

Neocortix News: High-Quality News Aggregation

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November 30, 2018

Abstract – Where should responsible, engaged citizens find news? Many people get news from social media, others watch news or commentary shows on television, others go directly to websites of major publications, others use news aggregators. Each of these methods of finding news has serious problems, both for individuals seeking truthful news, and for society as a whole. For example, social media news feeds are designed to tailor news based on prior interest, thus creating a “filter bubble” and amplifying confirmation bias. Choosing a small number of trusted sources (favorite television channel or publication) can introduce confirmation bias and inadequate breadth if too few sources are included, and can include low-quality/false news if low-quality sources are selected. Conventional news aggregators include a broad range of high- and low-quality sources, and neutral to highly partisan sources – but this breadth then leads to the inclusion of many low-quality, highly partisan sources. What is needed is a convenient way to find high-quality, balanced, factual news from a broad range of curated, professional sources, without amplifying confirmation bias. Neocortix News was designed to fill this need, by providing convenient, balanced news aggregation, sourced only from high-quality factual news sources, with no tailoring based on prior interest.

1. Introduction

Where should responsible, engaged citizens find news? Many people get news from social media news feeds (Facebook, Twitter), others watch news or commentary shows on television (ABC, NBC, CBS, CNN, Fox), others go directly to websites of major publications (New York Times, Washington Post, etc.), and others use news aggregators (Google News, Yahoo News). Each of these methods has serious problems, both for the individual news consumer, and for society collectively.

For example, social media news feeds are designed to tailor news based on prior interest [1]. This has the effect of creating a “filter bubble” [2], which isolates individuals from viewpoints that differ from their own. This magnifies confirmation bias, which is the natural human tendency to believe information which agrees with our pre-existing views [3]. Also, social media news feeds and unscrupulous content creators have the financial incentive of advertising revenue to link to popular stories, whether true or not, thus increasing the spread of false or misleading stories which compete with legitimate news stories [4]. Filter bubbles, confirmation bias, and the spread of false or misleading stories are harmful to individuals seeking truthful news about the world, and have a collective negative and polarizing effect on democracy [5][6][7], which depends on an informed and rational electorate.

Similarly, choosing an overly-small number of trusted sources (favorite television channel or publication) can create a filter bubble, magnify confirmation bias, and can include false or misleading news if low-

quality sources are selected. Choosing a large number of trusted and diverse sources may mitigate the above problems, but is too time-consuming and inconvenient to be practical for most people.

Conventional news aggregators such as Google News make it easy to see stories from a wide range of sources. But they include a broad range of high- and low-quality sources, and neutral to highly partisan sources – this impressive breadth then leads to the inclusion of many low-quality, highly partisan sources. And the conventional news aggregators also build profiles based on prior interest, so they also are susceptible to the filter bubble problem.

Since all of the above methods of finding news have serious problems, many people express frustrations that there is simply no good solution to the problem [8]. Personally, we know several people who have simply refused to engage with the news. Each has said, in their own way, “I don’t know what to believe any more, and I don’t know where to go to find proper news.” Three of those people simply don’t consume news at all. One person’s solution is to have his wife scan Google News and send him links to important and interesting stories.

Even news professionals at the top of their careers admit that there is no good solution: After a speech at Ohio State University on June 21, 2018, New York Times reporter Maggie Haberman was asked: “What advice do you have for us as news consumers, to consume news in a healthy way, that allows us to still be informed, involved citizens?” She answered (condensed) [9]:

The question is: what advice I have for news consumers to make sure that their digest is healthy and good for them, and truthful. There are a lot of news outlets and nonprofits that are spending a lot of time on news literacy right now, and how to make sure after 2016 where a lot of fake headlines whipped around the internet, how to make sure that you’re reading something that is trustworthy. There is not a great solution yet. ... I think that my biggest piece of advice would be ... that I got off Twitter. I mean, I still look at Twitter, I don’t look at it as often as I did. I look at it to make sure I’m not missing breaking news, and again, because the President of the United States uses it pretty frequently. ... I think that Twitter has been really, really deleterious to the discussion, to discourse in general, and to the way that news spreads. My biggest recommendation is that people don’t use Twitter, that they go directly to news sites, which takes a lot longer. ... What was striking to me about Twitter was that literally everything looked the same. I could not tell, like, a link to a five-part investigation on Lead in the water in a town, looks the same as a link about Kim Kardashian. You can’t tell proportion, size, magnitude, it literally is all shrunk down to the same size. If you go to a website, or you read the newspaper, you can see, based on story placement, based on headlines, based on a lot of things, the interest level and stock that the outlet is putting in that story. And you just can’t from Twitter. ... I still think you have to stick to, look, if you prefer Conservative news, National Review is a really good website, you know, the Journal which happens to be a little more Conservative-leaning is still a really good paper. I think that there are some wonderful reporters at Fox News, I think Chris Wallace is a great reporter, and Brett Baier is a great reporter. But I do think that the commentary shows there traffic less in facts than their news programs do. I think that you have to go to a trusted news source at this point. There is just so much stuff on the Internet that’s not true, that all I can say is, less time spent on websites you’re not really familiar with, is probably the best way.

In summary, we can state the following:

- Social media news feeds (Facebook, Twitter) lead to filter bubbles and spread of misleading and false stories.
- Using an overly-small number of trusted sources (television channels or websites) leads to filter bubbles and may lead to the spread of misleading and false stories if those sources are of low quality.
- Using a large number of trusted sources is too time-consuming and inconvenient to be practical.
- News aggregators are convenient and broad, but include too many low-quality and highly partisan sources, and also profile their users, leading to the filter bubble problem.
- This is an important problem, adversely affecting people individually, and society and democracy collectively.
- There is currently no good solution. Many people, including industry professionals, are profoundly frustrated by the lack of a good solution in the marketplace.

We believe that this problem actually does have a solution, but it has not been commercially offered yet because all of the market, social, and financial forces are acting so as to perpetuate the existing problem, and there is no financial incentive for any of the existing participants to step in and actually offer a workable solution. In particular, the technology giants with the resources to offer a solution (Facebook, Google and Twitter) are fully committed to their existing business models (maximizing revenue from targeted advertising); they cannot be expected to disrupt their own business models to do something that is altruistically good for society as a whole. The individual news sources cannot, by themselves, lead the charge and provide a solution; the best they can do is contribute high-quality, truthful news, and wait for a new kind of solution to the problem.

2. Understanding News Sources

To find a solution to this problem, we begin by understanding the landscape of news sources. There are many news sources available, ranging from well-established decades-old print and television sources to recently-created Internet-only blogs and YouTube channels. There is a wide range of quality, from ethical fact-based reporting, to opinion/commentary, all the way to unfair persuasion, debunked conspiracy theories, and outright fabricated falsehoods. And there is a wide range of viewpoints and biases, from neutral/unbiased/center, all the way in both directions to most extreme liberal and conservative. The interested news consumer is faced with an overwhelmingly complex set of choices. How can a conscientious news consumer make sense of this crowded and complex population of news sources?

The best solution we have seen to the problem of understanding news sources is the Media Bias Chart [10], created by Vanessa Otero at Ad Fontes Media, a Public Benefit Corporation in Colorado. She uses a strict methodology of analyzing the content of a large sample of stories from news sources using 17 criteria, to provide an overall ranking for each source in the two dimensions of Quality and Bias. The current Media Bias Chart, version 4.0, August 2018, is shown in Figure 1.

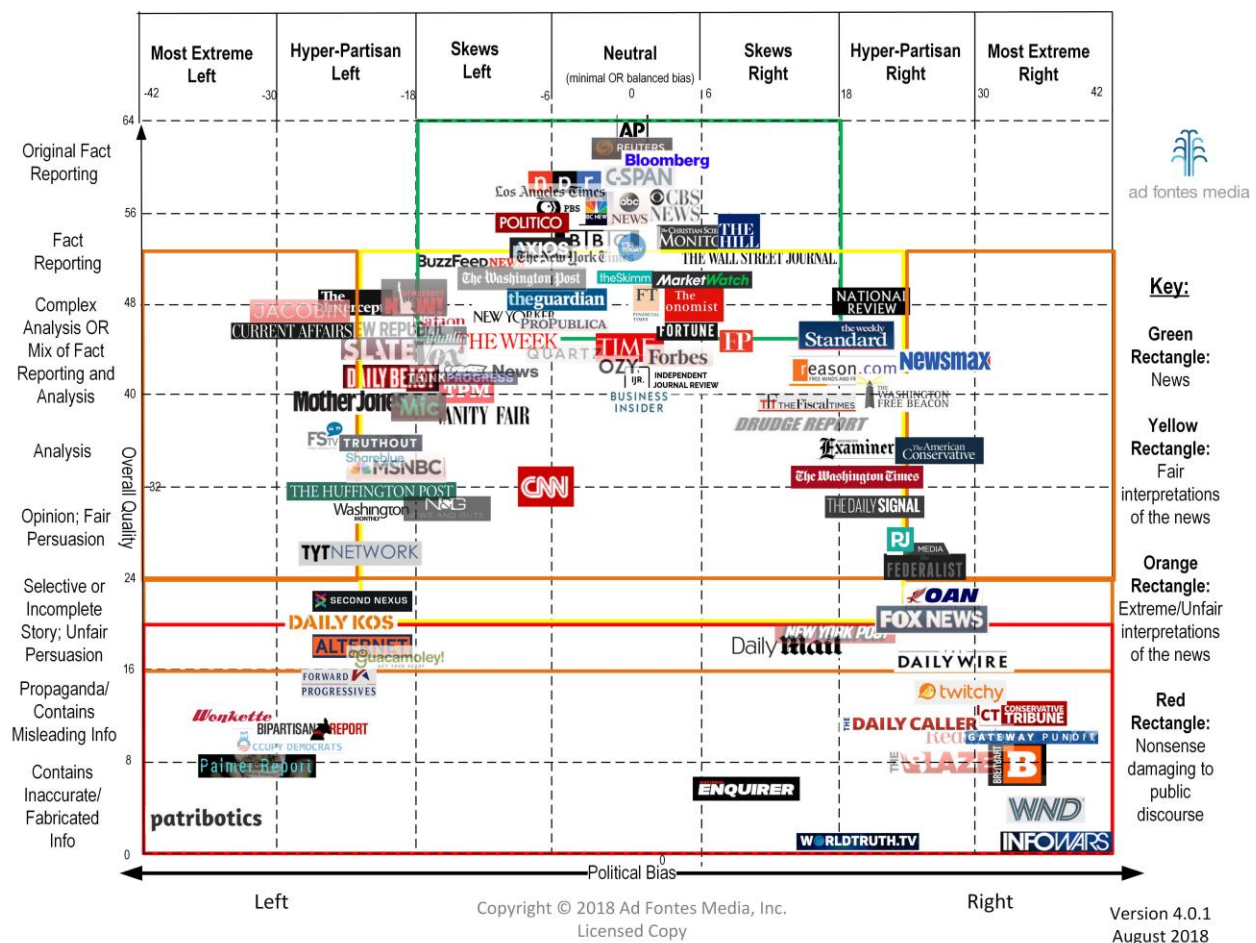


Figure 1: Media Bias Chart by Vanessa Otero, Ad Fontes Media [10].

An illuminating third-party review and analysis of the Media Bias Chart has been given by University of Maryland Law Professor Max Stearns [11], in which he discusses the methodology and makes several observations about the notable “bell-shaped” appearance of the distribution of sources, and its significance in understanding the population of news sources:

Clustered at the top center are credible traditional news media, including major newspapers, magazines, wire services, and network news sources. Descending to the left and right are credible, if increasingly ideological, sources, liberal and conservative respectively. Concentrated at the bottom, and fanning out left or right, are more purely ideologically driven sources. These media do not abide journalistic standards, and they tend to advance unsubstantiated and bias-confirming stories.

Assuming the chart’s methodological validity, the bell shape, as opposed to randomly dispersed media in the two-dimensional space, is intuitive. Indeed, this is why I found Ms. Otero’s project compelling. Because of the bonding costs for investigative journalism, especially for foreign news stories, but even for domestic ones, and for traditional print media, or limited spectrum media

(at least historically), those incurring such costs have a strong incentive to ensure and maintain a reputation for a high level of overall accuracy. Such publications respond to these incentives even at the expense of disallowing a salacious or otherwise enticing story that would draw in a large audience short term, but harm its reputation in the long term.

This suggests that such sources, even if they tilt somewhat left or right (compare The Washington Post or The New York Times with The Wall Street Journal, for example) will tend to concentrate toward the center of the ideological spectrum. That is because the most credible news media will, over time, convey news that is neither systematically beneficial to the left or right of the political spectrum. The gradual left and right descents are also intuitive. There are numerous credible sources that lack the resources for original investigative journalism but that offer important analysis beyond what general news media typically offer, for example, on the editorial and op-ed pages of major newspapers. It is not surprising that such sources will tend to have a more cohesive ideological valence. Examples include Slate and MSNBC, on the left, and The Weekly Standard or The National Review, on the right.

The more interesting feature is the fanning out at the bottom left and bottom right. Depending on the distancing employed between the east-west axis categories, this might be more or less visually pronounced. This phenomenon also is intuitive. Those sources that attract a strong ideological following are apt to highlight selective tidbits from traditional news sources and to couple those with what, thanks to Kellyanne Conway, we now call “alternative facts.” [12] These presentations draw in and retain committed readers who, consciously or not, seek to have their world views reaffirmed. Not surprisingly, these sources are typically devoid of careful reflection and independent screening, and even of consistently sound writing quality.

The great tragedy for American democracy that this graphic helps to demonstrate is how and why an increasing percentage of our electorate receives its news from the final category of sources. The emerging distance between those on the left and right, distant from the ideological center associated with main stream news media, corresponds to two increasingly dominant segments of the population. These groups, also left and right, risk routinely being fed largely dubious, prior-reinforcing, rather than assumption-challenging, fare. As a consequence of concentrating on these sources, which often claim all others not in agreement are lying, readers tend to assume such sources are valid.

With the above framework in mind, we can now focus our attention on the credible, traditional news media sources in the upper-center part of the chart. For convenience, we show those in Figure 2.

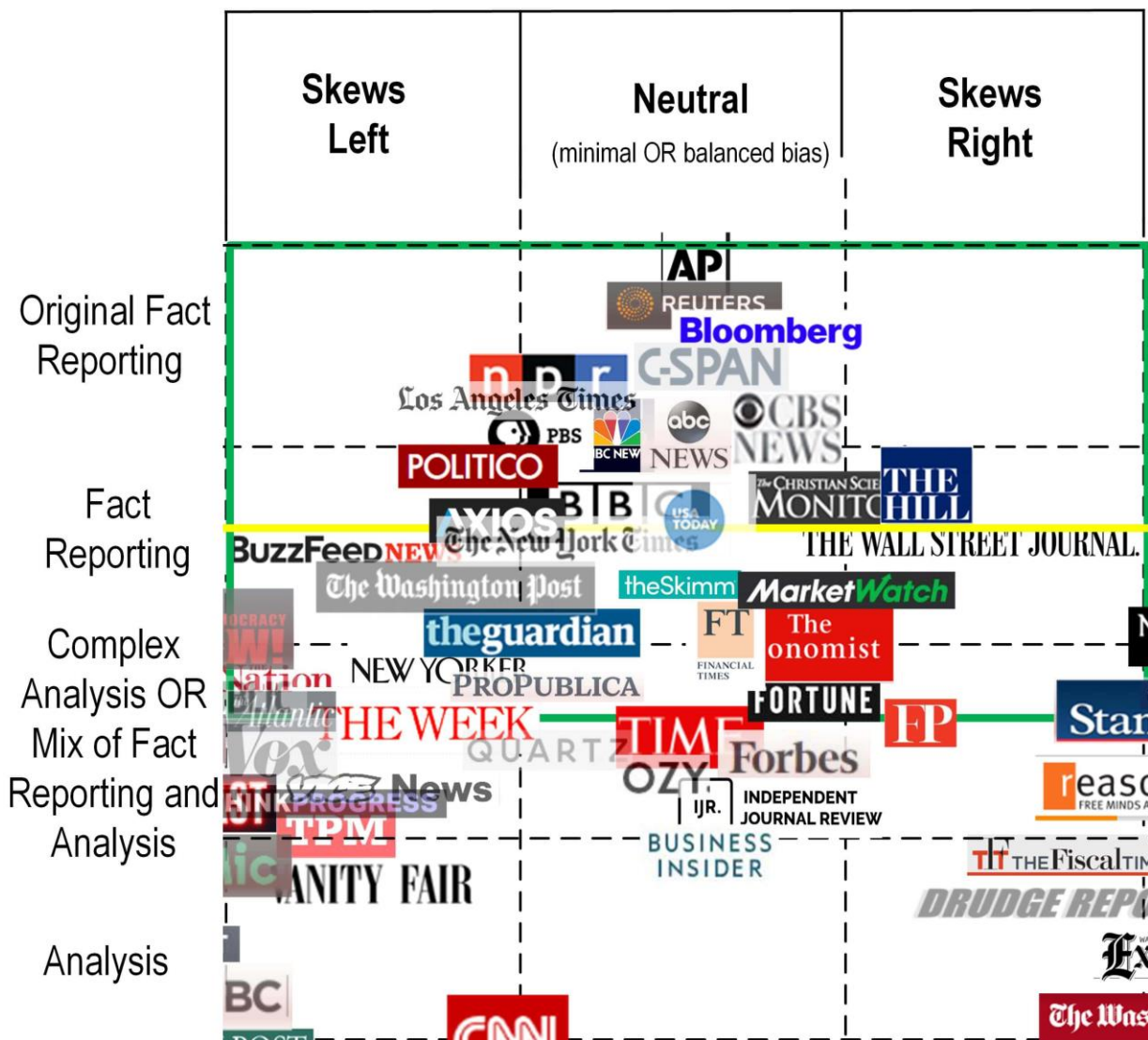


Figure 2: Media Bias Chart (excerpt of upper-center region) [10].

The news sources found in this upper-center region of the Media Bias Chart have high Overall Quality, ranging from “Original Fact Reporting” through “Complex Analysis” to “Opinion; Fair Persuasion”. And they have a moderate range of Partisan Bias, ranging from “Skews Liberal” through “Neutral” to “Skews Conservative.” And notably, we have excluded the “Hyper-Partisan” and “Extreme Partisan” and Low-Quality sources, including “Unfair Persuasion”, “Misleading Information”, “Propaganda”, and “Inaccurate/Fabricated Information”.

We believe that this subset of the news sources is worthy of special attention from a conscientious news consumer. They have earned their reputations in the world as credible sources of legitimate news.

3. A Modest Proposal: High-Quality News Aggregation

With the above framework in mind, we can now make the leap to an actionable design of a High-Quality News Aggregator service. We propose a news aggregator that ONLY shows stories from credible sources of legitimate news, as shown above in Figure 2, and which does NOT tailor news based on the prior interest of the user.

First, let us consider the arguments in favor of this proposal:

- **The Proposal Meets The Very Definition of News Aggregator:** By definition, a News Aggregator should aggregate News for the user. It should not include non-news stories, such as Unfair Persuasion, Propaganda, Inaccurate / Fabricated Stories. It is reasonable to expect that a News Aggregator should uphold some standard for the quality of the news that it includes (and, it could be argued, it is surprising that no existing news aggregator has, until now). In this proposal, the quality standard is imposed based on the established performance of the source, as measured by the Media Bias Chart.
- **High Quality, but not Overly Restrictive:** Note that we do not restrict attention to the very top-center two squares of the chart, which would include only 4 sources: Associated Press (AP), Reuters, Agence France-Presse (AFP), and Bloomberg. This would reduce the number of sources to such a degree that we could not ensure adequate diversity of viewpoint, or allow for reasonable analysis, opinion, and fair persuasion.
- **Partisan Breadth to avoid Partisan Filter Bubble:** It is important to include adequate diversity of ideological viewpoints. For this reason, we do not restrict attention only to “Neutral” sources, but permit “Skews Liberal” and “Skews Conservative”. This ensures that users are exposed to factual viewpoints that may differ substantially from their own, thus avoiding the partisan Filter Bubble effect.
- **No Tailoring of News to the User to avoid Filter Bubble:** It is extremely important NOT to tailor the news based on the user’s prior interests, precisely to avoid trapping the user in a Filter Bubble.
- **Efficiency for the User to be exposed to Many Sources:** A news aggregator is a very efficient way for a news consumer to see news stories from many high-quality sources. It would be impractical for a news consumer to regularly visit 25 different news sources. But with a high-quality news aggregator, headlines from all of those sources can be seen, and the stories can be grouped in common categories and by particular subject area with a “More Like This” feature. Thus, the news consumer can get the ideal experience: efficient discovery of a broad range of news subjects from a large number of high-quality news sources, covered with a reasonable breadth of ideological viewpoints.

Now, let us consider the arguments against this proposal:

- **Censorship, First Amendment rights: By excluding certain sources, isn’t this Censorship? What about the First Amendment rights of those voices?** No, this proposal does not constitute Censorship. We are not preventing those sources from publishing, or in any way punishing them for publishing. They are free to publish on their own websites, and be included in other

aggregators and forums. We are simply choosing not to include them in our News Aggregator. There is no law requiring news magazine shops to carry every news magazine that is published. Similarly, there is no law requiring News Aggregators to include every news source. Our News Aggregator simply uses an unusual criterion for deciding what to include: Quality, not Profitability.

- **This proposal doesn't eliminate Filter Bubbles. It just creates a new kind of Filter Bubble.** This is a valid argument. By definition, if a person only sees a subset of all news sources, they can be said to be in a bubble, because they aren't seeing any of the sources outside their bubble. The only way to completely avoid being in a filter bubble would be to read literally all news stories from all candidate sources on the Internet, which would obviously be impractical. So, in practice, we must accept that we can only absorb a subset of all the news that is available from all sources. With that in mind, let us consider the usual two bubbles (Liberal Bubble and Conservative Bubble, as shown in Figure 3), and compare them to our proposed new Fact-Based Bubble. If we cannot read everything, let's at least choose the best subset of what to read.

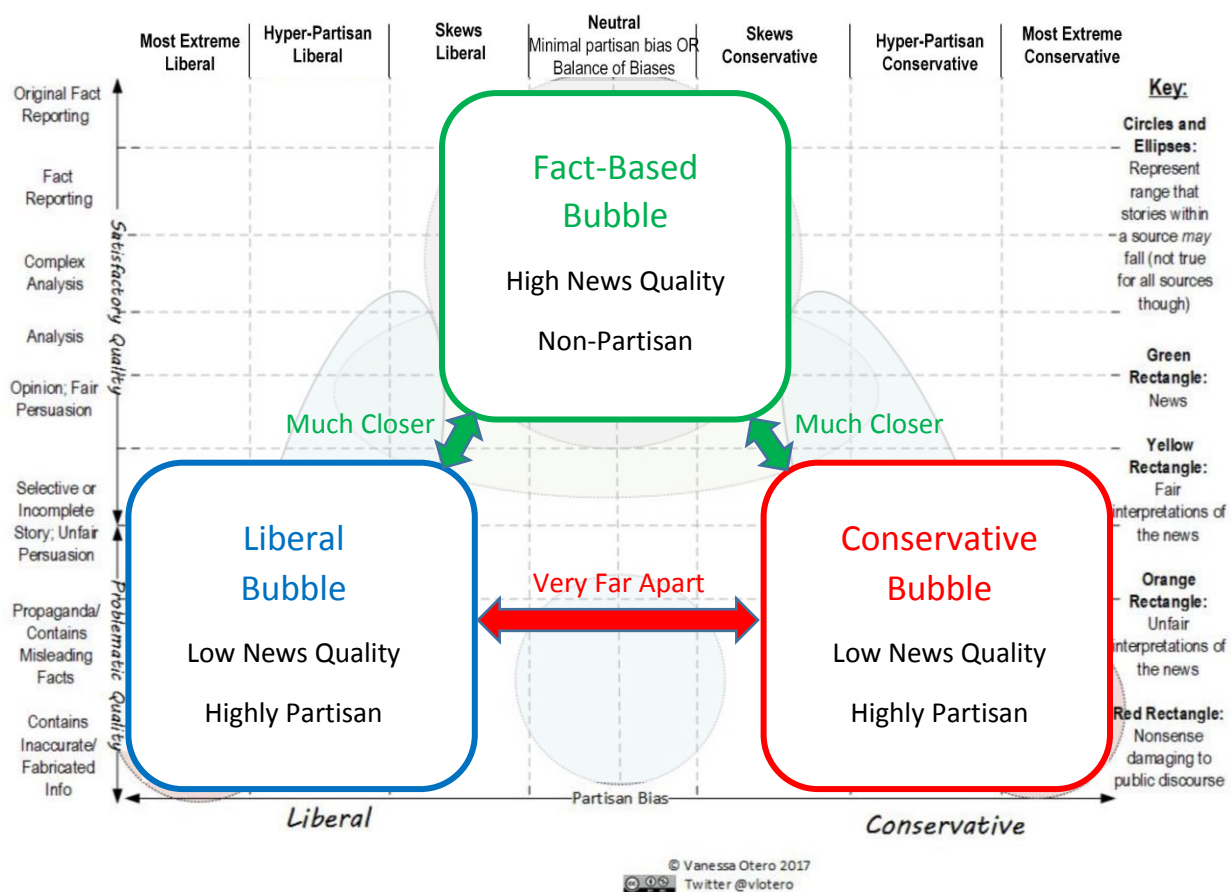


Figure 3: The Liberal Bubble, the Conservative Bubble, and the new Fact-Based Bubble. Note that the Liberal and Conservative Bubbles are impossibly far apart from each other (no communication possible), while the Fact-Based Bubble is much closer to both.

Several observations are possible here. First, the Liberal and Conservative Bubbles are very far apart from each other (long Red Arrow in the Bias dimension), which makes communication between them extremely difficult. But then they are both in the low-quality dimension, so each can claim (often correctly) that the other is making false statements, which then makes communication impossible. So, it is very dangerous, as an individual, to be in either one of those two bubbles, and it is disastrous, for our society and our democracy, if a large fraction of our population is in those two bubbles.

Now consider the Fact-Based Bubble. It is wide enough to admit a reasonable amount of Liberal-skewed, Neutral, and Conservative-skewed news, so that an individual who is informed in that environment has a chance of seeing the point of view of individuals in the Liberal and Conservative Bubbles. In Figure 3, this “closeness” is symbolized by the short Green Arrows. And since the Fact-Based Bubble is grounded in some actual facts, we may hope that communications with the other two bubbles may be less inflammatory (although, see discussion below about the perceived value of Factual Correctness).

So, in summary: If you can only read a part of the news, it is best, for you and for society, to read the part that is fact-based and not overly partisan.

- **No-one will use such a service; Confirmation bias is deeply ingrained in human nature and people want to have their partisan pre-existing beliefs confirmed.** It is true that confirmation bias is deeply ingrained in human nature. But it is also true that different people exhibit different degrees of confirmation bias, and different degrees of partisanship. Some people value fact-based non-partisan news; those people may appreciate a high-quality news aggregator. Other people prefer highly partisan news, regardless of its veracity; those people will probably not appreciate a high-quality news aggregator. But we also believe there is a third category: people who don't yet know what they want, and/or haven't been exposed to a high-quality news aggregator. That is the unknown part of the market that is potentially up for grabs. All of our associates who said, “I don't know what to believe any more, and I don't know where to go to find proper news” are good candidates to adopt our High-Quality News Aggregator, and there may be lots of people like that.
- **No-one will use such a service; we live in a “post-truth” world, in which facts are secondary to appeals to emotion [13]. Facts don't matter anymore, “alternative facts” can be substituted [12]. “The truth is not as useful as it should be, because it doesn't change people's minds.” [14] Statements can have “Emotional and Directional Truth ... that is independent from the facts being completely wrong.” [14]**

First, this is an argument about why a high-quality news aggregator may not be likely to be adopted by many people. If no-one cares about facts anymore, why would anyone want fact-based news? We agree that only a subset of the population cares about facts, and that there are some people who will not want fact-based news. Some people do care about facts, and don't know where to get their news; those people will probably appreciate a fact-based news aggregator. And some people are just disengaged from the news, and don't know what they would want. We hope that they might be attracted to a high-quality news aggregator once they hear about it.

Second, there is a question that goes beyond “will it be popular?” The question is: “Is it important and worthwhile to do it, in spite of the long odds against it?” Appeals to emotion and exploitation of confirmation bias can be effective tools of persuasion, especially when

charismatically decoupled from factual correctness.[14] So, should we stop caring altogether about factual correctness, and all join the expedient race to the bottom of falsehoods and partisanship? We don't think that is healthy, for individuals or for society. The specific question is: "Is it important for our society that fact-based news reporting be easily accessible?" We believe the answer is a resounding Yes. We believe that truth is important, facts are important, and fact-checking is important. We believe that ethical reporting of news based on fact and fact-checking is important, for us as individuals, and for our society, our democracy, and our nation. We are willing to invest time, money and effort to make it available, in the hope that it may make a positive difference, to many individuals and to society as a whole.

4. Commercial Implementation: Neocortex News

Neocortex News is a commercial implementation of a High-Quality News Aggregator, based on the above principles. A screenshot from the Neocortex News Android app is shown in Figure 4, showing a typical category page (Top Stories), and the same page with the "More Like This" feature expanded on a particular story. Neocortex News is available now as a website at news.neocortex.com, and as an app on the Google Play Store and Apple App Store.

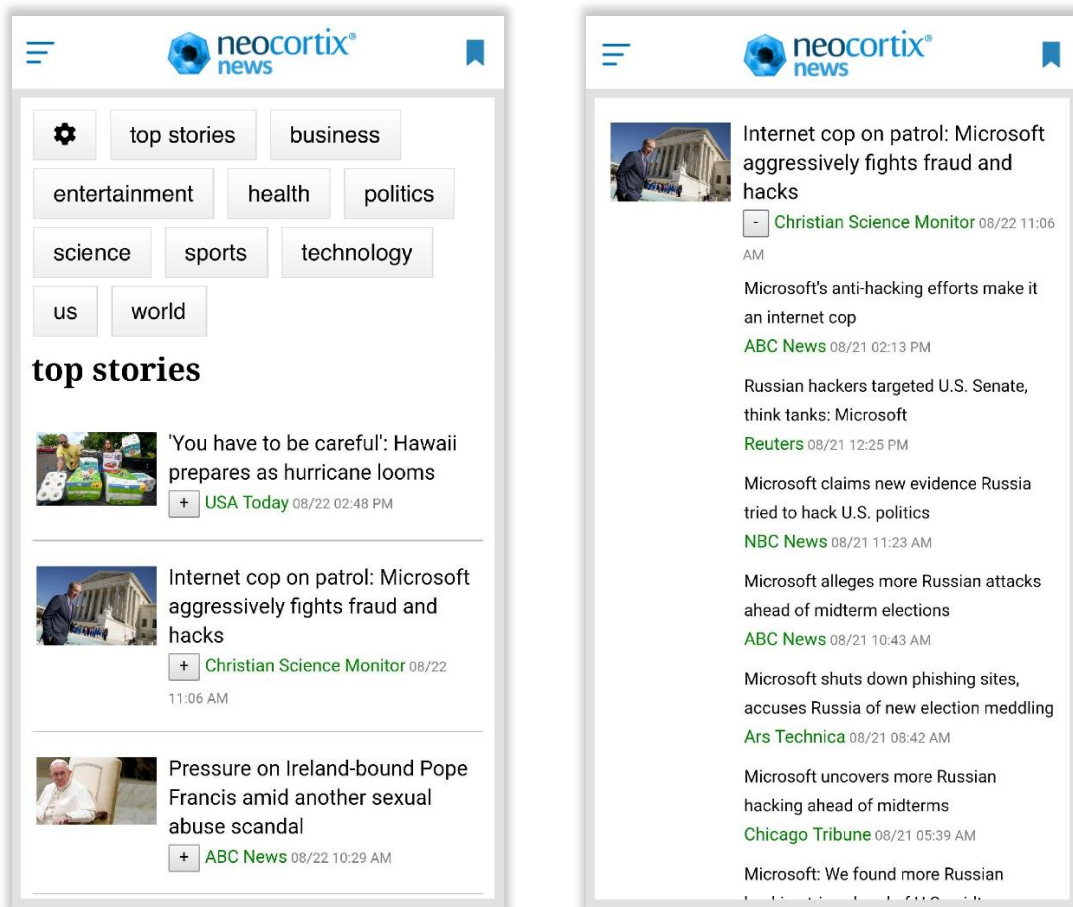


Figure 4: Screenshots of the Neocortex News Android app. (left) Top Stories page. (right) Top Stories page with "More Like This" expanded. Only credible, traditional sources!

5. Conclusions

For many people, including news industry professionals, there is no good solution for the problem of where to find High-Quality News. Social Media platforms like Facebook and Twitter have flooded their users with low-quality, partisan news, including sometimes outright false and fabricated stories. News aggregators like Google News are impressively broad in their coverage of news sources, but that strategy admits many low-quality partisan sources. Our solution to the problem is to use the analysis of the Media Bias Chart [10], which measures News Quality and Partisan Bias for many important news sources. We propose a new type of News Aggregator which restricts attention to only the High-Quality Moderately-Partisan sources, and not tailoring the news content based on the prior interests of the user. Our commercial implementation of this High-Quality News Aggregator is Neocortex News.

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- [13] https://en.wikipedia.org/wiki/Post-truth_politics
- [14] Scott Adams, Dilbert cartoonist and author of "Win Bigly: Persuasion In A World Where Facts Don't Matter" <https://www.youtube.com/watch?v=ReKIJvOJDrs> (14:52-15:43). "The truth is not as useful – I guess that's the best way to put it – it's not as useful as it should be, because it doesn't change people's minds. And the job of politics is often to change people's minds, their hearts, their emotions, what they care about, their priorities. So if you were to look at the types of things the President has said that didn't pass the fact-checking – and that's the way I'm going to prefer to say it – is, they are almost always Emotionally True. Or they are Emotionally Compatible with what his supporters are already thinking. So there is an Emotional and Directional Truth to what he does, that is independent from the facts being completely wrong."