Sharing the News: Dissemination of Links to Australian News Sites on Twitter

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Introduction

Social media adoption in Australia, which provides the geographic focus for this chapter, has been rapid and substantial (ABC News, 2010) – possibly because of the considerable dispersal of the Australian population across the continent, as well as the significant distance of the country from many of its closest partner nations. Social media can play an important role in strengthening and maintaining interpersonal and professional relationships in spite of such physical distance; in particular, social media services are now well-recognised as important tools for the dissemination of news across many developed nations. Hermida (2010) and Burns (2010) both speak of *Twitter* as a medium for "ambient news", for example: always-on, operating as a steady stream in the background and at the edge of users' conscious perception. Much as ambient music is designed to do, it comes to the fore when notable events (such as major breaking news) lead to an increase in volume and demand a greater level of attention from users.

During such times, social media in general and – due to its specific technological affordances – *Twitter* in particular take their place as important elements of shared, real-time efforts to "work the story" (Bruns, 2011); news organisations, journalists, and everyday users combine more or less deliberately in the shared spaces of social media platforms to find, share, and pass along information as it comes to hand in order to develop a more comprehensive picture of events as they unfold. Our comparative research on a substantial number of "acute events" (Burgess & Crawford, 2011) during 2010 to 2012 points to the emergence of consistent patterns of user activity on *Twitter* during such times: some 50-60% of tweets posted to the crisis-relevant hashtags during such times contain URLs which provide further news on the breaking event, and a similar percentage of tweets are retweets – that is, messages which pass on other users' updates (Bruns & Stieglitz, 2012). The function of this activity is to partially assist the social network in doing what it, in its entirety, does best: getting important information to the people who need it most, and to those who might be best placed to act on that information in a positive and helpful way.

What takes place on *Twitter* during such times can therefore be best described as *gatewatching* (Bruns, 2005): the collaborative tracking of a wide range of news outlets for new information which is relevant to the event at hand; the posting of such information (in the form of tweets containing URLs) to the *ad hoc* community of interest which has formed around the topical *Twitter* hashtag (Bruns & Burgess, 2011); and the further dissemination of these messages to a wider audience. Contrary to the forms of gatewatching which commonly take place on news blogs and citizen journalism Websites, there is considerably less distinction between the activities of everyday users,

journalists, and news organisations on *Twitter*: there is in fact significant alignment between their efforts to find and disseminate information, especially in the context of breaking news events.

Such news-sharing practices during times of crisis are likely to diverge considerably from routine patterns of sharing news and information during everyday practice, however. In the absence of acute, breaking news events, links to news stories and commentary in major and minor news sites continue to be shared by users of social media platforms, albeit at a significantly lower volume. Where such everyday activities can be observed on a comprehensive basis, then, they provide an important insight not into the rapid, viral dissemination of crisis-relevant information from almost any news outlet, but into the routine news engagement patterns of social media users. Indeed, any observation of news sharing patterns in social media spaces examines precisely this question of news *engagement*, rather than mere news *consumption*, as it investigates not the amount of *readers* each story attracts (which would usually require access to the internal server data held by news organisations), but the amount of times it is actively *shared* through social media.

This chapter reports on an effort to track such news sharing for a large number of leading Australian news and commentary Websites, on *Twitter*. Using an approach which will be outlined in the following section, we were able to comprehensively capture tweets containing links to some 30 Websites, on a continuous basis, and from this to generate an Australian *Twitter* News Index, ATNIX.[1] What ATNIX presents is similar to conventional television ratings or newspaper circulation figures, but advances beyond such measures of *potential* audience (not every newspaper in circulation is read in full; not every television tuned to a specific channel is watched attentively) by tracking *actual* user activity: it counts those instances when *Twitter* users have gone to the trouble of *deliberately* posting or passing along messages which contain links to the Websites we have tracked. (By contrast, what ATNIX cannot establish, of course, is whether the links thus shared are in turn clicked on by the *Twitter* followers who receive these messages, or were read by those users sharing them.) What results from this analysis, then, is a picture of how the attention of active *Twitter* users is distributed across Australian news sites; of the extent to which news users are loyal to one or multiple sites; and of whether and how their attention shifts in the shorter and longer term, in response to daily news coverage or in line with overall industry trends.

Methodology

This work builds on the open-source tool *yourTwapperkeeper* (2012), which utilises the *Twitter* Application Programming Interface (API) to capture tweets that contain certain terms as chosen by the researcher (see Bruns & Liang, 2012, for a detailed discussion of how *yourTwapperkeeper* may be used for *Twitter* research). Commonly, the terms chosen in research applications of *yourTwapperkeeper* are keywords or phrases ("Australia", "Barack Obama"), or hashtags ("#ausvotes", "#london2012"), but the *Twitter* API makes no distinctions between such keywords and other terms which may occur in tweets – including URLs. It is just as possible, therefore, to use *yourTwapperkeeper* to capture all tweets (subject only to technical outages) which contain the domain names of selected Websites – such as *abc.net.au* or *couriermail.com.au*.

Indeed, the *Twitter* API returns tweets which contain such domain names even if the original links have been masked (once, or multiple times) by using standard URL shortening solutions, which are

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[1] A full archive of ATNIX results since mid-2012 can be found at http://mappingonlinepublics.net/tag/atnix/.

widely used to reduce the amount of characters in a 140-character tweet which are devoted to the URL itself. This is crucial as, since 2011, *Twitter* has introduced its mandatory URL shortener *t.co*, so that any URL shared by *Twitter* users is now shortened at least once, as it is posted, to a *t.co* address (Bruns, 2012). URLs in tweets which are posted from client applications that utilise any one of a range of URL shortening services – *bit.ly*, *ow.ly*, etc. – therefore undergo at least two shortening steps: from the original link to a *bit.ly* or equivalent shortened URL, and from that URL to a *t.co* URL. Internally, however, *Twitter* keeps track of the final destination URL of links being shared through its platform; this information is used both by the *Twitter* Website's search functions (which, when searched for a URL such as *abc.net.au*, returns tweets with short URLs that *eventually* point to ABC content), and by the *Twitter* API (which provides equivalent functionality to client applications).

On this basis, then, it is possible for researchers to use *yourTwapperkeeper* to capture all tweets which point to specific domain names, on an ongoing basis and in close to real time. Since mid-2012, we have done so for a selection of the leading Australian news and opinion Websites (table 1), covering all sites of state- and nationwide importance; our work is assisted in this context by the very limited number of Australian population centres capable of sustaining major newspapers and their Websites, as well as by the highly concentrated structure of the Australian media industry, which is dominated by only two major commercial news organisations, the Murdoch-owned News Ltd. and Fairfax, in addition to public broadcasters ABC and SBS (Young, 2010). Contrary to most other developed nations, therefore, the relatively small number of Websites we track is sufficient to cover the Australian news industry, except only for small rural, regional, and suburban news outlets and special interest news sites.

Domain	Operator	Notes	State
News sites			
abc.net.au	ABC	Australian Broadcasting Corporation, major public broadcaster	All
adelaidenow.com.au	News Ltd.	*Adelaide Advertiser* newspaper	SA
afr.com	Fairfax	*Australian Financial Review* newspaper, special interest	All
au.news.yahoo.com	Yahoo!7	Seven Network (TV) / *Yahoo!* joint venture, includes *The West Australian* newspaper (Perth)	all / WA
brisbanetimes.com.au	Fairfax	*Brisbane Times* online-only newspaper	Qld.
canberratimes.com.au	Fairfax	*Canberra Times* newspaper	ACT
couriermail.com.au	News Ltd.	*Courier-Mail* newspaper (Brisbane)	Qld.
dailytelegraph.com.au	News Ltd.	*Daily Telegraph* tabloid (Sydney)	NSW
heraldsun.com.au	News Ltd.	*Herald Sun* tabloid (Melbourne)	Vic.
news.com.au	News Ltd.	*news.com.au* online-only news site	All
ninemsn.com.au	ninemsn	Nine Network (TV) / *Microsoft Network* joint venture	All
nit.com.au	Independent	*National Indigenous Times*, special interest	All
ntnews.com.au	News Ltd.	*Northern Territory News* tabloid (Darwin)	NT
perthnow.com.au	News Ltd.	*Perth Now* online-only news site, *Sunday Times* weekly newspaper	WA
sbs.com.au	SBS	Special Broadcasting Service, multicultural public broadcaster	All
skynews.com.au	Sky News	*Sky News* pay-TV news channel	All
smh.com.au	Fairfax	*Sydney Morning Herald* newspaper	NSW
theage.com.au	Fairfax	*The Age* newspaper (Melbourne)	Vic.
theaustralian.com.au	News Ltd.	*The Australian* newspaper	All
themercury.com.au	News Ltd.	*The Mercury* newspaper (Hobart)	Tas.
watoday.com.au	Fairfax	*WA Today* online-only news site (Perth)	WA
Opinion and Commentary			
crikey.com.au	Independent	*Crikey* news political commentary site	All
independentaustralia.net	Independent	*Independent Australia* political commentary site	All

nationaltimes.com.au	Fairfax	*National Times* commentary aggregator for Fairfax sites	All
newmatilda.com	Independent	*New Matilda* political commentary site	All
onlineopinion.com.au	Independent	*On Line Opinion* political commentary site	All
theconversation.edu.au	Independent	*The Conversation* universities-supported commentary site	all
thepunch.com.au	News Ltd.	*The Punch* commentary aggregator for News Ltd. sites	all

Table 1: Australian news Websites tracked by ATNIX

The datasets gathered by *yourTwapperkeeper* for each of these domains, then, contain the tweets themselves, as well as a range of other metadata (such as the originating user, tweet timestamps, etc.); from these it is then possible through a series of processing steps (see Bruns & Burgess, 2012, for a general overview of our approach) to generate both a time-based overview of news-sharing activity around these sites, as well as further insights into the structure of the actively engaged audience which shares links to these sites on *Twitter*. We outline these findings in the following sections.

While the majority of the sites we have tracked in this project are centrally focussed on news and commentary, however, it should be noted that a small number of sites contain a wider range of content: in particular, the sites of the Australian Broadcasting Corporation (ABC, *abc.net.au*) and of the Special Broadcasting Service (SBS, *sbs.com.au*), as well as the joint-venture site *nineMSN* (involving the Nine television network, *ninemsn.com.au*) offer radio and TV programming information, micro-sites for specific channels and shows, and other non-news content. Datasets for these sites were filtered further by excluding any material which resided in clearly non-news sections of each Website. To automate such filtering processes, we used subdomains and content paths as appropriate for each Website: for example, we retained tweets with URLs that contained *abc.net.au/news* or *news.ninemsn.com.au*, but removed *abc.net.au/gardening* or *tvfix.ninemsn.com.au*. Additionally, as the *Yahoo!7 News* Website at *au.news.yahoo.com* hosts both the national Channel Seven television news Website and the Website of the *West Australian* newspaper, we split this dataset into a collection of tweets referencing *au.news.yahoo.com/thewest*, and a collection containing all other links to the site.

Further, where mainstream news sites operate dedicated opinion and commentary sections, we also extract the tweets referencing these sections (e.g. *smh.com.au/opinion* or *abc.net.au/unleashed*) into separate datasets, in order to compare user activity around these sections with similar activity around the dedicated opinion and commentary Websites.

Patterns of Engagement

The following section discusses our findings for a two-month period during the Australian winter 2012: we cover calendar weeks 25 to 33/2012 (18 June to 19 Aug. 2012). Fig. 1 shows the overall distribution of engagement with the Australian news Websites (excluding opinion and commentary sites), and – after the filtering processes described above – is based on a total of 1,318,928 tweets containing relevant links during this period.
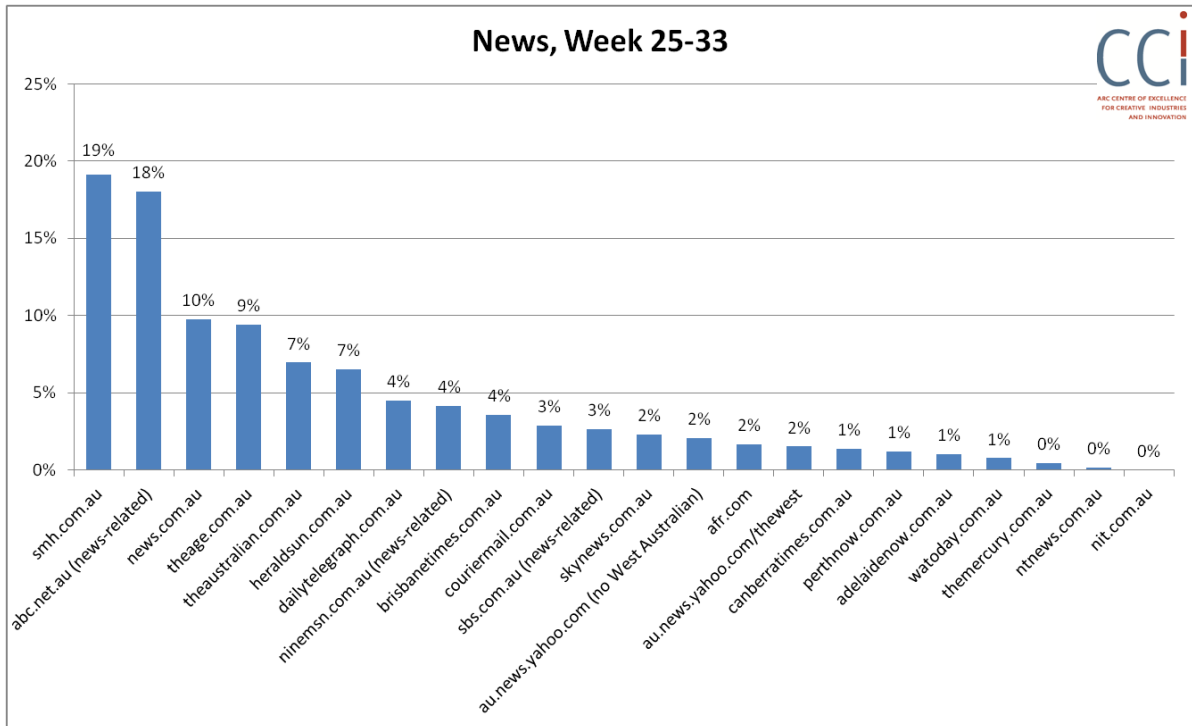
Fig. 1: Distribution of audience engagement with Australian news sites, weeks 25-33/2012

It is immediately obvious that *Twitter* user engagement is centred especially on two key news sites: the Website of Fairfax broadsheet newspaper *Sydney Morning Herald* (which is based in Sydney, but addresses a national audience in much of its news coverage), and the news-related sections of the ABC's Website. These market leaders are followed, at some distance, by the cumulative news site operated by Rupert Murdoch's News Ltd., *news.com.au*, by the second Fairfax broadsheet, *The Age* (based in Melbourne), and by the national News Ltd. broadsheet *The Australian*. Together with the Melbourne and Sydney tabloids *Herald Sun* and *Daily Telegraph*, which follow this lead group, these seven sites account for nearly three quarters of all the links to Australian news sites posted to *Twitter* during this two-month period. The remaining 15 sites included in our study, by contrast, were referred to in less than 340,000 tweets, compared to the leaders' almost 980,000. Not only is the concentration of media ownership in Australia amongst the highest in the developed world, then: audience attention – at least on *Twitter* – is concentrated on an even smaller number of news outlets.

This leadership structure remains stable also on a week-by-week basis, as fig. 2 shows for the ten most frequently cited sites. (Here, we exclude data from week 28, which remained incomplete due to a server outage.) While there is some fluctuation in the total number of links shared per week, ranging for *ABC News* from under 25,000 in week 29 to over 31,000 in week 33, the overall positioning of individual sites, and the proportion of links received by each, is surprisingly static, except for a handful of notable aberrations.
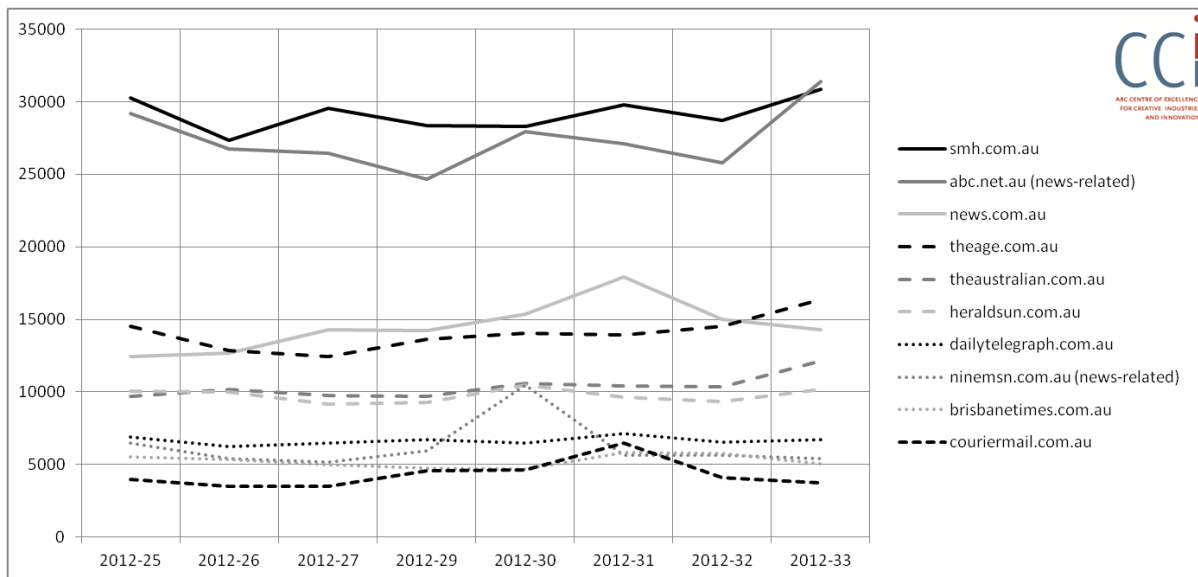
Fig. 2: Weekly audience engagement with the ten leading Australian news sites, weeks 25-33/2012

At the same time, there are unusual results for several sites during individual weeks: *ABC News* rates especially highly in week 33, for once receiving a greater total number of tweets than the *Sydney Morning Herald*, while *news.com.au* and *nineMSN* peak in weeks 31 and 30, respectively.

The reasons for such variability become more immediately evident from an examination of the day-to-day fluctuations for the leading sites: the substantial boosts which *ABC News*, *news.com.au*, and *nineMSN* receive during weeks 33, 31, and 30 are revealed to be driven by spikes in user activity which tend to last for one or two days. A closer investigation of the key stories shared on these days reveals these spikes to be related mainly to domestically-produced news stories which attain an international audience: in week 33, for example, the ABC's coverage of Australian-born *WikiLeaks* founder Julian Assange's refuge in the Ecuadorian embassy in London is something shared and discussed by followers of the *WikiLeaks* story well beyond Australia's borders; in week 31, a *news.com.au* story about Snoop Dogg's rebranding as Snoop Lion is shared by the rapper's fans around the world; and in week 30, *nineMSN*'s piece on four local fans' dissatisfaction with teen band One Direction is similarly cause for outrage amongst that, perhaps easily excitable, global fan community.

Such observations serve as a useful reminder that our approach tracks tweets containing links to these news sites regardless of where they originate; while news from Australian Websites is usually likely to be shared mainly by Australian users who follow these sites, where these stories have the potential to spread virally they may suddenly reach a much larger audience. This is the case especially if these news reports connect with established interest communities on *Twitter*, from the political activists following *WikiLeaks* to the fan communities of various artists and celebrities. Indeed, a close analysis of the pathways through which such news travels from routine domestic to *ad hoc* international audiences will be able to provide new insights into how viral stories emerge.

At the same time, hidden underneath such unusual spikes are further interesting observations about the use of *Twitter* as a medium for routine news dissemination by domestic audiences. Here, first, a day-to-day analysis points to standard patterns of sharing the news, and shows that audience engagement with the news is considerably stronger on weekdays than weekends (this also matches

patterns of engagement within the blogosphere – Australian political bloggers, for example, regularly post more often on weekdays than weekends, as established by Highfield, 2011). Notably, too, such weekend declines are considerably more pronounced for *ABC News* than they are for the newspaper sites of the *Sydney Morning Herald* or *The Age*, for example; this is due likely to the fact that these newspapers also publish extended weekend editions (in print as well as online) which contain material that is more suited to weekend leisure activities, while *ABC News* simply continues its standard news coverage.

Additionally, beyond the major spikes in link traffic, the more minor fluctuations in the data may also be investigated in greater detail, and reveal specific patterns in domestic user activity. So, for example, at least part of the substantial spike in links to *ABC News* during week 33 is due not to a locally-produced story going viral amongst international audiences, but rather to a domestic report about (and video of) a scathing attack in parliament by independent MP Tony Windsor on federal Opposition Leader Tony Abbott which was widely circulated amongst Australian *Twitter* users. Extending further from this, it also becomes possible to examine the distribution of user engagement across specific thematic areas of news coverage (from politics to sport), and thereby to determine what fields of news are being shared by *Twitter* users, and when. We address such issues below.

Patterns for the seven dedicated opinion and commentary sites, as well as the opinion sections of mainstream news sites, broadly match those for news (fig. 3): here, too, a clear leadership group is evident and receives a similar percentage of all tweets. As with news, the field is led by the *Sydney Morning Herald*, whose opinion articles are shared most widely by a substantial margin: of the 168,000 tweets linking to opinion pieces during weeks 25-33, it received more than 35,000, some 10,000 tweets clear of its nearest rival. Other mainstream opinion sections include *The Age*, the ABC's *The Drum* section (at *abc.net.au/unleashed*, in reference to its former title), the collection of News Ltd. opinion columns at *blogs.new.com.au*, and the opinion section of online-only Fairfax newspaper *Brisbane Times*.
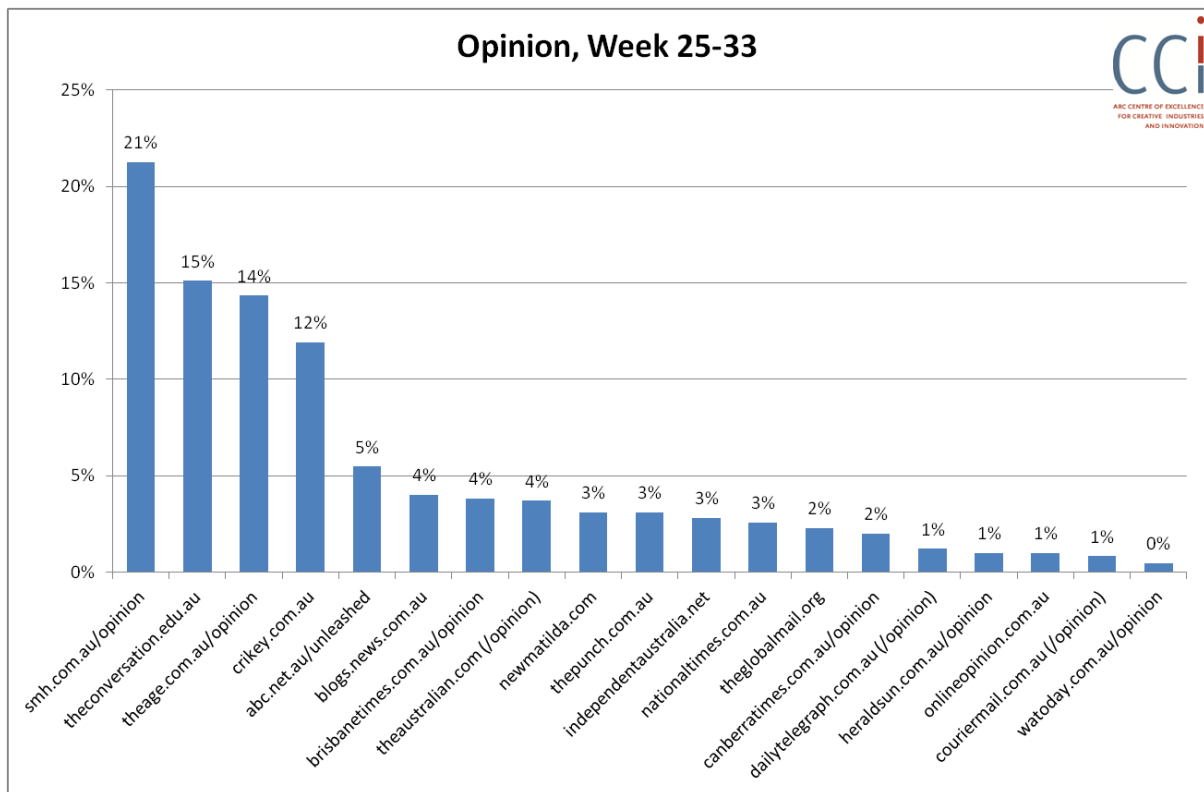
Fig. 3: Distribution of audience engagement with Australian opinion sites, weeks 25-33/2012

Amongst this leadership group of seven major sites which (as was the case with news) commands some three quarters of all links to opinion and commentary articles in our dataset, however, are two dedicated commentary sites which exist independently from mainstream news organisations. Placed second overall is *The Conversation*, a non-profit commentary site which was launched in March 2011 and is supported by a wide coalition of Australian universities and research organisations; the site's central aim is to give academic experts "a greater voice in shaping scientific, cultural and intellectual agendas by providing a trusted platform that values and promotes new thinking and evidence-based research" (Conversation, 2012), which notably also includes publishing evidence-based commentary on the political issues of the day. In fourth place is *Crikey*, a well-established independent political commentary site whose content is partially paywalled; this is likely to contribute to its placement at some distance from the top sites.

The presence of these sites, and especially of the relatively new entrant *The Conversation*, amongst the leading group points to the fact that otherwise minor (in terms of funding and staffing), independent sites are able to make inroads into the Australian opinion and commentary space comparatively more easily than into the mainstream news market. Such success is not guaranteed, however; it should be noted that similarly recent, similarly non-profit enterprise *The Global Mail* (which launched in February 2012) has to date failed to make an impression comparable to that of *The Conversation*, and received only some two per cent of the tweets contained in our dataset. This may be due to the focus of that site on long-form writing, as well as to its widely criticised, overly cumbersome site design, which are both likely to negatively affect the number of links to the site which will be shared on *Twitter*. By contrast, *The Conversation* provides shorter articles in a more conventional format, and actively encourages sharing its articles through social media.

Given the substantially smaller numbers of links to Australian opinion and commentary articles being shared on *Twitter*, week-to-week fluctuations in the attention share of individual sites are necessarily more pronounced than for mainstream news. As fig. 4 shows, this is particularly notable for the leading sites, for which a handful of widely shared commentary articles each week can translate to a difference of some 1,500 additional tweets.
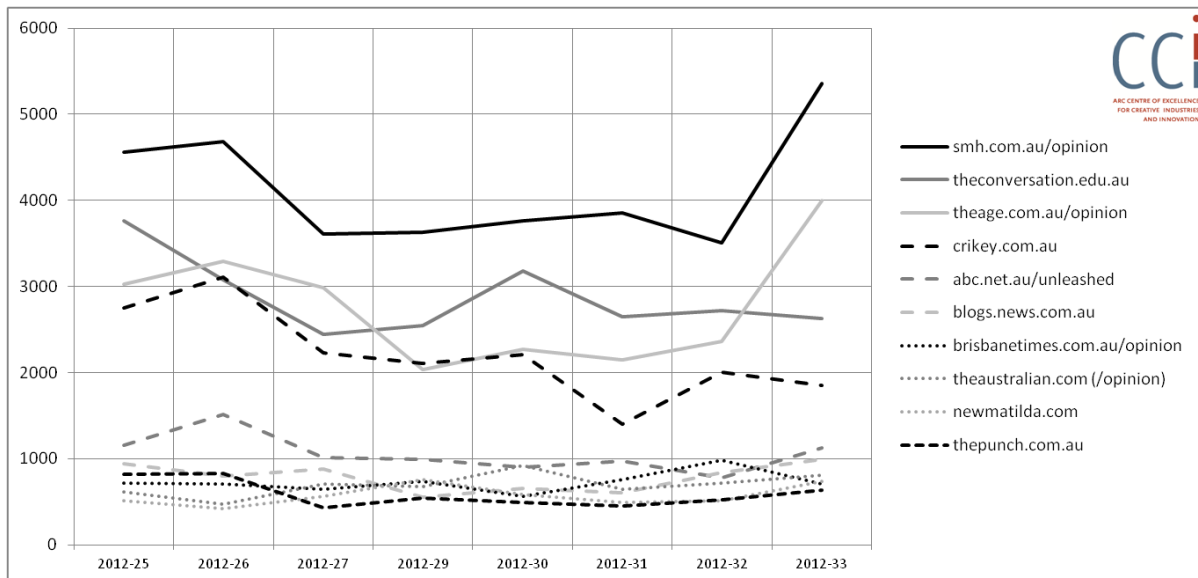

Fig. 4: Weekly audience engagement with ten leading Australian opinion sites, weeks 25-33/2012

More so than for news, in fact, the day-to-day overview for the ten leading opinion sites and sections reveals significant fluctuations in audience engagement with opinion and commentary content, especially for the opinion sections of mainstream news sites. While sites such as the *Sydney Morning Herald* and *The Age* may have their established, loyal audiences which access their news and commentary content, in other words, it appears that those audiences share these sites' *news* content on a more regular, routinised basis than their *commentary*; news articles, we may assume, are shared whenever they are relevant to a *Twitter* user's interests (or to the perceived interests of their followers), while commentary articles are shared only when the opinions expressed therein are of particular resonance.

As the day-to-day analysis also shows, however, sharing activities for *The Conversation* and (to a lesser extent) for the partially paywalled *Crikey* appear to fluctuate considerably less on a day-to-day basis; we hypothesise that this may be a function of the fact that visitors to these sites presumably access them specifically because they are known as publishers of opinion articles, and are thus also more likely to share new opinion articles with their *Twitter* followers, while on news sites the opinion and commentary sections constitute a secondary addition which most visitors may not seek out as deliberately.

As with news, some viral effects are again in evidence in the day-to-day opinion sharing data, too: major spikes in *The Age* in week 33 and the *Sydney Morning Herald* in weeks 25 and 33, for example, are due to commentary on Julian Assange's fate as a refugee in the Ecuadorian embassy in London. An early spike in *The Conversation* during week 25, on the other hand, is related to purely domestic concerns, and is driven largely by the sharing of an article by former Prime Minister Malcolm Fraser, voicing his concerns over the restructuring and long-term viability of Fairfax newsrooms. It is

important to emphasise once again, however, that these findings only document the presence of links to Australian news and opinion sites on *Twitter*, and does not reflect the full news diet of Australian *Twitter* users, who may well supplement or supplant their use of Australian news sites with a wide variety of international sources. Specifically, this may also account for the fact that during the period observed above, which notably includes the full duration of the 2012 Olympic Games in London (27 July to 12 August, i.e. the final days of week 30, as well as weeks 31 and 32), there is no significant change in news-sharing patterns during the Games itself – in spite of the considerable status of sports in Australian culture and the substantial coverage of the Games by Australian news sites. Most centrally, we would expect to see an increase in the number of tweets referencing *nineMSN*, which – though not the official digital rights holder – is the news Website affiliated with the Games' official Australian broadcast partner, the Nine Network. As we have already seen, however, the brief spike in *nineMSN* tweets during week 30 is due to a viral story about teen band One Direction, not to its Games coverage.

We must therefore assume that where Australians shared links to Olympics-related news, they did so either by referencing sites other than the Australian news sites we tracked here (such as the official London 2012 site or the news sites of major international news organisations, especially perhaps of the host broadcaster BBC) or in lieu of other Australian news links which they would otherwise have tweeted (resulting in a shift in focus, but no change in the total number of links to Australian sites per day and week). Alternatively, given the comprehensive coverage of Games results in the mainstream media and the time difference between London and the major Australian population centres (which saw many major contests decided in the early hours of each day), it is also possible that Australian *Twitter* users simply chose to discuss the Olympics in their messages, but not to share news links in their tweets, in the assumption that most Olympic news were already common knowledge. Such a lack of news-sharing especially in the context of widely televised events is consistent with our findings from a study which examined tweeting patterns for a wide range of televised as well as breaking news events (Bruns & Stieglitz, 2012).

Sites and Audiences

In addition to determining the total *Twitter* engagement share for each of the sites we track, our data also enable us to examine the userbase for each site, in order to examine the extent to which individual sites have their own loyal audiences, or to which users frequent multiple sites as required. Here, we hypothesise that it is important to distinguish between the most active link sharers on *Twitter*, and less active participants; it appears likely that those who most frequently tweet links to Australian news sites have a range of well-established preferences, while those who only occasionally pass on links in their tweets may do so more randomly, and perhaps especially in the form of retweets prompted by the links shared by others.

In determining how actively users share links to specific news sites, we therefore distinguish in the first place between three groups of users, following the well-established 1/9/90 rule (Tedjamulia *et al.*, 2005): the one per cent of most active, *lead users* within the total number of unique users sharing links to each site; the next nine per cent of still *highly active users*; and the remaining 90% of *least active users* (cf. Bruns & Stieglitz, 2013). Further, to simplify our analysis, in the following we examine the dataset for week 27/2012 only (2-8 July), which – as fig. 2 shows – constitutes a

"normal" week without unusual spikes in activity, and focus only on the three leading Australian news sites: the *Sydney Morning Herald*, *ABC News*, and *news.com.au*.

A breakdown of user activity across the three user groups for each of the three sites (fig. 5) shows broadly similar patterns for the three sites. The small number of most active lead users tweet links to each site mainly in original messages (that is, new tweets which are neither @reply nor retweet); in other words, they newly composed the tweets in which they include links to each news site. Also, though small in number, this most active one per cent of all participating users accounts for some 30% of all tweets sharing links to each site. The two less active groups of users send proportionally more retweets; indeed, for the least active group of participants, around half of the links they share are shared by retweeting the messages of other users.
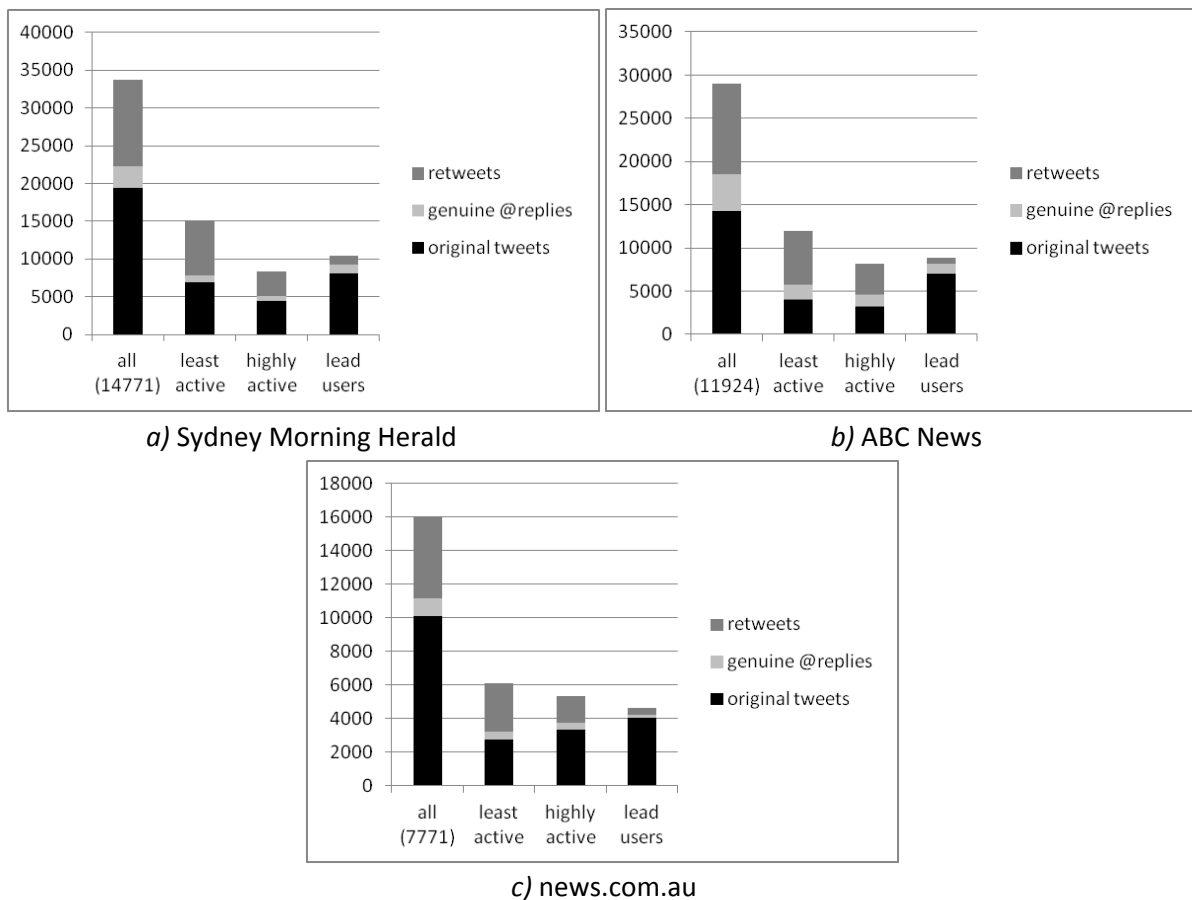
a) Sydney Morning Herald   *b)* ABC News

c) news.com.au

Fig. 5: User engagement patterns for leading news sites, week 27 (2-8 July 2012)

Overall, too, there appear some distinctions in how the userbase engages with links to each site. *news.com.au* links are shared most frequently in original tweets; 63% of all tweets by the nearly 7,800 unique users linking to the site during week 27 did not reference another *Twitter* user. That percentage shrinks to 57% for *Sydney Morning Herald* users, and to 49% for *ABC News* users; in other words, any tweet which contains a link to these sites is considerably more likely to be retweeted or @replied to. Further, *ABC News* users appear to be the most discursively-minded: 15% of tweets linking to *ABC News* stories reference another *Twitter* user, but are not retweets, compared to only nine per cent for the *SMH* and seven per cent for *news.com.au*.

Fig. 6 shows the relative overlap between the communities of active users which existed around each of the three sites during week 27: for each site, we have selected the 500 most active unique users sharing links during the week, amounting (with overlaps between the three groups) to some 1,200 unique users. We then graphed the connections of each user to the three sites. It is immediately obvious that each site has a considerable number of users who shared links only to one of the three news sites; in addition, there are various groups of users which referenced two of the three sites in their tweets, and a smaller number of users who referenced all three.
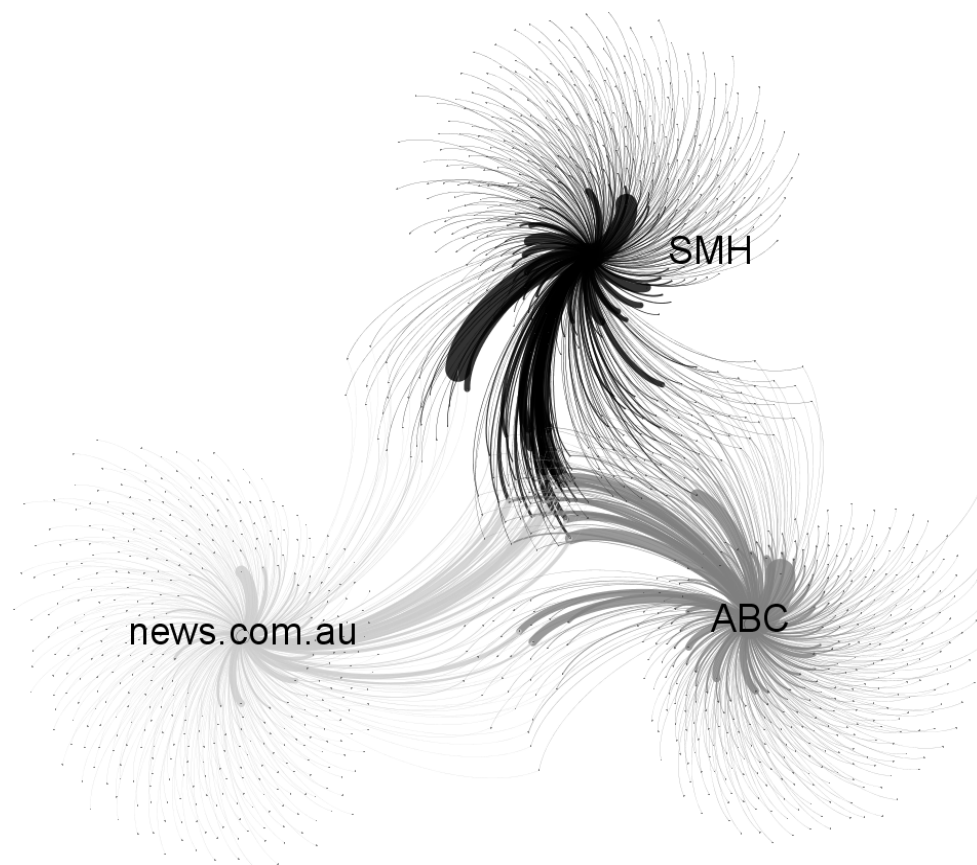

Fig. 6: User engagement patterns for leading news sites, week 27 (2-8 July 2012)

This final group of some 66 users, however, is also the most active one, as indicated by the strength of their links to each site (which indicates the frequency with which they referenced the sites during the week); amongst the lead users for each site, therefore, there is considerable overlap, while there is less overlap between the less active users. Finally, this analysis also shows a greater affinity between users of the *Sydney Morning Herald* and the *ABC News* sites, which share a more substantial number of 75 *Twitter* users; there are only a handful of strong links between the *ABC News* and *news.com.au* sites (35 shared users in total), and very little significant overlap in the userbase of the *Sydney Morning Herald* and *news.com.au* (28 users), in addition to those 66 lead users who reference all three sites.

Such patterns are likely to change somewhat from week to week and day to day, of course, but – outside of major breaking news stories – major fluctuations appear unlikely. Rather, they point to the established news loyalties of specific subsets of the overall Australian *Twitter* userbase, and especially of those *Twitter* users who are most actively sharing links to Australian news sites in their

tweets. They are likely also to reflect similar patterns in the overlap or separation of the audiences for specific Australian newspapers or news broadcasts. However, the very fact that *Twitter* users share links to their favourite news sites with their followers, and that such followers may have very different news preferences, also ensures that these shared links are ultimately seen (if not necessarily retweeted further) by a greater breadth of audience members than newspaper articles or broadcast news reports are likely to be.

Topical Patterns

Many of the specific news stories mentioned so far cover Australian political and media affairs; however, these are not the only subjects discussed on the news sites featured in fig. 1. In addition to identifying the userbase for each site, and the connections between them, we can also determine which topics receive most attention from *Twitter* users. The data collected here allow us to examine whether different news subjects follow their own patterns of user interest, providing further nuance to the overall patterns shown in fig. 2.

Here, we provide a preliminary overview of topical variations within weeks 27 (2-8 July – fig. 7) and 29 (16-22 July) for links to the *Sydney Morning Herald*. Each news site categorises its articles differently, both in terms of description within a story itself and in its filename; while the *Sydney Morning Herald* generally includes a category name within its URLs, other news sites, such as the ABC, predominately include only the date and headline for each article, meaning that further work is required to create automated processes suitable for classifying articles across multiple Websites, or to carry out a manual coding process. For the *Sydney Morning Herald*, we utilise the categories used on the site itself as a starting point for labelling the various articles shared by tweets in the dataset. Where possible, stories which do not have this identifying information but which are found to discuss relevant subjects were added to the applicable category – for example, breaking news about rugby league matches appear under the 'Sport' heading – while some subjects were combined to simplify the system of categories, such as 'Sport' and 'Olympics'. Any story not clearly related to these categories is listed as 'general news' and then excluded from subsequent analysis. The topical categories which remain are: business, education, entertainment, environment, health, international, politics, science, and sport. Each story has been classified under a single category – even if, as may be seen below, some stories may touch on a range of different themes.
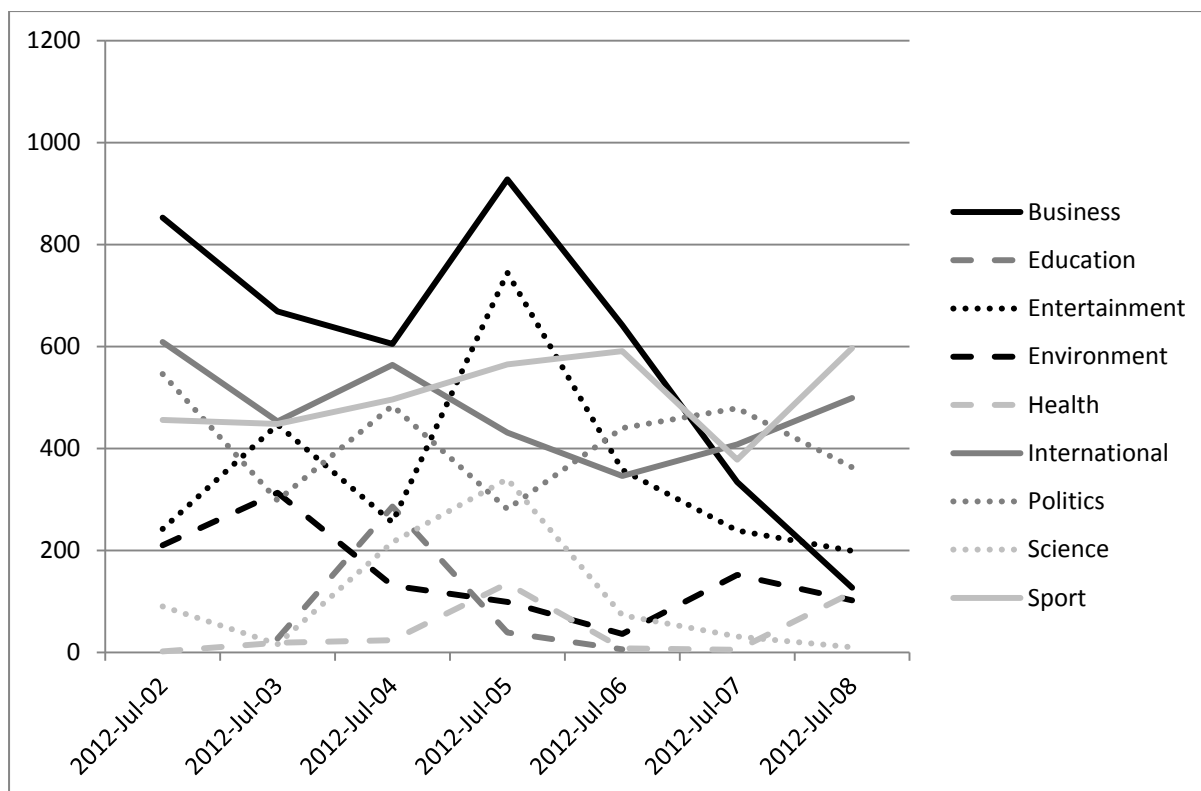
Fig. 7: Topical links per day to Sydney Morning Herald *articles, week 27/2012*

For some of the topics featured here, the overall pattern of a weekend drop-off in activity is supported by fig. 7; here, links to entertainment and, especially, business news articles are generally lower on Saturday and Sunday than during the rest of the week. Indeed, interest in business content follows a particularly sharp trajectory, peaking at the beginning of the working week before a steep decrease in links at the end of the week – in keeping with the lack of trading on global stock exchanges on weekends.

Conversely, sports news usually receives more links on weekends, and the immediately surrounding days, than during the midweek period. Again, this is not unexpected activity, given that many domestic sporting events take place on weekends – particularly for the primary winter sports codes of Australian rules football, rugby league, and rugby union – and the greater interest on Monday and Friday than other weekdays can generally be attributed to reflections and previews of the weekend's action. This pattern is less noticeable during week 27 (fig. 7), in part due to the final game of the State of Origin rugby league series on Wednesday 4 July – the match, a major annual sporting event between New South Wales and Queensland, led to a sustained sharing of *SMH* sports links at or above weekend levels on Wednesday and especially Thursday, in tweets responding to the results both of the game and of the overall series.

Other news topics have less fluctuating patterns overall, but also receive fewer links in general from *Twitter* users. Subjects such as science or health, for example, are more susceptible to short-term spikes around major news stories for heightened linking activity, in comparison to more regularly-cited topics such as business, politics, or international news. Engagement with these more minor topics is not widespread amongst *Twitter* users, except in response to breaking news; a midweek spike for science news articles in fig. 7, for example, follows the rumours, and later confirmation, of the discovery of a particle consistent with the theorised Higgs boson. Major news stories can also

lead to large fluctuations in the links to other topics, of course; a prominent spike in the tweeting of sporting news on 19 July is primarily due to an article revealing that the Australian male Olympic basketball team flew to London in business class, while their female counterparts only travelled in premium economy. This points to the fact that the gender-political aspects of this story may have led to its being shared by *Twitter* users who are not usually tweeting links to sports-related articles, resulting in *Twitter* audience engagement well above the level usually reached by *SMH* sports stories. However, it would also be expected, based on the initial patterns found here, that links to *Sydney Morning Herald* articles are in general more likely to be to articles on such topics as business, politics, sport, or entertainment, than health, education, or science.

The patterns outlined here are site-specific, and it is likely that *Twitter* users reference different news sites for different topics. An initial comparison with the topical distribution of links to *ABC News* articles during week 27 (the same period as fig. 7), for example, suggests that some topics (entertainment, business) do not attract the same levels of attention here as they do on the *Sydney Morning Herald* site (or are not covered to the same degree by the ABC). Some patterns are replicated across both sites – the Higgs boson and State of Origin spikes for science and sport, fewer links to business news on the weekend – but politics and international news are the most widely shared topics on *ABC News*.

These early findings suggest that some topics are more likely to regularly receive a greater number of links from *Twitter* users than others – business, politics, sport, world news, and entertainment, for example – although specific topical strengths vary between news sites. For more minor subjects, widespread engagement occurs mainly in response to breaking news, and remains relatively short-lived. Additional analysis is required to determine and compare the topical strengths of other sites featured in ATNIX, and to examine the overall distribution of audience engagement across these different topics. It is also important to note that some of the topics featured here may attract only minimal coverage on the sites themselves, in comparison to political news or sport, and that this may account for comparatively low levels of link sharing activity. Such questions will be examined further as we continue to analyse data on the sharing of news by *Twitter* users.

Conclusion

This chapter has taken a very broad view of the online news-sharing activities of Australian *Twitter* users, and provides only a general overview of such activities. Even from this bird's-eye view, however, a number of notable trends and interesting questions emerge.

A first point of particular interest is a considerably strong focus on quality information sources. Newspapers such as the *Sydney Morning Herald*, *The Age*, and *The Australian* are widely regarded as quality broadsheets, and *ABC News* is similarly held to be a trusted news source by most Australians; *news.com.au* must be seen at least as a middle-of-the-road news site. Populist tabloids such as the *Daily Telegraph* or the *Herald Sun* play a comparatively minor role amongst the news sites (together accounting for only eleven per cent of the total number of news links in our dataset), and their respective opinion sections are virtually irrelevant. Amongst the opinion sites, a similar high-brow focus is notable, bolstered especially also by the inclusion of *The Conversation* as a vehicle for public commentary by academic writers.

This distribution of attention and engagement is likely to reflect the overall demographics of the *Twitter* userbase in Australia, which – in the absence of comprehensive, reliable demographic data – is generally assumed to centre on comparatively urban, educated, affluent users in the 25-55 age bracket (see e.g. Cowling, 2010); what news stories are shared and which news sites are leading in other national Twitterspheres may well diverge considerably from the Australian example, given the significant variation in demographic patterns (see e.g. Pew Internet & American Life Project, 2012, for an overview of *Twitter* demographics in the United States). In Australia, at any rate, it appears that – at least as far as the active sharing of domestic news content is concerned – *Twitter* remains a vehicle for comparatively high-brow news, for people with high-brow tastes. (A comparison with actual article clickthroughs on the leading Australian news Websites would be valuable in this context, but would require access to internal server data from these sites.) At least from this perspective, perhaps the connections drawn by some commentators between social media and the decline of 'quality' journalism are premature, and rest on misconceptions about the interests and critical views of the communities that use such platforms.

Further, also notable in this dataset is the significantly greater attention that is paid amongst the *Twitter* community to Australian *news* Websites, as opposed to opinion Websites. Many critics (e.g. Turner, 2010; Gitlin, 2009) have pointed to studies which suggest that the vast explosion of 'news' available to ordinary citizens in recent years has been mostly in the form of opinion, commentary, or the 'parasitic' use of professional journalists' work. While it is impossible to fully assess the veracity of such claims, our data demonstrate that traditional, professionally-produced journalism is still given the lion's share of attention by *Twitter* users. Opinion sites are certainly in the mix, but have a much smaller audience, and impact, on *Twitter* than the news stories by highly trusted 'broadsheet' publications do.

Focussing on the major Australian news sites only, our data present only part of the total picture, of course. Much as we have seen international *Twitter* users share Australian stories well beyond their initial and intended audience, it is also likely that Australian users will access and share news articles originating from international sites which are not included in our domestic sample. Indeed, given the paucity of reliable user information on *Twitter* it would be difficult to capture only Australian users' tweets sharing links to sites such as *CNN* or *BBC News*, or to determine the percentage of tweets that reference such sites which originated from Australian users. What the findings presented above document, therefore, is simply the incidence of links to Australian news sites on *Twitter*; they do not reflect the full news diet of Australian *Twitter* users, who may well supplement or supplant their use of Australian news sites with a wide variety of international sources. How this news-sharing activity fits into users' broader newsgathering patterns across the Web, or the degree to which it affects actual site traffic, are questions that remain unanswered.

As further ATNIX data accumulate over time, we should be in the fortunate position to assess overall, long-term trends in the development of *Twitter*-based audience engagement with Australian news sites – for example in the wake of operational repositioning or newsroom restructures – as well as, specifically, to examine how the imposition of new paywalls around news Websites affects the sharing of links by users. In the absence of other, reliable and standardised measures of online audience engagement with Australian news Websites (other than the partial and often self-serving audience reach figures released by the companies themselves), our index provides what is at least

an indirect measure of the relative positioning of Australian news and opinion Websites in the market of attention, perceived through the eyes of the country's *Twitter* userbase.

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