Media Landscape in Twitter:
A world of new convention and opinion diversity

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Media sources always have adopted latest technologies to distribute their content.
Social media changing the way people read news and publishers interact with them

• **Social distribution**
  – “News no longer breaks, it tweets” - Solis
  – Redefined the role of users as publishers and mediators

• **Social discussion**
  – Generating second layer of discussion
  – Driving consensus or social norm

Social media makes social distribution and discussion easier
Research opportunity

• Study patterns of social distribution and discussion
  – Easy to measure and analyze data in a large scale

• Can help verify popular beliefs/theories or address unanswered question
  – Does social interaction help publishers reach more audience?
  – Does social interaction help users receive diverse opinion?
Our goal

1. Understanding Media Landscape in Twitter
   a) Media source perspective
   b) Audience perspective

2. Leveraging observations to infer political leaning of media sources
   a) Characterizing similarity between media sources
Questions

1. How do media sources interact with their audience in Twitter?
2. Does social interaction help reach more audience?

1. Does a user follow multiple media sources?
2. Is social interaction exposing users to multiple media sources?
3. Does a user follow diverse media sources?
4. Is social interaction exposing users to diverse media sources?
Methodology

- **Data collection**
  - Used previously collected dataset of twitter which is near-complete (ICWSM 2009, Cha. et el]

- **Focus on 80 media sources**
  - English-based media
  - A total of 14M followers and their connections (1.2B links, 350,000 tweets

<table>
<thead>
<tr>
<th>Genre</th>
<th>Example account</th>
</tr>
</thead>
<tbody>
<tr>
<td>News (40 sources)</td>
<td>cnnbrk, nytimes, TerryMoran</td>
</tr>
<tr>
<td>Technology (13)</td>
<td>BBCClick, mashable</td>
</tr>
<tr>
<td>Sports (7)</td>
<td>NBA, nfl</td>
</tr>
<tr>
<td>Music (3)</td>
<td>MTV</td>
</tr>
<tr>
<td>Politics (5)</td>
<td>nprpolitics,</td>
</tr>
<tr>
<td>Business (2)</td>
<td>davos</td>
</tr>
<tr>
<td>Fashion &amp; Gossip (4)</td>
<td>peoplemag</td>
</tr>
</tbody>
</table>
Media exposure

Direct Subscription

**Nytimes**

A

B

FoxNews

Social Interaction

**Nytimes**

A

B

FoxNews

News

News

Retweeted News

RETWEET
Questions

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The new role of journalists

- Journalists are playing a prominent role in social media
- Interact with their audience actively
  - Share news article from the news station
- Size of audience is as many as those of stations
- Distinct set of audience
  - Personal update
  - Lead a discussion

One of the prominent features of social media: Social media journalists
Is social interaction helping media publishers reach more audience?

Yes: Social interaction increases publisher’s audience
On average, audience size increases by a factor of 28
Questions

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Does a user follow multiple media sources?

No: Users only follow limited number of media sources.

Direct Subs: 80% users subscribe only to 2-3 media sources.
Is social interaction exposing users to multiple media sources?

Direct Subs: 80% of users subscribe only to 2-3 media sources

Social Interaction: 80% of users hear from up to 27 media sources

Yes: 8 fold increase in number of media sources
Does a user follow diverse media sources?

Following multiple media sources does not necessarily imply exposure to diverse opinions.

Focus on political news.
Does user follow diverse media sources?

- Manually tagging political leanings of media source
  - Left-right.org
  - ADA (Americans for Democratic Action) score

- No: Out of 10M users, 7M users only follow one side of media sources
  - Left-leaning(62.1%), center (37%), right-leaning (0.9%)

I like to see diverse media sources
Is social interaction exposing users to diverse media sources?

Yes: Users are exposed to diverse opinions through social interaction
Answers

1. Journalists are playing a prominent role in social media
2. Social interaction increases publishers’ exposure on avg. by 28X

MEDIA PERSPECTIVE

1. Users only follow limited number of media sources.
2. But they are exposed to 8x more media sources via social interaction
3. Most users only follow political media with a certain bias
4. Social interaction exposes users to sources with a different bias

AUDIENCE PERSPECTIVE
MEDIA PERSPECTIVE

AUDIENCE PERSPECTIVE

MEDIA LANDSCAPE
Estimating closeness

How “close” or “similar” two media sources are
Closeness measure

Which one is closer to nytimes, Foxnews or washingtonpost?

Washingtonpost is closer to nytimes than Foxnews

- Closeness: probability that a random follower of $B_i$ also follows $A$

\[
closeness(A|B_i) = \frac{|A \cap B_i|}{|B_i|}
\]

Closeness( NYTimes, Foxnews) = $\frac{143K}{578K} = 0.25$

Closeness( NYTimes, washingtonpost) = $\frac{250K}{404K} = 0.62$
Closeness of political media sources

- Picked political media sources
- Ranked other political media sources based on closeness value

Comparison with ADA score
- Matching probability of 77.5%

We can automatically infer the political leaning of media sources
## Closeness of media sources

<table>
<thead>
<tr>
<th>Target media source</th>
<th>Closest media source</th>
</tr>
</thead>
<tbody>
<tr>
<td>nprpolitics</td>
<td>nytimes</td>
</tr>
<tr>
<td><strong>kingsthings</strong></td>
<td><strong>peoplemag</strong></td>
</tr>
<tr>
<td>ObamaNews</td>
<td>andersoncooper</td>
</tr>
<tr>
<td>MTV</td>
<td>usweekly</td>
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<tr>
<td>NASA</td>
<td>wired</td>
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<td>NBA</td>
<td>NFL</td>
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<td>joinred</td>
<td>annCurry</td>
</tr>
<tr>
<td>om</td>
<td>timoreilly</td>
</tr>
<tr>
<td>davidgregory</td>
<td>jdickerson</td>
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</tbody>
</table>

If Larry King wants to advertise himself, people magazine is the one...
Our application for exploring media landscape

bit.ly/mediaexplorer
For more information please visit http://twitter-app.mpi-sws.org/media-explorer/

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