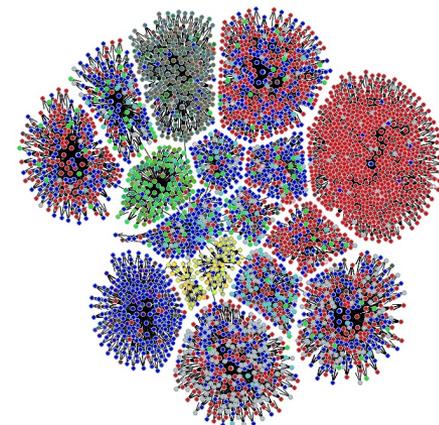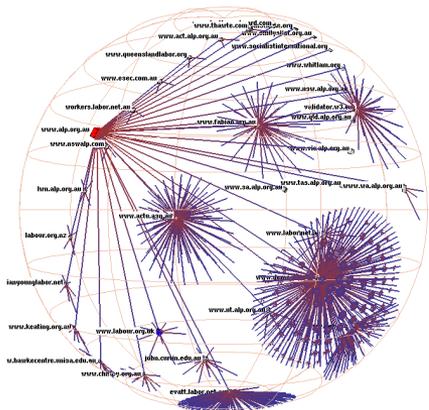# Microblogs

Robert Ackland

Australian Demographic and
Social Research Institute (ADSRI)
The Australian National University

robert.ackland@anu.edu.au

http://voson.anu.edu.au

Notes prepared for "Big Data Analysis for Social Scientists" course
ACSPRI Winter Program, Brisbane, 29 June – 3 July 2015

Australian
National
University

VOSON

http://voson.anu.edu.au

Twitter networks

- Following draws from:
  - Barash and Golder (2010): "Twitter: conversation, entertainment and information, All in one network!," Chapter 10 from D. Hansen, B. Shneiderman and M. Smith (eds), *Analyzing Social Media Networks with NodeXL: Insights from a connected world*. Morgan-Kaufmann.
- Twitter is a microblog. The underlying technology is quite similar to blogging, but posts ("tweets") are limited to 140 characters
- Tweets are public "one-to-many". So how can we extract or identify directed ties between particular Twitter users? This is relevant to the question of whether Twitter can facilitate social relations (multiplex social interaction)

friends/followers

- People who subscribe to and receive your messages are your **followers**. The people whom you are following are called your **friends**.

  - it is possible (using NodeXL, for example) to find the followers and friends of a given Twitter user

- @replies (preceding username with "@") are used to show that a tweet is intended for a particular user

TABLE 10.2   A Conversation without (l) and with (r) @replies

Without @replies	With @replies
A. I'm using NodeXL to visualize my Twitter net.	A. I'm using NodeXL to visualize my Twitter net.
B. I'm making scrambled eggs for breakfast.	B. I'm making scrambled eggs for breakfast.
C. So am I!	C. @A So am I!

@**replies**

- @replies are possibly a better indication of the existence of a social tie between two users than friends/follower lists
  - in the same way, it is argued by some that in blogs, permalinks (hyperlinks in blog posts) are a better indication of connections between bloggers than blogrolls, which can be notoriously stale

- But a problem with @replies is that they can be used to simply mention another user, not direct a tweet to them.
  - Twitter get around this by distinguishing @replies from @mentions. Only if the tweet starts with "@" will it be an @reply, otherwise it will be an @mention. So:
    - "I just saw @redlog get hit by a bus. Bummer" - this is an @mention
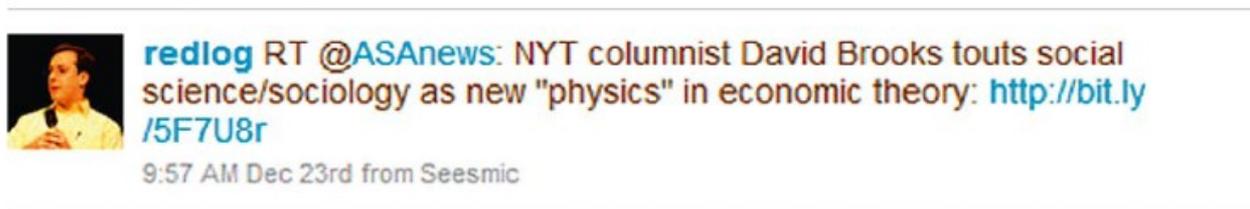   - "@redlog – that bus must have hurt!" - this is an @reply

hashtags

- hashtags (#) are used to identify particular topics that are being tweeted about

- It is also possible to search twitter using words/phrases that do not contain a hashtag

- Students in DEMO8087 Special Topic in Social Research (Emily Caswell and Serena Joyner) used NodeXL to study twitter activity focused on the Carbon Tax debate in Australia, using #carbontax and "carbon tax"

  - I should be able to post their methods paper on Wattle soon (just clearing it with the authors...)

retweets

ASAnews New York Times' columnist David Brooks touts social science/sociology as new "physics" in economic theory: http://bit.ly /5F7U8r

9:25 AM Dec 23rd from web

FIGURE 10.6   An interesting tweet posted by @ASAnews. This tweet starts a retweet chain (see the next figures).

redlog RT @ASAnews: NYT columnist David Brooks touts social science/sociology as new "physics" in economic theory: http://bit.ly /5F7U8r

9:57 AM Dec 23rd from Seesmic

FIGURE 10.7   @redlog retweets the tweet posted by @ASAnews. The @ASANews message about David Brooks' article now spreads to @redlog's followers, even if they don't follow @ASANews directly.

vlad43210 RT @redlog: RT @ASAnews: NYT columnist David Brooks touts social science/sociology as new "physics" in economic theory: http://bit.ly/5F7U8r

about 23 hours ago from Seesmic

FIGURE 10.8   @vlad43210 retweets @redlog's retweet of the tweet posted by @ASAnews. The message now spreads to @vlad43210's followers, even if they do not follow either @ASAnews or @redlog. In this way, messages can spread via retweets and reach a very large audience.

Networks in Twitter

- friends/followers, @replies, @mentions, retweets can all be used to construct networks

- hashtags are used to identify subsets of twitter users tweeting on a particular topic (and the features above are then used to construct the networks between them)
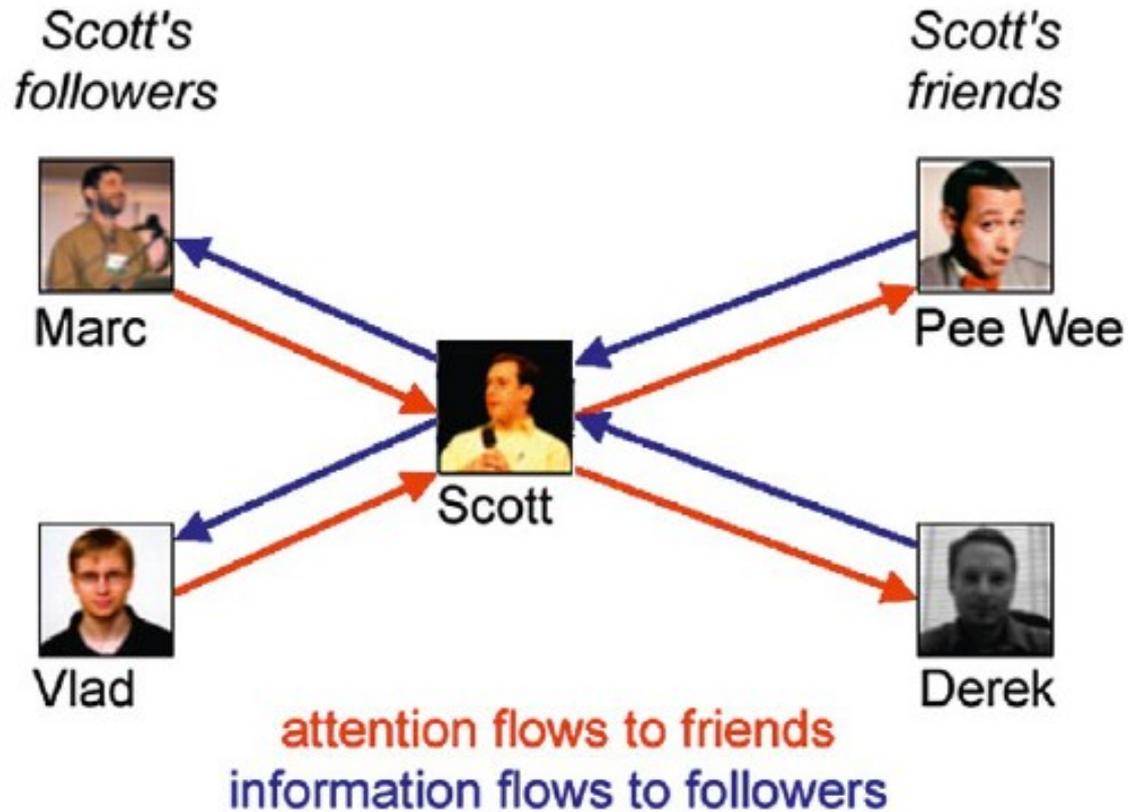
FIGURE 10.9 The friends and followers network is an *information/attention network*. This figure shows Scott with two friends (Pee-Wee and Derek) and two followers (Marc and Vlad).
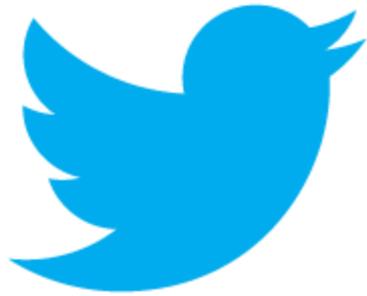
Comparison between Twitter and Weibo

- The following is verbatim from: http://gongm.in/2011/08/differences-between-weibo-and-twitter/
- **Definitions**
  - *followers* on Twitter are *fans* on Weibo.
  - *following* on Twitter are *subscribe* on Weibo.
  - A *tweet* is called a *weibo* or a *weibo post* on Weibo.
  - To *retweet* on Twitter is to *repost* on Weibo.
- **Length of a message**
  - Twitter limits each tweet to 140 characters (no matter Chinese or western). Weibo's limit is 140 Chinese characters or 280 western characters. Since Chinese carries more info in each character, Weibo users can express so much more in 140.

- **Links**
  - Weibo counts all links outside weibo.com as six (6) characters. The weibo.com links is counted as one (1) character. While twitter counts the length of links.
  - Weibo automatically shrink all links to t.cn service. Twitter shrinks links longer than 20 characters and 3rd party link shorteners were allowed. (Twitter just launched t.co on its web site and official mobile clients. 3rd link shorteners could be removed.)

- **Multimedia content**
  - Image: Weibo allows users to upload pictures. Weibo hosts the pictures on our own site. Weibo will show a thumbnail in the timeline feeds. Twitter just added image support (Twitter teams up with Photobucket).No thumbnails in the timeline. A larger thumbnail will show up at sidebar if you click the tweet.
  - Video: Users can't upload videos directly to weibo. They can post links from video hosting sites(e.g. youku, tudou, ku6, youtube ,etc) and weibo will embed a thumbnail image in the timeline. User can play the video by clicking it. Twitter treats video as pictures: no thumbnails in timeline, shown on sidebars.
  - Music: Weibo has a universal music player(in flash). It plays all music either from music sharing sites(legal sites as Sina's Yueku, etc.) or self-hosting MP3 files.

- **Retweet / Repost**
  - Twitter user can share the tweet with her/his followers by retweeting. The tweet to be shared can't be modified. On weibo, user can do more than that. She or he can add comments or opinions to the retweeted tweet.
  - Your opinion is limited to 140 Chinese or 280 western characters.
  - If you repost from another repost. You will share the length with previous repost. There will be a double slash to separate the two opinions. Weibo considers this as part of your post. So you can delete or edit the previous opinions.

- **Comments**
  - There's no comment on Twitter. You can do that by tweeting an @ mention. Followers can find out the thread by clicking the tweet. A conversation will be available at sidebar.

  - The @ mention, however, is another tweet. It will be visible in timelines of followers of both sides. For example. If A follows C and D but not B. A will see this "C: @D xxx" but not this "C: @B xxx".

  - Weibo has comments system like Facebook. The comment is technically visible to all. But will not appear in anyone's timeline, unless the user checks "Repost to my weibo too". This checkbox is off by default.

Do Twitter and Weibo users behave differently?

- Gao, Q., Abel, F., Houben, G-J and Yu, Y. (2011): "Information Propagation Cultures on Sina Weibo and Twitter," Web Science 2011.
- Research Questions:
  - RQ1: How frequently do users repost messages on Sina Weibo and Twitter respectively?
  - RQ2: How quickly do users propagate information on Sina Weibo and Twitter?
  - RQ3: To what extent does the broadness of user interests vary between Sina Weibo and Twitter?
  - RQ4: What are syntactical characteristics of messages that people propagate on Sina Weibo and Twitter?
  - RQ5: What are the sentiment characteristics of messages that are propagated on Sina Weibo and Twitter?

- Data:
  - Twitter – used snowball sampling approach to collect over 24M by over 1M users
  - Weibo – collected more than 22M microposts by over 6M users
- Conducted sentiment analysis to categorise posts as either positive, negative or neutral.
- More than 80% of the Twitter users are (according to their Twitter profiles) from the US, while the more than 95% of the Sina Weibo users are located in China.

Results

- RQ1 – Twitter users perform reposting activities much more frequently than Sina Weibo users

- RQ2 – Information propagates more quickly on Twitter, compared with Weibo.

  - This may be due to differences regarding trending topics. "Twitter trends are related to news-related information which may change more quickly than the amusement-related information that trends on Sina Weibo. Consequently, users may be triggered to propagate news-related information more quickly than information related to amusement"

- RQ3 - for 90% of the Sina Weibo users the ratio of (number of reposts to number of users who wrote original posts on the topic) is less than 5 which indicates that these users, on average, propagate less than 5 messages from the same source. In, for only 76% of the Twitter users the ratio is less than 5, thus indicating that these users frequently propagate information from the same sources. Authors therefore conclude that user interests are broader on Sina Weibo than on Twitter.

- RQ4 - hashtags and URLs are typical characteristics of messages that are propagated on both platforms. Hashtags and URLs seem to play an even more important role for Twitter users than for Sina Weibo users.
- RQ5 – Two observations: (1) reposting activities are more likely to have positive sentiment on Sina Weibo than on Twitter and (2) users on Sina Weibo change the sentiment of a message which they propagate more often than Twitter users

- How might cultural differences between the US and China explain these results?

Dimension	China	US
Power distance	80	40
Individualism	20	91
Masculinity	66	62
Uncertainty avoidance	40	46
Long term orientation	118	29

Table 1: Hofstede's cultural index for China and United States.

- Fact that Twitter users more frequently and more quickly propagate information (RQ1 and RQ2) may be related to Twitter users' perception that they play an important role in the information propagation process ie. they have *power* in spreading news.

- Fact that Twitter users have a narrower focus regarding the information streams from which they repost messages while Sina Weibo users select from a broader set of information sources (RQ3) may be related to differences in *individualism* - "Chinese microblogging behavior follows a rather collectivistic culture where the actual content of a message seems to be more important than the source which published the content"

- "The sentiment analysis revealed that Chinese microbloggers have a stronger tendency to propagate positive messages than the merely western microblogging users [RQ5]. The positive nature of the propagated information that people propagate on Sina Weibo might point at the long term orientation that is attributed to the Chinese culture"