Twitter follow links reveal bicameral landscape of newspapers

No Author Given

Abstract Media influence has been widely studied in cultivation theory, which holds that the popular media such as newspapers has power to influence our view of the world and set our day-to-day norms. Yet it is well known that mainstream newspapers today have bias in selecting what to report and in choosing a slant on a particular report [1, 2, 3]. Exposure to biased news information may even increase intolerance of dissent and foster more ideological segregation of political and social issues [4]. Therefore, tracking bias in everyday news and building a platform where people can receive balanced news information is important. Unfortunately, existing studies on identifying media bias have been restricted to examining a small set of news outlets, due to challenges in gathering and analyzing a huge amount of appropriate data [1, 2]. As a first step toward building a such platform, in this work we propose a novel model for inferring bias of news media outlets in real-time from the way social network users subscribe and disseminate news articles.

With the advent of social media services, news media outlets have started publishing on social networking sites. Likewise Internet users have moved from scanning traditional mediums such as newspapers and television to using the Internet, in particular social networking sites, to find news. In the popular microblogging site Twitter, users actively follow a wide set of news sources, form interpersonal networks, and propagate interesting news articles to their peers. These media subscription and interaction patterns, which had previously been hidden behind media corporations, poses as a new opportunity to understand media supply and consumption across society, for example, examining how different sources report different angles on the same event, and how the news consumers react to that.

In this work, we investigated a methodological issue: can we draw a valid ideological map of news media based on users subscription and interaction patterns? In order to answer these questions, we focused on 28 major U.S. based news outlets in Twitter and their aggregate 7 million followers. We created a closeness model based on the co-subscription relationships and mapped the news media outlets along an one dimensional dichotomous political spectrum by using the global network positioning algorithm [5]. Our data analysis revealed extreme polarization among media

sources. The political ideological map in user subscription networks was strikingly similar to that proposed in previous work [1], which assigned a ADA (Americans for Democratic Action) score for each media outlet by manually investigating the think-tank citations of its news articles.

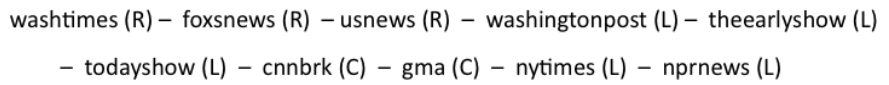

Fig. 1 An ideological map of 10 news media sources. The political leaning of each media source is given next to its name, L (left), C (center) and R (right).

Out of 18 news sources reported in [1], we found 10 of them in our dateset. The result is shown in Figure 1. Note that we would not necessarily expect a perfect match to the result in [1], both because our result represents the relationship among media sources in Twitter and the relationship changes over time. Nevertheless, we found a strong tendency of known political dichotomy where NPR News and New York Times, which are known to be left-slanted, are positioned to one side and Washington Times, Fox News, and U.S News, which are known to be right-slanted, are positioned on the other side. However we also found a few exceptions; Washington Post and Washington Times, known to have conflicting political preferences, lined up close to each other – possibly due to regional proximity. Extending this work, we are currently examining how news media sources of different political slants cover the same news story by conducting topic classification on news articles that are shared on Twitter.

It is noteworthy that an ideological map of news media sources can be generated automatically from our proposed methodology on inferring media bias, which is based on gathering online data and aggregating it via a closeness measure, without any complex procedures unlike in the past. Hence our methodology is suitable for a large-scale, repeated study. Furthermore the ideological map of a particular issue can be created in real time in conjunction with a public stream of tweets from Twitter. It is said that individuals need to have access to a pool of multiple points of view against which they can contrast their own values and belief as it helps them shape their eventual opinion. We hope to build a real-time platform that helps people receive balanced news information based on the proposed model that tracks bias in news in the future.

References

1. Milyo, J., and Groseclose, T. 2005. A measure of media bias. *The Quarterly Journal of Economics* 120(4):11911237
2. Gentzkow, M., and Shapiro, J. M. 2010. What drives media slant? evidence from U.S. daily newspapers. *Econometrica, Econometric Society* 78(1):3571
3. Pew Research Center, The 2004 Political Landscape, Washington, D.C. (November 5, 2003)
4. Glynn, Carroll J., Susan Herbst, Garrett J. OKeefe, and Robert Y. Shapiro (chapter 9 coauthored with Lawrence Jacobs). 1999. Public Opinion. Boulder, CO: Westview Press.
5. T. S. Eugene Ng and Hui Zhang, Predicting Internet Network Distance with Coordinates-Based Approaches, *INFOCOM'02*, New York, NY, June 2002