



SOBER AND SELF-GUIDED NEWSGATHERING

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INTRODUCTION

This chapter addresses an underappreciated source of epistemic dysfunction in today’s media environment: true-but-unrepresentative information. Because media organizations are under tremendous competitive pressure to craft news that is

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in harmony with their audience's preexisting beliefs, they have an incentive to accurately report on events and incidents that are selected, consciously or not, to support an impression that is exaggerated or ideologically convenient. Moreover, these organizations *have to* engage in this practice in order to survive in a hypercompetitive news environment.¹

To help correct the problem, this chapter outlines new forms of newsgathering tools that leverage digital information to provide a sense of how representative (or not) any particular event may be. This contextualizes the news and leads to more *sober*—that is, less hyperbolic and reactive—interpretations of it. Newsgathering institutions can also become much more interactive so that a participant has the ability to easily find facts that they are confident will not be tainted from the strategic selection or cherry-picking of a news authority or intermediary. These tools will make newsgathering more *self-guided*.

I. THE PROLIFERATION OF TRUE-BUT-MISLEADING NEWS

Many beliefs circulating through American discourse at any given time are in some sense corrosive—to society, to personal health and safety, or to some other part of life. The path to these corrosive beliefs is tiled with true-but-misleading information. Although the American news landscape is marred by some wholly made-up stories (that the COVID vaccine includes trackers, for example), these falsities make up a relatively small set of corrosive beliefs. Most corrosive beliefs have some factual corroboration—some true anecdotes that undergird the beliefs. But the factually true anecdotes imply something larger that is not supported by more representative data.²

For example, vaccines are “dangerous” in the absolute sense. There are examples of side effects and even death caused by the COVID vaccines.³ But on a relative

¹ The economic pressure is sometimes referred to as “audience capture,” and it was on dramatic display in the publicly released text messages between Tucker Carlson and other Fox employees which revealed that the network needed to produce favorable coverage of Donald Trump in order to maintain their audience. Yassine Meskhout, *Fox News' Audience Capture Problem* (Mar. 6, 2023), available at <https://ymeskhout.substack.com/p/fox-news-audience-capture-problem>.

² This problem, which I'm summarizing as a proportionality problem, is similar to Barry Glassner's diagnosis of journalism problems in BARRY GLASSNER, *THE CULTURE OF FEAR* xiv–xvii, 26–29 (1999).

³ *Selected Adverse Events Reported After COVID-19 Vaccination*, CTRS. DISEASE CONTROL, <https://perma.cc/DJ4X-URSJ>.

scale they are safe—that is, they are much less dangerous than the risks from not vaccinating (for most people).⁴ Thus, the distorted beliefs that tend to emerge on the political right are the result of exaggerating the likelihood of vaccine risk or undervaluing the likelihood of severe illness and death from COVID among the unvaccinated, or both. The same criticism can and should be levied on the political left, too, based on the perceived risk of COVID to children. Children can, of course, contract and even die from COVID, but these risks are lower than the risks from other viruses like RSV that we have implicitly chosen to tolerate as a background risk.⁵ An unvaccinated child is at much lower risk of contracting COVID than a fully vaccinated adult.⁶ When the news focuses on child mortality from COVID or on vaccine danger, it does damage to the full truth.⁷ Beliefs about terrorism and police violence tend to suffer from a similar lack of scale and proportionality.

This is not a new phenomenon. Ashutosh Bhagwat’s chapter provides a reminder that the newspaper and broadcast gatekeepers in the 1990s were already shedding the journalism ethic of maintaining even the perception of a “view from nowhere.” Yochai Benkler and his coauthors provide some empirical evidence that news organizations that cater to a more conservative audience began to drift further to the ideological right when talk radio provided alternative channels for news and

⁴ *Id.*; Stanley Xu et al., *COVID-19 Vaccination and Non-COVID-19 Mortality Risk—Seven Integrated Health Care Organizations, United States, December 14, 2020 – July 31, 2021*, 70 *MMWR MORB. & MORTAL. WKLY. REP.* 1520 (2021). When combining the risk of death from COVID and Non-COVID causes, the vaccinated group has much lower mortality across all age ranges. See *CTRS. FOR DISEASE CONTROL & PREVENTION, RATES OF COVID-19 CASES OR DEATHS BY AGE GROUP AND VACCINATION STATUS*, <https://data.cdc.gov/Public-Health-Surveillance/Rates-of-COVID-19-Cases-or-Deaths-by-Age-Group-and/3rge-nu2a>.

⁵ Meike Meyer et al., *Morbidity of Respiratory Syncytial Virus (RSV) Infections: RSV Compared with Severe Acute Respiratory Syndrome Coronavirus 2 Infections in Children Aged 0–4 Years in Cologne, Germany*, 226 *J. INFECTIOUS DISEASES* 2050 (2022).

⁶ PUBLIC HEALTH ENGLAND, *COVID-19 VACCINE SURVEILLANCE REPORT: WEEK 36* at 15 (Sept. 9, 2021).

⁷ See, e.g., Edmund DeMarche, *New Zealand Links 26-Year-Old’s Death to Pfizer’s COVID-19 Vaccine, Reports Say*, *FOX NEWS* (Dec. 20, 2021), <https://perma.cc/U8P5-KPE3>; Noah Weiland & Erin Schaff, *At a Children’s Hospital, a Wave of Young Patients Struggling to Breathe*, *N.Y. TIMES* (Aug. 27, 2021). One note: I use “news” throughout this chapter in an expansive and entirely descriptive way: it is whatever the news industry produces, as well as whatever individuals consume that they think is “news.” Thank you to Erin Carroll for pointing out that scholars who study the news often use a narrower definition that would require a certain amount of contextual accuracy.

discourse for an audience that was alienated by the mainstream news.⁸ 24-hour cable news provided even more opportunity for alternative content. Increased competition gave each news organization increased economic incentive to highlight facts that are consistent with, or at least not offensive to, their audience's worldview. Given that any audience is only human and susceptible to political tribalism, the problem of unrepresentative and cherry-picked facts is utterly unsurprising.

When there were only a few gatekeepers, there were fewer incentives to cater to political tribalism in this way.⁹ Even if the two newspapers in a town had traditionally catered to different political audiences, *both* papers had incentive to stay close to the median audience member so that they might win over readers from the other paper. Without serious competition on the far left or right that could outflank the paper, catering to the middle had no economic disadvantages. But when more news organizations compete for audience, the economic strategy changes.¹⁰ Facts will predictably be picked to match the interests and priors of more fractured, niche audiences.

Quite understandably, news organizations of longstanding status like the *New York Times* are defending their turf and claiming identity as a uniquely trustworthy source for truth without reckoning with the fact that their survival depends on supplying facts that cater to the short-term preferences of their readers. Breitbart is just as understandably trying to discredit the *New York Times* and establish itself as a better, more legitimate gatekeeper for facts. Breitbart's insurgency is carried out without acknowledging that *its survival, too*, depends on supplying facts that cater to its audience (which demands a desecration of established, elite gatekeepers). These two sources of news are not at all equivalent, but that says more about the beliefs and demands of the audiences that each has been able to attract than it does about an enduring commitment to delivering facts that accurately represent reality.

Modern journalism fails to meet a duty of proportionality. Proportionality

⁸ YOCHAI BENKLER ET AL., NETWORK PROPAGANDA 313–29 (2018).

⁹ This is consistent with the “Hotelling theory” that explains why it makes sense for multiple competitive producers to sometimes make very similar products. Harold Hotelling, *Stability in Competition*, 39 J. ECON. 41 (1929).

¹⁰ Matthew Gentzkow & Jesse M. Shapiro, *Competition and Truth in the Market for News*, 22 J. ECON. PERSPECTIVES 133 (2008); Andrea Blasco & Francesco Sobbrino, *Competition and Commercial Media Bias*, 36 TELECOMM. POL'Y 434 (2012); Matthew Gentzkow et al., *Media Bias in the Marketplace: Theory*, NAT'L BUREAU OF ECONOMIC RES. WORKING PAPER 19880 (2014).

would require that the decision to report about a threat and the manner in which it is reported are informed by how risky it is relative to other widely known and understood threats. Proportionality goes to subtext—whether a particular story is worthy of a reader’s attention given other concerns that might deserve the reader’s focus. *The Elements of Journalism* devotes a chapter to making the news “Comprehensive and Proportional,”¹¹ but this element is in direct tension with the economic viability of the modern newsroom.

The Society of Professional Journalist’s Code of Ethics does not even require proportionality in its list of duties for seeking truth. Instead, the search for truth is described in narrow terms of factual accuracy as well as more abstract terms like being “vigilant and courageous about holding those with power accountable” and “boldly tell[ing] the story of the diversity and magnitude of the human experience.”¹² These objectives actually exacerbate the problem by pushing journalists to prioritize the unusual or anti-authority stories. They are in tension with the sort of corrective I will propose here—encouraging the use of tools that allow readers to understand in a statistical way whether an event is an aberration or not.

II. MORE ACCESS TO TRUE-BUT-MISLEADING NEWS IN THE INTERNET AGE

The Internet generally and social media specifically has increased the prevalence of true-but-misleading news dissemination. This is so for several reasons:

- (1) **Source material.** The Internet provides abundant information from which events (especially bad events) can be selected. Moreover, the search costs for any particular type of (bad) event are also much lower. A person who proactively searches for cases where a child died of COVID or where an adult died from the vaccine will find them, and find them easily. Thus, the costs of gathering selective evidence are dramatically lower. To be sure, even in the era of the industrialized media, the facts that people encountered were non-random and were selected based on a number of factors and constraints, but it was *more random* than an information environment

¹¹ BILL COVACH & TOM ROSENSTIEL, *ELEMENTS OF JOURNALISM* 282 (2021).

¹² SOC’Y OF PROF. JOURNALISTS, SPJ CODE OF ETHICS (Sept. 6, 2014), <https://perma.cc/6DC6-U65K>. *The Elements of Journalism* also emphasizes emphasizing the voice of the less powerful, which could be a de-biasing force to ensure that proportional threats to marginalized groups are fairly reported, but it could just as well serve as a biasing force that overemphasizes a sense of threat that comes from the powerful.

that is all but defined by self-selection through functionality like search and tailored newsfeeds.¹³

- (2) **Even more competition between news producers.** Talk radio and the diversified array of channels on cable television may have begun the process of splintering the news industry, but the low costs of information distribution brought an explosion of online news producers that have intensified the competition and the pathologies that come along with news-as-a-consumable-good.
- (3) **Targeted news feeds.** Just as the search costs for finding evidence have declined, the costs of matching news to listeners has also been dramatically reduced by technology. This is especially true on social media, where newsfeeds wind up functioning as a sort of news aggregator for each individual. A social-media user's selection of friends and their history of clicks and reading time allow platforms to predict which types of stories the user is likely to read in the future. This is what Facebook does when it optimizes for "engagement." This is, in some ways, just a reiteration of point 2—intensified competition. Data-driven newsfeeds allow platforms to infinitely stratify the market and create niches the size of a single consumers.¹⁴ This optimization has been characterized by the *Wall Street Journal* and other news outlets as a needlessly sinister manipulation of its users,¹⁵ but it can be explained just as easily by competitive pressure: Facebook, too, needs to give users an experience that is engaging enough to keep them from switching to another activity or competitor.¹⁶
- (4) **Social pressure.** Social media also breeds epistemic conformity within groups and subcultures. A user who sees her friends posting news stories or anecdotes will naturally feel some social pressure to stay willfully blind

¹³ Thanks to Kyle Langvardt for crystalizing this point for me in the course of editing.

¹⁴ News organizations engage in hypertargeting too. For a full account of how automated bots are useful both as a sort of focus group tester at scale as well as for gathering new information that can become source material for a news story, see NICHOLAS DIAKOPOULOS, *AUTOMATING THE NEWS: HOW ALGORITHMS ARE REWRITING THE MEDIA* (2019).

¹⁵ Keach Hagey & Jeff Horwitz, *Facebook Tried to Make Its Platform a Healthier Place. It Got Angrier Instead*, WALL ST. J. (Sept. 15, 2021).

¹⁶ After all, Facebook's source of revenue is from advertising. If it loses eyeballs to *anything else*—not just to another social media site, but even to a different form of entertainment or leisure—it loses money. Thus, it is in a cutthroat competitive environment as well, in at least some respects.

to facts or context that contradict the tenor and political valence of the conversation she is seeing among friends.¹⁷ In other words, social media will sometimes pose a tension between a user's epistemic goals and her social ones, and the latter will sometimes win.

It is worth noting what is *not* on this list—the popular misdiagnoses. Algorithms do not override users' preferences and push them toward more extreme content. Empirical evidence consistently finds that the users' selection of friends and their responsive behavior, rather than algorithmic manipulation, explain what content is served and consumed.¹⁸ Nor are lightning-rod figures like Donald Trump, Alex Jones, and Tucker Carlson the ultimate causes of the current state of the news. They are symptoms and byproducts of a news market that rewards true-but-misleading information. Finally, American free speech jurisprudence is also not a major contributing factor, as the problems described here are to a great extent global phenomena. As Gilad Abiri recently said at the Yale Free Expression Scholars Conference, “the epistemic divide is everywhere [around the world.] Fox News is not. And the First Amendment is not.”¹⁹

Thus, the nuisance of selective evidence-gathering and true-but-misleading news is structural: It is generated easily in the digital information environment, and it is demanded by the listener and platform user in a hypercompetitive tournament for attention.

III. A NEW HUMAN EXPERIENCE: EVERY BAD THING ALL AT ONCE

My grandmother worked for the Food & Drug Administration shortly after it was created. Although she had a chemistry degree, most of her skills were underutilized and she spent her time inspecting for bug parts in canned food. When I was young, I asked my grandmother whether she was turned off of canned food since she knew how many bugs are accidentally included in them. She explained that it

¹⁷ Jane R. Bambauer, Saura Masconale & Simone M. Sepe, *Cheap Friendship*, 54 U.C. DAVIS L. REV. 2341 (2021).

¹⁸ Eytan Bakshy, Solomon Messing & Lada A. Adamic, *Exposure to Ideologically Diverse News and Opinion on Facebook*, 348 SCI. 1130, 1130 (2015); Mark Ledwich & Anna Zaitsev, *Algorithmic Extremism: Examining YouTube's Rabbit Hole of Radicalization* (2019), <https://perma.cc/KZ4G-3CE5>; Annie Y. Chen et al., *Subscriptions and External Links Help Drive Resentful Users to Alternative and Extremist YouTube Videos* (2022), <https://perma.cc/AK4A-WFLK>.

¹⁹ Gilad Abiri, Comments at the Free Expression Scholars Conference at Yale University (Apr. 30, 2022).

had the opposite effect—that she knows bug parts are rare and that in any case, they almost never cause any harm. I realized that the fear of eating bugs for her was similar to the fear of getting in a car accident for me. She saw bugs, but she saw many, many more cans. So she ate canned beans happily while I, haunted by the stories she told involving severed cockroach carcasses, approached every can with dread.

Consuming news on the Internet puts us in this sort of state with respect to nearly every type of mishap, misfortune, and failing. As a result, the Internet’s effect may be even greater than a linear progression in media competition would suggest on its own. Humans are hard-wired with high sensitivity to threats, and with heightened concern about small numbers of bad, unfamiliar outcomes.²⁰ The Internet provides access to *all* of the bad, unfamiliar outcomes.

Humans are not good at putting bad news into proportional perspective when they do not have direct experience of the baseline or background risk.²¹ In the Internet age, wisdom will require some means of acquiring that skill.

On this aspect of my formulation of the modern news problem, Martin Gurri’s book *The Revolt of the Public* has been exceedingly influential. Gurri explains that the high visibility given to every bureaucratic mistake or negative outcome has caused social-media users to lose trust in institutions and to demand a reckoning.²² Elites then fuel the fire by insisting that actually they *do* live up to super-human standards rather than attempting to defend their performance based on realistic assessments: “The fiction of extraordinary ambition and mastery has persisted, without irony, in our political language.”²³ The large gap between the rhetoric of excellence and the selective but highly salient evidence of failure revs up the instinct of

²⁰ Dean Mobbs et al., *The Ecology of Human Fear: Survival Optimization and the Nervous System*, 9 FRONTIERS NEUROSCI. 55 (2015).

²¹ Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCI. 1124, 1127 (1974) (discussing availability and salience heuristics).

²² MARTIN GURRI, *THE REVOLT OF THE PUBLIC AND THE CRISIS OF AUTHORITY IN THE NEW MILLENNIUM* 27–32 (2019).

²³ *Id.* at 226. On the other hand, a similar argument was made by Deborah Tannen in the 1990s, when the mechanism for cynicism and the destruction of institutions could not have been social media. See DEBORAH TANNEN, *THE ARGUMENT CULTURE: STOPPING AMERICA’S WAR OF WORDS* 77 (1998). However, there is a way to reconcile Tannen’s observations and Gurri’s. Tannen believes

the public to tear down the establishment. This instinct gets filtered through political tribalism, of course, with the Republican base setting their sights on expert agencies while the Democratic base focuses on institutions like law enforcement. But both camps stumble on a similar lack of awareness about trend lines, proportions, counterfactuals, and the limits on performance that constrain every institution.

News organizations have failed to provide the sort of information that would contextualize news and opinions for some topics like police violence, crime, COVID risks, and elections. They have no economic incentive to do so. But even if they wanted to provide context, traditional newsgathering practices cannot keep up with the sort of data that would offer proportionality and nuance on *every* topic, let alone do so consistently. Likewise, consumers of news do not yet have the appetite and skills to digest this sort of content even if it were available.²⁴

This leaves us in a pretty dark place. And yet, against this bleak backdrop, I believe there is reason for optimism. Every shock to the communications environment, from writing to the printing press to broadcast, has come with a tumultuous period of confusion, conflict, and—eventually—a new equilibrium.²⁵ Those new equilibria have often put demands on culture and education that in retrospect seem impossible. Imagine living shortly after the printing press had been invented and observing a population with nearly universal illiteracy. If you said, “We really need to teach everyone to read so that, in a few centuries, everyone will have a job and social life that depends on the sort of knowledge transmission that can really only happen through text,” you would be the town loony.

What comes next are some recommendations from a town loony.

that one-way communication (in other words, broadcast) breeds contempt. *Id.* at 240. However, even writing in the early phase of the Internet, she did not see communications innovations like email changing the dynamic of contempt. Email, and eventually blog comments and social media, may be more analogous to a quick succession of broadcasts than they are to face-to-face conversation.

²⁴ ERIK BRYNJOLFSSON & ANDREW MCAFEE, RACE AGAINST THE MACHINE: HOW THE DIGITAL REVOLUTION IS ACCELERATING INNOVATION, DRIVING PRODUCTIVITY, AND IRREVERSIBLY TRANSFORMING EMPLOYMENT AND THE ECONOMY 7 (2012).

²⁵ BRIN, *infra* note 37, at 5; RAY DALIO, PRINCIPLES FOR DEALING WITH THE CHANGING WORLD ORDER: WHY NATIONS SUCCEED AND FAIL 3 (2021) (describing the “big cycle” of peaceful and prosperous periods followed by depressions and revolutionary periods).

IV. PREDICTIONS AND SOLUTIONS (GRADE ME IN 200 YEARS, PLEASE)

Free speech luminaries like Oliver Wendell Holmes used the scientific method as an analogy to First Amendment theory.²⁶ If everyone has a chance to propose a hypothesis, the best ideas, that have the closest relationship to reality, will win out. They will replicate more often when listeners test them. This process, even when it is working, is filled with error. Scientists generally understand this and tolerate the sort of errors that lead down a messy and indirect path toward progress.

The comparison between free speech and the scientific method is aspirational, of course, and even scientists will occasionally abandon their loyalty to the methods when political, social, and psychological factors predominate.²⁷ Nevertheless, the very fact that a growing proportion of the population—a larger one than ever before in history—work in fields that require training in science and statistics suggests that facility in statistical reasoning may become as widespread and commonplace as reading is today. And even if our work does not require it, the sheer ubiquity of data may cause news consumers to prefer a different sort of news: one that situates a particular event into a larger trend or distribution in order to make sense of it.

We should not be interested in rebuilding the sort of news institutions that were profitable and powerful in the 20th century. It would be a fool's errand to even attempt such a task, since consumers with democratized access to information about sensational events will not tolerate a gatekeeping organization that tries to control attention.²⁸ Cheap access to an ocean of information, such as that which we have now, calls for a different form of newsgathering: one that gives consumers the au-

²⁶ Thomas Healy, *Holmes's Other Metaphor*, 51 SETON HALL L. REV. 1 (2020); Joseph Blocher, *Free Speech and Justified True Belief*, 133 HARV. L. REV. 440 (2019); Gary L. Francione, *Experimentation and the Marketplace Theory of the First Amendment*, 136 U. PENN. L. REV. 417, 422 (1987).

²⁷ THOMAS KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* (1962); Dan M. Kahan, *Ideology, Motivated Reasoning, and Cognitive Reflection*, 8 JUDGMENT & DECISION MAKING 407 (2013).

²⁸ Thus, I disagree with Martha Minow's recommendation to rebuild local journalism. See MARTHA MINOW, *SAVING THE NEWS: WHY THE CONSTITUTION CALLS FOR GOVERNMENT ACTION TO PRESERVE FREEDOM OF SPEECH* 101–44 (2021). Even if local journalism is a good source of information (which it may not be, relative to the sort of journalism that could be developed through Big Data), consumers won't be interested.

tonomy to choose which topics and phenomena to explore, but also provides information and incentives to pursue those inquiries in a manner that avoids exaggeration and sensationalism. Newsgathering of the future should be democratized, and it should also be sober.

To some extent, the major Internet platforms have already created the means to democratize newsgathering by creating tools for users to actively (e.g., Google Search) or passively (e.g., Facebook's Feed) engage with information that is most relevant to their interests. However, even these platforms, significant as they are, do not provide easy access to raw data or representative information, even to those who proactively want to find it. They do not provide proportionality at the micro level—that is, within a given topic of interest, they do not provide enough means to contextualize the information we see to understand whether the information is representative of real trends. For example, a user who wants to check their beliefs about minimum wage and, as a first cut, wants to know whether the trend in creation of jobs in a particular state changed after the passage of a minimum-wage law would have a difficult time finding these figures. Try it yourself. In my case (searching for Arizona), the most relevant information I could find came in the form of highly mediated opinion pieces that use some evidence to corroborate their point of view, but not the sort of raw data I was looking for. Thus, despite the seismic shift in access to information that companies like Google have created, easy access to the *right* information is still lacking.

In terms of the sobriety of the news, Internet intermediaries have done little to lower the temperature of debates or to incentivize more nuanced and proportionate reactions to events. Doing so would put the intermediary at a competitive disadvantage in the short run, and possibly in the medium and long run as well.

Thus, there is an opportunity and a need for government, academic, and non-profit institutions to create better newsgathering tools that can interoperate with news organizations and eventually discipline them.

V. TOOLS FOR SOBER, SELF-GUIDED NEWSGATHERING

Complex society cannot function without intermediaries and interpreters. But the intermediaries who win the competition for user trust will be picked by a public that, right now, is exceedingly skeptical and time-strapped. Intermediaries of the future must prioritize ease of use and tamp down resistance from political bias.

Consumers want something else, too: They want to win arguments, or at least feel like they have a chance of having a fair argument, with friends and family. This,

too, should be taken into account in a responsible newsgathering model as well.

The most promising tools for renovating the newsgathering process are those that create frequent feedback loops so that beliefs are constantly tested and adjusted.²⁹ The news should use interactive or gamified elements to draw readers into sober, self-guided newsgathering practices. What follows is a non-exhaustive list of self-directed newsgathering mechanisms that have at least some empirical support for their value.

A. *Confronting Assumptions*

What proportion of U.S. residents are immigrants? And what proportion of those immigrants are *undocumented* immigrants?³⁰

While it is possible to have a productive conversation and debate about U.S. immigration policy without knowing the answers to those questions (as well as many others), the political beliefs that currently drive the terms of debate implicitly rely on an assumption about the answers to them. The belief that most Mexican-Americans entered the country illegally, for example, or that undocumented immigrants are a major source of job loss, might be undermined by the statistics.

Interactive news media can begin a session by asking readers basic questions like these related to a topic, and can also provide a user interface that crowdsources proposed intro questions from users. *The New York Times* already uses some gamified news quizzes along these lines that challenges readers to see how much they know about, for example, the human reproductive system as a gateway to better understanding news about the overturning of *Roe v. Wade*.³¹

Tools that guide a user to make their factual assumptions explicit (and to correct them, where they are wrong) are valuable for two reasons. First, they provide a

²⁹ Erin Carroll's chapter in this collection describes community journalism, a promising mechanism for feedback loops that differs from the more atomistic solutions I propose here. See Erin Carroll, *Beyond the Watchdog: Using Law to Build Trust in the Press*, 3 J. FREE SPEECH L. 57 (2023).

³⁰ Out of 324 million U.S. residents, 46 million are immigrants. *Table 1.1: Population by Sex, Age, Nativity, and U.S. Citizenship Status*, U.S. CENSUS BUREAU, FOREIGN BORN: 2019 CURRENT POPULATION SURVEY DETAILED TABLES (2019), <https://perma.cc/TJB8-U6LK>. 11.4 million of the immigrants are undocumented. DEP'T OF HOMELAND SECURITY, ESTIMATES OF THE UNAUTHORIZED IMMIGRANT POPULATION RESIDING IN THE UNITED STATES: JANUARY 2015–JANUARY 2018 (2021), <https://perma.cc/K7GA-4WW2>. Thus, the answers are 14% and 24% respectively. And only 3.5% of U.S. residents are undocumented immigrants.

³¹ *Can You Answer These Sex Ed Questions? A Post-Roe Quiz*, N.Y. TIMES (July 7, 2022).

baseline to contextualize news stories. Second, research on the phenomenon known as “the illusion of explanatory depth” suggests that this sort of exercise primes news consumers to be more cautious about their own expertise and less confident in their political convictions.³² Of course, the preparatory-quiz questions can be exploited to solidify factual understandings that help one side of a debate without solidifying the facts that are most useful to the other side of it, so the crafting and curation of the questions will require a credible mechanism for neutrality or input from the reader about what facts they think are most important in order to come to an opinion on the topic.

B. Defining Mind-Switching Facts

Consider your belief about whether access to charter schools is, on balance, good or bad for a community. Once you have your position in mind, do the following exercise:

Write out three facts (or sets of facts) any one of which, if true, would cause you to change your mind about this topic (assuming everything else stays the same).

This exercise is useful for three reasons: First, it focuses the user’s attention on the assumptions that are necessary for sustaining their belief, and therefore points to subsequent questions that would help them either corroborate or abandon those beliefs. Second, it pre-commits the user to the adage “If the facts change, I change my mind. Don’t you?” If, down the road, credible reporting finds that one of the mind-switching conditions is met, there would be a cost on a user (in cognitive dissonance, at least, if not reputation) who stubbornly insists on keeping their position anyways. Third, the exercise will almost always lead the user to think about the big picture rather than anecdotes. In other words, a person who is generally against charter schools will not say “I’ll change my mind if there is a single example of an underprivileged child attending a charter school and then doing well in life,” nor will he say “I will change my mind if there is an example of a public teachers union that helps a bad teacher keep his job.” Focusing on the big picture will allow the user to tell a debate partner to not bother with the anecdotes because anecdotes do not require a concession. At the same time, the user will become aware that for the same reasons, an example of a single poorly-run charter school with bad outcomes will not move the needle for a debate partner who is generally in favor of

³² Leonid Rozenblit & Frank Keil, *The Misunderstood Limits of Folk Science: An Illusion of Explanatory Depth*, 26 COGNITIVE SCI. 521 (2002).

charter-school programs.

1. Graded predictions and wagers

What probability would you give each of the following events?:

- Democrats will win the presidency and will win or retain majorities in both the U.S. House and Senate in November 2024: ___%
- Inflation in the U.S. will average under 3% in 2023 per the PCE price index: ___%
- China’s GDP growth will be above 5% for the year 2023: ___%
- 20% of U.S. adults will receive a vaccination or booster against COVID at some point during the calendar year 2024: ___%
- The WHO will designate another virus or variant of concern by the end of 2024: ___%
- A peace agreement between Ukraine and Russia will be in place by the end of 2024: ___%

Many blogs and news outlets are designing annual-predictions lists of this sort. Most of the categories here, for example, were borrowed from a list published on Vox.³³ Grading, which can be done by the user or by the news venue, is necessarily crude since the non-occurrence of an event that a user assigned a high probability to is not necessarily an indication of error. Short lists like this one are typically graded by converting the predictions to binary predictions (treating predictions above 50% as a 1 and below 50% as 0) and then comparing them to outcomes. Longer lists can be graded by dividing predictions into tranches (e.g., 0–20%, 21–40%, 41–60%, 61–80%, and 81–100%) and then evaluating whether the items in each tranche occurred close to {10%, 30%, 50%, 70%, and 90%} of the time respectively.³⁴

The benefits of a periodic prediction exercise are similar to the benefits of the “confronting assumptions” tool because users can see that some beliefs—previously strongly held ones—turned out to be unfounded. But also, the exercise unearths for users the need to foster dispassion and to think in longer time-horizons.

³³ Dylan Matthews et al., *22 Things We Think Will Happen in 2022*, VOX (Jan. 1, 2022), <https://perma.cc/WL5J-FGTQ>.

³⁴ This grading technique is adopted in the book *The Scout Mindset*. JULIA GALEF, *THE SCOUT MINDSET: WHY SOME PEOPLE SEE THINGS CLEARLY AND OTHERS DON’T* 73–90 (2021).

Closely related to predictions are wagers, where individuals place bets about what is true or what will happen. Prediction markets like PredictIt allow individuals to place bets on certain social and political predictions. Their predictions outperform many pollster and pundit predictions because they aggregate knowledge across multiple people who have skin in the game.³⁵ That makes their reported odds a good source of aggregated news in and of itself. But participating in the prediction markets can create feedback loops that train users to become better at prediction by aligning their beliefs with the most valid evidence. With appropriate limits on how large a wager can be or how much any person can expose themselves to financial risk, prediction markets may be a form of betting that governments should actively encourage.

In addition to centralized prediction markets, which are already well on their way to becoming established institutions, wagers may have a role to play in decentralized contexts as well. For example, imagine if in the first months of the COVID pandemic, a Twitter user could have responded to a tweet that said “COVID isn’t any more deadly than the flu” by pressing a “friendly wager” button. This would allow the user to define terms for a counterprediction (e.g., “By the end of the year 2020, the CDC will attribute more deaths to COVID than the average annual death count from flu from 2014–2019” and with a resolution date set for January 15, 2021). If the author of the original tweet accepted the friendly wager (either for a small amount of money or simply for public bragging rights), the results would be resolved on January 15. If the author of the original tweet provides an alternative wager (e.g., one that offers similar terms but with a different source of authority or a different resolution date), the wagerer will have the opportunity to take or reject the alternative. If the author neither accepts nor counters the wager proposal, the fact that there was a wager left hanging would be publicly visible.

This style of decentralized wager runs some risks. It could amp up the sort of black-and-white thinking and humiliation-style argumentation that already pervades online culture. On the other hand, as David Brin has argued, the impulse for machismo and shouting down “enemies” shows no sign of receding, and even-

³⁵ Thomas Heath, *These Gamblers Are Putting Money on the Outcome of the Impeachment Inquiry*, WASH. POST (Nov. 13, 2019); Eli Dourado, *Let’s Become a Nation of Bettors: How Prediction Markets Can Make the World More Rational*, CTR. FOR GROWTH & OPPORTUNITY (Aug. 21, 2020), <https://perma.cc/BE4A-4SH9>.

keeled fact-checking exercises have been futile. (Indeed, fact-checkers are often another target of ridicule and contempt.³⁶) Wagering helps turn aggressive culture against itself and gives a way for “fact people” to win on an ideologue’s own turf.³⁷

2. Simulations

If you visit Shinyapps.io, you can find a COVID policy simulator that allows users to select a geographic area, choose a COVID variant, select a vaccine effectiveness, and then select from four interventions (e.g., stay-at-home orders) for variable time periods. The simulator will then provide estimates of the trends in deaths, cases, hospital beds available, and several other COVID-related health outcomes. Unfortunately, the simulator does *not* provide estimates of the economic and health impact of the selected interventions, and does not provide an option to alter the creator’s choice of R-value or type of behavioral precautions. This example shows that the bias of a simulator’s design team can easily diminish the simulator’s potential to be a convincing teaching tool. But if simulators were a major part of news consumption, different organizations and groups would compete to create the best—the most widely accepted—simulator, and that one would have to provide a more complete set of inputs, rules, and predicted outputs.

Interactive media that allows the user to set certain starting facts and define the rules of cause-and-effect can discover that even *their own beliefs* lead to implications that are different from what they had assumed. For example, in the case of the COVID precautions game, users who play around with the simulator will discover through trial and error that there is an inescapable tradeoff between costs of COVID and costs of the precautions.³⁸ Players (and governments) can do worse than the pareto frontier, but they cannot do better. This is a valuable realization because it injects realism into the meaning of government success and failure. That is, neither a decline in GDP *nor* a high COVID death count are evidence, in and of themselves, that the government has been incompetent.

³⁶ Ben Lyons et al., *How Politics Shape Views Toward Fact-Checking: Evidence from Six European Countries*, 25 INT’L J. PRESS/POL. 469 (2020); Jonathan Walter et al., *Fact-Checking: A Meta-Analysis of What Works and for Whom*, 37 POL. COMM’N 350 (2020).

³⁷ DAVID BRIN, *POLEMICAL JUDO: MEMES FOR OUR POLITICAL KNIFE-FIGHT* 56–57, 248–53 (2019) (discussing fact people and use of wagers, respectively).

³⁸ Jan Kulveit, *On the Dilemma Between Lives and Economy: What Can Be Illustrated in the Pandemic Simulation Covidgame.info*, BOUNDEDLY RATIONAL NOTES ON COMPLEX SYSTEMS (July 8, 2021), <https://perma.cc/W9PM-8UFN>.

VI. DATA REPOSITORIES AND DIGITAL ALMANACS: AN INFRASTRUCTURE FOR SOBER AND SELF-GUIDED NEWSGATHERING

Journalism during the industrial era typically relied on reporters to collect facts and synthesize them into a digestible story or account. But it is not necessary, and in fact not ideal, to have the same institution perform both of these tasks. To the contrary, institutions set up to collect information could be more trustworthy if they were independent from the individuals and groups that synthesize the information into news items.

The tools I have described above facilitate a democratic form of newsgathering of a particular sort—the kind that synthesizes and contextualizes information from a large number of events. Generating the raw data for these tools is an entirely different sort of newsgathering—the building and maintaining of data repositories. All of the synthesizing tools described above will depend on data sources that are trusted by a large majority of individuals to be acceptably accurate.

Thus, while existing media organizations should supplement the news reporting that they offer with the interactive tools I have described, it will be increasingly important to create new institutions that simply collect and collate data about nearly every topic. These data repositories can also publish “almanacs” that present the data through a series of tables and graphs that are most likely to be of interest to users. They can also create query systems or user interfaces that provide access to deidentified microdata.

Some such organizations exist already. The Census Bureau, the Bureau of Justice Statistics, and the Bureau of Labor Statistics all serve the core purpose of providing multiuse data that can shed light on a wide variety of questions, and they provide almanacs on various topics. Non-government repositories, such as NORC or Our World in Data also provide models for the sorts of data resources that will be necessary to encourage and satisfy a statistically literate population. Google and other for-profit companies occasionally enable public access to some data too.³⁹ But extant organizations offering public access to data are quite limited in several ways. First, compared to the richness of data that large corporations and the government have access to, they are poor in quality. Attempts to make them more rich and more accessible are mired in controversy around the potential risk that people described

³⁹ GOOGLE TRENDS, <https://trends.google.com>; META TRANSPARENCY REPORTS, <https://transparency.fb.com/data/>.

by the data may be reidentified or harmed. The Census Bureau, for example, currently takes a zero-tolerance approach to these risks, and as a result sacrifices a lot of public benefit that could result from greater access to Census statistical data.⁴⁰ To capture the value of pooled data, data repositories need to be encouraged to use a combination of technical and legal protections to keep risk low, and policymakers and the public need to accept some risk in exchange for the benefits of a data commons.

Another problem is a lack of trust in data repositories that are in fact trustworthy.⁴¹ While federal statistical agencies and large research-data aggregators have not yet been doused in the cynical acid that has scarred many other institutions, they could be once they are used to refute a major talking point by Team Red or Team Blue. However, this may be avoidable if the data repository is expansive enough to contain data that support statistics that *both* sides of the spectrum would want to cite.⁴² Neither side will want to tarnish a data source that could help them score points in the next argument. Also, in theory, accusations about the unreliability or corruption of a data source could be subjected to independent audits by a source that most individuals trust (including crowdsourcing).⁴³

VII. IF YOU BUILD IT, WILL ANYONE COME?

I confess this chapter has a contradiction. I started by explaining that traditional news media and Internet platforms serve sensational, non-representative information because people are not interested in sober, representative news. If this is so, why would I expect anybody to use the newsgathering and sense-making tools I've described? Am I not fighting against human nature?

⁴⁰ Timothy B. Lee, *Why the 2020 Census Has 9 Fake People in a Single House*, FULL STACK ECON. (Mar. 7, 2022), <https://perma.cc/3RSF-9256>.

⁴¹ GURRI, *supra* note 22, at 390; BRIN, *supra* note 37, at 249 (this is the “Sez You” problem).

⁴² For example, the same Bureau of Justice Statistics provides evidence that hate crimes are up and crimes against peace officers are down (useful for Team Blue when showing that there is no reason for an uptick in use of force by police officers against black and minority communities), but it also shows that a disproportionate share of violent crimes are committed by Black men (useful for Team Red when arguing that differences in the rates of arrest or uses of force by race might be attributable to differences in the baseline risk of violence for each group). See BUREAU OF JUST. STAT., LAW ENFORCEMENT OFFICERS KILLED AND ASSAULTED, 2019—TABLES (2020), <https://perma.cc/6R5Y-A4DT>.

⁴³ ASHUTOSH BHAGWAT, OUR DEMOCRATIC FIRST AMENDMENT 112–18 (2020).

I have three tentative responses, and they may all be wrong:

First, some of the tools (like wagers) are designed to tap into the rhetorical food fight and steer the combatants—us, basically—towards a more fact-based battle.

Second, an untapped demand for these newsgathering tools may arise if the tools were easier to use and free of charge. It may be that these sorts of resources do not exist because they are expensive to build and maintain, and cannot be expected to capture the benefits. After all, a data repository loses a lot of its value as a tool for public discourse if it requires each user to pay a subscription cost, because then those users cannot direct others to the resource for verification. In other words, the new newsgathering tools I've described here may have the economic qualities of a classic public good, and will therefore need money and energy from the government or from foundations in order to get off the ground.

Third, there may be something to the controversial theory that the increased supply of a product can cause an increase in the demand for it: If democratic, sober newsgathering is made available, people may over time develop a taste for it and value it highly enough to actually pay for it even if they wouldn't do so right now.

CONCLUSION

The New York Times recently won a Pulitzer Prize for its reporting on “a disturbing pattern of fatal traffic stops by police.”⁴⁴ The anchor story for the series described the last moments of fatal encounters with police during traffic stops. It then explained that “over the past five years, a New York Times investigation found, police officers have killed more than 400 drivers or passengers who were not wielding a gun or a knife” during pursuits that began with routine traffic stops.⁴⁵ More than 300 of these involved stops that progressed to a suspect flight or car chase.⁴⁶ The article rejects the claim that police officers involved in these traffic stops had any reason to fear risk to their own life or safety. “Of the roughly 280 officers killed on duty since late 2016, about 60 died—mostly by gunfire—at the hands of motorists who had been pulled over. . . . In fact, because the police pull over so many cars and trucks—tens of millions each year—an officer’s chances of being killed at any vehicle stop are less than 1 in 3.6 million”—a risk that the article

⁴⁴ THE 2022 PULITZER PRIZE WINNER IN NATIONAL REPORTING, <https://perma.cc/K92F-D9DS>.

⁴⁵ David D. Kirkpatrick et al., *Why Many Police Traffic Stops Turn Deadly*, N.Y. TIMES (Nov. 30, 2021).

⁴⁶ *Id.*

goes on to call “statistically negligible.”⁴⁷

Personally, I agree that the risk of officer safety is small enough that in a typical traffic-stop scenario, the police should harbor no concern for their personal safety. Police should not be trained to think that every traffic stop is a risky encounter. But news consumers who watch Fox will notice that the risk to unarmed drivers is as “statistically negligible” as the risk to armed police if that term is applied consistently. After all, the numbers of unarmed drivers killed by police are within the same order of magnitude as the numbers of police killed by drivers.⁴⁸ Thus, the implication of the article—that every traffic stop is a vector for danger and police abuse—is also misleading. The credibility of the paper (and the Pulitzer for that matter) will remain low among the Fox audience as long as news stories appear to be aggregated in a way designed to fit a particular worldview and to avoid information that could undermine that view. And it goes without saying, I suspect, that Fox News and other news media catering to a conservative viewpoint have the same flaw.

Newsgathering tools developed today should look nothing like the tools of the past. News in the 20th century was riddled with true-but-unrepresentative stories that provided fertile ground for paranoia, distrust, nihilism, and political dogma. These problems metastasized on the Internet, but the flaw is foundational. That flaw is the over-reliance on stories that provide a misleading sense of real trends.

In an information-scarce environment, every true anecdote about a tragedy or mistake was helpful for assessing risk and making plans. Even noisy information was better than the alternative. But in an information-rich environment, when nearly every possible claim has some true-but-misrepresentative examples as support, the ultimate objective of knowledge must be separated from the anecdote-driven facts that have constituted “the news” for centuries. Fact-checking a story is a necessary but insufficient requirement for a news system that will help the public

⁴⁷ *Id.*

⁴⁸ Moreover, readers who are not inclined to believe that police officers pose a high risk to residents are also likely to see trends that run against the narrative of the article, since police-caused killings have remained steady while homicides targeting the police have increased. *Compare Fatal Force*, WASH. POST, <https://perma.cc/RHE7-9BXZ>, with Emma Tucker & Priya Krishnakumar, *Intentional Killings of Law Enforcement Officers Reach 20-Year High, FBI Says*, CNN (Jan. 13, 2022), <https://perma.cc/NY7C-QPQJ>. It is also not clear that the denominator chosen (*all* traffic stops) is appropriate since the risk, to both police officers and drivers, is much higher under conditions where a driver refuses to pull over, for example. These cases also involve greater risk to the general public.

converge on accuracy. The 21st century and beyond will need news institutions that give users autonomy in their explorations of the news and the context to form beliefs and argue with each other in a statistically valid manner.

