

COUNTERING SOURCE BIAS IN NEWS

by

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Submitted to the Program in Media Arts and Sciences, School of Architecture and Planning, in
partial fulfillment of the requirements for the degree of

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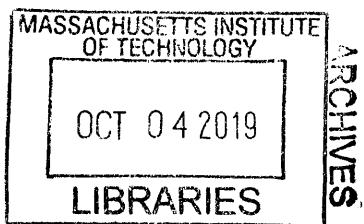
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Abstract

Facts don't speak for themselves. What we accept as fact and the truth we derive from it are strongly dependent on both our opinion of the source and the agent of recommendation; how we encountered the information. In an increasingly nationalized and fragmented society, the representation and presentation of news functions less to build a shared set of values and beliefs and more to drive a wedge between groups that precludes discussion. These trends are well-known and long-lived, but are critically important now because the Internet has intensified them by multiplying niche sources and amplifying the role of recommendation. The central question of this thesis is what we can do about it — whether we can create media presentations and interactions that encourage us to explore the diversity that the Internet brings, and whether there is a “teachable” moment in doing so. For example, will we temper deeply held opinions when we explore sources we don't normally attend? I present an attempt to do this that first allows users to establish a set of sources ranked by personal trust and then second, allows them to blindly compose their own news stories from the suite of them. I consider two outcomes: whether they soften otherwise hardened opinions after they note their own acceptance of what the “other side” says, and whether this approach might scale through passing these new compositions onwards to propagate the idea. I find that there is a clear disconnect between participants trust in news sources and the sources they utilize to create an objective story. This disconnect is much more severely noted in those participants who self-identified as left-leaning politically.

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Countering Source Bias in News

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Chapter 1

Context

“We have a cultural problem, one that is shaped by disconnects in values, relationships, and social fabric. Our media, our tools, our politics are being leveraged to help breed polarization by countless actors who can leverage these systems for personal, economic, and ideological gain.”

danah boyd¹

We are told that we have entered a brave new world where “fake news” is rife. Its exact nature unknown. Its definition unclear.² Some believe it to be the scourge of false information³, some believe it to be the selective presentation of true information⁴, others believe it to be an in-accurate portrayal of the news⁵, and still others have split the term into a set of subgroups characterising the various natures of fake news⁶. One thing, we are told, is seemingly certain: the

¹ Boyd, Danah, *Google and Facebook Can't Just Make Fake News Disappear*, Microsoft Research, Data & Society, NYU (July 1, 2019),

<https://points.datasociety.net/google-and-facebook-cant-just-make-fake-news-disappear-48f4b4e5fbe8>.

² Boyd, Danah, *Google and Facebook Can't Just Make Fake News Disappear*, supra.

³ Video: *Spotting Fake News*, FactCheck.Org: FactCheck Posts (June 28, 2019),

https://www.factcheck.org/2016/12/video-spotting-fake-news/?gclid=EAiaiQobChMI4Mebi4G14wIVj7rACh31LQorEAAYASAAEgKB4fD_BwE.

⁴ Scheufele, Dietram A. and Krause, Nicole M., *Science audiences, misinformation, and fake news*, PNAS: Proceedings of the National Academy of Sciences of the United States of America, vol. 116, no. 16 (2019).

⁵ Grynbaum, Michael M., *Trump Discusses Claims of 'Fake News,' and Their Impact, With New York Times Publisher*, The New York Times (July 14, 2019),

<https://www.nytimes.com/2019/02/01/business/media/donald-trump-interview-news-media.html>.

⁶ Wardle, Claire, *Fake news. It's complicated.*, First Draft (July 8, 2019),
<https://firstdraftnews.org/fake-news-complicated/>.

viral spread of this pariah has been enabled by the technology giants of today⁷. Innocent, well meaning, bystanders inadvertently share news stories manufactured to order by various nefarious agents opposed to our best interest⁸ - enabled by the lack of friction in the platforms these giants have made their fortunes from. The solution many point to is a simple fix: if only the tech giants allowed impactful content that was factually true to be shared, and banned those who create false content, this pariah would be solved.

In a Pew study of 6,127 U.S. adults from early 2019, a higher percentage of Americans said that “made up news” was a more serious issue for the U.S. than climate change and terrorism. The debate around “fake news” has spawned conferences across the globe, discussions on how to mitigate the consequences, and claims by both ends of the political spectrum that they are subject to an unfair and unyielding disadvantage from its effects. Indeed, both ends of the political spectrum have been accused of equipping these tools for their own gains; hailing in an era of “by any means possible”^{9 10 11}.

However, despite popular opinion seeming to suggest otherwise, this is not a problem with its source solely online¹². The underlying issues pointed to by discussions of fake news are a set of socio-economic, political, and cultural issues with a long and convoluted history¹³ which the reduced friction and interconnection of the internet amplifies immensely¹⁴.

⁷ *Fake News: Read All About It (In The Headlines)*, New York Times Educational Publishing (August 15, 2018).

⁸ Burkhardt, Joanna M., *Chapter 2: How Fake News Spreads*, Library Technology Reports: Combating Fake News in the Digital Age, vol. 53, no. 8 (2017).

⁹ Shane, Scott and Blinder, Alan, *Democrats Faked Online Push to Outlaw Alcohol in Alabama Race*, The New York Times (June 12, 2019), <https://www.nytimes.com/2019/01/07/us/politics/alabama-senate-facebook-roy-moore.html>.

¹⁰ Narayanan, Vidy, Graphika, Vlad Barash, Graphika, John Kelly, et al., *Polarization, Partisanship and Junk News Consumption over Social Media in the US*, COMPROP: Computational Propaganda Research Project, Data Memo 2018.1 (2018).

¹¹ Harper, Craig and Baguley, Thom, “*You are Fake News*”: *Ideological (A)symmetries in Perceptions of Media Legitimacy*, Nottingham Trent University (UK) (January 23, 2019).

¹² Boxell, Levi, Gentzkow, Matthew, and Shapiro, Jesse M., *Is the Internet Causing Political Polarization? Evidence from Demographics*, The National Bureau of Economic Research (NBER), Working Paper No. 23258 (2017).

¹³ Boyd, Danah, *Google and Facebook Can't Just Make Fake News Disappear*, supra.

¹⁴ Reed, David P., *Biography*, Reed's Locus (July 12, 2019), <https://www.deepplum.com/dpr/?sel=dprbiog>.

Fake news and the collection of issues embedded within that term, are not limited to the internet. They are, also, not limited to the content. As highlighted in the image below, “CNN Is Fake News”, fake news has evolved to mean not only the content, but also increasingly the source. Content is no longer king¹⁵ and 70% of Republican leaning and 59% of Democrat leaning Americans have blocked out a news source in an effort to tackle their consumption of fake news¹⁶.



Figure 1-10: Photo by Elijah Nouvelage for Reuters

I focus my experiment on the following characteristics that I believe are so far not duly noted within the discussions surrounding fake news and its evolution today:

- The dichotomy of opinion and fact doesn't hold water - it is no longer just about opinion or facts, but *whose* facts.
- We all have a partial view of reality, but believe we see the big picture; there is less effort to appreciate the views of the “other side”.

¹⁵ Odlyzko, Andrew, *Content is Not King*, First Monday: Peer-Reviewed Journal On The Internet, vol. 6, no. 2 (2001).

¹⁶ Mitchell, Amy, Gottfried, Jeffrey, Walker, Mason, et al., *Many Americans Say Made-Up News Is a Critical Problem That Needs To Be Fixed*, Pew Research Center: Journalism & Media (June 5, 2019).

- There is a disconnect between the sources we believe are objective and the content that we deem to provide objectivity.

With the above understanding, I believe we should continue to explore the extent of the power of source perception on the pre-judgement of content, and seek to challenge ourselves and others to evaluate how we are switching off our attention to news sources based on their affiliations rather than on the content that they are producing. This switching off of news sources considered to be “fake” is leading to a growing void of understanding and appreciation of the views of others that is becoming harder and harder to bridge between different political leanings.

The main question that drives this thesis is: *How can we prompt a re-evaluation of our prejudices to news sources we believe to be untrustworthy?*

Indeed there are many parameters that could play a role in shaping an individual’s trust of any particular news source:

- Source branding
- Credibility and trust of others in network
- Political leaning of source
- Reputation of the sharers who share stories from a source
- The context under which a news source is consumed
- The initial biases of the reader
- The topic matter being discussed
- The bucket of words used to construct a story
- Stylistic cues within writing
- Visual cues and imagery
- Impact of major national polarizing events such as an election
- If the user is recommending or sharing an article
- Collaborative consumption of news in a public setting

Many of the non-exhaustive list above have already been explored and are detailed further in the following chapter.

In this thesis, my approach is to explore how our trust of news sources is related to our perception of the source and its affiliations rather than our perception of the quality of the content produced by the source. I propose to do this through:

1. Exposing individuals to content from a variety of their trusted and untrusted news sources with the name of the source hidden;
2. Asking them to create what they believe to be an objective story about a particular topic utilizing content they select from both trusted and untrusted sources;
3. Prompting a moment of self reflection on biases by revealing the sources of the content that they used to create their objective account of a topic; and
4. Quantitatively and qualitatively evaluating the disconnect between individuals' perception of sources as trusted or untrusted, and their utilization of those sources' content to create a story they believe is objective.

In the following chapter, I describe the existing work that has explored several relevant areas to this thesis: identifying news sources from content; tribalism and trust; and, credibility and receptiveness. These existing works form a strong foundation on which to both build the experiment this thesis conducts and to reason and postulate as to potential contributors to the results encountered.

Chapter 2

Existing work

In this chapter, I describe the existing work that has explored several relevant areas to this thesis: identifying news sources from content; tribalism and trust; and, credibility and receptiveness. In the chapter prior, I introduced the question this thesis seeks to explore: *How can we prompt a re-evaluation of our prejudices to news sources we believe to be untrustworthy?* In the next chapter, I detail the toolbox I created for individuals to compose stories including its genesis, structure, and realization.

Identifying news source from content

Exploring how news sources can be identified through their content and stylisations provides insight into some of the findings from this thesis, as discussed later within Chapter Five. As much as content can be recalled from both trusted and untrusted sources, there is an inbuilt resistance to material presented by an untrusted source¹⁷. Interestingly, the blind media bias surveys from AllSides composed a picture of news sources on the political spectrum, indicating that political lean can at scale be determined from content alone¹⁸.

Previous work within the Viral Communications research group at the MIT Media Lab has illuminated, although not definitively, some of the potential avenues through which news sources could be identified through their content. NewsClouds, a project by Thariq Shihipar, showed how as a news story develops the lexical set utilized by a news source expands and evolves. His findings entailed multiple news sources that started off by sharing use of key terms about a story and then, as the story developed further, news sources relied on more disparate

¹⁷ Hovland, Carl I. and Weiss, Walter, *The Influence of Source Credibility on Communication Effectiveness*, Public Opinion Quarterly, vol. 15, no. 4 (1951).

¹⁸ *Media Bias Ratings*, AllSides (June 18, 2019), <https://www.allsides.com/media-bias/media-bias-ratings>.

and unique buckets of words¹⁹. Slantometer, a project by Kalliroi Retzepi, drew attention to a differing nature of composition of news articles between left and right-leaning news sources and encouraged further more complete exploration of the noted trends. Slantometer found that left-leaning media sources presented select facts intertwined with context and added a subtle opinion throughout, whereas right-leaning media had a tendency to cleanly separate paragraphs of select facts from paragraphs of clear opinion - with less contextual wrapping unless directly relevant to the news event.

Tribalism and trust

A selection of studies have questioned how our understanding of trust in news sources is related to the groups and individuals we associate with those sources. In one such experimental study, the authors found that given identical generic content: if a participant disliked the news source, then they disliked the content. If they like or don't know about the source, decisions about the content were based on the person who shared it. A trusted sharer resulted in believing that the content got the facts right, represented diverse points of view, was entertaining, and signposted important and trustworthy information regardless of the content itself²⁰. We no longer disagree just over values, nor do we disagree over just the facts. We disagree over whose source — whose fountain of facts — is the right one²¹.

Most interestingly, for the purpose of this thesis, the authors from the above-mentioned experimental study noted a disconnect: participants believed that, to them, the news organization and brand that reported the story was more important than who shared it - however the experiments showed that, with identical content, the sharer influenced perception of the content far more than the source. This thesis argues that this disconnect is not limited to the sharer and the source, but extends to the source versus the content - that there is a significant disconnect between the sources we trust and the content we trust.

¹⁹ Shihpar, Thariq, NewsClouds (July 3, 2019), <https://v3.pubpub.org/pub/newsclouds>.

²⁰ Rosenstiel, Tom, Sonderman, Jeff, Loker, Kevin, et al., ‘Who shared it?: How Americans decide what news to trust on social media’, American Press Institute: Media Insight Project (2017).

²¹ Lynch, Michael P., *Googling Is Believing: Trumping the Informed Citizen*, The New York Times (July 16, 2019), <https://opinionator.blogs.nytimes.com/2016/03/09/googling-is-believing-trumping-the-informed-citizen/>.

This disconnect also extends to how we sanction news sources for their use of clickbait headlines to grab attention and pull in the reader - to an often tangentially or unrelated content. News sources that the individual already perceives as low credibility see a significant decline in credibility. News sources with a high preexisting credibility get more or less a free pass for their use of clickbait and suffer much less of a decline in credibility²².

A seemingly timeless case study, entitled “They Saw a Game”, explored the controversy and set of disagreements over what actually took place during a 1951 football game between Dartmouth and Princeton²³. The results of a survey of undergraduates at both institutions suggested that the “game” was in fact many different games - each independently as real to the person who experienced it. The study highlighted how as individuals, we believe we have an objective and complete view of reality, yet in actuality, we each only have access to a slice. Each individual having their slice feel just as real and complete, as others and the reality of their slice. Of most interest to this thesis was firstly that those who had never seen the game had their own set of realities that were consistent with the team they were affiliated with. Secondly, after one of the sets of Princeton students interviewed had marked down penalty offences within a segment of video, a Dartmouth alumnus in the Midwest (who had been in receipt of infractions list and video) wired a note to Dartmouth college: “Preview of Princeton movies indicates considerable cutting of important part please wire explanation and possibly airmail missing part before showing scheduled for January 25 we have splicing equipment”. The video had not been cut. This highlighted that even within a short video clip two seemingly incongruous realities could co-exist.

Factual beliefs on climate change, evolution and the like can also often be symbols used to communicate membership in and loyalty to groups embroiled in a competition for social status. Often holding group consistent beliefs - a belief in line with the conventional and accepted opinion about a topic of a group in which an individual is a member of - is more important than holding true ones²⁴. Increasingly alignment to a side on a matter of national scale determines

²² Hurst, Nathan, *To Clickbait Or Not To Clickbait? An Examination Of Clickbait Headline Effects On Source Credibility*, University of Missouri-Columbia (May 2016).

²³ Hastorf, Albert H. and Cantril, Hadley, *They Saw A Game: A Case Study*, The Journal of Abnormal and Social Psychology, vol. 49, no. 1, pp. 129-134 (1954).

²⁴ Kahan, Dan, *The Meaning of Scientific “Truth” in the Presidential Election*, Scientific American (June 18, 2019),

this group membership - with more and more of politics now seemingly national²⁵, no longer just local²⁶. One study where 600 participants were presented with different hypothetical scenarios for redistribution of resources in a community show that participants drew similar conclusions about when redistribution was appropriate regardless of political leaning, and that differing in views for appropriate action for their own community may be based upon a differing view of which bucket the status of their community falls into²⁷. Holding group consistent beliefs or perspectives also carries less downside risk: an objective article from CNN as perceived by a right-leaning person carries a high risk of being ostracized if shared, whereas the risk of being ostracized for aligning with a Breitbart article later found incorrect is low. And vice versa, a left-leaning individual arguing that a particular Breitbart article is well researched faces the risk of a massive backlash and being alienated, whereas supporting a hastily reposted CNN article that may be factually inconsistent carries minimal risk.

The studies above point to a broader more concerning trend that Lessig, in his book *America Compromised*, calls out to be addressed: Whereas media technology was previously an enabler for democratic discourse, now it divides us. The media doesn't focus us on a common core of facts, values and beliefs, but divides us over our view of the facts - with supporting business models that profit from this very division²⁸. This is by no means an entirely internet based phenomena either - this polarization has increased most significantly in communities less likely to be connected to the internet²⁹.

<https://blogs.scientificamerican.com/guest-blog/the-meaning-of-scientific-truth-in-the-presidential-election/>.

²⁵ Hopkins, Daniel J., *The Increasingly United States: How And Why American Political Behavior Nationalized*, The University Of Chicago Press Books (May 2018).

²⁶ O'Neill, Tip and Hymel, Gary, *All Politics Is Local: And Other Rules Of The Game*, Bob Adams, Inc. (1994).

²⁷ Nettle, Daniel and Saxe, Rebecca, *Preferences For Redistribution Are Sensitive To Perceived Luck, Social Homogeneity, War and Scarcity*, PsyArXiv Preprints (July 23, 2019).

²⁸ Lessig, Lawrence, *America Compromised*, The University Of Chicago Press Books (October 2018).

²⁹ Boxell, Levi, Gentzkow, Matthew, and Shapiro, Jesse M., *Is the Internet Causing Political Polarization? Evidence from Demographics*, supra.

Credibility and receptiveness

As consumers of news, we tend to seek out attitude-consistent information and avoid attitude-challenging information³⁰. Judging attitude-consistent and neutral news sources as more credible than attitude-challenging news sources³¹. Indeed, as alluded to in Chapter One, many of the sources that may be attitude-challenging to us are increasingly blocked out by both how we consume news through technology and how we might look to mitigate issues of perceived fake news by blocking select news sources out entirely³².

The context of news consumption also impacts the credibility of news sources with a tendency toward news sources being perceived overall as more credible during election times and significant national events³³. As lines between varieties of content are blurred and our ability to distinguish between them reduced³⁴, such as between news, sponsored content, and advertising, there is a comingling of the credibility of advertisements placed on the page and the credibility of adjoining content from the news source.

Credibility can also be a feature of timing. Studies have shown that if a reader is exposed to the content from a news source that they deem to be untrustworthy, they automatically discount it. However, as time passes, an increasing disconnection between the source and the content occurs and the reader becomes more acceptant of the content despite origination from an untrustworthy news source³⁵.

The goal of this thesis is to provide an answer to the question: *How can we prompt a re-evaluation of our prejudices to news sources we believe to be untrustworthy?* Proposals

³⁰ Metzger, Miriam J., Hartsell, Ethan H., and Flanagin, Andrew J., *Cognitive Dissonance or Credibility?: A Comparison of Two Theoretical Explanations for Selective Exposure to Partisan News*, SAGE Journals (November 26, 2015).

³¹ Metzger, Miriam J., Hartsell, Ethan H., and Flanagin, Andrew J., *Cognitive Dissonance or Credibility?: A Comparison of Two Theoretical Explanations for Selective Exposure to Partisan News*, supra.

³² Mitchell, Amy, Gottfried, Jeffrey, Walker, Mason, et al., *Many Americans Say Made-Up News Is a Critical Problem That Needs To Be Fixed*, supra.

³³ V., Abdul Muneer and Ahmed, Syed Amjad, *Credibility Perception of TV News and Debate Shows Before and During Election Campaigns*, IOSR Journal Of Humanities And Social Science (IOSR-JHSS), vol. 19, no. 4, ver. VIII, pp. 47-54 (April 2014).

³⁴ *Evaluating Information: The Cornerstone Of Civic Online Reasoning*, Stanford History Education Group (November 22, 2016).

³⁵ Hovland, Carl I. and Weiss, Walter, *The Influence of Source Credibility on Communication Effectiveness*, supra.

from the various works listed on how to address prejudices and disconnects in our consumption of news are lacking or set to take many lifetimes of work. One such proposal suggests: “*A new set of institutions, practices and norms aimed at preventing the entanglement of factual positions with cultural identities, and disentangling them when preventative efforts fail*”³⁶. A noble goal, yet with no further discussion of how to actuate such societal level change. Other more achievable and invigorating proposals have focused more on the nature of potential steps forward, suggesting we build tools to understand, appreciate, and bridge different viewpoints - rather than relying on information alone to guide the way³⁷.

In the following chapter, I detail the toolbox I created for individuals to compose stories from a variety of material from their trusted and untrusted sources as an attempt to prompt moments of self-realization about how we characterize news sources as trusted or untrusted. The sources from where content was drawn remain unknown until after the story is completed. This attempts to spur internal discussions about whether we should open ourselves to other and untrusted news sources, bringing to light our underlying thought processes and biases.

³⁶ Kahan, Dan, *The Meaning of Scientific “Truth” in the Presidential Election*, supra.

³⁷ Boyd, Danah, *Google and Facebook Can’t Just Make Fake News Disappear*, supra.

Chapter 3

System description

In this chapter, I describe the process through which the story toolbox was created, then describe the infrastructure that supports the toolbox, and, finally, detail the implementation and use of the system. In the chapter prior, I reviewed existing work and in the following chapter I explore the results of participants using the story toolbox both qualitatively and quantitatively.

The story toolbox is an online software that presents the user with the ability to create a new story utilizing existing articles from five different news outlets on a particular topic. This new story has seven constituent elements: title; header image; and five paragraphs of content. The story toolbox was used by participants on a laptop at several locations on MIT campus and in the Boston area.

Ideation process

This is the story toolbox as used by participants at the end of the ideation process:

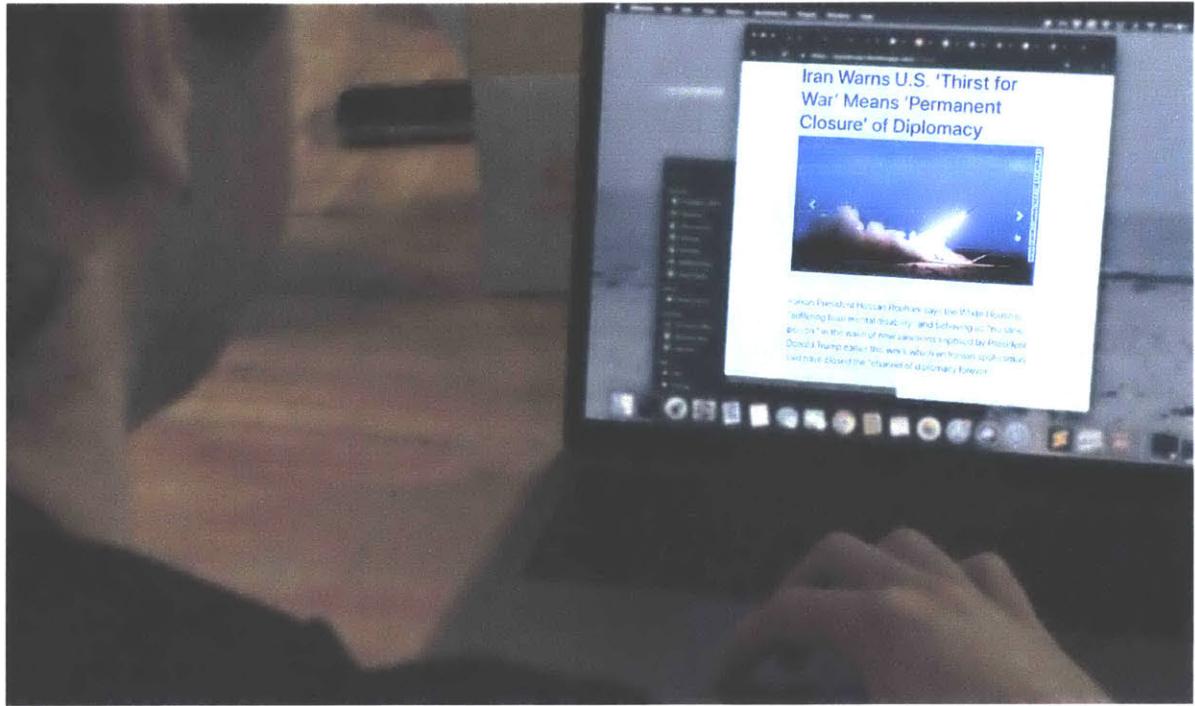


Figure 3-1: a user creating a story with final version of the online story toolbox

I was initially curious about building an individually tailored news experience to people that would deliver a more complete understanding and picture of what is happening in the world, beyond the particular bias and perspective of any one news outlet or dominant view. Alongside this effort to expand the access to differing perspectives, was an effort to increase the openness of users to these other perspectives, cueing self-reflection and re-evaluating the current positioning in the user's mind that had developed over time for the available sources of news.

In order to tailor news specifically to users, the broader classification of left and right-leaning news sources did not seem appropriate. I was much more interested in the respect and underlying trust from the individual that was given to stories thought to originate or be validated by a selection of news outlets. Similarly, this individual would have another set of outlets that would be met with an initial skepticism, lack of trust, and, in some cases, dismissal.

The first prototype set out to discover the trust profile of users, and present them with new and unexpected content from news sources that they otherwise would not come across, showing how some of their preconceptions were in error if they found value and truth in sources other than

those they expected to trust. I estimated the user's trust profile of news sources by engaging them in a set of pairwise voting competitions between news outlets, selecting one outlet out of two based upon the question: "Who do you trust more?". Utilizing Quantify³⁸ and Microsoft's TrueSkill³⁹ matching algorithm each news source would be assigned a trust score between 0 and 1 that news sources could be sorted by to obtain any particular user's most trusted and least trusted sources.



Figure 3-2: a screenshot of the first prototype's online pairwise voting to establish a user's trust profile for use in presenting news sources from both the user's trust and anti-trust profile

³⁸ Project Quantify, MIT Media Lab: Viral Communications (July 18, 2019), <https://www.media.mit.edu/projects/quantify/overview/>.

³⁹ Minka, Tom, Zaykov, Yordan, and Tseran, Hanna, *TrueSkill Ranking System*, Microsoft Research (July 19, 2019), <https://www.microsoft.com/en-us/research/project/trueskill-ranking-system/>.

n

Citizenship Question

From your sources

Justice says it is reviewing all available options' on census | TheHill

The Hill
Justice Department lawyers told a federal judge Friday that the Trump administration is reviewing...

Tom Homan on President Trump's plans to put citizenship question on 2020 census

Fox News
Trump vows to fight Supreme Court's decision to exclude citizenship question from 2020 census, says he may use an executive order

ACLU asks judge to forbid Trump from restoring citizenship question to census

The Washington Times
The ACLU went to court late Friday to ask a federal judge to put an end to President Trump's attempts to add a citizenship question to the census, saying the government was poised to illegally break its own self-imposed deadlines.

From your anti-sources

Trump: Having no citizenship question is ridiculous

CNN
President Donald Trump said it would be "ridiculous" to exclude a citizenship question from the 2020 census after he asserted executive privilege over materials related to the addition of a question.

Supreme Court Blocks Census Citizenship Question But That's Not The End of This Saga

Newsweek
With only four days until the Census Bureau's printing deadline, the citizenship question remains blocked—for now.

Supreme Court deals setback to Trump administration attempt to add census citizenship question

Politico
The court ruled that the government's explanations for the citizenship question were implausible and legally inadequate.

Citizenship question on 2020 census? SCOTUS says it's complicated

RT
The Supreme Court has effectively blocked the Trump administration from adding a citizenship question to the 2020 census, arguing that the government's reasoning for the proposal was inadequately explained.
Read Full Article at RT.com

Figure 3-3: a screenshot of the initial online news review portal for user's trust profile and anti-profile stories.

After the user had created this estimation of their trust profile, the top headlines of the day were queried utilising the newsapi.org API. The Google Cloud Natural Language API was then used to detect entities within the headlines of the top stories, and then new sets of news articles were queried using the most frequently occurring entities, or topics, from the top stories' headlines. This final set of articles provided an article from each provider considered trusted and least trusted in the user's profile for each topic. Topics were then presented to the user on a webpage with a set of stories about the topic from their most trusted sources, and their least trusted sources. Each story had the title, the news source, a brief description, and a link to the original article.

The feedback that I received helped me to identify if the news review portal was actually actively challenging the user's preconceptions and causing them to re-evaluate their existing

expectations and find value and truth in sources other than those they already had a pre-existing expectation and tendency to trust. The feedback showed that, indeed, rather than challenging the user's preconceptions the prototype was inadvertently aligning itself directly with those preconceptions. Rather than causing a thoughtful re-consideration of the sources considered part of the user's anti-trust profile, the tool only seemed to hasten the dismissal of the stories that were associated with less trusted news sources.

Thus the idea was born to have users act as an editor switching out elements from various articles to create their own story about a given topic. Rather than attempting to be prescriptive, telling users to broaden their view and take stock of alternate perspectives - a thankless task - users could be set a goal to create a story that in their opinion was balanced and objective from component parts. These component parts would not be labeled by source preventing users reported trust profile from interfering explicitly with the choice of material. After the story was completed users would be presented with the news sources they had utilized for each section of the story. Should a user utilize material from an unexpected or untrusted source this could create a teachable moment, causing pause for thought and reflection as the story considered 'theirs' was not aligned with the sources they believed they trusted to be objective. The magic of this is in the highlighting of a discrepancy between what the user trusts and what the user thought they trusted - allowing an opening for a discussion around preconceptions and the question: "what happened?!".

Users thus created their own story about a given topic with the following workflow configuration:

1. Users are asked on a Likert scale for each news outlet to respond to the statement "I trust this source";
2. Users are then set a goal of creating an objective article, in their opinion, about a particular topic;
3. Users are able to select their story's title, image, and five paragraphs from a selection of articles about the topic;
4. All of the articles are from different sources;
5. Users have no knowledge of the source where the component pieces of their story come from during its creation;

6. Users then state if they believe they have created an objective article;
7. Users are informed about the news sources that their article was constructed from; and
8. Reactions are recorded and noted.

Here is the paper prototype of the above intended experience:

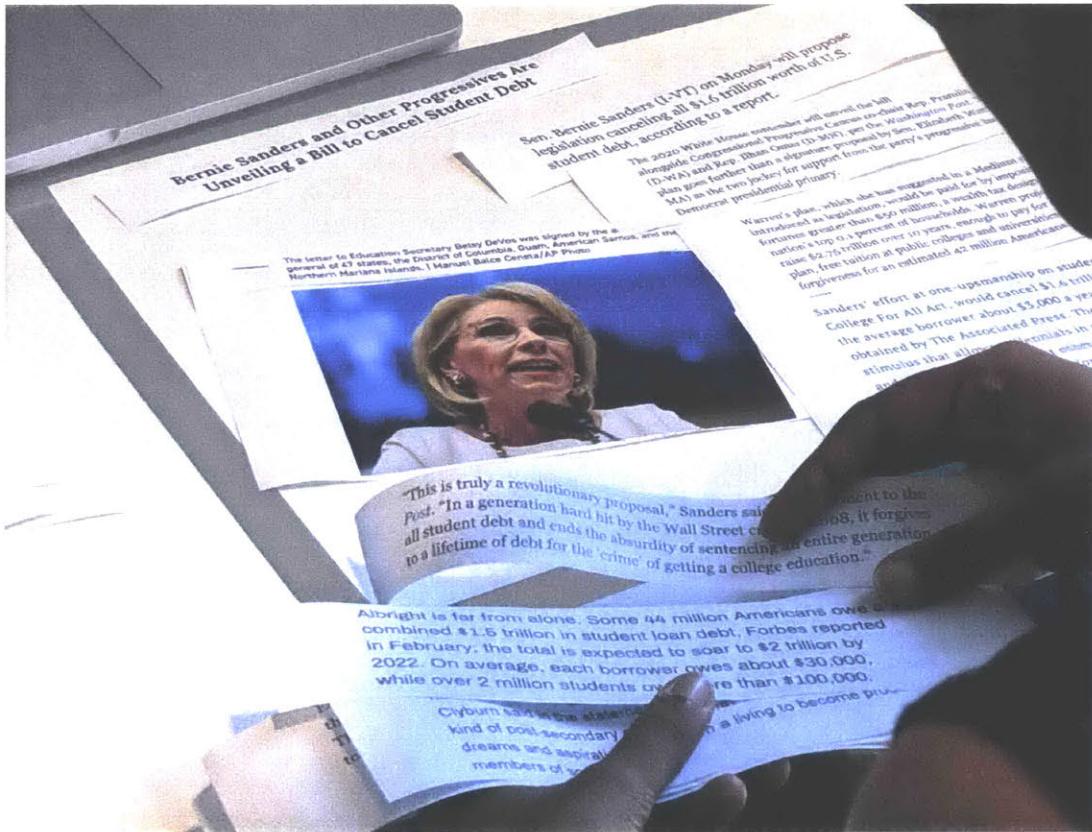
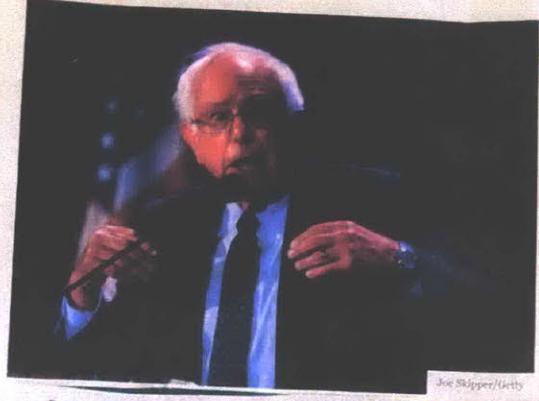


Figure 3-5: An initial test of the paper prototype

**Bernie Sanders and Other Progressives Are
Unveiling a Bill to Cancel Student Debt**



Joe Skipper/Jetly

Sen. Bernie Sanders (I-VT) on Monday will propose legislation canceling all \$1.6 trillion worth of U.S. student debt, according to a report.

The 2020 White House contender will unveil the bill alongside Congressional Progressive Caucus co-chair Rep. Pramila Jayapal (D-WA) and Rep. Ilhan Omar (D-MN), per the *Washington Post*. The plan goes further than a signature proposal by Sen. Elizabeth Warren (D-MA) as the two jockey for support from the party's progressive base in the Democrat presidential primary.

Warren's plan, which she has suggested in a Medium post, will be introduced as legislation, would be paid for by imposing a 2 percent fee on fortunes greater than \$50 million, a wealth tax designed to target the nation's top 0.1 percent of households. Warren projects the levy would raise \$2.75 trillion over 10 years, enough to pay for a universal child-care plan, free tuition at public colleges and universities, and student loan debt forgiveness for an estimated 42 million Americans — with revenue left over.

Sanders' effort at one-upsmanship on student loans, named the College For All Act, would cancel \$1.6 trillion of debt and save the average borrower about \$3,000 a year, according to materials obtained by The Associated Press. The result would be a stimulus that allows millennials in particular to invest in homes and cars that they wouldn't otherwise be able to afford. It would cost \$2.2 billion and be paid for — and then some — by a series of taxes on such things as stock trades, bonds and derivatives, according to the proposal.

"This is truly a revolutionary proposal," Sanders said in a statement to the *Post*. "In a generation hard hit by the Wall Street crash of 2008, it forgives all student debt and ends the absurdity of sentencing an entire generation to a lifetime of debt for the 'crime' of getting a college education."

Figure 3-6: A user's story constructed by component with the paper prototype

In the paper prototype, users were given a set of the components of four articles from Time Magazine, Breitbart, CNN, and Russia Today. These sources were changed slightly for the online version as specified later. Asked to pick sequentially the title, image, and five paragraphs of content from sets of options users would complete a story and I would ask “do you consider this objective?”. On responding “yes” we would turn each component over in turn revealing the original news source that the component was from. Each of the five users I tested the paper prototype with were surprised at the results, and interestingly referred to the story they composed using possessive language: “*My story* seems to be using Breitbart alot!”.

Having had a successful set of tests with the paper prototype I wanted to be able to replicate the experience at scale with timely news stories and be able to effectively collate quantitative and qualitative results on user’s experiences. Feedback from the paper prototype was incredibly valuable for developing the online story toolbox as, without constraints on using only one of each component in the paper prototype, users wanted to create an extended story with multiple of each component.

Alongside the above feedback, one set of components from a single source would naturally be more aligned to their original title. Although this didn’t lead to users picking material from a single source, the relevance of some paragraphs was decreased with certain title combinations. This is something that was accounted for in the online story toolbox through postponing the fetching of article content until after the title was selected by the user, thus meaning the following components available to the user were specifically tailored to the entities in that selected title.

Here is the existing workflow from the current version of the online story toolbox in the diagram below:

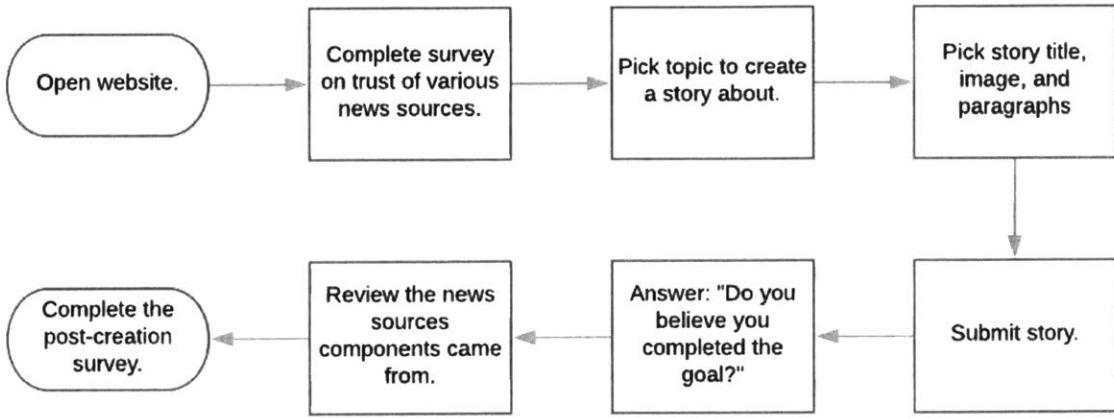


Figure 3-7: a diagram illustrating the user workflow in the online story toolbox.

Deployment and Infrastructure

The backend of the online story toolbox is a Python Flask⁴⁰ application connected to a Postgres database and utilizing a set of APIs. The frontend utilized several components from the Twitter-Bootstrap⁴¹ templating system including its mobile-friendly responsive classes, alongside a set of jQuery code. Users accessed the story toolbox from their own desktop device. The Newsapi.org API was used to collate information about the top stories of the past 24 hours and also to discover additional stories about a particular entity or topic, this provides a list of titles, image and link urls, alongside a brief description. Google Cloud Natural Language API provided entity detection on the title of each story to allow for the application to note what were the trending topics at a given time, and to be able to pair stories more closely once a user had picked a title. For obtaining the full text of stories import.io was used for scraping the first five paragraphs of the story.

To provide the functionality of the paper prototype the application completed the following set of tasks successfully:

1. Retrieve a list of top stories from the past 24 hours;
2. Detect entities from the headlines of those top stories;

⁴⁰ Ronacher, Armin, *Flask: Web Development, One Drop At A Time*, The Pallets Projects (July 2, 2019), <http://flask.pocoo.org>.

⁴¹ Bootstrap (June 15, 2019), <https://getbootstrap.com/>.

3. For the most common entities, also known as topics, collect a list of stories about those entities from the news providers;
4. Detect other entities also in the titles to ensure that story components would match the title selected by the user;
5. Scrape the sites of news sources for the articles that had been collected and store the components (title, image url, and first five paragraphs) of each article in the database;
6. Allow the user to vote on a Likert scale for each news source how much they agreed with the statement: “I trust this source”;
7. Present to the user a choice of topics to create their story from;
8. Allow the user to sequentially select components to construct their story from.
9. Record the components selected by the user;
10. On completion of a story, ask the user if they believe it is an objective take on the topic.

This must happen prior to the user finding out the sources they used, as during in-person trials users would often change their mind after finding out the sources they used;

11. Reveal to the user the news source that each component they selected was from; and
12. Note feedback and reactions to this revelation, and be able to collect the comparison between their response to the initial survey about the sources they trusted to the news sources of the components that they actually selected.

The infrastructure to support the above is described below in the following diagram:

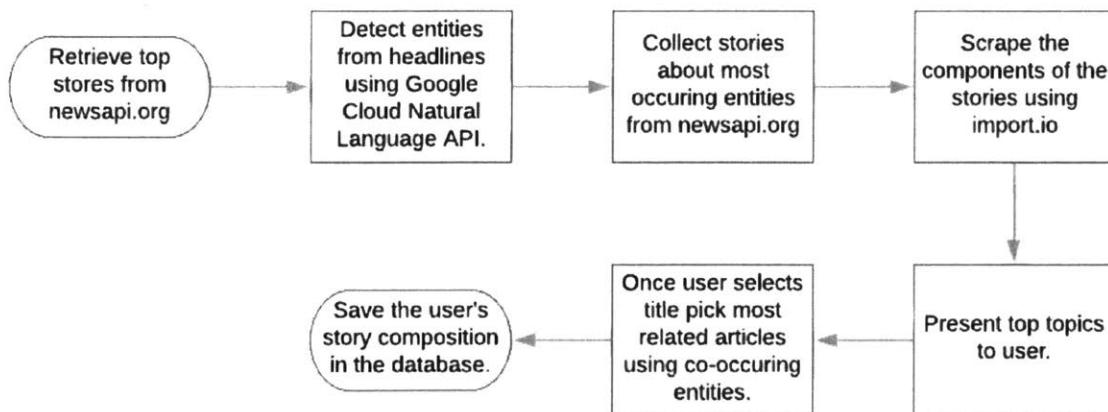


Figure 3-8: a diagram illustrating the infrastructure components and workflow of the online story toolbox.

Implementation

The purpose of this thesis in highlighting and detecting a disconnect between users' preconceptions of news sources they believe they trust and the news sources they actually rely on to create an objective story about a topic. As such it was important to create a controlled scenario under which the online story toolbox was used. I selected two topics that have been prominent over the past months in news coverage across various outlets: Student Debt, and Iran. I also selected five news sources in total to scrape components from: two US left-leaning (CNN, New York Times); two US right-leaning (Breitbart, American Conservative); and one international (Al Jazeera)⁴². These news sources are slightly different than those used above in the paper prototype due to the difficulty of programmatically accessing the sources' content reliably. User tests of the toolbox were run in several locations across the Massachusetts Institute of Technology campus including the Media Lab, Sloan School of Management and Lobby 10.

Participants used either a provided laptop or their own to visit the online toolbox. They then expressed their trust for the news sources utilized using a Likert scale as described previously, alongside if they considered themselves to be left or right-leaning. They then selected between the two topics, completed their story from the component parts, asked if they considered the story to have met the goal of being objective, and then reviewed and reacted to the revelation of the actual news sources they had selected from, which included completing a short comment box.

⁴² *Media Bias Ratings*, AllSides, supra.

Iran Warns U.S. 'Thirst for War' Means 'Permanent Closure' of Diplomacy



Pulling back from the brink of a military strike on Iran last week, President Donald Trump announced yet more sanctions on Monday as punishment for the Islamic Republic's downing of an expensive American drone.

U.S. President Donald Trump signed an executive order imposing the sanctions on Monday, taking a dramatic and unprecedented step to increase pressure on Iran after Tehran's downing of an American drone last week.

So far, these measures have produced no great new "deals." A modest update of the North American Free Trade Agreement is being harshly criticized by American labor interests and may not achieve ratification in a divided Congress. It is also not clear whether protracted talks with China will succeed at all.

Trump targeted Khamenei and other top Iranian officials with sanctions on Monday, in a bid to increase pressure on Iran after it downed an unmanned US drone last week.

Washington said it would also impose sanctions on Iran's Foreign Minister Mohammad Javad Zarif later this week, sparking an immediate response from Iran.

Figure 3-9: The story creation interface.

mkr's story used the following sources in each section:

Your goal was create to create an objective story, which you said you achieved.

Title: CNN

Image: American Conservative

Paragraph 1: CNN

Paragraph 2: Al Jazeera

Paragraph 3: Breitbart

Paragraph 4: Al Jazeera

Paragraph 5: Breitbart

mkr please complete the quick story survey [here](#).

2019-06-26

Figure 3-10: The story component source reveals.

In the following chapter, I explore the overall results from 67 participants use of the story toolbox both qualitatively and quantitatively. This includes: discussing the overall responses to survey questions; exploring the differences between reported trust and utilization of news sources; and, consideration of the impact of political leaning and topic on the disconnect between reported trust in, and use of, news sources.

Chapter 4

Evaluation

Within this chapter, I explore the results both qualitatively and quantitatively. Whereas the prior chapter explored the way in which participants used the toolbox to create their articles and receive their personal results, this chapter considers the compilation of these results across all participants. And, with the following chapter consider insight and analysis that we can derive from the results. It should be noted that the sample size is too small to draw definitive conclusions, but nonetheless are suggestive of interesting lines of inquiry. Hopefully, this experiment provides inspiration for others to repeat on a larger scale so that we can understand which of the observations constitute noise and which are robust.

Quantitative analysis

Below I have quantified the results obtained from the 67 participants, in order to ascertain whether there was a discrepancy between the reported trust in news outlets and the sources actually used. I have looked at this in the following ways:

1. Discussed the overall response to quantitative survey questions
2. Explored the differential between the sources participants said they trusted, and those they utilized the elements of, to create their objective story.
3. Analyzed this differential was more pronounced between participants who answered that they were left or right-leaning politically.
4. Explored if this differential was sensitive to the topic of the story being created by the participant.

Summarized in the below charts and tables throughout this chapter are the responses to the above.

Do you consider yourself politically...	
Left leaning	Right leaning
38 (56.7%)	29 (43.3%)

Table 4-1: Political leaning survey question in the survey prior to story creation.

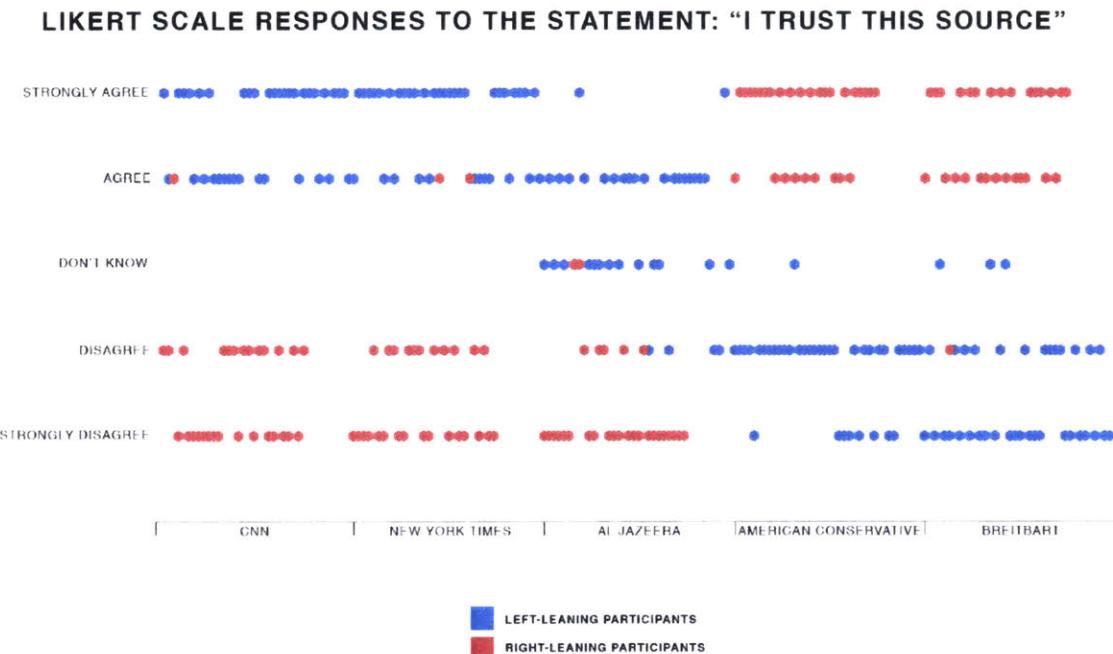


Figure 4-2: Likert scale responses to the statement “I trust this source” in the survey prior to story creation. Left-leaning participants overall trusted left-leaning sources and distrusted right-leaning sources, and right-leaning participants overall trusted right-leaning sources and distrusted left-leaning sources.

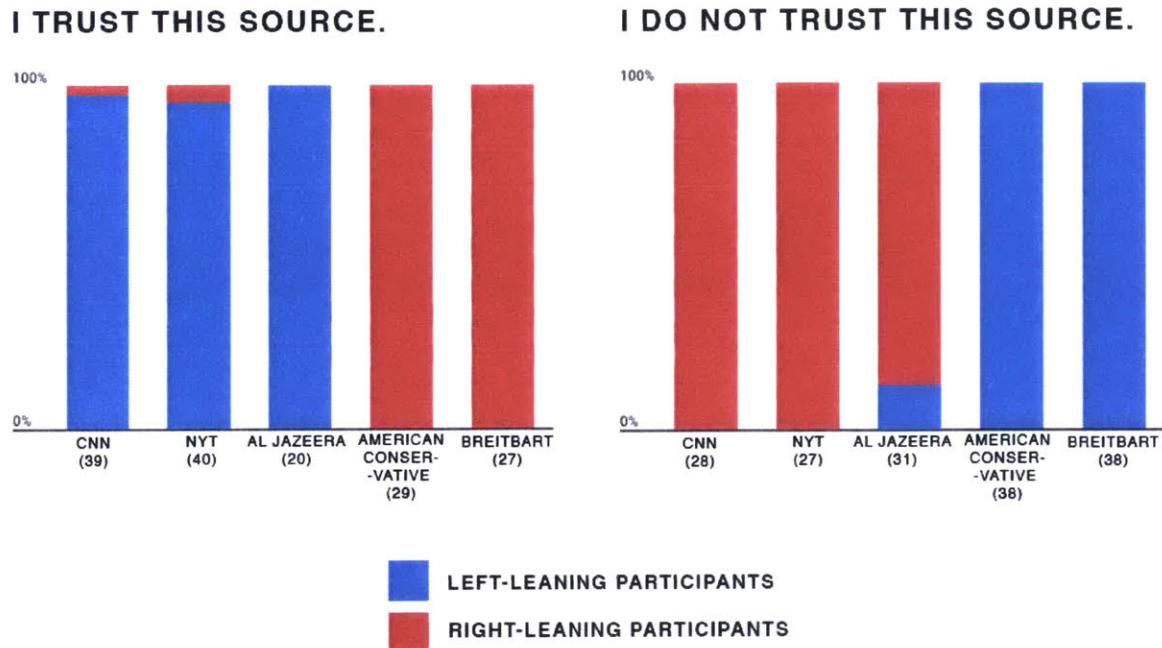


Figure 4-3: Summarized Likert scale responses to the statement “I trust this source” in the survey prior to story creation. Answers “Agree” or “Strongly Agree” were considered as trusting a source, answers “Disagree” or “Strongly Disagree” were considered as not trusting a source. Left-leaning participants trust CNN, NYT, and Al Jazeera. Right-leaning participants trust American Conservative and Breitbart.

Do you believe you achieved the goal of creating an objective article?	
Yes	No
60 (89.6%)	7 (10.4%)

Table 4-2: Participants broadly believed they achieved the successful completion of set goal in the survey after story completion and prior to revealing the source of the component parts utilized.

ARTICIPANT STORIES OVERWHELMINGLY CONSTRUCTED FROM CONSERVATIVE SOURCE

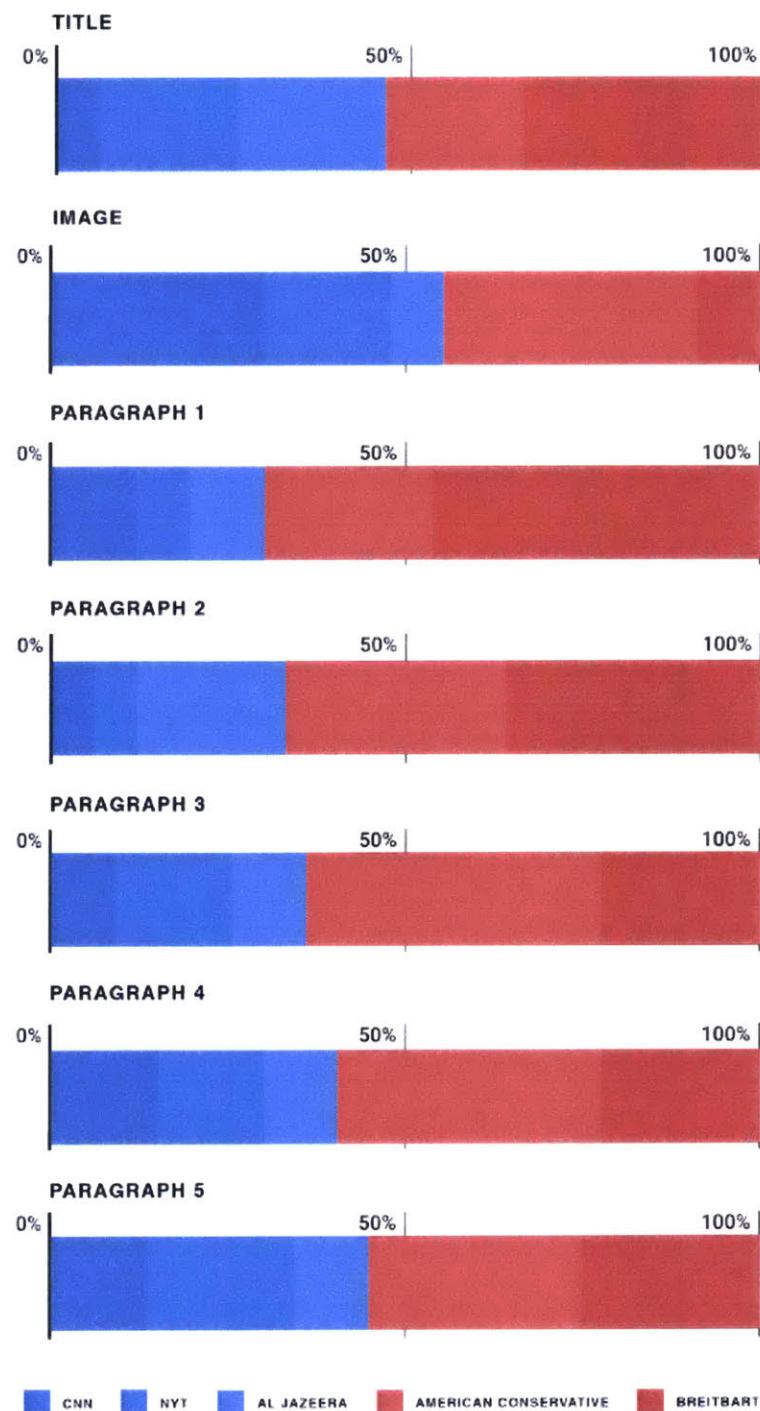


Figure 4-4: Sources used for each component selected by participants in creating their story.

HISTOGRAM OF UNTRUSTED SOURCE COMPONENTS IN PARTICIPANT STORIES

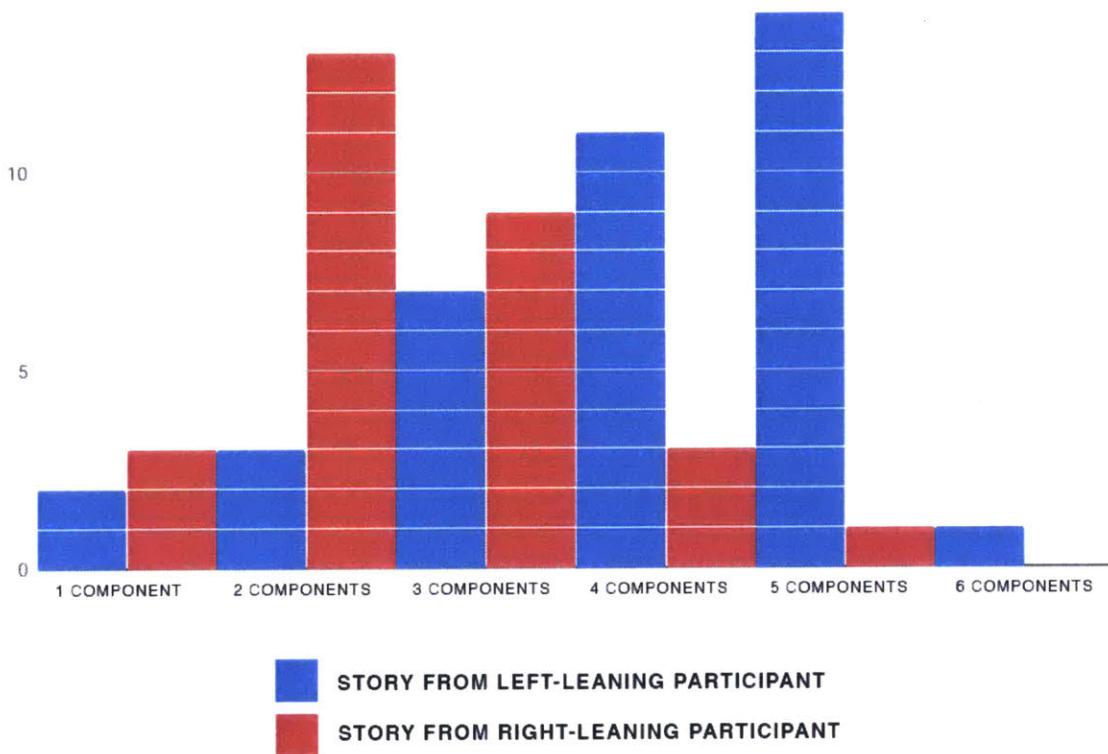
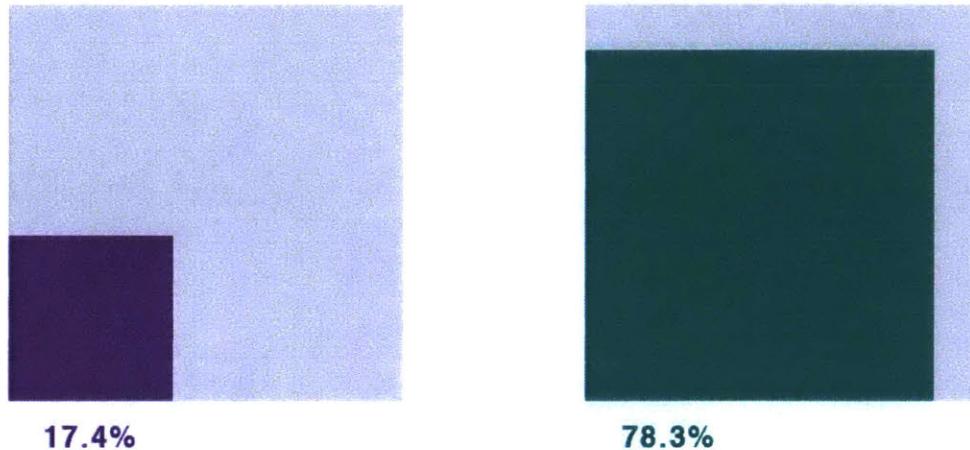
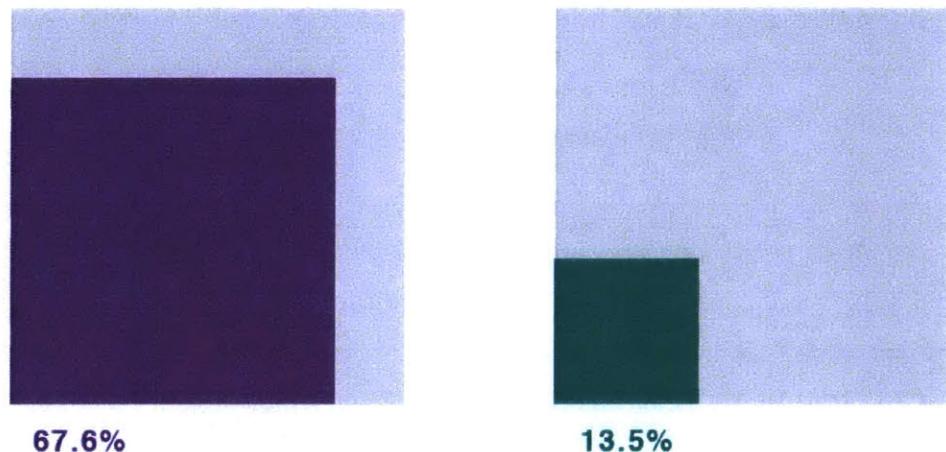


Figure 4-5: Histogram illustrating the number of untrusted components used in stories created by left and right-leaning participants. Each block indicates a participant composed story. Left-leaning participants composed stories utilizing more components from untrusted sources than right-leaning participants.

RIGHT LEANING PARTICIPANTS USE A MAJORITY OF TRUSTED SOURCE COMPONENTS TO CREATE THEIR STORIES



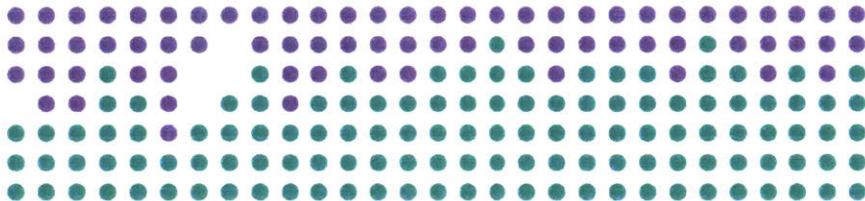
LEFT LEANING PARTICIPANTS USE A MAJORITY OF UNTRUSTED SOURCE COMPONENTS TO CREATE THEIR STORIES



- STORIES WITH MAJORITY TRUSTED COMPONENTS
- STORIES WITH MAJORITY UNTRUSTED COMPONENTS
- TOTAL STORIES CREATED

Figure 4-6: Use of majority trusted and untrusted components in stories by participants.

RIGHT LEANING PARTICIPANTS USE MORE COMPONENTS FROM TRUSTED SOURCES



LEFT LEANING PARTICIPANTS USE MORE COMPONENTS FROM UNTRUSTED SOURCES



- STORY COMPONENT FROM TRUSTED SOURCE
- STORY COMPONENT FROM UNTRUSTED SOURCE
- STORY COMPONENT FROM NEUTRAL OR UNKNOWN SOURCE

Figure 4-7: Stories created by right-leaning participants relied heavily on trusted news sources, whereas stories created by left-leaning participants relied heavily on untrusted news sources. Each column is a created story and each circle is the use of a component in the participants' created stories.

In order to understand the dynamic between users' expressed trust in news sources and the news sources from which the components of their objective story came from, I created the following metric:

Sources that were responded "Strongly agree" or "Agree" to the Likert question of "I trust this source" are considered "Trusted", and sources that were ranked "Disagree" or "Strongly disagree" to the same question are considered "Not Trusted". Sources that were ranked "Don't know" are considered neutral.

Each story consists of seven component parts - the title, image, and five paragraphs of content - selected in order by the participant to create an objective story. If 4 or more of these components

are from either a Trusted or Not Trusted source a participant is considered to be overweight in the respective grouping. Any other combination is considered “Balanced” meaning that the majority of components do not come from either the Trusted or Not Trusted grouping. However even a categorization as Balanced indicates that the participant likely used Not Trusted sources substantially in the creation of their objective story.

The below table summarizes the above categorization of the difference between the sources that participants reported they trusted and the sources they actually used. This is shown firstly across all stories and all participants who considered that they had completed the goal of creating an objective story.

What was the relation of participants' story components to trusted news sources? n=60		
Overweight Trusted	Balanced	Overweight Not Trusted
23 (38.3%)	8 (13.3%)	29 (48.3%)

Table 4-3: Categorisation of the components of stories from participants who responded they achieved the goal of creating an objective article.

What is especially interesting to note is that no participants used material from only their trusted sources. Indeed, from the above, it is clear that the most participants created the majority of their story from news sources that were either ranked as Don’t Know or Disagree with the statement “I trust this source” by themselves in the survey (61.6%).

More incredibly, nearly half (48.3%) created a story in which the majority of the components were from news sources that they disagreed with the statement “I trust this source” by in the survey.

When these results are broken down, in the following two tables, by the answer to the survey question where participants self-identified as either left or right-leaning an interesting break can be noted. 86.5% of left-leaning participants created the majority of their story from news sources that were either ranked as Don’t Know or Disagree with the statement “I trust this source” by themselves in the survey, and 67.6% created a story in which the majority of the

components were from news sources that they disagreed with the statement “I trust this source” by in the survey.

Right-leaning participants were somewhat of a mirror image with 78.3% creating the majority of their story from news sources that they trusted. Only 21.7% of right-leaning participants created the majority of their story from news sources that were either ranked as Don’t Know or Disagree with the statement “I trust this source” by themselves in the survey.

What was the relation of participants' story components to trusted news sources? n=37		
Overweight Trusted	Balanced	Overweight Not Trusted
5 (13.5%)	7 (18.9%)	25 (67.6%)

Table 4-4: Categorisation of the components of stories from left-leaning participants who responded that they achieved the goal of creating an objective article.

What was the relation of participants' story components to trusted news sources? n=23		
Overweight Trusted	Balanced	Overweight Not Trusted
18 (78.3%)	1 (4.3%)	4 (17.4%)

Table 4-5: Categorisation of the components of stories from right-leaning participants who responded that they achieved the goal of creating an objective article.

Our final quantitative analysis looks at the effect of the topic on how participants composed their story. As can be seen from the following two tables, those participants creating a story about Student Debt were relatively evenly split between selecting a majority of components from sources they trusted and sources they did not trust (42.1% and 44.7%, respectively). However, most of the participants creating a story about the US-Iran relationship used a majority of components from sources they did not trust.

What was the relation of participants' story components to trusted news sources? n=38		
Overweight Trusted	Balanced	Overweight Not Trusted
16 (42.1%)	5 (13.2%)	17 (44.7%)

Table 4-6: Categorisation of the components of stories from participants who responded that they achieved the goal of creating an objective article and selected Student Debt as the topic.

What was the relation of participants' story components to trusted news sources? n=22		
Overweight Trusted	Balanced	Overweight Not Trusted
7 (31.8%)	3 (13.6%)	12 (54.5%)

Table 4-7: Categorisation of the components of stories from participants who responded that they achieved the goal of creating an objective article and selected Iran as the topic.

Qualitative analysis

After the participants created their story, and were made aware of the news sources the components came from, they were asked to add their comments to the question: “What were your reactions about the sources you actually utilized for the goal [of creating an objective story]?”.

The following table of quotes gives insight into the reactions and thoughts provoked by the revelation of news sources used in creating their best attempt at an objective article to participants. Overall, the reactions of the participants entailed being surprised, being shocked, and at times, even baffled by their news source choices. However, these quotes do not give a full account. The sighs, momentary pauses, and body language that was exhibited as the news sources of each participants’ story were revealed to them communicated more fluently their response - perhaps betraying the internal conversation going on and the internal recalibration in response to, or rejection, of the results.

“I guess breitbart isn't as whacko as I thought it was.”

“It's a broad range of sources. I used most which I didn't expect.”

“Given how liberal I am, I am surprised that the sources I used were from relatively conservative sources. My first reaction was - How did I do this and how did this happen?”

“I've always thought that news sources all have their own specific slant. But, in actuality, maybe news sources are not all that different from each other. That's a bit interesting to think about.”

“Disappointed in the sources I used.”

“I chose all the wrong articles.”

“Shocked, surprised, and now concerned.”

“I was not expecting to use all the sources.”

Table 4-8: Comments from participants in response to the question: “What were your reactions about the sources you actually utilized for the goal?”.

In the following chapter, I discuss the realizations from and potential revisions to the experiment. Expanding on the results detailed in this chapter, the following chapter draws out several trends and insights that can be derived from them. This includes an exploration of potential causal factors that prompt future work.

Chapter 5

Discussion

During this chapter, I discuss the realizations and potential revisions. This chapter expands upon those results and suggest a selection of insights derived from them. It also puts forward suggestions as to potential causal factors for these results. The following chapter explores and discusses areas for future work inspired by the experience of undertaking the thesis and the analysis of results.

Overview

Overall, as the results from the previous chapter show, there is a disconnect between the sources we declare our trust for explicitly and the sources from which we select content that we perceive as objective. From participants themselves, feedback was overwhelmingly positive with many comments about how attempts to build a habit of routinely challenging their preconceptions had great value. However, this is easier said than done - the challenge has to come from within ourselves. Perhaps the most valuable aspect of the work was the fruitful and engaging discussions and debates about what these realizations might have meant with participants. Much immensely helpful feedback was received at all stages.

Realizations

Disconnect between perceptions of the source and perceptions of content

As mentioned in the previous chapter, no participant created a story composed entirely from only their trusted sources, highlighting that all participants saw value, alongside a movement towards objectivity, within content that was not sourced from one of their trusted news providers. Indeed, as the results show, 48.3% of participants constructed a story that they felt objectively represented the topic using a majority of components from sources they explicitly disagreed with the statement “I trust this source”.

At a minimum, this highlights the opportunity and latent value in sourcing news and analysis from both our own trusted outlets and those we consider antithetical to us. However, what is particularly novel is not that statement, akin to a seemingly familiar adage, but creating a replicable, scaleable, and teachable moment of self reflection allowing us to question our internal positioning and preconceptions and then, being able to share that experience with others.

Left-leaning individuals experienced this disconnect more severely

What is the source then of the exacerbated disconnect for those who declared themselves to be left-leaning and the reduced disconnect for those who declared themselves to be right-leaning politically?

There are several possibilities, but I am drawn to suggest further investigation along the footsteps of another graduate student within the Viral Communications group at the Media Lab, Kallirroi Retzepi. Her work on a project called Slantometer aforementioned in Chapter Two, drew attention to the different nature of composition in the left and right-leaning press outlets. Left-leaning media presented selected fact intertwined with context and added a subtle opinion throughout, right-leaning media cleanly separated paragraphs of selected fact from paragraphs of clear opinion, with occasional context if directly relevant or unavoidable.

This suggestion that the very nature of news composition varied depending on political leanings could suggest how right-leaning participants ended up being overweight in the components of their stories with sources they trusted. Any paragraph that seemed to provide too much context or provide a subtle leading opinion could be noted as biased and then discounted. Several left-leaning participants commented on how the more extended paragraphs from their own trusted sources seemed to be too leading and opinionated to fit in their objective article.

Topic can impact the extent of the disconnect

In relation to the results on topic where stories users created about Iran tended to be overweight on not trusted sources to a greater extent than stories about Student Debt, I believe that this may be in part to participants being more alert to words or phrases that indicate a particular opinion around a more politically active and consequential topic - with objectivity being pursued with a sterner gaze. Also, novel information to the participant from a source, perspective, or

style that they are unfamiliar with may give participants a feeling of being objective. There might be a specific fact or slant on a situation that the participant feels now needs to be included to create a well-rounded and complete take on the topic.

Revisions

From the early stages of this thesis, one of the goals was to create a prompt to try to allow experimentation with and exploration of new sources of content that were previously unknown by participants. The first iteration technically uncovered the stories and sources that were related to the participants trust profile; however, presenting the stories side by side did not give the fuel and impetus for participants to be open to change or to start re-evaluating the position of news sources within their trust profile and anti profile - merely confirming their biases.

The transition to a tool that enabled this self-reflection occurred when providing a set of tools for participants to create something. At the very early beginnings of the paper prototype stage there was no goal set besides creating a story from the components. At the end of creating that story, I asked participants “what was your goal for the article?”. The responses were exciting and varied: “To have fun”, “to make the most cohesive experience”, “to produce the most objective story”, the latter of which was set to become the task for the thesis project. If any one insight from the process is to be taken away in particular to other experiments or processes it is to let participants create from a set of tools provided. This creation of the story by participants also created the idea of investment and ownership, with possessives being used to describe the compilation throughout. Having invested time and thought into the creation of this story led, also, to a feeling of responsibility for it and a feeling of being held accountable for the news sources it was associated with.

In the following chapter, I consider areas for future work inspired by the analysis of the results in this chapter, discussions with participants, and other academic work. Several different avenues are set forward as fertile ground for further experiments and study. The next chapter also considers how this thesis might have impact at scale.

Chapter 6

Future work

Within this chapter, I consider areas for future work inspired by the analysis of the results in the prior chapter, discussions with participants, and other academic work. The chapter breaks down this future work into several avenues for exploration and postulate as to potential findings, alongside suggestions for how this thesis might have an impact at scale. The following chapter provides a summary and overview of the thesis as a complete work.

This thesis set up a way to question our unconscious tribalism around news sources that we may not be aware of and explore: *How can we prompt a re-evaluation of our prejudices to news sources we believe to be untrustworthy?* The news no longer just reports about battlefields and conflicts, but has firmly become a battlefield itself.

While the results from the thesis are exciting, they prompt much further investigation and discussion. Why are we drawn away from our trusted sources when creating a story we consider to be objective? Why does there exist such a difference in the disconnect discovered between those who declared themselves as left-leaning and those who declared themselves as right-leaning? Why and how does the change in topic matter? To further explore these questions there are several avenues of exploration I propose: Firstly, I put forward considering the nature of the content; secondly, the nature of the sources themselves; thirdly, the timing of inquiry with participants and the time sensitive nature of some content; and finally, the population under consideration.

There are some topics that are factually true, factually false, or contested facts - rather than just a matter of opinion. For example, the Pizzagate Conspiracy Theory⁴³ in which hacked emails from John Podesta were falsely claimed to show that there was a human trafficking and child sex ring being operated out of several venues, one of which was the Comet Ping Pong restaurant and

⁴³ *Pizzagate Conspiracy Theory*, Wikipedia (July 31, 2019), https://en.wikipedia.org/wiki/Pizzagate_conspiracy_theory.

pizzaria. Breitbart and CNN took on arguably opposite sides with regards to the conspiracy theory. What would happen if we ask participants to build a story from news sources that directly contradicted each other on such issues and made statements in contravention of each other's position within the content of their reporting? The ability to construct an objective article could either become impossible or much more achievable as participants on either side have the material to construct an article either in support or in opposition to the topic. However, participants could also balk at the prospect of claiming objectivity in such a divisive topic with a lack of ability to frame the story beyond the components of news sources' stories that were offered.

The three effects noted in the previous chapter should also be explored around content that is either opinion-led or fact-led. I postulate that the effects noted in this thesis of the use of untrusted sources would be more pronounced with content where news sources agree upon the underlying factual occurrences - suggesting that there is a significant opportunity to build common ground and dialogue between the seemingly expanding gap between left and right-leaning groups in the United States. It seems that increasingly, our perspectives on the state of society shaped in part by our news sources, rather than our underlying values, are contributing significantly to polarization⁴⁴. I would, also, postulate that the use of untrusted sources, as noted in the prior chapter, would diminish increasingly as topics where opposing opinion, contested facts, and falsehoods become more prevalent. What would happen if topics were chosen based upon particular news sources that were known to have a polarizing view - one participant on discovering they had used Breitbart several times retorted: "but this isn't really a Breitbart topic" suggesting source positioning on particular topics trigger those sources to become untrusted or sidelined by participants. Both of these postulations provide fertile ground for future studies.

The finding that left-leaning individuals experienced this disconnect more severely may be based upon trust more broadly in media. A Niemen Lab study found that left-leaning individuals trusted most news stories most of the time nearly three times as often as right-leaning individuals who, on the other hand, only 17% said they did - a low hit in 2018⁴⁵.

⁴⁴ Nettle, Daniel and Saxe, Rebecca, *Preferences For Redistribution Are Sensitive To Perceived Luck, Social Homogeneity, War and Scarcity*, *supra*.

⁴⁵ Kalogeropoulos, Antonis and Fletcher, Richard, *In The U.S., The Left Trusts The Mainstream Media More Than The Right, And The Gap Is Growing*, Nieman Lab (June 13, 2018).

This broad trust, or lack thereof, in mainstream media could suggest why left-leaning participants found themselves using more untrusted source content and right-leaning individuals seemed more attuned to content from their trusted sources. Exploration into how structure of content⁴⁶, stylistic cues, and lexical sets⁴⁷ tie into the idea of content tribalism seems to be a natural next step. How can participants identify the source of content without seeing the name of the source? Crowdsourced, source blind, news bias surveys, also, suggest that this is discernible from the ability to make categorizations of news sources that fit broadly with anecdotal expectations⁴⁸.

Following that line of thought, it would be interesting to, additionally, explore how participants respond to mislabelled sources and allow users to create a story knowing a source name that was, perhaps arbitrarily, associated with each component of the story. Would it also be possible for participants to create a story they felt was objective solely from sources they had labeled as untrusted?

Given that the majority of both left and right-leaning individuals felt that they cannot trust most news most of the time⁴⁹, how might the noted effects in the prior chapter change when we explore mainstream media versus social media sources. As local television news has become one of the most trusted sources by both left and right-leaning people in the United States⁵⁰, how might local versus national issues and sources vary the results? I expect an increase in the use of untrusted sources by both left and right-leaning participants in this case.

The spread, acceptance, or rejection of material can be amplified by time-sensitive situations such as an unfolding disaster or sense of a state of emergency⁵¹. More generally the novelty of content to an individual and its ability to evoke emotion has arguably led us to a situation in our

⁴⁶ Cichocka, Aleksandra, Bilewicz, Michal, Jost, John T., et al., *On the Grammar of Politics - or Why Conservatives Prefer Nouns*, *Political Psychology*, vol. 37, no. 6, pp. 799-815 (January 2016).

⁴⁷ Robinson, Michael D., Boyd, Ryan L., and Fetterman, Adam K., *The Mind Versus the Body in Political (and Nonpolitical) Discourse: Linguistic Evidence for an Ideological Signature in U.S. Politics*, *Journal of Language and Social Psychology*, vol. 36, no. 4 (August 2016).

⁴⁸ *Media Bias Ratings*, AllSides, [supra](#).

⁴⁹ Kalogeropoulos, Antonis and Fletcher, Richard, *In The U.S., The Left Trusts The Mainstream Media More Than The Right, And The Gap Is Growing*, [supra](#).

⁵⁰ Kalogeropoulos, Antonis and Fletcher, Richard, *In The U.S., The Left Trusts The Mainstream Media More Than The Right, And The Gap Is Growing*, [supra](#).

⁵¹ Vosoughi, Soroush and Roy, Deb, *A Human-Machine Collaborative System For Identifying Rumors On Twitter*, Massachusetts Institute of Technology - Media Lab (2015).

consumption and sharing of news and media in which lies are spread faster than the truth⁵². This thesis picks two timely topics covered broadly in the mainstream news media: student debt and the heightened tensions between the United States and Iran. However, both of these topics have been present in various forms in the mainstream media over the past decade and arguably, much longer. Further work exploring hot button issues and unfolding events would be valuable, both in terms of the initial contented purveyed by mainstream news sources and the exploration of how the use of components from various news sources changes over the life cycle of a news story. I expect that along the lines of prior work in the Viral Communications group with NewsClouds, previously mentioned in Chapter Two, that as stories evolve over time they develop more of the characterizations of the publishing source and thus be more identifiable by participants⁵³. Taking that a step further, it would also be instructive to perform a longitudinal study following what sources participants use over a period of their own expected personal change and growth. What sources would participants have a tendency to use at the end of high school, after the first year of employment and after their graduation from university to construct what they believed was an objective story?

With regard to the population of the participants that the thesis utilized, as mentioned within Chapter 4, it is important to increase the number of participants, in order to understand more definitively which of the observations are noise and which represent robust relationships.

After increasing the number of participants, the next step is to look beyond the student population in the Northeastern United States. Exploring if the relationships highlighted within the thesis still hold to be true between geographies, age groups, and socioeconomic status will, naturally, help build a better understanding of the exact nature of the forces at play. Alongside expanding the geographies under consideration, allowing for a more detailed understanding of participants political identities beyond the binary choice of left and right leaning labels would also be instructive. The social groupings and professions of participants may, also, have interesting and unintuitive relationships with trusted and untrusted sources. One personal curiosity is to explore the components that journalists would use to create their own stories through the story toolbox.

⁵² Vosoughi, Soroursh, Roy, Deb, and Aral, Sinan, *The Spread Of True And False News Online*, Science, vol. 359, no. 6380, pp. 1146-1151 (March 2018).

⁵³ Shihipar, Thariq, NewsClouds, supra.

Another rich path for further study is in the collaborative creation of stories, with groups discussing the components they are collectively happy with using. This could be insightful - especially when performing analysis of the interpersonal discussions regarding the selection of each of the components and the considerations for choosing the particular snippet. The group discussions may bring to the forefront some of the individual decision making processes that are otherwise not publicly shared in the individual task. Allowing users to direct the creation of the story, by creating their own goals and challenging others in their social circles, would likely be informative.

Looking beyond the impact of the study of the thesis and the effectiveness with a small group of participants, it is, also, important to consider what might be an effective societal level intervention. How can we increase underlying awareness of source versus bias and help build common ground between people more broadly? One possibility is to produce an annual report "Common Ground: The State of Overlap in the United States" in which explored what topics and through which news sources, left and right-leaning individuals were able to find unexpected and compelling areas of shared perspectives. Another alternative would be to create a video game, inspired by the likes of *Papers, Please*⁵⁴ and *The Republica Times*⁵⁵, where players are responsible for the production of the stories of a news source as the editor and get to experience the personal, communal, and societal effects of seemingly mundane day to day editorial choices in a news outlet.

Another great idea, sourced from the early stages of the paper prototype, is to build into the toolbox the ability to showcase and share the stories that users have created. On creation of the paper story, one participant asked to take a photo of their story to share with friends, which suggests participants also found value in sharing the experience of having their initial perceptions and judgements challenged, and may want to share that moment of surprise with others. The story could be shared, reactions of others to the article gathered, and upon a reaction being received (perhaps a like or dislike) the sources revealed.

⁵⁴ *Papers, Please*, 3909, LLC (July 31, 2019), <https://papersplea.se/>.

⁵⁵ *The Republica Times*, 3909, LLC (July 31, 2019), <https://dukope.com/trt/play.html>.

In the following chapter, I provide a summary and overview of the thesis as a complete work. Briefly reflecting on the initial goals of the thesis, and revisiting the main findings, suggested future work and considerations for areas of concern more broadly looking forward.

Chapter 7

Final notes

This thesis was an experiment to see if it was possible to provide an answer to the question: *How can we prompt a re-evaluation of our prejudices to news sources we believe to be untrustworthy?* It attempted to use the act of creating and asserting ownership and status over a self-constructed story to prompt a re-evaluation of the sources that we so dearly trust based upon the content we believe to be objective. As the results highlighted, there is a disconnect between the sources we trust and the content we believe to be objective.

However, as noted within the prior chapters, there are many areas of further exploration required prior to asserting that these results are generalizable. But, one of the achievements of this thesis was that it prompted sincere and thoughtful discussions with participants around how and why we construct trust around news sources and possible causes for those disconnects between our perceptions of sources and our perceptions of their content when the source is not disclosed to us.

Many of the proposed future works promise fertile and exciting ground to build explorations on. Why are we drawn away from our trusted sources when creating a story we consider to be objective? Why does there exist such a difference in the disconnect discovered between those who declared themselves as left-leaning and those who declared themselves as right-leaning? Why and how does the change in topic matter? Do these results hold outside of a U.S. university setting in the North East? How does our susceptibility to source prejudice vary over time and with age?

Moving forward, this thesis suggests that more emphasis should be directed toward discovering new ways to help us switch off our content filtering autopilot and prompt us to reflect on judgements around news sources and their content - some of which are valid, others a hastily met pre-judgement based on our own economies of time. However, despite these economies and

the scarcity of time that leads to simplified judgements, the stakes are high - the cohesive core that roots us together as a society is under severe stress and increasingly lacking. The damage from a complete loss of any shared reality between us as members of society is unthinkable. With this in mind, we must continue to build experiences and tools that keep us mindful of and challenge our perceptions and prejudices.

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