The Speed of News in Twitter (X) vs. Radio

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Introduction

Media Is Changing

The news cycle has sped up and gotten more negative.

New media are involved, but how? What are their effects?



John Rose, Ogden Newspapers

Why Does This Matter?

Are the shortening news cycle and rising negativity – our shrinking, souring attention span – weakening democracy?

Both intensify "now this" culture (<u>Postman 1985</u>) and "outrage industry" business models (<u>Berry and Sobieraj 2014</u>) which both began in broadcast media

First-mover advantage: Do social media (Twitter) and its biases have a first-mover advantage that lets it influence discourse and journalism broadly?

Media of Interest

We want representatives of new social media and traditional broadcast media.

Twitter and radio are leading examples of each.

This study is timely: With the recent sale of Twitter, it's getting much harder to observe journalism in action on one social site



Radio is still very influential – <u>per Nielsen</u>, greatest reach of any medium at up to 88% of Americans each week

VS.



A large and important user base – very heavily used by journalists (<u>Willnat &</u> <u>Weaver, 2018</u>)

What's An Event?

We define it via the media:

Generally: An event is a subject of (press) attention, rising to prominence in discourse and then falling off.

Concretely: An event is a group of related tweets / radio speaker turns. (Methodology later.) Note this definition is cross-medium! No medium-specific features.

Glossary:

- "Event" = "Story"
- An "event" is made of "items": tweets or speaker turns on the radio

Research Questions

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RQ2 [Affect]: Are there systematic differences in affect? Does Twitter have systematically **more negative or outraged discussion** than radio?

Data & Methods



Data Sources



Elite Twitter

2,834 national journalists + politicians (including 203 radio hosts / staff)

Ex: NY Times, Wash. Post, Fox News, members of Congress

Collected tweets, including RTs, QTs and replies

Twitter Firehose

A random sample of all tweets posted by anyone about anything

Includes RTs, QTs, replies

But: English tweets (as detected by Twitter) only

Radio

228 talk and public radio stations in the US

518k hours of audio

Deduplicated by schedule information: don't count Sean Hannity 30 times

Note: Set of active stations varied over time

All datasets cover three periods: Sept/Oct 2019, Mar/Apr 2020, Jan/Feb 2021

Methodology

Affective Attribute Identification

Evaluate statements for negativity, emotionality and outrage:

- Use a language model finetuned for NLI
 - Premise: tweet or radio statement
 - Hypothesis: "This example is <attribute>."
 - Attribute score: Estimated probability that premise entails hypothesis
- Perform this process for 3 attributes "negative", "emotional", "outraged"

See Yin et al (2019)

Story Detection

We use the newsLens algorithm to find events

- Generate sentence embeddings of tweets/radio statements
- Take all pairs w/ cosine similarity over a threshold and close enough in time
- Form graph + Louvain community detection
- Filter out radio + firehose detections which aren't about news, via cosine similarity to elite events

This process produces 1,694 events.

See Laban et al (2017), Staykovski et al (2019)



Bernie Sanders Drops Out: A Case Study



Announcement occurs @ vertical red line

Lifecycle of An Event

Elite Twitter rises **and falls** faster than radio!

So does the firehose, with the exception that proves the rule: 2020 Covid discourse



Distribution of Discussion

Pooling stories together, look at their items' "within-event relative times"

What does the average story look like?

=> Radio is slower than Twitter! Both to rise and to fall.



Affective Biases

Consistent relationship: Firehose > Elite > Radio

There's a medium effect here: Elite + firehose are both more negative, etc., than radio

Is the audience rewarding negativity and thus encouraging more of it?



Affect metric



Time Course of Affect

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- Also clear differences in how outrage is distributed over time.
- More research needed into causes of the gap and differences in affect dynamics.
- First large-scale comparison of outrage and negativity between Twitter and traditional media!

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Future Work

Why does Twitter forget more quickly?

• Recommendation algorithm? Other platform design?

Why is Twitter more negative?

- Audience influence on journalists?
- Or does its shorter attention span select for outrage?

Do Twitter biases leak out to other media?

• Does Twitter cause changes in coverage in radio or elsewhere?

Thank you!

Comments? Questions? Want to collaborate?

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