usage regulation—there is no limit or

classification system for Twitter hashtags, so all a user needs do to create or reference one is to type the pound/hash symbol followed by any string of alphanumeric characters. In the years since 2007, through widespread community use and adaptation, the hashtag has proven itself to be extraordinarily high in its capacity for 'cultural generativity' (Burgess, 2012) and has seen a proliferation of applications and permutations across millions of individual instances—ranging from the coordination of emergency relief (Hughes & Palen, 2009) through the most playful or expressive applications, as in Twitter 'memes' or jokes (Huang, Thornton, & Efthimiadis, 2010), to the co-watching of (and commentary on) popular television programs (Deller, 2011; Highfield, Harrington, & Bruns, 2013) and the coordination of ad hoc issue publics, particularly in relation to formal and informal politics (Small, 2011).

The Uses of Hashtags

While the focus of this chapter is on the use of hashtags to coordinate public discussion and information-sharing on news and political topics, it is useful to outline a brief typology of different hashtag uses.

In the first place, hashtags can be used to mark tweets that are relevant to specific known themes and topics; we have already encountered this in the example of the Australian leadership **#spill**. Here, a drawback of the ad hoc and uncoordinated emergence of hashtags is that competing hashtags may emerge in different regions of the Twittersphere (for example, **#eqnz** as well as **#nzeq** for coverage of the Christchurch, New Zealand earthquakes in 2010 and 2011), or that the same hashtag may be used for vastly different events taking place simultaneously (for instance, **#spill** for the BP oil spill in the Gulf of Mexico during the first half of 2010, as well as for the leadership challenge in the Australian Labor Party in June of the same year).

Twitter users themselves will often work to resolve such conflicts quickly as soon as they have been identified—and such efforts also demonstrate the importance of hashtags as coordinating mechanisms: users will actively work to keep 'their' hashtag free of unwanted or irrelevant distractions, and to maximise the reach of the preferred hashtag to all users. Where—as in the case of **#spill**—both sides have a legitimate claim to using the hashtag, it is often the more populous group which will win out; on 23 June 2010, for example, the political crisis in Australia drew considerably more commenters than the Gulf of Mexico oil spill which had been in the news for several months already, and suggestions to disambiguate the two by marking leadership-related posts with alternative hashtags such as **#laborspill**, **#spill2**, or **#ruddroll** were not widely heeded. Instead, Australian Twitter users occasionally posted messages to explain the takeover of 'their' hashtag to those still following the oil spill—for example:

> those who do not know a **#spill** in leadership terms is basically saying the big job is now vacant no relation to the oil spill of bp style

while those following from outside Australia expressed their confusion at this sudden influx of new messages:

> Ok what's with the **#spill** tag? Has BP dumped more oil?

On the other hand, where—as in the case of **#eqnz** versus **#nzeq**—what should be a unified conversation is splintered across two or more hashtags, participants often try to intervene to guide more users over to what they perceive to be the preferred option. Here, messages from major, authoritative accounts can act as influential role models for 'correct' hashtag use, but users will also encourage those authorities to use hashtags 'properly' if they do not do so initially:

> @NZcivildefence please use **#eqnz** hashtag. Thanks.

At the same time, a splintering of conversations may also be desirable as themes shift or diversify. So, for example, while general discussion of everyday political events in Australia is commonly conducted under the hashtag **#auspol**,[4] separate hashtags are regularly used to track parliamentary debate during Question Time (**#qt**) or to comment on the weekly politics talk show *Q&A* on ABC TV (**#qanda**), as well as for the discussion of specific issues or crises. Where sensible, or where they wish to maximise their message's reach, Twitter users may also use multiple hashtags to address these various, overlapping constituencies.[5]

Such examples, therefore, underline the interpretation of using a thematic hashtag in one's tweet as an explicit attempt to address an imagined community of users who are following and discussing a specific topic—and the network of Twitter users which is formed from this shared communicative practice must be understood as separate from follower/followee networks. At the same time, the two network layers overlap: all public tweets marked with a specific hashtag will be visible *both* to the user's established followers *and* to anyone else following the hashtag conversation. Users from the follower network who respond and themselves include the hashtag in their tweets thereby also become part of the hashtag community, if only temporarily, while responses to or retweets of material from the hashtag conversation are also visible to the follower network. Similarly, some users may retweet topical tweets from their followers while adding a hashtag in the process, thereby making those tweets visible to the hashtag community as well. Each user participating in a hashtag conversation therefore has the potential to act as a bridge between the hashtag community and their own follower network (cf. Bruns & Moe, 2014).

At the same time, not all users posting *to* a hashtag conversation also *follow* that conversation itself: they may include a topical hashtag to make their tweets visible to others

[4] See Sauter and Bruns, Chapter 3, this volume.
[5] On the use of meta-hashtags and tag co-occurrence, see Rocheleau and Millette, Chapter 18, this volume.

following the hashtag, thereby increasing its potential exposure, but may themselves continue to focus only on tweets coming in from their established network of followees (this is especially likely for very high-volume hashtag streams). Conversely, not all relevant conversations following on from hashtagged tweets will themselves carry the hashtag: to hashtag a response to a previous hashtagged tweet, in fact, may be seen as *performing* the conversation in front of a wider audience, by comparison with the more limited visibility which a non-hashtagged response would have.

Beyond thematic, topically focussed uses of hashtags, a number of other practices are also evident. A looser interpretation of hashtagging is present in tweets which simply prepend the hash symbol in front of selected keywords in the tweet:

> **#japan #tsunami** is the real killer. **#sendai #earthquake**
>
> PGA only 0.82g. 2011 **#chch #eqnz** 2.2g http://j.mp/ecy39r

Such uses may be a sign that hashtags for breaking events have not yet settled (and that the sender is including multiple potential hashtags in their message in order to ensure that it is visible to the largest possible audience), or that the sender is simply unaware of how to effectively target their message to the appropriate community of followers—additionally, of course, they could also be read as a form of Twitter spam. For the most part, at any rate, it is unlikely that significant, unified communities of interest will exist around generic hashtags such as **#Japan** or **#Australia**, for example: outside of major crises affecting these countries (when we may reasonably expect the vast majority of tweets to refer to current events), tweets carrying such generic hashtags will cover so wide and random a range of topics as to have very little in common with one another.

An alternative explanation for the use of such generic hashtags, then, is as a simple means of emphasis—especially in the absence of other visual means that may be used to embellish tweets (such as bold or italic font styles). A hashtag like **#Australia**, therefore,

should usually be seen as equivalent to text decorations such as '_Australia_' or '*Australia*', rather than as a deliberate attempt to address an imagined community of Twitter users following the **#Australia** hashtag conversation, such as it may be.

Such emphatic uses are especially evident in hashtags which (often ironically) express the sender's emotional or other responses—for example, **#sigh**, **#facepalm**, or **#headdesk**. Here, hashtags take on many of the qualities of emoticons like ';-)' or ':-O'—they are used to convey extratextual meaning, in a Twitter-specific style. Additionally, however, some of these hashtags—for example, **#firstworldproblems** or **#fail**[6]—have also morphed into standing Twitter memes, to the point where some users may in fact have started to follow them for the entertainment they provide; here, a community of interest of sorts may once again have formed, then, even if few of the hashtagged messages themselves are intentionally addressing that community. And of course, the hashtag as a form has spread to many other social and mobile media platforms—from Instagram and Facebook to text messaging, where it has developed many other uses, genres and meanings.

Topical Hashtag Communities?

The extent to which any one group of participants in a hashtag may be described as a community in any real sense is a point of legitimate dispute. The term 'community', in our present context, would imply that hashtag participants share specific interests, are aware of, and are deliberately engaging with one another (which may not always be the case)—indeed, at their simplest, hashtags are merely a search-based mechanism for collating all tweets sharing a specific textual attribute, without any implication that individual messages are

[6] See Peck, Chapter 13, this volume, and Rambukkana, Chapter 2, this volume, for discussions of these two tags respectively, including how even humorous tag conventions can be drawn into political publics (e.g., **#RaceFail**).

responding to one another (this is most evident in the case of emotive hashtags such as **#headdesk**).

On the other hand, there is ample evidence that in other cases, hashtags are used to bundle together tweets on a unified, common topic, and that the senders of these messages are directly engaging with one another, and/or with a shared text (or texts) outside of Twitter itself. Twitter users following and tweeting about recurring political events such as Question Time or the *Q&A* TV show in Australia, for example, about televised political debates in the U.S. presidential primaries, or simply about the stories covered by prime time news, *and using the appropriate hashtags as they do so*, are responding to shared media texts by using Twitter as an external backchannel for these broadcast media forms. Such users may not necessarily also follow what everyone else is saying about these same broadcasts, but they do take part in an active process of 'audiencing', as members of the community of interest for these shows (Highfield et al., 2013).

Twitter itself may also provide some more explicit evidence for community participation. It is possible, in particular, to measure the extent to which contributors to any given hashtag are actively responding to one another—by sending one another publicly visible @replies,[7] or retweeting each other's messages (in the case of manual retweets, possibly adding further commentary as they do so). A high volume of such response messages would indicate that users are not merely tweeting *into* the hashtag stream, but also following what others are posting; the more such messages are contained in the hashtag stream—and the greater the total number of participants who engage in this way—the more the hashtag community can be said to act *as* a community. We suggest, in fact, that the ratio

[7] @replies are tweets which contain the username of the message recipient, prefixed by the '@' symbol. Private, direct messages would also indicate engagement between community members, of course, but such messages are not commonly available to researchers, for obvious reasons.

of responding to nonresponding hashtag posters may be especially valuable as an indicator of community: the fewer the users merely posting into the hashtag without also responding to others, the more thoroughly connected the community might be.

Similarly, Bruns and Stieglitz (2012) have shown that hashtags relating to acute crisis events—from natural disasters through political unrest to other breaking news—exhibit a number of stable distinguishing properties that set them apart from other hashtags, for example from those relating to major television events. Crisis hashtags are characterised by a high proportion both of tweets containing URLs and of retweets, pointing to a deliberate use of hashtagged tweets by users as a means of sharing emerging information about the crisis (in the form of URLs pointing to new updates) and more widely disseminating this information once found (by retweeting it). By contrast, hashtag activities around widely televised events—from popular shows through live sports to election night broadcasts—contain considerably fewer URLs or retweets, presumably because they are built around a shared primary text. The observation of these distinctly divergent, stable patterns in user activities for these different hashtag use cases points to the existence of different conceptualisations by users of the hashtag community that they are seeking to address or participate in.

It should also be noted that the hashtag community overlaps with other structural and communicative networks on Twitter. On the one hand, to regard tweets between two participants in a given hashtag conversation as evidence of a specific hashtag community may be to overestimate the importance of that hashtag, if the two users are also already connected as mutual followers—in such cases, the two users did not need to rely on the hashtag as a mechanism for discovering one another's tweets, because they also would have encountered them simply by reading their standard streams of incoming messages.

On the other hand, measuring the relative discursivity of hashtag conversations by identifying what percentage of hashtagged messages are responses to other users may also

significantly underestimate the actual volume of user-to-user conversations which 'hang off' the hashtag: not all such responses will include the original hashtag, and lengthy conversations between two users who found each other through their shared use of a hashtag may follow on from that discovery but take place entirely outside of the hashtag stream itself. Even hashtags with comparatively low numbers of responses in the overall message stream may still engender significant levels of conversation between hashtag contributors, then—but outside the hashtag stream itself.

On balance, such over- and underestimations of the role hashtags play in enabling and stimulating conversations between participating Twitter users may cancel each other out; more importantly, what emerges from these observations is a picture of hashtag communities not as separate, sealed entities, but as embedded and permeable macro-level spaces which overlap both with the meso-level flow of messages across longer-term follower/followee networks and with the micro-level communicative exchanges conducted as @replies between users who may or may not have found one another through the hashtag, as well as with other, related or rival hashtag communities at a similar macro-level (cf. Bruns & Moe, 2014).

At a higher level of abstraction, the same may be said of Twitter and its variously defined communities of users (whether gathered around specific hashtags, closely interlinked as followers and followees, or connected through shared language, geography and other markers) and their position within the wider media ecology, alongside other social media platforms and alongside other forms of online and offline media. Twitter, too, is one among many interconnected social and traditional media platforms; it is neither entirely separate from them (since its constituency of users overlaps with theirs, and communication flows across their borders), nor completely homologous with them (since different sociotechnical affordances enable different forms and themes of communication).

The overall picture therefore resembles a 'network of issue publics' constituted via overlapping mediated public spheres (Bruns, 2008, p. 69). Those hashtags that emerge around a shared issue or interest should be seen as coordinating mechanisms for these issue publics—corresponding to, and in many cases also corresponding *with*, related issue publics as they may exist in other public spheres in areas such as politics, mainstream media, academia, popular culture and elsewhere.

Hashtag Communities as Ad Hoc Publics

What particularly allowed Twitter to stand out from such other spaces for issue publics from quite early on was the platform's ability to respond with great speed to emerging issues and acute events. In many other environments—especially those controlled by extensive top-down management structures—issue publics may form only post hoc: some time after the fact. Even online, news stories must be written, edited and published; commentary pages must be set up; potential participants must be invited to join the group. Twitter's user-generated system of hashtags condenses such processes to an instant, and its issue publics can indeed form virtually ad hoc, the moment they are needed. To include a hashtag in one's tweet is a performative statement: it brings the hashtag into being at the very moment that it is first articulated, and—as the tweet is instantly disseminated to all of the sender's followers (at least as long as the Twitter timeline is still organised chronologically rather than algorithmically)—announces its existence.

Not all hashtag communities constitute ad hoc publics, of course; some hashtag communities may even form praeter hoc, in anticipation of a foreseeable event (such as a scheduled television broadcast or an upcoming election), or come together only some considerable time after the event, as its full significance is revealed. However, it is this very flexibility of forming new hashtag communities as and when they are needed, without

restriction, which arguably provides the foundation for Twitter's recognition as an important tool for the discussion of current events. This recognition is evident not least also in the utilisation of the platform by mainstream media organisations, politicians, industry and other 'official' interests, while the bottom-up nature of Twitter as a communicative space continues to be visible in the inability of such institutional participants to effectively channel or dominate the conversation.

The dynamic nature of conversations within hashtag communities provides fascinating insights into the inner workings of such ad hoc issue publics: it enables researchers to trace the various roles played by individual participants (for example, as information sources, community leaders, commenters, conversationalists, or lurkers), and to study how the community reacts to new stimuli (such as breaking news and new contributors). Such observations also offer perspectives on the interconnection of the community with other communicative spaces beyond Twitter itself, and on the relative importance of such spaces; in all, they point to the overall shape of the event.

The specific dynamics of ad hoc communication in different hashtag communities diverge substantially, of course; different events and crises follow vastly different timelines, for example, and may attract considerably larger or smaller constituencies of participants, representing more or less diverse subsets of the overall Twitter user base.

Future research may engage with the gradual evolution of hashtag uses, especially also in relation to other mechanisms for coordinating topical discussions, both on Twitter and in other, competing spaces. For example, as follower networks on Twitter have developed and solidified, it is possible that many users likely to be interested in specific issues are already connected to each other as mutual followers and will encounter each other's topical tweets, increasingly rendering the explicit and visible use of hashtags as a means of flagging topicality unnecessary. But hashtags continue to be important as a mechanism for provoking

the emergence of ad hoc publics around topics which are not well served by underlying network patterns (such as natural disasters, which are likely to affect users irrespective of their day-to-day topical interests), even if they may no longer be necessary for well-established topics of public debate.

Ad Hoc and Calculated Publics

Since their emergence in and adoption by Twitter as a platform, hashtags—their morphology, their cultural uses, and their sociotechnical functions as interfaces to search engines and algorithms—have become incorporated into the cultural logics not only of Twitter but of the 'social media logics' (van Dijck & Poell, 2013) of the contemporary digital media environment more broadly. They are used within and across platforms (including Instagram, Tumblr and Facebook, as well as Twitter), and in each context their range of uses and meanings is slightly different. And within Twitter itself, the gradual changes to the platform's deployment of hashtags have transformed the ways they are experienced, and the extent to which the publics that emerge and are coordinated via hashtags might be said to be truly 'ad hoc'.

For example, in 2012 Twitter began introducing official 'hashtag pages' for certain large-scale events, like NASCAR and the European Football Championships.[8] These pages (whose URLs appear just like any hashtag results page) are carefully curated representations of the public communication around an event, often privileging particular 'official' sources as part of Twitter's (then) new push to become more a media company than a social networking service. During Hurricane Sandy, for example, Twitter instituted a set of 'trusted' accounts whose tweets on the official hashtag **#sandy** would be privileged on the page returned

[8] See for example https://blog.twitter.com/2012/euro-2012-follow-all-the-action-on-the-pitch-and-in-the-stands

following any search for '**#sandy**' (or after clicking on the hashtag in any tweet). On this official 'Sandy' page, Twitter provided lists of authoritative accounts to follow for information about the storm, and offered free promoted tweets to key emergency response and recovery organisations.[9]

While the initial public communication around the gathering storm did 'self-organise' around the **#sandy** hashtag, thereby forming an ad hoc public as described above, Twitter, Inc., as well as various mainstream media, government and not-for-profit organisations added an additional layer of coordination and institutionalisation to the hashtag, not destroying or displacing the collective activity that constituted it, but most definitely shaping and curating it. Of course, given the relatively open nature of Twitter as a communication platform, these attempts to make the Twitter stream around the emergency more useful and trustworthy can never really achieve the kinds of command-and-control structures that emergency services departments might prefer—witness the disruptive and playful activities such as fake or joke images that were still quite visible on the **#sandy** hashtag (Burgess, Vis, & Bruns, 2012).

While much of the early collective activity that gave the Twitter hashtag its meaning, including the meanings produced by 'ad hoc publics', can be understood as self-organising—especially in comparison to, say, Facebook and YouTube, where suggestive and social algorithms have long ordered our experiences of those platforms—the algorithmic turn is profoundly impacting on the affordances of the Twitter hashtag for public communication as well.

Twitter's search algorithm already profoundly shapes the results that users see. On most clients, a Twitter search will by default return a list of 'Top Tweets', which is some undisclosed cocktail of what the algorithm deems 'authoritative' or 'socially relevant' results. Some but not all clients also offer the user an 'All Tweets' alternative option. In the most

[9] https://blog.twitter.com/2012/hurricane-sandy-resources-on-twitter

systematic critique of social media algorithms so far, Tarleton Gillespie (2014) focuses particularly on fuzzy, value-laden concepts such as 'relevance'—'a fluid and loaded judgement, as open to interpretation as some of the evaluative terms media scholars have already unpacked, like 'newsworthy' or 'popular'' (p. 175)—and, we would argue, just as culturally powerful as those are. Gillespie points out that such evaluations made by algorithms 'always depend on inscribed assumptions about what matters, and how what matters can be identified' (p. 177). Here Gillespie notes the existing research that has identified 'structural tendencies toward what's already popular, toward English-language sites, and toward commercial information providers' in search engine results (p. 177), for example. Precisely these kinds of operations and underlying assumptions are in play when the Twitter platform displays a hashtag's search results.

Thus, while many users may click on a hashtag and assume that the resulting stream of tweets transparently represents the reality or even the totality of the tweets associated with a particular hashtag, they are (perhaps unknowingly) getting a constructed, partial and curated view of the tweets that have been posted as part of the conversation around that hashtag; and they are not privy to the basis on which this curation has taken place or how its associated choices have been made. It is only Twitter, Inc. that has what Gillespie evocatively calls 'backstage access' to 'the public algorithms that matter so much to the public circulation of knowledge' (p. 185). Indeed, it is hard to think of a better example of such algorithms than the ones that sort, order and curate the communicative material that constitutes the expression of issues or events around which publics emerge and engage. Whereas the first years of hashtags alerted us to the structural displacement of models like the 'public sphere' by terms like 'networked public' (boyd, 2010; Ito, 2008) and ad hoc publics, we now have to contend with the complications of personalised, *calculated* publics (Gillespie, 2014, p. 188) as well.

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