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Chemtrails and Solar Geoengineers: Governing Online Conspiracy Theory Misinformation

Charles R. Corbett

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Chemtrails and Solar Geoengineers: Governing Online Conspiracy Theory Misinformation

*Charles R. Corbett**

ABSTRACT

As greenhouse gases mount, interest in unorthodox proposals to limit warming temperatures has grown. Solar geoengineering is one idea: interventions in the atmosphere that would cool the Earth by reflecting away a small percentage of incoming sunlight. Inspired by global cooling observed after volcanic eruptions, it seems solar geoengineering could be technically quick and simple to implement, but rather imperfect as climate policy.

Public consideration of the technology, however, is blighted by a surreal problem: the online popularity of baseless “chemtrail” conspiracy theories. Chemtrailers claim covert solar geoengineering programs are already underway and polluting the environment with toxic pollutants, as evidenced by aircraft contrails in the sky. The theory is completely false. But belief is surprisingly widespread, enabled by content dissemination practices of social media companies and strong legal protections for online speech.

This Article assesses legal obstacles to regulating chemtrail misinformation and proposes responses that work within prevailing norms and laws governing online speech. It explains how chemtrail content complicates public deliberation on solar geoengineering and, by extension, hurts the legitimacy of research activities. It also sharpens the general contributions of misinformation scholarship by applying them specifically to chemtrail content. It concludes with recommendations on how to limit chemtrail misinformation’s spread and impact. Reckoning with climate change, geoengineering, and online misinformation is a multigenerational

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project. Legal and policy analysis must accordingly adopt a long-time horizon when devising regulatory responses.

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I. INTRODUCTION

Solar geoengineering describes a set of proposed technologies that would limit the harms of climate change by altering Earth's flows of incoming and outgoing solar energy.¹ Of these proposals, stratospheric aerosol injection is the most researched and widely discussed, though many basic technical questions remain unexplored.² A stratospheric aerosol injection program would spray a reflective aerosol high above in the atmosphere, perhaps using aircraft or balloons.³ While the dispersed aerosol droplets remain suspended in the stratosphere, they would reflect a small portion of incoming sunlight back out into space, producing a cooling effect across the planet.⁴ Stratospheric aerosol injection takes inspiration from episodes of global cooling observed after volcanic eruptions, especially the 1991 eruption of Mount Pinatubo.⁵ That scientists have observed such cooling in the past is one of the reasons some are so confident that stratospheric aerosol injection could work as promised. But much scientific research would be needed for decision makers to reach an informed decision on whether to develop, let alone deploy, the technology.

The most challenging problems posed by solar geoengineering are not technical or scientific, but rather "social, ethical, legal and political."⁶ Over the last fifteen years or so, a new area of academic literature, "geoengineering

1. Eli Kintisch, CLIMATE ENGINEERING AND THE LAW: REGULATION AND LIABILITY FOR SOLAR RADIATION MANAGEMENT AND CARBON DIOXIDE REMOVAL 28 (Michael B. Gerrard & Tracy Hester eds., 2018). These proposals are also referred to as "geoengineering" or "climate engineering" technologies.

2. Douglas G. MacMartin et al., *Geoengineering with Stratospheric Aerosols: What Do We Not Know After a Decade of Research?*, 4 EARTH'S FUTURE 543, 543 (Nov. 2016).

3. An aerosol is simply a number of particles or droplets of liquid suspended in a gas. Kintisch, *supra* note 1, at 29–30.

4. *Id.*

5. See David W. Keith, *Photophoretic Levitation of Engineering Aerosols for Geoengineering*, 107 PROC. NAT'L ACAD. SCI. 16,428, 16,428 (2010) (discussing environmental impacts of sulfur aerosols released by Mount Pinatubo).

6. ROYAL SOC'Y, GEOENGINEERING THE CLIMATE: SCIENCE, GOVERNANCE, AND UNCERTAINTY xi (Sept. 2009); see also *id.* at x ("[T]he large-scale adoption of Solar Radiation Management methods would create an artificial, approximate, and potentially delicate balance between increased greenhouse gas concentrations and reduced solar radiation, which would have to be maintained, potentially for many centuries. It is doubtful that such a balance would really be sustainable for such long periods of time, particularly if emissions of greenhouse gases were allowed to continue or even increase.").

governance,” has sprung up to identify and begin answering these questions.⁷ A topline finding of the governance literature concerns public engagement and communications. In short, building an informed public discourse on geoengineering is fundamental to the legitimacy of research and of potential development.⁸ Without informed public deliberation, there can be no genuine democratic processes to guide oversight and decision-making.⁹

Solar geoengineering researchers, however, face a surreal challenge when it comes to building an informed public discourse: the popularity of chemtrail conspiracy theories online. Chemtrail conspiracy theorists claim that contrails, the plumes of water vapor condensation left behind by aircraft engines (the “trails”), are not made of water vapor at all, but rather poisonous chemicals or covert geoengineering agents (the “chems”).¹⁰ The claims of these “chemtrailers” have been debunked by scientists,¹¹ public-facing fact-checking organizations,¹² and at least one court,¹³ but belief in the conspiracy

7. Janos Pasztor, *The Need for Governance of Climate Geoengineering*, 31 ETHICS & INT’L AFF. 419, 425 (2017) (stating a 2006 article by Nobel laureate Paul J. Crutzen’s “broke that taboo” on research of “geoengineering techniques”).

8. See OXFORD GEOENGINEERING PROGRAMME, *Oxford Principles: The Principles*, <http://www.geoengineering.ox.ac.uk/www.geoengineering.ox.ac.uk/oxford-principles/principles/index.html> [https://perma.cc/5S9B-NKB2] (last visited July 19, 2020) (Principle 2, discussing the need to “notify, consult, and ideally obtain the prior informed consent of[] those affected by research activities”).

9. See Marion Hourdequin, *Climate Change, Climate Engineering, and the ‘Global Poor’: What Does Justice Require?*, 21 ETHICS, POL’Y & ENV’T 270, 273 (2018) (proposing a “trivalent” model of justice for geoengineering including “distributive, participatory, and recognitive dimensions” of justice); see also Marion Hourdequin, *Geoengineering Justice: The Role of Recognition*, 44 SCL., TECH. & HUM. VALUES 448, 450–53 (2019) (elaborating on recognition justice and participatory parity); and David E. Winickoff, Jane A. Flegal & Asfawossen Asrat, *Engaging the Global South on Climate Engineering Research*, 5 NATURE CLIMATE CHANGE 627, 627 (2015).

10. E.g., GEOENGINEERING WATCH, *Geoengineering Introduction Letter*, <https://www.geoengineeringwatch.org/geoengineering-introduction-letter/> [https://perma.cc/5S9B-NKB2] (last visited July 19, 2020).

11. Christine Shearer et al., *Quantifying Expert Consensus Against the Existence of a Secret, Large-Scale Atmospheric Spraying Program*, 11 ENVTL. RES. LETTERS no. 084011 8 (2016).

12. E.g., Kim LaCapria, *NASA Lithium Chemtrails Conspiracy*, SNOPE (Apr. 21, 2016) (concluding reports by conspiracy theory websites that “NASA admitted to dosing Americans with airborne lithium” were false). A “false” rating by Snopes “indicates that the primary elements of a claim are demonstrably false.” SNOPE, *Fact Check Ratings*, <https://www.snopes.com/fact-check-ratings/> [https://perma.cc/N3CZ-S8TC] (last visited July 19, 2020).

13. *Pelletier v. Her Majesty the Queen*, [2018] F.C. 805, paras. 17–18 (Can.) (evidentiary ruling in a class action alleging chemtrail spraying operations by the Canadian government, in which the court refused to admit plaintiff’s expert

theory has persisted and spread.¹⁴ Online conspiracy theory networks dedicated to researching and promoting chemtrail conspiracy theories have been successful at promoting their worldview on social media, attracting followers, and crowding out legitimate coverage of geoengineering technologies.¹⁵ Their success comes from a deliberate communications strategy,¹⁶ frequent and enthusiastic publication of their ideas,¹⁷ gullible groups,¹⁸ and the engagement-maximizing design of social media's content-promotion algorithms.¹⁹

affidavit because of its “categorical,” “unqualified” analysis that “effectively draws conclusions about the chemical makeup of contrails based on a simple review of photographs”).

14. See Ashley M. Mercer et al., *Public Understanding of Solar Radiation Management*, 6 ENVTL. RES. LETTERS no. 044006 8 (2011) (presenting a survey of 3,105 people in the United States, Canada, and United Kingdom, finding that 2.6% respondents believe the chemtrail conspiracy theory “completely true,” and 14% believe it to be “partly true”); and Dustin Tingley & Gernot Wagner, *Solar Geoengineering and the Chemtrails Conspiracy on Social Media*, 3 PALGRAVE COMM. no. 12 1 (2017) (showing a poll of 1,000 Americans finding about 10% believed the chemtrail conspiracy theory to be “completely” true, and about 20 to 30% believe it to be “somewhat” true).

15. Tingley & Wagner, *supra* note 14, at 1 (“Conspiratorial views have accounted for [about] 60% of geoengineering discourse on social media over the past decade.”); Joachim Allgaier, *Science and Environmental Communication on YouTube: Strategically Distorted Communications in Online Videos on Climate Change and Climate Engineering*, 4 FRONTIERS COMM. no. 36 1 (2019) (reviewing 200 videos on YouTube, retrieved using climate change and geoengineering search terms, finding a majority “support worldviews that are opposing scientific consensus, with 91 . . . propagat[ing] straightforward conspiracy theories about climate engineering and climate change”).

16. E.g., GEOENGINEERING WATCH, *How to Get Involved; Approaching People on the Topic of Geoengineering*, <https://www.geoengineeringwatch.org/how-to-get-involved/> [<https://perma.cc/8EDP-BPUS>] (last viewed July 19, 2020) (“First of all, semantics are extremely important in regard to the introduction of geoengineering. The geoengineering term is related to hard science, the ‘chemtrails’ term has no such verifiable basis but rather leads anyone that Googles the term straight to ‘conspiracy theory’ and ‘hoax’ definitions. Use the terms ‘climate engineering’ and ‘geoengineering.’”).

17. Allgaier, *supra* note 15, at 2.

18. See Gordon Pennycook & David G. Rand, *Who Falls for Fake News? The Roles of Bullshit Receptivity, Overclaiming, Familiarity, and Analytic Thinking*, 88 J. PERSONALITY 185, 186 (Apr. 2020) (arguing gullibility among some information consumers as a key driver of the uptake of patently false factual claims).

19. See Michela Del Vicario et al., *The Spread of Misinformation Online*, 113 PROC. NAT’L ACAD. SCI. 554, 554 (2016) (attributing information cascades on Facebook to the homogeneity of online communities, so-called “echo chambers,”

There is a striking, if superficial, resemblance between solar geoengineering proposals for stratospheric aerosol injections and chemtrail conspiracy theories.²⁰ Both imagine aerial spraying of potent chemicals, far above in the atmosphere, carried out by powerful, mysterious state actors to bring about observable effects on the surface. Many popular forms of the chemtrail conspiracy theory resemble factually accurate coverage of stratospheric aerosol injections and geoengineering, with the key difference – and misrepresentation – being that the conspiracy theorists allege the “spraying” is already underway.²¹ This affinity between geoengineering conspiracy and reality is due in part to the intellectual histories of the ideas. The chemtrail conspiracy theory was formulated by environmental journalist William Thomas, who drew on a speculative U.S. Air Force research paper called *Weather as a Force Multiplier: Owning the Weather in 2025*,²² as well as a 1991 patent describing a solar geoengineering-like technology,²³ to argue that the U.S. government was carrying out a covert geoengineering program to fight global warming.²⁴ Thomas’s ideas were popularized by nationally-syndicated talk-show host Art Bell, who had Thomas on his show *Coast to Coast* several times in the late 1990s and early 2000s to discuss chemtrails.²⁵

and group polarization); and Kate Klonick, *The New Governors: The People, Rules, and Processes Governing Online Speech*, 131 HARV. L. REV. 1598, 1667 (2018) (arguing that engagement optimization on social media leads to less exposure among media consumers to diverse viewpoints).

20. See generally Rose Cairns, *Climates of Suspicion: ‘Chemtrail’ Conspiracy Narratives and the International Politics of Geoengineering*, 182 GEOGRAPHICAL J. 70 (2016) (arguing thematic overlap between geoengineering criticism and the chemtrail conspiracy theory has strongly linked the two ideas for the foreseeable future).

21. GEOENGINEERING WATCH, *supra* note 10.

22. COL. TAMZY J. HOUSE ET AL. vi (Aug. 1996) (“[W]eather-modification offers the war fighter a wider-range of possible options to defeat or coerce an adversary . . . [f]rom enhancing friendly operations or disrupting those of the enemy via small-scale tailoring of natural weather patterns to complete dominance of global communications and counterspace control.”).

23. Stratospheric Welsbach Seeding for Reduction of Global Warming, U.S. Patent No. 5,003,186 col. 1 ls. 45–68 (issued Mar. 26, 1991) (describing a process for spraying metallic oxides in the stratosphere to allow greater amounts of energy radiating from Earth’s surface to escape into space). Mainstream stratospheric aerosol injection proposals differ from “Welsbach Seeding” in at least one important respect: they would seek to deflect away a portion of *incoming* solar energy. See Kintisch, *supra* note 1, at 29.

24. WILLIAM THOMAS, CHEMTRAILS CONFIRMED 20, 65 (2010); see also Annalee Newitz & Adam Steiner, *Here’s Where the Chemtrail Conspiracy Theory Actually Came From*, GIZMODO (Sep. 24, 2014).

25. THOMAS, *supra* note 24, at 20; see also COAST TO COAST AM, *William Thomas*, <https://www.coasttocoastam.com/guest/thomas-william/5796> (last updated Feb. 22, 2020) (listing Thomas’s appearances on the show over the last three decades).

Art Bell was well known for covering fringe conspiracy theories on his show, and a story by *Time* magazine in 1999 reported the chemtrail conspiracy theory was particularly popular among Bell's audience.²⁶

A few years later, Nobel laureate Paul J. Crutzen penned an influential essay calling for serious scientific and academic examination of geoengineering technologies, including stratospheric aerosol injection.²⁷ This piece has been widely credited as having "broke the taboo" on solar geoengineering within the climate policy world, launching the geoengineering governance literature that exists today.²⁸ Suddenly, reputable academics were imagining scenarios reminiscent of those described by Thomas and other conspiracy-theory communities. The two discourses, chemtrails and solar geoengineering governance, matured side by side. Chemtrail theorists have closely monitored developments within the geoengineering world for clues into the supposed conspiracy.²⁹ Occasionally, geoengineering researchers have responded with debunking content of their own.³⁰

The resemblance between chemtrail content and solar geoengineering can also be explained on a more abstract level. The governance discourse on solar geoengineering technologies has uncovered concerns of legitimacy and trust: who will carry a solar geoengineering program out? How can one be sure they will act for the good of the globe? What will hold them accountable?³¹ A lack of trust, in turn, can create fertile ground for chemtrail conspiratorial ideation.³² Public discourse on solar geoengineering therefore may be indefinitely linked to online communities peddling chemtrail conspiracy theories, due to this problem of trust, perceived and actual degradation of local environments, and resentment of concentrated control by a small number of elites.³³

26. Richard Corliss, *The X Phones*, TIME (Aug. 9, 1999).

27. Paul J. Crutzen, *Albedo Enhancement by Stratospheric Sulfur Injections: A Contribution to Resolve a Policy Dilemma?*, 77 CLIMATIC CHANGE 211, 217 (2006).

28. Pasztor, *supra* note 7, at 425.

29. OLIVER MORTON, THE PLANET REMADE 104 (2015).

30. THE KEITH GROUP, HARV. U., *Chemtrails Conspiracy Theory*, <https://keith.seas.harvard.edu/chemtrails-conspiracy-theory> (last visited Mar. 6, 2020).

31. *See, e.g.*, Rose Cairns, *supra* note 20, at 79 ("With regard to the emerging international politics of geoengineering, the issue of trust . . . is likely to be perennially problematic.").

32. *See generally, e.g.*, Alexandra Bakalaki, *Chemtrails, Crisis, and Loss in an Interconnected World*, 12 VISUAL ANTHROPOLOGY REV. 12 (2016) (study of how chemtrail conspiracy theories seized the imagination of large parts the Greek public during the 2009 financial crises, arguing that distrust of European Union economic policy on Greek sovereign debt enabled the mass delusion).

33. Cairns, *supra* note 20, at 80. Cairns persuasively argues that chemtrail conspiracy theory communities presage "the emerging politics of geoengineering." *Id.* Cairns's argument also lends support to the idea that the

A. A Call to Action on Chemtrail Misinformation

We know that chemtrail conspiracy theories are relatively widespread, that they are often linked to solar geoengineering in popular sources of information, and that they are already clouding public perception on geoengineering. These patterns can be expected to continue into the future due to the superficial resemblance between the conspiracy theory and solar geoengineering technology, as well as the chemtrail narrative's ability to speak to feelings of distrust, disgust, and resentment toward solar geoengineering. The conversation on geoengineering governance should therefore be expanded to include responses to chemtrail misinformation online.

The problem of chemtrail misinformation is intertwined with the broader problem of misinformation on social media. Many of the observations of how and why chemtrail conspiracy theories thrive online are equally applicable to flat-earthers, anti-vaxxers, or 9/11 truthers.³⁴ Accordingly, academic assessments of online conspiracy theories and misinformation usually lump these conspiracy narratives together and consider legal and governance responses to them as a whole.³⁵ This generalizing goes a little too far, however, in that it overlooks the ways that each strain of misinformation has a life and social reality of its own. For example, antisemitic conspiracy theories advancing white nationalist political projects have different audiences, purposes, and impacts than science-skeptic conspiracies sowing

conspiracy theory itself may endure, develop, and spread alongside development of genuine solar geoengineering programs.

34. Flat Earthers claim “the concept of a globe-shaped Earth is . . . the biggest conspiracy theory ever to exist.” Matthew Cappucci, *The weather helps disprove the flat-Earth hypothesis*, WASH. POST (Feb. 24, 2020), <https://www.washingtonpost.com/weather/2020/02/24/weather-helps-disprove-flat-earth-hypothesis/> [<https://perma.cc/T3WU-7KLS>] (reporting one Flat Earther “died in a rocket accident while trying to prove” the Earth was flat). Anti-vaxxers advocate against vaccinating children against the measles, mumps, and rubella, arguing, contrary to medical science, that the vaccine causes autism. See Peter J. Hotez, *Texas and Its Measles Epidemics*, 10 PLOS MED. 13, 1, 2–4 (Oct. 2016), <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1002153> [<https://perma.cc/GD8D-ZFC8>] (predicting lack of vaccinations will cause measles outbreaks in Texas as early as 2018); Sahotra Sarkar et al., *Measles resurgence in the USA: how international travel compounds vaccine resistance*, 19 LANCET INFECTIOUS DISEASES 684, 685–86 (2019) (reporting a large spike of measles cases in Texas in 2019, attributing the outbreak partially to “low vaccination rates”). The “9/11 Truth” movement baselessly argues the U.S. government had a hand in the September 11, 2001 terrorist attacks. See Alan Feuer, *500 Conspiracy Buffs Meet to Seek the Truth of 9/11*, N.Y. TIMES (Jun. 5, 2006), <https://www.nytimes.com/2006/06/05/us/05conspiracy.html> [<https://perma.cc/2RM9-FRDU>].

35. E.g., David S. Han, *Conspiracy Theories and the Marketplace of Facts*, 16 FIRST AMEND. L. REV. 178, 180 (2017).

doubt about vaccination efficacy. A state law mandating vaccinations and limiting the use of parental objections could respond to the fallout from anti-vaxxer misinformation but would do nothing to respond to the harms of crypto-fascist propaganda. To that end, this Article identifies a few governance responses that can directly target the solar geoengineering and chemtrail-conspiracy nexus.

The most effective governance responses, however, will focus on structures that take advantage of the gullibility of information consumers. The cause of online misinformation is not simply that the information consumers are inundated with is patently untrue. The problem is better understood as arising from the proliferation of competing authorities on factual truth, at the expense of traditional knowledge-creating and knowledge-sharing institutions, leading to a bedlam of conflicting factual claims.³⁶ Though technologically driven epistemic crises are a very old phenomena,³⁷ the rise of the Internet, and particularly of dominant social media platforms and search engines, has magnified the problem.³⁸ Information consumers are empowered like never before to find and choose which authorities and experts to trust, and those selected experts provide the factual predicates for the worldviews of those consumers. That fact-finding process, in turn, is largely structured by social networks online, steered by the engagement-maximizing algorithms of social media platforms.³⁹

This paper focuses on governing social media platforms as a method for better managing misinformation because the platforms are the most governable link in the fact-finding chain. While specifically censoring chemtrail misinformation would be ineffective, illegal, and morally wrong, it seems practically and ethically feasible to govern Facebook, Twitter,

36. See Peter Dahlgren, *Media, Knowledge and Trust: The Deepening Epistemic Crisis of Democracy*, 25 J. EUR. INST. COMM. & CULTURE 20, 23–24 (2018). The U.S. news aggregation site *Real Clear Politics* shows this dynamic well in American political news coverage, documenting the conflicting and divergent factual accounts of news providers online, following the ideological lens of the outlet and its readership. The effect is jarring when the at-odds coverage is read together. REAL CLEAR POLITICS, <https://www.realclearpolitics.com/> [<https://perma.cc/RB39-E8BN>] (accessed July 21, 2020).

37. See, e.g., ALLAN K. JENKINS & PATRICK PRESTON, *BIBLICAL SCHOLARSHIP AND THE CHURCH: A SIXTEENTH-CENTURY CRISIS OF AUTHORITY* xi (David Jasper et al. eds., 2016) (describing the Catholic Church's challenges in limiting the spread of unauthorized translations of the Bible, "yield[ing] . . . shock waves" of the Protestant Reformation).

38. Michela del Vicario et al., *supra* note 19, at 554.

39. See DAVID KAYE, *SPEECH POLICE: THE GLOBAL STRUGGLE TO GOVERN THE INTERNET* 15 (2019) (Compared to the blogosphere of the early popular internet, today's "centralizing internet dominated by the corporate imperatives of advertising and data mining and the incentives of virality is . . . a much friendlier environment to 'manufactured amplification.'").

YouTube, and whatever other large social media platform that may arise. But the most useful governance responses must also focus on the habits of information consumers themselves. Governance of social media platforms can only limit users' passive exposure to misinformation streams. They can and should do less to limit access to information that people seek out for themselves or that a trusted source directly shares with them. Public education efforts in information literacy could do much to make users more sophisticated and warier in their information consumption habits. While improved information literacy would do little for state and institutional actors with their crisis of authority, it could help communities navigate informational landscapes for themselves. Embracing democratic empowerment may be the best path out of the current epistemic panic.

Part II gives an overview of chemtrails and a theoretical framework for considering governance, misinformation, and conspiracy theory content. Part III argues for the need to govern misinformation, surveys the U.S. legal framework for regulating patently false statements of fact and online content-sharing, and analyzes the ways which social media platforms – particularly Facebook – govern user content. Part IV considers various governance methods for misinformation in general, and chemtrail misinformation in particular, largely informed by the substantial legal obstacles identified in Part III. This Article concludes with a few proposals to avoid.

II. BACKGROUND

Governing chemtrail misinformation requires a solid understanding of the conspiracy theory's internal logic, social appeal, and prevalence. After providing this background, this Part develops a theoretical framework for approaching the problem of misinformation governance in general and for chemtrail conspiracy content specifically. It concludes by acknowledging the limits of proposals to govern politically charged misinformation.

A. *A Chemtrails Primer*

1. The Chemtrail Theory: Message and Medium

Aircraft engines release exhaust during flight, and that exhaust contains water vapor, soot, small particles, and other pollutants like sulfur dioxide and carbon dioxide.⁴⁰ In cold, high-altitude air, aerosols from aircraft exhaust can cause water vapor to condense into long, thread-like clouds.⁴¹ These clouds, “contrails” (short for “condensation trails”), were explained scientifically as

40. LANGLEY RES. CTR., NASA, *The Contrail Education Project: Contrail Science* <https://science-edu.larc.nasa.gov/contrail-edu/science.html> [<https://perma.cc/W4XT-Q9T5>] (last visited Mar. 6, 2020).

41. Ulrich Schumann, *Formation, properties, and climatic effects of contrails*, 6 *COMPTES RENDUS PHYSIQUE* 549, 550 (2005).

early as 1941.⁴² If the air is dry, contrails quickly evaporate and dissipate.⁴³ But if the air is humid enough, contrails can linger, sometimes causing the formation of wide expanses of cirrus clouds.⁴⁴ These artificially-seeded clouds can pull moisture out of the atmosphere and reflect energy radiating from the planet's surface back down to Earth.⁴⁵ How much these dynamics can influence local weather and global climate is currently being studied.⁴⁶

Chemtrail conspiracy theorists falsely claim that many contrails are not benign plumes of condensed water vapor, but rather toxic chemicals deliberately sprayed by covert operatives, with calamitous effect to humans and the environment.⁴⁷ The purpose of the spraying, the identity of the supposed conspirators, and the composition and effects of the chemicals all vary between conspiracy-theorist communities.⁴⁸ Generally speaking, it is governments – real, imagined, or unknowable – that are named as the perpetrators. The reality of the spraying is evidenced by concrete harms supposedly observable in the local environment, like elevated levels of environmental toxins, severe outbreaks of illness in humans and livestock, and, of course, the contrails themselves.⁴⁹

Seen from the ground, contrails can be striking, clear evidence of humanity's impact on the natural world. The visual appearance of these clouds can serve as a gateway into the chemtrail universe, given that they are so vast and often distinctly artificial. William Thomas, the environmental journalist credited for originating the chemtrail theory in the late 1990s,⁵⁰ describes his personal awakening while watching a videotape of a contrail pattern, shared with him by an acquaintance:

42. *Id.*

43. *Id.*

44. *Id.* at 553.

45. *Id.* at 557.

46. See Guy P. Brasseur et al., *Impact of Aviation on Climate: FAA's Aviation Climate Change Research Initiative (ACCRI) Phase II*, 97 BULL. AM. METEOROLOGICAL SOC'Y 561, 562 (2016).

47. MORTON, *supra* note 29, at 102.

48. *Id.* at 103.

49. See, e.g., THOMAS, *supra* note 24, at 24–42 (2010) (reporting health outbreaks after contrail sightings); Dane Wigington, *Geoengineering Creating Freeze Fry Extremes*, GEOENGINEERING WATCH (Apr. 19, 2019), <https://www.geoengineeringwatch.org/geoengineering-creating-freeze-fry-extremes/> [<https://perma.cc/M9VG-TMA3>] (last visited June 1, 2020); and Global March Against Geoengineering, FACEBOOK, https://www.facebook.com/pg/GlobalMarchAgainstChemtrailsAndGeoengineering/about/?ref=page_internal [<https://perma.cc/A96E-UURZ>] (last visited June 1, 2020).

50. William Thomas, "Contrails" Mystify, Sicken Americans, ENVTL. NEWS SERV. (Jan. 8, 1999).

Instead of dissipating like normal contrails, these cross-hatched plumes began to widen and spread across the sky. As we watched over the next half-hour, the strange trails blended together, turning a ‘blue sky’ day into a milky murky overcast [T]his strange motif [was repeated] over a period of days.⁵¹

“Look up and wake up” could be said to serve as the chemtrail movement’s motto.⁵² Chemtrail online content is highly visual.⁵³ In the eyes of its theorists, the most persuasive pieces of evidence are the photographs that document these supposedly abnormal or “strange” contrails. As Thomas explains in *Chemtrails Confirmed*:

[This book] is a ‘for the record’ omnibus of eyewitness accounts, documented facts and photographs weighty enough to be tossed like a brick through the nearest glass tower of denial [P]ictures of outrageous ‘gridding’ and associated chemtrails phenomenon are central to this story. Nearly 200 photographs punctuate the text, adding to this ebook’s readability and credibility.⁵⁴

These pictures play a curious dual role among chemtrail theorists: a source of hope, because they are clear evidence of the conspiracy, but also a source of despair, because they signify bodily and environmental harm that

51. See THOMAS, *supra* note 24, at 12.

52. See, e.g., *id.*; GEOENGINEERING WATCH, *Geoengineering—Look Up and Wake Up* (May 19, 2015), <https://www.geoengineeringwatch.org/geoengineering-look-up-and-wake-up/> [<https://perma.cc/9QNY-GBKV>] (last visited June 1, 2020).

53. See, e.g., Olivia Nuzzi, *A Kardashian Stumbles Upon a Chemtrail*, DAILY BEAST (last updated Apr. 14, 2017), <https://www.thedailybeast.com/a-kardashian-stumbles-upon-a-chemtrail?ref=scroll> [<https://perma.cc/9QK6-8DE9>] (reporting Kylie Jenner shared a chemtrail meme to her nine million followers on Twitter, reading: “Why did I see 75 planes spraying white stuff into the sky on my 15 minute drive to work? . . . Am I the only one who sees this?”) (emphasis added); Chris Bell, ‘Chemtrail’ conspiracy theorists: The people who think governments control the weather, BBC NEWS (Jan. 31, 2018), <https://www.bbc.com/news/blogs-trending-42195511> [<https://perma.cc/H7Y4-S85N>] (quoting one supporter of the chemtrail conspiracy as saying, “I ask that we move beyond the notion that this is a conspiracy theory. . . . Twenty to thirty years ago we never saw these trails. We had a beautiful blue sky.”); Henry Fountain, *Scientists Try to counter the stubborn ‘chemtrail’ conspiracy theory*, ANCHORAGE DAILY NEWS (Aug. 16, 2016) (“As evidence, they point to what they call ‘chemtrails,’ which are more commonly known as contrails, or condensation trails, produced at high altitudes as water vapor in jet engine exhaust condenses and freezes.”).

54. THOMAS, *supra* note 24, at 2.

has already been inflicted.⁵⁵ To outsiders, the pictures may seem bizarre or banal, but to the people who share them and audiences equipped to “read” them, the images can be deeply emotionally resonant.

The visuality of this conspiracy discourse may explain part of its online appeal. Image-based content is more likely to be engaged with and shared on social media,⁵⁶ making chemtrail content a natural fit for online information consumption behaviors. It also fits well within the video format of YouTube. YouTube users seeking information, rather than entertainment, are more likely to interact with the content (liking, disliking, or commenting),⁵⁷ and videos that prompt engagement are favored by YouTube’s algorithm when recommending new videos.⁵⁸ Though many people engage with conspiracy theory content as an entertainment activity, many others sincerely believe the misinformation.⁵⁹

2. The Numbers: Chemtrail Belief Is Widespread

The content of the chemtrail conspiracy theory has been thoroughly and repeatedly debunked.⁶⁰ Experts have refuted many supposedly anomalous contrails and contrail patterns documented as evidence, explaining the clouds as resulting from routine aircraft flight patterns and well-understood principles of atmospheric physics and chemistry.⁶¹ The supposed chemical

55. See Bakalaki, *supra* note 32, at 18 (analyzing Greek chemtrail conspiracy theory visual content).

56. Simon Rogers, *What fuels a Tweet’s engagement?*, TWITTER (Mar. 10, 2014), https://blog.twitter.com/en_us/a/2014/what-fuels-a-tweets-engagement.html [<https://perma.cc/A5UP-528A>] (“Photos average a 35% boost in Retweets . . . Videos get a 28% boost”).

57. M. Laeeq Khan, *Social Media Engagement: What Motivates User Participation and Consumption on YouTube?*, 66 COMPUTERS HUM. BEHAV. 236, 241 (2017).

58. The YouTube Team, *Continuing our work to improve recommendations on YouTube*, YOUTUBE (Jan. 25, 2019), <https://youtube.googleblog.com/2019/01/continuing-our-work-to-improve.html> [<https://perma.cc/R46D-EH2D>] (reporting that YouTube’s recommended video “system . . . focus[es] on viewer satisfaction instead of views, measuring likes, dislikes, surveys, and time well spent”).

59. See, e.g., Dave Stopera, *19 of the Absolute Dumbest Things Flat Earthers Have Actually Said*, BUZZFEED (Jan. 9, 2019) (humorous coverage of “flat earth” content).

60. E.g., LANGLEY RES. CTR., *supra* note 40 (explaining the causes of contrails and why their behavior and appearance varies).

61. Shearer et al., *supra* note 11, at 8 (“76 out of 77 (98.7%) of scientists [surveyed] said there was no evidence of [chemtrails], and that the data cited as evidence [for chemtrails] could be explained through other factors, such as typical contrail formation and poor data sampling instructions presented on [chemtrail] websites”).

anomalies documented on the surface, furthermore, have been shown to be nonexistent or attributable to other causes.⁶² The chemtrail conspiracy theory is therefore verifiably or “patently” false – it conflicts with facts widely held by authoritative sources to be true. Content promoting or substantiating the theory thus is misinformation.⁶³

Many people nonetheless believe in chemtrails and conflate them on social media with solar geoengineering. A 2011 public survey of more than 3000 people in the United States, United Kingdom, and Canada found that “2.6% of the subjects believe that it is completely true that the government has a secret program that uses airplanes to put harmful chemicals into the air, and 14% of the sample believes that this is partly true.”⁶⁴ A 2016 study of 1000 Americans found that 10% believed the chemtrail conspiracy to be “completely” true, with another 20 to 30% saying the theory was “‘somewhat’ true, with no apparent difference by party affiliation or strength of partisanship” in responses.⁶⁵ Separate analysis of five million social media posts revealed “conspiratorial views have accounted for [about] 60% of geoengineering discourse on social media over the past decade.”⁶⁶ In 2019, analysis of 200 videos on YouTube discussing climate change, geoengineering, and chemtrails found that 92.5% of the search results for the terms “geoengineering” and “climate modification” “adhere to the ‘chemtrail’ conspiracy theory.”⁶⁷

The prevalence of this content on social media matters because social media is an important source of news.⁶⁸ One survey found that two-thirds of U.S. adults report that they get news from social media (like Facebook, Twitter, and YouTube) at least sometimes,⁶⁹ with 20% reporting they “often” get news from there.⁷⁰ While nearly 60% of Americans in one survey reported they “expect the news they see on social media to be largely inaccurate,”⁷¹ this may overstate public resilience to misinformation. Empirical

62. *Id.* at 5.

63. For a definition of “misinformation,” see *infra* Part I.B.2.

64. Mercer et al., *supra* note 14, at 8.

65. Tingley & Wagner, *supra* note 14, at 2.

66. *Id.* at 3 (“The vast majority of social media posts falls into the chemtrails conspiracy camp (61%) [and] neutral science reporting is in the clear minority (6%).”).

67. Allgaier, *supra* note 15, at 1.

68. Elisa Shearer, *Social Media Outpaces Print Newspapers in the U.S. as a News Source*, PEW RES. CTR., Dec. 10, 2018, <https://www.pewresearch.org/fact-tank/2018/12/10/social-media-outpaces-print-newspapers-in-the-u-s-as-a-news-source/> [<https://perma.cc/E7ZF-RWXW>].

69. Katerina Eva Matsa & Elisa Shearer, *News Use Across Social Media Platforms*, PEW RES. CTR., Sep. 10, 2018, <https://www.journalism.org/2018/09/10/news-use-across-social-media-platforms-2018/> [<https://perma.cc/44WA-BV82>].

70. Shearer, *supra* note 68.

71. See Matsa & Shearer, *supra* note 69.

psychological literature reports that mere exposure to false factual assertions increases the likelihood that they will be believed.⁷² This phenomena has been called “illusory truth effect,”⁷³ a restatement of the saying, “if people are told something often enough, they’ll believe it.”⁷⁴ The underlying logic seems to be that familiarity with a statement, even if the listener is unaware that they have heard it before, eases information processing, which in turn becomes further evidence for the listener that the factual assertion is true.⁷⁵ The illusory truth effect has been found to work for all but the most outlandishly false factual assertions, such as “the Earth is a perfect square.”⁷⁶ The stickiness of chemtrail conspiracy theories online would seem to indicate that they are not “patently outlandish,” perhaps because chemtrail content relies so heavily on evidence that can be seen with the naked eye, while speculating on causal agents (“toxins,” “contamination”) that cannot be seen.⁷⁷ Furthermore, belief in the chemtrail conspiracy likely requires only a few predicate ideas that are very widespread: distrust in government actors and scientific institutions and dismay over environmental and health harms from industrial pollution.⁷⁸

At the same time, trust in traditional authoritative institutions appears to be in decline.⁷⁹ But what inspires trust in experts? Philosopher Karen Jones provides an account of trust with two elements.⁸⁰ The listener attributes “goodwill and competence” to the expert, while also believing the expert to “be directly and favorably moved” by the knowledge that the listener is

72. Lynn Hasher et al, *Frequency and the Conference of Referential Validity*, 16 J. VERBAL LEARNING & VERBAL BEHAV. 107, 111 (1977).

73. Ian Maynard Begg et al., *Dissociation of Processes in Belief: Source Recollection, Statement Familiarity, and the Illusion of Truth*, 121 EXPERIMENTAL PSYCHOL. GEN. 446, 446 (1992).

74. Hasher et al., *supra* note 72, at 112.

75. Ian Maynard Begg et al., *supra* note 73, at 457 (also arguing that this finding indicates that the human brain may use a model of belief wherein the subject “tacitly accepts” “newly registered information . . . as true pending more detailed analysis”).

76. Gordon Pennycook et al., *Prior Exposure Increases Perceived Accuracy of Fake News*, 147 J. EXPERIMENTAL PSYCHOL. GEN. 1865, 1867–68 (2018).

77. See Tingley & Wagner, *supra* note 14, at 2.

78. E.g., Carey Dunne, *My Month with Chemtrails Conspiracy Theorists*, THE GUARDIAN, May 22, 2017, <https://www.theguardian.com/environment/2017/may/22/california-conspiracy-theorist-farmers-chemtrails> [https://perma.cc/USP9-34DN] (profile of two organic farmers in California who became chemtrail conspiracy theorists).

79. See ECON. INTELLIGENCE UNIT, *Democracy Index 2018: Me too? Political participation, protest, and democracy*, The Economist (2019) (“Various global surveys . . . have demonstrated that confidence in democracy is on the wane” from 2010 to 2018.); cf. Cairns, *supra* note 20, at 78 (arguing that chemtrail conspiracy “beliefs reflect not so much a lack of science as a lack of trust”).

80. Karen Jones, *Trust as an Affective Attitude*, 107 ETHICS 4, 5–6 (1996).

relying on their expertise – that is, the expert embraces their role as a fiduciary to the listener.⁸¹ Such trust “can give rise to beliefs that are abnormally resistant to evidence.”⁸² By extension, distrust requires an attribution of bad faith or incompetence on the part of experts, or that they are otherwise mishandling the trust placed in them by their audience.⁸³

Using Jones’s account, we can propose that declining trust in traditional sources of authority arises from widespread, growing attributions of bad faith, incompetence, or other breaches in their roles as fiduciaries. This could be driven in large part by improvements in information technology, which can quickly publicize abuse and misuse of power. For example, the spread of phones with video cameras, combined with the rise of platforms like YouTube and Facebook that can quickly and widely disseminate footage, has sparked popular backlashes against government authorities across the world.⁸⁴ Those same platforms also facilitate the spread of misinformation, inflaming feelings of mistrust by providing “evidence” to substantiate them,⁸⁵ overwhelming users with false information.⁸⁶

B. Misinformation Governance

This Subpart elaborates on the concepts of “governance” and “misinformation.” “Governance,” briefly put, encompasses the range of legal and “soft law” measures that governments and private authorities can use to achieve some public objective. “Misinformation,” meanwhile, describes factual statements that are verifiably false and widely disseminated, regardless of the intent of the person who shares it.⁸⁷ The discussion presents a new wrinkle in the challenge of governing chemtrail misinformation.⁸⁸

81. *Id.* at 4.

82. *Id.* at 15.

83. *Id.* at 7.

84. *See, e.g.,* Farhad Manjoo & Mike Isaac, *Phone Cameras and Apps Help Speed Calls for Police Reform*, N.Y. TIMES (Apr. 8, 2015); and KAYE, *supra* note 39, at 26 (describing “outrage and mass protests” against the Syrian government in 2011 after a YouTube video went viral depicting the brutalized body of a thirteen-year-old boy tortured and murdered by President Bashar al-Assad’s forces).

85. *See* Dietram A. Scheufele & Nicole M. Krause, *Science Audiences, Misinformation, and Fake News*, 116 PROC. NAT’L ACAD. SCI. 7662, 7664–65 (2019).

86. *See* Andrew Chadwick & Christian Vaccari, *News Sharing on UK Social Media: Misinformation, Disinformation, and Correction Survey Report*, at 23 (Apr. 2019) (reporting exposure to false news stories on social media can harm “trust in news more broadly”).

87. Eur. Comm’n, *A Multi-Dimensional Approach to Disinformation*, at 6 (2018).

88. *E.g.,* Vicario et al., *supra* note 19, at 554.

1. “Governance”

“Governance” describes the spectrum of methods used by those with power to influence or control conduct within their spheres of authority.⁸⁹ Those methods include traditional “hard” laws, like legislative law, administrative rules, and judge-made common law, as well as “unwritten norms, nonbinding principles and rules . . . market instruments, procedures, institutions funding, and international law.”⁹⁰ In keeping with the many institutional actors exercising power over many overlapping spheres of influence, governance scholarship analyzes how these forces interact to influence and control behavior.⁹¹ Governance can thus be seen as a kind of quasi-contract, “a set of negotiated relationships between public and private actors” with regard to developing, implementing, and enforcing policy, leading to “aggregate accountability.”⁹² Governance scholarship accordingly tends to emphasize non-state sources of binding rules and standards.⁹³

Facebook, Google, and Twitter are U.S. companies influenced primarily by U.S. law and legal norms.⁹⁴ Because the United States has extremely robust protections for individual speech rights,⁹⁵ governance proposals for online misinformation emphasize self-regulatory models⁹⁶ or a revamping of legal theories regarding free speech.⁹⁷ There are some regulatory actions that the U.S. government can take, such as market interventions promoting more competition and market choices between social media platforms.⁹⁸ But these

89. See Jonathan Verschuuren, *International Governance and Law: State Regulation and Non-State Law*, 1–2 (Hanneke van Schooten & Jonathan Verschuuren eds., 2008).

90. Jesse L. Reynolds, *The Governance of Solar Geoengineering: Managing Climate Change in the Anthropocene*, at 7 (2019).

91. See Klonick, *supra* note 19, at 1617 (describing “governance” as an “imprecise” name for the interaction between a “dynamic and iterative, law-making process; norm-generating individuals; and convergence of processes and outcomes”).

92. Jody Freeman, *The Private Role in Public Governance*, 75 N.Y.U. L. REV. 543, 547–48, 665 (2000).

93. Verschuuren, *supra* note 89, at 1–2.

94. See Marvin Ammori, *The “New” New York Times: Free Speech Lawyering in the Age of Google and Twitter*, 127 HARV. L. REV. 2259, 2259–60 (2014).

95. See *infra* Part III.B.

96. See Klonick, *supra* note 19, at 1662 (arguing for platform governance via “private governance and self-regulation”). But even within Europe, which has less robust protections for free expression rights, regulators have emphasized a soft-law approach. See EUR. COMM’N, *supra* note 87, at 6.

97. E.g., Nabihah Syed, *Real Talk About Fake News: Towards a Better Theory for Platform Governance*, 127 YALE L.J. FORUM 337, 357 (2017).

98. See Jack Balkin, *Free Speech Is a Triangle*, 118 COLUM. L. REV. 2011, 2033–36 (2018).

approaches are removed from content moderation practices themselves, and it is doubtful that new platforms will necessarily mean better content practices. Some government interventions could directly influence platform content moderation policies, such as removing protection from vicarious liability for user-posted content.⁹⁹ Such a change, however, risks completely uprooting the business models of these platforms, making it something of a nuclear option.¹⁰⁰ For all these reasons, misinformation governance discussions, including that of the analysis here, tend to emphasize non-state sources of regulation.

2. Misinformation, Disinformation, and Fake News

Analysts sometimes define *misinformation* inductively: a few viral falsehoods online are named and described, with the general class of such statements called “misinformation.”¹⁰¹ This framing is insufficient in that it makes identifying misinformation seem easier than it actually is.

Misinformation could be more precisely defined as a verifiably false statement of fact, presented as true, that is published online or otherwise widely disseminated, including false rumors spread by word of mouth.¹⁰² *Disinformation* is a type of misinformation, distinguished by the poster’s (a) knowledge that the content’s factual assertion is false and (b) improper purpose in disseminating the false assertion, such as to make money or distort public understanding of a subject.¹⁰³ Disinformation thus can be distinguished by its malicious or pecuniary intent and reckless disregard for the truth. *Fake news* can be misinformation, disinformation, or neither, depending on its veracity, the intent of its creator, the intent of the describer, and the reception or use of the material by its audience.¹⁰⁴ The term is disfavored by misinformation experts due to governments using the label to attack journalists.¹⁰⁵ It is therefore not used here.

The problems of governing misinformation should be clear from its definition. The Internet’s “marketplace of ideas” is filled with patently false

99. See Ammori, *supra* note 94, at 2286–2290 (describing the protections provided under Section 230 of the Communications Decency Act).

100. *Cf.* EUR. COMM’N, *supra* note 87, at 5 (arguing against interventions that would have “harmful consequences for [the internet’s] functioning.”).

101. *E.g.*, Vicario et al., *supra* note 19, at 554.

102. *Cf.* EUR. COMM’N, *supra* note 87, at 10 (defining misinformation as “misleading or inaccurate information shared by people who do not recognize it as such”).

103. *Id.*

104. See EUR. COMM’N, *supra* note 87.

105. See Caroline Lees, *Fake News: The Global Silencer*, 47 INDEX ON CENSORSHIP 88, 88 (2018).

assertions of fact.¹⁰⁶ Furthermore, what is and is not “verifiably false” is often disputed, especially on important matters. As a result, others who have confronted the problem of misinformation, like the European Commission, have focused more narrowly on disinformation.¹⁰⁷ Theoretically, because disinformation involves reckless disregard for the truth and malicious intent, it can be sifted out from the morass of untrue statements, many of which are made and shared in good faith – so long as the regulator, be it state or platform, can detect the improper intent. But when governing an item of misinformation, someone must decide whether the content or allegation is “verifiably” false. In the case of widespread falsehoods, that decision will almost always be politically contested.

Chemtrail conspiracy theorists genuinely believe what they assert. Because chemtrail content is created and shared without intent to deceive, it is misinformation but not disinformation: verifiably false and made in good faith. The good faith of its creators and communities makes the content troubling and troublesome to govern: the false factual claims are intertwined with sincerely held belief.¹⁰⁸ This presents an ethical and legal problem. It runs counter to democratic values, especially in the United States, to directly censor beliefs solely because they are perceived as harmful to society as a whole.¹⁰⁹ It also presents a practical problem. Trust in an expert source “can give rise to beliefs that are abnormally resistant to evidence.”¹¹⁰ It is therefore worth carefully considering *why* conspiracy theory misinformation seems like a problem to so many. This inquiry will inform what types of governance responses would be effective, legal, and morally acceptable regarding chemtrail content.

C. *Conspiracies and the Chemtrail Problem Revisited*

“Conspiracy theory” is a pejorative phrase, but conspiracy theories should not be a *per se* suspect class of thought.¹¹¹ After all, a *conspiracy* is a group of people working in secret “to do something criminal, illegal, or

106. See *Abrams v. United States*, 250 U.S. 626, 630 (1919) (introducing the notion of “free trade in ideas” into the Supreme Court’s First Amendment jurisprudence).

107. EUR. COMM’N, *supra* note 87, at 10.

108. Han, *supra* note 35, at 194.

109. Compare *United States v. Alvarez*, 567 U.S. 709, 728 (2012) (“Society has the right and civic duty to engage in open, dynamic, rational discourse. Those ends are not well served when the government seeks to orchestrate public discussion through content-based mandates.”); with Balkin, *supra* note 98, at 2030 (describing Germany’s strict laws governing moderation of social media companies of hate speech on their platforms).

110. Jones, *supra* note 80, at 15.

111. See DAVID COADY, *WHAT TO BELIEVE NOW: APPLYING EPISTEMOLOGY TO CONTEMPORARY ISSUES*, 110–12 (2012).

reprehensible.”¹¹² A *conspiracy theory*, meanwhile, is a collection of ideas and evidence that seeks to explain an event or pattern of events as being caused by such a secret plot.¹¹³ A brief look back at the intrigues of world history confirms that conspiracies have caused many significant historical events; hence we are all conspiracy theorists.¹¹⁴ When stripped of its pejorative and marginalizing connotations, a conspiracy theory becomes just another type of theory. Determining each one’s worth should therefore include an assessment of its supporting evidence and coherence, which is why this Article took some space to cite scientific evidence debunking chemtrail conspiracy theories.¹¹⁵

What is almost always meant by the phrase “conspiracy theories” is more precisely stated as *epistemically suspect* conspiracy theories: ideas that “conflict with common naturalistic conceptions of the world.”¹¹⁶ This definition does not say that the world is as it seems to be. Instead, it says there is an agreed-upon set of factual claims that orders our shared sense of reality (“the Earth is round;” “the capital of New York is Albany;” “no humans are secretly lizards”). Certain beliefs that contradict these well-established and widely believed factual findings – what could be called common sense – are verifiably or patently false. Chemtrail conspiracy theories fit within this category. They assert that jet contrails are covert implements of environmental contamination and mind control, a belief which is contradicted by authoritative expert testimony, physical evidence, and common sense.¹¹⁷ They are therefore epistemically suspect.

The problem is not conspiratorial ideation in itself. Perhaps surprisingly, the governance problem is not even belief itself in “epistemically suspect” conspiratorial ideation from flat-earthers, anti-vaxxers, 9/11 truthers, Holocaust deniers, reptilian-humanoid believers, COVID-19 minimizers, and chemtrailers. These communities can create conditions that give rise to serious social harms, such as lowered vaccine rates driven by anti-vaxxer

112. *Conspiracy*, DICTIONARY.COM, <https://www.dictionary.com/browse/conspiracy> [<https://perma.cc/G6ES-RN8L>] (last visited May 29, 2020).

113. See MATTHEW R. X. DENTITH, *THE PHILOSOPHY OF CONSPIRACY THEORIES* 173 (2014).

114. *Id.* at 174; Cass R. Sunstein & Adrian Vermeule, *Conspiracy Theories: Causes and Cures*, 17 J. POLIT. PHILOS. 202, 204 (2009).

115. See COADY, *supra* note 111, at 131.

116. Gordon Pennycook et al., *On the Reception and Detection of Psuedo-Profound Bullshit*, 10 JUDGMENT & DECISION MAKING 549, 551 (2015); see also Sunstein & Vermeule, *supra* note 114, at 204 (arguing the conspiracy theories worthy of government sanction are those that are “false, harmful, and unjustified (in the epistemological sense)”).

117. See THE KEITH GROUP, *supra* note 30 (debunking the theory).

misinformation,¹¹⁸ potentially more severe COVID-19 outbreaks from failing to social distance,¹¹⁹ or terrorism prompted by white nationalist conspiracy theories about Jews, Muslims, and Black people.¹²⁰ Those social problems are, obviously, legitimate objects of state and private governance, and appropriate governance responses must consider how conspiratorial ideation and patent falsehoods facilitate harm and violence.

But misinformation governors should be wary of trying to stamp out *belief* in baseless conspiracy theories. First, it would be a fool's errand. Conspiracy theories, including the outlandish and genuinely outrageous, have deep roots in U.S. political culture,¹²¹ and are likely an inevitable outcome of social life.¹²² Second, such a project would intrude too deeply on activities protected by free speech and free association rights. Third, it would be likely to backfire. As legal scholar Tim Wu describes, "The government is, effectively, a kind of celebrity whose actions draw disproportionate attention. And such attention may overcome the greatest barrier facing a disfavored speaker: that of getting heard at all."¹²³ Official efforts to combat conspiracy theories thus could inadvertently spread and legitimize those ideas among people already mistrustful of the government.¹²⁴

Source- and fact-selection based on ideological preference is an old problem.¹²⁵ What is new, however, is the ease of publishing and widely disseminating information without needing to navigate traditional gatekeepers of mass media. Technological developments have allowed for a large number

118. See N. Fournet et al., *Under-Vaccinated Groups in Europe and Their Beliefs, Attitudes, and Reasons for Non-Vaccination; Two Systematic Reviews*, 18 BMC PUB. HEALTH 1 (2018).

119. See Max Fisher, *Why Coronavirus Conspiracy Theories Flourish. And Why It Matters*, N.Y. TIMES (Apr. 8, 2020).

120. Tina Besley & Michael A. Peters, *Terrorism, Trauma, Tolerance: Bearing Witness to White Supremacist Attack on Muslims in Christchurch, New Zealand*, 42 EDUC. PHILOS. & THEORY 109, 112 (2019) (describing how some white nationalist terrorism is motivated by an intellectual tradition of racist conspiratorial ideation).

121. Richard Hofstadter, *The Paranoid Style in American Politics*, HARPER'S MAG. 77, 77–81 (Nov. 1964).

122. See COADY, *supra* note 111, at 115.

123. Tim Wu, *Is the First Amendment Obsolete?*, 117 MICH. L. REV. 547, 559 (2018).

124. See Melissa Healy, *Misinformation About the Coronavirus Abounds, But Correcting It Can Backfire*, L.A. TIMES (Feb. 8, 2020) (citing misinformation scholars Brendan Nyhan, Joshua Introne, and Emerson Brooking).

125. The Philosopher's Zone with David Rutledge, *Facts and Truth in a Post-Truth World*, AUSTRALIAN BROAD. CORP. (Oct. 15, 2017) (interview with David Coady, finding precedent for the internet's "epistemic panic" in Gutenberg's printing press), <https://www.abc.net.au/radionational/programs/philosopherszone/facts,-and-trust-in-a-post-truth-world/8997168> [<https://perma.cc/7ZNN-25S8>].

of self-professed experts to proliferate, experts who are, in turn, connected with unprecedented ease of access to information consumers. But the information economy is not suddenly without any gatekeepers at all. The new arbiters of fact are search engines and social media companies whose “platforms are optimized for engagement,” and, by extension, “optimiz[ed] . . . for confirmation bias.”¹²⁶

The question, then, is not how to stop baseless conspiracy theories from existing. It is how to limit their spread and influence. Therefore we should also ask how much public online attention chemtrailers should get. This Article argues they should get as little attention as possible, without resorting to direct suppression or censorship. Chemtrailer beliefs are not the problem – or, specifically, not a *governance* problem. The governance problem instead is that automated mechanisms of social media platforms and search engines widely and uncritically disseminate their false claims to people who would otherwise not encounter them.¹²⁷ To that end, governance proposals should seek to influence social media companies’ design choices, which result in the amplification of patently false, but often alluring,¹²⁸ factual claims made by conspiracy theory social networks. But better content management by centralized Internet authorities is an incomplete response (and risks other, perhaps more troubling, problems). There is also the problem of information-user gullibility: some people appear overly credulous regarding factual assertions from trusted sources.¹²⁹ Good governance of misinformation would also include instilling an attitude of wariness or skepticism concerning new factual claims, as well as research and analytic tools to build informed trust in sources of authority. By design, such a program could not dictate which sources of authority are to be trusted. It could, however, help equip people to navigate the new information economy we find ourselves in.

D. Limits of Misinformation Governance: Climate Denialism

Discussion of chemtrail falsehoods brings to mind climate denialism, a different category of misinformation. Why is chemtrail conspiracy content relatively easy to propose as a target for governance, but climate denialism much harder? Climate denialism, after all, peddles in baseless conspiracy

126. *Id.* (interview with Mark Alfano).

127. *See, e.g.,* Dunne, *supra* note 78 (the subjects became conspiracy theorists after one saw a post from a chemtrail conspiracy group on Facebook); Casey Newton, *The Trauma Floor*, THE VERGE (Feb. 25, 2019) (reporting that one content moderator working on behalf of Facebook became a Holocaust denier while another became a 9/11 truther).

128. TODOR HRISTOV, IMPOSSIBLE KNOWLEDGE: CONSPIRACY THEORIES, POWER, AND TRUTH 92 (2019) (arguing that coming to believe in conspiracy theories is akin to “seduction”).

129. Pennycook & Rand, *supra* note 18, at 186 (charitably describing gullibility as “reflexive open-mindedness”).

theories to make sense of its logically inconsistent factual assertions.¹³⁰ The difference, of course, is that climate denialism has been integrated into the Republican Party¹³¹ and the conservative movement,¹³² an institution and an ideology powerful within U.S. society. It is difficult to imagine methods of vigorously governing “legitimate misinformation,” given the obvious roadblocks to building political consensus and the incentives of privately-owned platforms to avoid appearing partisan in their content moderation decisions. Chemtrail conspiracy theories, on the other hand, have not been integrated into the belief systems of a major U.S. political party – not yet, anyway.¹³³ This means their spread and fallout remain an uncontroversial target for governance. Perhaps consideration of a kind of misinformation that nearly all agree is patently false will lead to methods which temper the appeal and spread of mistruths and falsehoods which are more widespread, though I am not optimistic at this prospect.¹³⁴ It would be far better to limit the spread of patent falsehoods before they take root in more prominent quarters.

III. REGULATING MISINFORMATION

This Part surveys the governance tools available for misinformation, as well as the ways that prevailing legal structures, business operations, and free speech norms constrain the endeavor. It first argues that governing public discourse is ethically permissible, and then shows that First Amendment doctrine effectively bars most direct government regulation of patently false factual statements. It proceeds to analyze the content moderation values and practices of the entities that have filled the vacuum left by the First Amendment: large social media platforms like Facebook, YouTube, and

130. Stephan Lewandowsky et al., *‘Alice in Wonderland’ Mechanics of the Rejection of (Climate) Science: Simulating Coherence by Conspiracism*, 195 SYNTHESE 175, 190 (2018) (“Climate science denial is therefore perhaps best understood as a rational activity that replaces a coherent body of science with an incoherent and conspiracist body of pseudo-science for political reasons and with considerable political coherence and effectiveness.”).

131. Justin Farrell et al., *Evidence-Based Strategies to Combat Scientific Misinformation* 9 NATURE CLIMATE CHANGE 191, 191 (2019).

132. Matthew T. Ballew et al., *Does Socioeconomic Status Moderate the Political Divide on Climate Change? The Roles of Education, Income, and Individualism*, 60 GLOB. ENVTL. CHANGE no. 102024, 7 (finding “conservatives with more education . . . are significantly less likely than those with less education . . . to believe that global warming is human-caused.”).

133. *But see* Cairns, *supra* note 20, at 79.

134. *But see* John Cook, *Understanding and Countering Misinformation about Climate Change*, in HANDBOOK OF RESEARCH ON DECEPTION, FAKE NEWS, AND MISINFORMATION ONLINE 281, 287–89 (2019) (proposing new responses for climate misinformation, such as automated flagging of misinformation indicators and “inoculation” of communities against patently false content).

Twitter. It closes with an analysis of content moderation practices in Europe, where governments take a more active role in combating misinformation.

A. *Should We Govern?*

A frequent rhetorical move within misinformation governance literature is to first express uneasiness with the idea of “governing” public discourse and then to explain why various crises make intervention necessary. There is a pervasive sense that *something* is wrong;¹³⁵ uncertainty as to what the exact causes are¹³⁶ and what the responses should be;¹³⁷ and unease about influencing people’s information consumption habits.¹³⁸

It is a common view that directly controlling public discourse is outside the bounds of a legitimate governance inquiry: “Our constitutional tradition stands against the idea that we need Oceania’s Ministry of Truth.”¹³⁹ But such value statements are belied by the tradition within the United States to limit socially undesirable speech through the editorial decisions of private mass media companies, as well as through the decentralized enforcement of social norms against undesirable speech.¹⁴⁰ When superseding government control over the determination of factual truth, the “marketplace for ideas” must rely

135. Mike Masnick, *Protocols, Not Platforms: A Technological Approach to Free Speech*, KNIGHT FIRST AMEND. INSTIT. COLUM. U. (Aug. 21, 2019).

136. Letter from Jameel Jaffer et al., Knight First Amendment Institute at Columbia University, to Mark Zuckerberg, C.E.O., Facebook, (Aug. 6, 2018), https://s3.amazonaws.com/kfai-documents/documents/d6ebc73dd9/Facebook_Letter.pdf [<https://perma.cc/N7G9-NEHB>] (arguing that basic research is needed to understand how Facebook’s algorithms influence the sharing of content).

137. See, e.g., Matthew C. Sullivan, *Libraries and Fake News: What’s the Problem? What’s the Plan?*, 13 COMMS. INFO. LITERACY 91, 95 (2019).

138. See, e.g., Emily Birnbaum, *Tech Giants Pressed in House Hearing on Policing Extremist Content*, THE HILL (June 26, 2019) (quoting one congresswoman’s comparison of Google’s search algorithm tweaks to the workings of the Ministry of Truth in George Orwell’s *1984*). To give a personal example, when a colleague heard the idea for this paper, they said it sounded less like a governance topic and more like “propaganda.”

139. *United States v. Alvarez*, 567 U.S. 709, 723 (2012).

140. Ammori, *supra* note 94, at 2281 (describing informal regulation of hate speech offline); see also Tim Wu, *Is the First Amendment Obsolete?*, KNIGHT FIRST AMEND. INST. COLUM. U. (Sep. 1, 2017), <https://knightcolumbia.org/content/tim-wu-first-amendment-obsolete> [<https://perma.cc/W6RH-J7DJ>] (“John Stuart Mill’s *On Liberty* seemed to take Victorian sensibilities as a greater threat to freedom than anything the government might do.” (citing *On Liberty and Other Writings* 69 (Stefan Collini ed., Cambridge University Press 1989) (1859) (“These tendencies of the times cause the public to be more disposed than at most former periods to prescribe general rules of conduct, and endeavour to make every one conform to the approved standard.”))).

on private actors, informed by threat of indirect government intervention, to promote a healthy public discourse.

Defining a “healthy” public discourse is dependent on subjective belief, but one can confidently assert that it would contain minimal serious consideration of chemtrails, hollow-Earth-reptilians, or fluoride-based mind-control initiatives carried out by agents of the Illuminati. The squeamishness many people have for the topic of governing speech should not be minimized. But a conversation on misinformation can proceed, especially with the knowledge that such governance is already underway and always has been. We should embrace our misgivings as we consider misinformation governance in greater depth. Reluctance, and even paranoia, can be useful tools while assessing governance interventions.

B. Patently False Statements of Fact Under the First Amendment

Patently false statements of fact receive a very high level of protection under the First Amendment, so long as they are not made in a commercial context¹⁴¹ or inflict concrete, “legally cognizable harm” to someone else, like fraud, or to certain official processes, like perjury.¹⁴² Whether the protection they receive from content-based restrictions is absolute, or merely very high, is ambiguous, but that they are strongly protected is clear.¹⁴³ As a result, a law censoring patently false statements because of their falsity – or the general social harms they cause – would be unconstitutional.

The theoretical reasons for this high level of protection turn on the necessary relationship between false speech and free and open public debate. The foundational U.S. Supreme Court opinions underlying First Amendment free speech doctrine were concerned with free speech’s relationship to arriving at ideological truth, not for determining verifiable statements of fact;¹⁴⁴ throughout the twentieth century, the U.S. Supreme Court treated

141. *See* *Central Hudson Gas & Elec. Corp. v. Public Serv. Comm’n of N.Y.*, 447 U.S. 557, 566 (1980) (reciting the test for identifying misleading commercial speech).

142. *Alvarez*, 567 U.S. at 718–19; *but see* Erwin Chemerinsky, *False Speech and the First Amendment*, 71 OKLAHOMA L. REV. 1, 5–10 (2018) (arguing First Amendment doctrine on false speech is inevitably inconsistent because each case must “balance[e] competing interests”). Reading Chemerinsky, one could reason “legally cognizable harm” is a moving target. *Id.* at 6.

143. *Compare Alvarez*, 567 U.S. at 729–30 (Kennedy, J.) (plurality opinion) (applying a standard of “exacting scrutiny”) *with id.* at 730 (Breyer, J., concurring) (using an intermediate “proportionality” standard of review).

144. Frederick Schauer, *Facts and the First Amendment*, 57 UCLA L. REV. 897, 906 (2010) (“For Learned Hand, for Oliver Wendell Holmes, for Louis Brandeis . . . the issue . . . was advocacy and not description . . . [V]irtually none of the most prominent First Amendment writings and judicial opinions of the era even touched on the issues of verifiable factual truth or demonstrable factual falsity.”)

false statements as having zero constitutional value in themselves.¹⁴⁵ *New York Times Co. v. Sullivan* recognized, however, “[t]hat erroneous statement is inevitable in free debate, and that it must be protected if the freedoms of expression are to have the breathing space that they need to survive.”¹⁴⁶ The First Amendment thus limits the ability of public officials to bring defamation actions, requiring they show the speaker acted “actual malice” when they made the false statement.¹⁴⁷

United States v. Alvarez built upon this line of thinking, with six members of the Court declaring the Stolen Valor Act, a federal law criminalizing certain intentional and verifiably false assertions of fact, unconstitutional.¹⁴⁸ The law criminalized falsely representing oneself “to have been awarded any decoration or medal authorized by Congress for the Armed Forces of the United States,” punishable by fine or up to a year of imprisonment.¹⁴⁹ Defendant Xavier Alvarez was a member of a water district board in California and, while speaking at a public meeting in that capacity, falsely claimed to be a recipient of the Congressional Medal of Honor.¹⁵⁰ It was undisputed that Alvarez intentionally made the statement despite knowing it was false.¹⁵¹

Writing for the plurality, Justice Kennedy stated there was no “general exception to the First Amendment for false statements. This comports with the common understanding that some false statements are inevitable if there is to be an open and vigorous expression of views in public and private conversation.”¹⁵² Kennedy rejected the argument that false statements do not receive First Amendment protections, distinguishing the law at issue in *Alvarez*, which “targets falsity and nothing more,” from laws and causes of action targeting speech-based harms like defamation, fraud, or perjury. In those cases where speech receives less protection, there is a “legally

145. Randy J. Kozel, *Precedent and Speech*, 115 MICH. L. REV. 439, 449–50 (2017); *but see Alvarez*, 567 U.S. at 719 (characterizing such precedents as “all derive[d] from cases discussing defamation, fraud, or some other legally cognizable harm associated with a false statement . . . [not for] their falsity and nothing more.”).

146. 376 U.S. 254, 271–72 (1964); *see also* Chemerinsky, *supra* note 142, at 6–7.

147. *New York Times Co.*, 376 U.S. at 279–80. (Actual malice is “knowledge that it was false or with reckless disregard of whether it was false or not.”).

148. 567 U.S. 709 (Justice Kennedy wrote the plurality, joined by Chief Justice Roberts and Justices Ginsburg and Sotomayor; Justice Breyer filed a concurrence joined by Justice Kagan.).

149. 18 U.S.C. § 704(b)–(c), *invalidated by Alvarez*, 567 U.S. at 724.

150. 567 U.S. at 714–15.

151. *Id.* at 715; *see also id.* at 713–714 (“Lying was his habit. Xavier Alvarez . . . [had] lied when he said he played hockey for the Detroit Red Wings and that he once married a starlet from Mexico For all the record shows, respondent’s statements were but a pathetic attempt to gain respect that eluded him.”).

152. *Id.* at 718.

cognizable harm associated with a false statement,” such as damage to reputation, monetary loss, or frustration of a court’s truth-seeking process at trial.¹⁵³ The Stolen Valor Act did not require a finding of such a harm and was thus far too sweeping in its reach.¹⁵⁴

It was the statute’s broad sweep that seems to have motivated Breyer’s concurrence, which used an interest-balancing “proportionality” test instead of the plurality’s categorical approach.¹⁵⁵ Breyer reasoned that “false factual statements enjoy little First Amendment protection,” but that “[l]ittle does not mean none.”¹⁵⁶ The Stolen Valor Act’s sanction against false statements, without articulating *specific* harms to a person or a special process (like a trial court), was too sweeping to survive constitutional scrutiny.¹⁵⁷ Generalized harm against the honor of all military award recipients was not a sufficient government interest to justify the broad criminal sanction.¹⁵⁸

Alvarez would clearly prohibit a law banning misinformation on a certain topic on the basis of its falsity alone, no matter the rationale articulated or the harms the government sought to avoid.¹⁵⁹ Under the First Amendment, the “remedy for speech that is false is speech that is true” – that is, no legal remedy at all.¹⁶⁰ Governments and private actors seeking to limit the harms of false statements must resort to counterspeech, such as public relations campaigns and debunking materials. Many commentators, however, are skeptical of the ability of counterspeech to correct harms after patently false statements are made.¹⁶¹ For example, tagging a piece of false news as “disputed” seems to do little to dilute the apparent truth of false statements to which people have been repeatedly exposed.¹⁶² Content further does not spread uniformly across social media,¹⁶³ and fact-checking content is rarely

153. *Id.* at 718–19.

154. *Id.* at 718, 722.

155. *Id.* at 731.

156. *Id.* at 732–33.

157. *Id.* at 739.

158. *Id.*

159. *See also United States v. Stevens*, 559 U.S. 460, 470 (“The First Amendment’s guarantee of free speech does not extend only to categories of speech that survive an ad hoc balancing of social costs and benefits.”).

160. *Alvarez*, 567 U.S. at 727.

161. *E.g.*, Dawn Carla Nunziato, *The Marketplace of Ideas Online*, 94 NOTRE DAME L. REV. 1519, 1521 (2019); Han, *supra* note 35 at 193–94; Erwin Chemerinsky, *Fake News, Weaponized Defamation and the First Amendment*, 47 SW. L. REV. 291, 292 (2018); and Schauer, *supra* note 144, at 910–911; *but see* Thomas P. Crocker, *Free Speech and Terrorist Speech: An Essay on Dangerous Ideas*, 70 VAND. L. REV. EN BANC 49, 51 (2017) (arguing the marketplace of ideas can and should be relied on to provide counter-speech).

162. *See* Gordon Pennycook et al., *supra* note 76, at 1874–75.

163. *See* Del Vicario et al., *supra* note 19, at 558 (“Users tend to aggregate in communities of interest, which causes reinforcement and fosters confirmation bias, segregation, and polarization. This comes at the expense of the quality of the

shared among the same communities that spread the targeted misinformation.¹⁶⁴ Finally, the Internet has also reworked basic assumptions of the information economy, creating a scarcity of attention rather than of speakers.¹⁶⁵ This greatly empowers the companies that control the dominant platforms structuring users' activities and attentions online, limiting the ability of outside actors to independently disseminate counterspeech.

In any event, the consensus of the U.S. courts and legal scholars on this point is virtually unanimous – false statements of fact cannot be suppressed by the government solely on the basis of their falsity. For some, it is because the line drawing would be too hard: false statements of fact are “ideologically inflected,” that is, intertwined with worldviews and values to the point that they are inseparable from the most valued and protected domains of speech.¹⁶⁶ For others, it is a gut-level distrust at the thought of any government interference in public discourse, based on fears of chilling speech.¹⁶⁷ Even within European legal regimes, which exhibit less skepticism toward state interference with public discourse, there is a reluctance toward allowing governments to censor “bad” speech outright at the expense of free expression values.¹⁶⁸ Instead of content-based controls promulgated by the state, public-private partnerships emphasizing self-regulation by social media platforms are central to European misinformation management plans.¹⁶⁹

It all makes for a curious result. Low-value or outright harmful speech is shielded from most assertions of government authority, ceding most control to the private platforms that have the power and influence to shape public discourse.¹⁷⁰ It is somewhat strange that so many trust private mass media

information and leads to proliferation of biased narratives fomented by unsubstantiated rumors, mistrust, and paranoia.”).

164. Jieun Shin & Kjerstin Thorson, *Partisan Selective Sharing: The Biased Diffusion of Fact-Checking Messages on Social Media*, 67 J. COMM. 233, 250 (2017) (observing “partisan selective sharing” of fact-checking content shared on social media).

165. Syed, *supra* note 97, at 352.

166. Mark Tushnet, “*Telling Me Lies*”: *The Constitutionality of Regulating False Statements of Fact*, HARV. L. SCH. PUB. LAW & LEGAL THEORY, working paper no. 11-02 18 (2011) (analyzing the patently false factual claims of Holocaust deniers and 9/11 truthers).

167. *See, e.g.*, Han, *supra* note 35, at 189–90.

168. EUR. COMM’N, *supra* note 87, at 1 (While disinformation “impairs freedom of expression . . . [t]he primary obligation of state actors in relation to freedom of expression and media freedom is to refrain from interference and censorship and to ensure a favorable environment for inclusive and pluralistic public debate.”).

169. *Id.* at 6.

170. For example, Michael C. Dorf and Sidney G. Tarrow use the counter-intuitively high level of protection afforded to patently false factual assertions as a starting point in their examination of the lack of protection given to journalists in their pursuit of high-value investigative projects. *See generally Stings and*

companies so much more than governments to do this work, or, better put, fear them so much less, especially in the case of patently false, pervasive, and extremely harmful misinformation.¹⁷¹ There are, however, a number of viable governance options still available within a framework that centers on self-regulation by private media companies. The advantage of such an approach is that it does not require a fundamental rethinking of widely held free-expression values, or piloting an overhaul of First Amendment doctrine through the Supreme Court.

C. Contemporary Models of “Self”-Regulation

This Subpart surveys the factors and institutional structures that inform the content moderation decisions of major social media platforms like Facebook, Twitter, and YouTube. These social media companies have developed content moderation policies with an eye on limiting government regulation, remaining in alignment with American free speech values, and increasing company profits by maximizing the size of their user base. Examination of these companies’ motives and practices can identify sources of leverage stakeholders have to drive the creation of better misinformation controls on social media, including chemtrail content. Though much of the literature envisions misinformation governance as stemming from “self”-regulation, it is clear that outside groups, including governments, must work to influence the way these companies moderate and disseminate content.

1. Internet Law in the United States

Section 230 of the Communications Decency Act (“CDA”) protects digital intermediaries like Facebook and YouTube from most liability associated with user content on their platforms.¹⁷² The law declares that platforms shall not “be treated as the publisher or speaker of any information” posted by users, preventing vicarious tort or criminal liability for most kinds of content from flowing from the content creator to the content publisher.¹⁷³ Many business leaders view Section 230 of the CDA as essential to the operation of today’s Internet because social media companies would otherwise risk overwhelming liability for speech-based harms from user content on their platforms.¹⁷⁴ In exchange for this shield from liability, digital

Scams: “Fake News,” the First Amendment, and the New Activist Journalism, 20 U. PA. J. CONST. L. 1 (2017).

171. *Contra* Balkin, *supra* note 98, at 2035 (“[I]t is especially important . . . to prevent a small number of powerful for-profit companies from dominating how public opinion is organized and governed.”).

172. VALERIE C. BRANNON, CONG. RES. SERV., FREE SPEECH AND THE REGULATION OF SOCIAL MEDIA CONTENT 10–11, (2019) (citing 47 U.S.C. § 230(c)(1), (f)).

173. 42 U.S.C. §230(c)(1); *see also* BRANNON, *supra* note 172, at 11.

174. Ammori, *supra* note 94, at 2287.

intermediaries are expected to self-regulate “offensive material” on their platforms.¹⁷⁵ To that end, Section 230 further shields digital intermediaries from liability for good faith removal of such material from their websites.¹⁷⁶ The CDA is therefore, arguably, the most important law protecting free speech online, in some ways more so than First Amendment doctrine created by the Supreme Court.¹⁷⁷

Constitutional law still plays an important role in structuring speech protections online. For example, a different section of the Communications Decency Act, banning “indecent” and “patently offensive” content on Internet platforms, was struck down under the First Amendment in *Reno v. American Civil Liberties Union*.¹⁷⁸ The Supreme Court found “no basis for qualifying the level of First Amendment scrutiny that should be applied” to online content, and that the statute’s operative language was vague and overly broad, and thus unacceptably burdensome on speech.¹⁷⁹ Furthermore, it seems possible that the decisions digital intermediaries make on which content to promote or deemphasize on their platforms is itself protected speech under the First Amendment, through use of what some legal scholars call “the editorial analogy.”¹⁸⁰ Following this line of reasoning, digital intermediaries can be seen as speakers under the First Amendment because they “convey information [they have] prepared or compiled,” “direct users to material created by others,” and “select and sort the results” in a way those companies see as “most helpful and useful.”¹⁸¹ This line of reasoning links the holding of *Reno*, that the First Amendment protects speech online to the same extent as offline speech, with the holding from *Miami Herald Publishing Co. v. Tornillo*, protecting editorial decisions over the content run in newspapers.¹⁸² As the Court found in *Miami Herald*:

The choice of material to go into a newspaper, and the decisions made as to limitations on the size and content of the paper, and treatment of public issues and public officials—whether fair or unfair—constitute the exercise of editorial control and judgment. It has yet to be demonstrated how governmental regulation of this crucial process can

175. Klonick, *supra* note 19, at 1606 (citing *Zeran v. America Online, Inc.*, 129 F.3d 327, 331 (4th Cir. 1997) (“Another important purpose of § 230 was to encourage service providers to self-regulate the dissemination of offensive material over their services.”)).

176. 47 U.S.C. § 230(c)(2) (“Protection for ‘Good Samaritan’ blocking and screening of offensive material.”).

177. Ammori, *supra* note 94, at 2264.

178. 521 U.S. 844, 849 (1997).

179. *Id.* at 870–871.

180. Eugene Volokh & Donald M. Falk, *First Amendment Protection for Search Engine Results*, 883, 887 J. L. ECON. & POL’Y 883 (2012) (commissioned by Google).

181. *See id.* at 884.

182. *Id.* at 886–88 (citing *Reno v. ACLU*, 521 U.S. 844 (1997)).

be exercised consistent with First Amendment guarantees of a free press as they have evolved to this time.¹⁸³

This “editorial analogy” could extend to the algorithm design decisions of social media companies, search engines, and other digital intermediaries. While the extent of this protection is unsettled¹⁸⁴ and disputed,¹⁸⁵ it seems that the publishing and content-sharing activities of these companies could receive a high level of constitutional protection. But extending the editorial analogy brings to mind related ethical, if non-legal, obligations based on newsrooms and news editors: a commitment to truth and an eye on the public interest.

2. The Content Moderation Values of Social Media Platforms

Just because there are strict limitations on government regulation of online content does not mean that online spaces are anarchic. Facebook, YouTube, and Twitter instead should be considered “governors” of the digital spaces they control: “private self-regulating entities that are economically and normatively motivated to reflect the democratic culture and free speech expectations of their users.”¹⁸⁶ Lawyers trained in the U.S. legal tradition have shaped the content policies of these U.S. companies, leading to content moderation cultures heavily influenced by First Amendment commitments to free expression values.¹⁸⁷ The policies, however, are more restrictive than the First Amendment would allow for a state actor regulating hate speech, harassment, threats, pornography, depictions of violence, and incitement.¹⁸⁸ This is because platforms seek “to build a culture most amenable to mass engagement,” and thus maximize profits.¹⁸⁹ Some constitutionally protected speech is bad for business.

Within this framework, the platform preferences of users are one of the very few tools outside interests have to influence the content decisions of large social media companies. In this so-called “marketplace for rules,” social media users will hop between platforms based on the content and user

183. *Miami Herald Pub. Co., Div. of Knight Newspapers, Inc. v. Tornillo*, 418 U.S. 241, 258 (1974).

184. BRANNON, *supra* 172, at 22 (“There are not many court decisions evaluating whether a social media site, by virtue of reprinting, organizing, or even editing protected speech, is itself exercising free speech rights. The few federal court decisions finding such protections “are, so far, limited to trial courts and therefore not precedential beyond the facts of those cases.”).

185. See generally Heather Whitney, *Search Engines, Social Media, and the Editorial Analogy*, KNIGHT FIRST AMEND. INST. COLUM. U. (Feb. 27, 2018) (arguing that the analogy between search engines and newspapers is unpersuasive and that the legal results are not normatively desirable).

186. Klonick, *supra* note 19, at 1669–70.

187. Syed, *supra* 97, at 339 (quoting Klonick, *supra* note 19, at 1599).

188. Ammori, *supra* note 94, at 2269–70, 2274.

189. Syed, *supra* note 97, at 244.

interactions tolerated on the site, with competing platforms adjusting their moderation policies and content-promoting algorithms to best meet user expectations.¹⁹⁰ Platform-switching can be a powerful tool. For example, in 2016 user pressure forced Twitter to implement stricter content moderation policies to limit harassment on the platform.¹⁹¹ Twitter's about-face is all the more significant because of its outspoken commitment to free speech values, even relative to other digital intermediaries – “the free speech wing of the free speech party.”¹⁹² This history indicates that public pressure by influential user groups can produce tangible improvements in social media platform management.

The content policies and enforcement practices of these intermediaries should therefore be examined to see how these free speech values are practiced. The remainder of this part focuses on Facebook because of its large size and influence, as well as the greater availability of scholarship.¹⁹³ Fuller analysis would take account of the content moderation policies of other big online platforms, like YouTube, Twitter, and Reddit.¹⁹⁴ It is also worth noting at the outset that the implications of these policies for misinformation can reach far beyond the walls of a given platform. For example, misinformation cascades online often interact in feedback loops with traditional media channels, amplifying the content, and bolstering its appearance of credibility.¹⁹⁵ Focusing on one social media platform alone does not capture the whole picture.

190. Klonick, *supra* note 19, at 1629 (citing David G. Post, *Anarchy, State, and the Internet: An Essay on Law-Making in Cyberspace*, J. ONLINE L. art. 3 (1995)).

191. Klonick, *supra* note 19, at 1629.

192. Ammori, *supra* note 94, at 2260 (quoting Josh Halliday, *Lawyer and Champion of Free Speech Alex MacGillivray to Leave Twitter*, THE GUARDIAN (Aug. 30, 2013) (attributing the statement to former Twitter general counsel Alex MacGillivray)).

193. See Press Release, Facebook, Facebook Reports Third Quarter 2019 Results (Jan. 29, 2020) <https://www.prnewswire.com/news-releases/facebook-reports-fourth-quarter-and-full-year-2019-results-300995616.html> [<https://perma.cc/Q2BG-4ZJZ>] (reporting 1.66 billion daily average users during the month of December 2019, with a total of 2.50 billion monthly active users) (last visited Mar. 6, 2020).

194. E.g., Nunziato, *supra* note 161, at 1549 (reporting Twitter's misinformation policies include suspending fake accounts and prioritizing higher quality content in its algorithm); see also Syed, *supra* note 97, at 343 (describing Reddit's model of leaving content moderation to its hundreds of thousands of user communities).

195. See, e.g., Charlie Warzel, *How One Pro-Trump Site Keeps a Debunked Conspiracy Theory Alive*, BUZZFEED NEWS (May 22, 2017), <https://www.buzzfeednews.com/article/charliewarzel/how-one-pro-trump-site-feeds-its-own-conspiracy-theories> [<https://perma.cc/R45T-5LHC>].

3. Practicing Moderation: The Legal Flavor of Facebook's Content Policies

Facebook Community Standards webpages, as well as several releases from its press shop, reveal the general principles and enforcement strategies behind the platform's content moderation policies. The company states that "[t]he goal of our Community Standards has always been to create a place for free expression and give people a voice," limiting speech only to the extent necessary to protect the values of authenticity, safety, privacy, and dignity.¹⁹⁶ A backdrop of international human rights explicitly informs this interest balancing. One blogpost by Facebook cites Article 19 of the International Covenant on Civil and Political Rights ("ICCPR") as informing its content policies.¹⁹⁷ Per Facebook, the ICCPR "set[s] the standards for when it's appropriate to place restrictions on freedom of expression."¹⁹⁸ Of course, as an international treaty, the ICCPR binds countries who are party to the agreement, setting forth the rights of individuals vis-à-vis the state as well as the obligations of states to protect those rights.¹⁹⁹ It does not establish the rights of users vis-à-vis privately owned and operated platforms. It is interesting then to see Facebook directly cite the treaty as though it directly applied to its decisions.²⁰⁰ The relevant part of Article 19 of the ICCPR reads:

Everyone shall have the right to hold opinions without interference . . . [and] to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds . . . subject to certain restrictions . . . such as are provided by law and are necessary . . . [f]or the respect of the rights or reputations of others. . . [or] [f]or

196. FACEBOOK, *Community Standards: Introduction*, <https://www.facebook.com/communitystandards/introduction> [https://perma.cc/BV75-TK2S] (last visited Mar. 6, 2020).

197. Richard Allen, *Hard Questions: Where Do We Draw the Line on Free Expression*, FACEBOOK NEWSROOM (Aug. 9, 2018), <https://newsroom.fb.com/news/2018/08/hard-questions-free-expression/> [https://perma.cc/7QQK-85NJ]; see also Dec. 19, 1966, 999 U.N.T.S. 171 <https://treaties.un.org/doc/publication/unts/volume%20999/volume-999-i-14668-english.pdf> [https://perma.cc/L53W-XJUL] (entered into force Mar. 23, 1976).

198. Allen, *supra* note 197.

199. Art. 2(1), 999 U.N.T.S. 171.

200. *But see* U.N. Human Special Rapporteur on Freedom of Opinion and Expression et al., *Joint Declaration on Freedom of Expression and "Fake News", Disinformation and Propaganda*, FOM.GAL/3/17 4 (Mar. 3, 2017), <https://www.osce.org/files/f/documents/6/8/302796.pdf> [https://perma.cc/8XN3-TM5R] (recommending principles to guide digital intermediaries in their content moderation policies).

the protection of national security or of public order . . . or of public health or morals.²⁰¹

Facebook interprets this language as allowing restrictions on speech only where “necessary to prevent harm,” including hate speech, which “can constitute harm [in itself] because it creates an environment of intimidation and exclusion.”²⁰² This reasoning accords with the “broad consensus in the international community – manifested by treaties, conventions, and protocols – that virulent group defamation” is intimately connected to “a variety of crimes against humanity.”²⁰³

Even assuming the ICCPR should be directly applied to Facebook’s content policies, which seems misplaced, there is more flexibility within the language of Article 19 than Facebook’s communication indicates. Article 19 allows restrictions on freedom of expression where necessary to protect private reputation or public order, health, and morals,²⁰⁴ which could encompass measures that limit the spread of especially harmful misinformation. To avoid violating international law, the restrictions must be specific, genuinely necessary, and proportional to the interest at stake.²⁰⁵ That language could, for example, allow a social media company to de-emphasize, flag, and fact-check content known to be verifiably false – which seems to be Facebook’s actual practice.²⁰⁶ Furthermore, while it is worrisome when states enact laws targeting “fake news,”²⁰⁷ Facebook is not a state actor.²⁰⁸ Social media companies like Facebook can and should go beyond what states can do

201. 999 U.N.T.S. 171.

202. Allen, *supra* note 197.

203. Alexander Tsesis, *Terrorist Speech on Social Media*, 70 VAND. L. REV. 651, 676 (2017).

204. Art. 19(3)(b), 999 U.N.T.S. 171.

205. U.N. Human Special Rapporteur on Freedom of Opinion and Expression et al., *supra* note 200, at 3.

206. *See, e.g., Community Standards: Integrity and Authenticity: 21, False News*, FACEBOOK, https://www.facebook.com/communitystandards/integrity_authenticity [https://perma.cc/G9XJ-5T2A] (last visited June 1, 2020); *id.* at 22. *Manipulated Media* (“[W]e will continue to invest in partnerships (including with journalists, academics and independent fact-checkers) to help us reduce the distribution of false news and misinformation.”).

207. David Kaye, Mandate of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression (Apr. 3, 2018) https://www.ohchr.org/Documents/Issues/Opinion/Legislation/OL_MYS_03.04.18.pdf [https://perma.cc/7LFQ-VY5M] (arguing that proposed speech limitations in the bill before the Malaysian Parliament exceeded the exception allowed in ICCPR Art. 19(3)(b)).

208. *But see* Jed Rubenfeld, *Are Facebook and Google State Actors?*, LAWFARE (Nov. 4, 2019, 8:20AM), <https://www.lawfareblog.com/are-facebook-and-google-state-actors> [https://perma.cc/5GUG-KMC8].

in managing information flows on their platforms, analogous to self-regulation by journalists and publishers in legacy media, precisely because the human rights obligations of states prevent most government regulation in this area.²⁰⁹

Facebook has stated that within its free expression legal framework, false statements of fact are protected and allowed: “Human rights law extends the same right to expression to those who wish to claim the world is flat as those who state that it is round—and so does Facebook. It may be the case that false content breaks our rules—but not always.”²¹⁰ That false statements are “protected” does not mean that Facebook does not discriminate between content containing verifiably false claims and all others. “False news,” for example, is “show[n] lower in the News Feed,” which “significantly reduce[s] its distribution.”²¹¹ Facebook clarifies that it refrains from outright “remov[ing] false news” solely for being false.²¹²

Some scholars have argued that drowning out or burying content on social media is the functional equivalent of censorship.²¹³ This observation complicates how one thinks about many of the misinformation governance proposals discussed in the literature. They are, if we accept this functional account, algorithmically determined censorship regimes overseen by private corporations – a dystopian development. While users are still free to post and share whatever they wish, assuming it does not violate the site’s content standards, unseen, “black box” mechanisms decide how many other users will see them, controlled by private entities with few methods of accountability.²¹⁴ A functional account of censorship accordingly raises grave concerns about the practical ability of people to exercise free speech.

One response to the functional censorship concern is that such content decisions made by large media companies are not categorically new. News editors have always decided which stories to run and, if so, how prominently to place them.²¹⁵ Much of the present-day panic over misinformation can be understood as arising from the loss of these traditional gatekeepers over

209. ARTICLE 19, SELF-REGULATION AND ‘HATE SPEECH’ ON SOCIAL MEDIA PLATFORMS 4 (2018), https://www.article19.org/wp-content/uploads/2018/03/Self-regulation-and-%E2%80%99hate-speech%E2%80%99-on-social-media-platforms_March2018.pdf [<https://perma.cc/XL7T-SMPW>].

210. Allen, *supra* note 197.

211. FACEBOOK, *supra* note 206, at 21.

212. *Id.*

213. See, e.g., Tim Wu, *supra* note 123, at 566; Syed, *supra* note 97, at 355 (describing tactics by governments and their proxies to flood social media networks with false or distracting speech to overwhelm undesired content).

214. Taina Bucher, *Want to Be on the Top? Algorithmic Power and the Threat of Invisibility on Facebook*, 14 NEW MEDIA & SOC’Y 1164, 1167–69 (2012) (describing how Facebook’s algorithms structure what is seen on users’ News Feeds in ways that are unknown to outside observers).

215. Volokh & Falk, *supra* note 180, at 887–89.

objective facts. In this light, the drive for “reduced distribution” content-controls online is a demand that design choices for social media algorithms reflect a larger set of values than solely user-engagement and profit – an ethical obligation, analogous to the expectations of fairness, integrity, and civic-mindedness placed on legacy media outlets. For social media platforms, these editorial values would be enacted, in part, by deciding which stories are worth amplifying and which are not.

The need for effective governance of misinformation, while respecting free expression rights, militates toward accepting this rebuttal. But this counterargument does not, on its own, provide a satisfying response to civil liberty concerns on functional censorship from powerful private entities. Perhaps the best method to reconcile these conflicting values would be more transparency in how algorithm design choices are made, the impacts of those decisions, and their enforcement, namely by allowing researchers, regulators, and users to access and inspect company algorithms and policies to the greatest practicable extent. For example, Facebook’s published community standards are not the whole of its entire content policy. In order to facilitate regimented, consistent, and cheap case-by-case implementation of its standards, Facebook has developed a voluminous and precise body of internal rules for content review.²¹⁶ The rank-and-file content moderators typically work in call center atmospheres, rigidly applying these rules to thousands of pieces of user- and algorithm-flagged content a week.²¹⁷ Academic analyses of these internal codes rely on information leaks by company insiders,²¹⁸ a situation that is far from optimal. Making more of these content-moderation codes public would go far in notifying information consumers as to how Facebook actually enforces its policies, as well as informing expert and community feedback to improve those codes.

4. Moderating Patently False Conspiracy Theory Content on Facebook

One of Facebook’s community standards appears to prohibit content that promotes conspiracy theories denying the reality of certain tragic events:

Do not . . . [t]arget anyone maliciously by . . . [p]osting content about a violent tragedy, or victims of violent tragedies that include claims that a violent tragedy did not occur [or] with claims that they are . . . [a]cting/pretending to be a victim of an event [or] *otherwise paid or employed* to mislead people about their role in the event.²¹⁹

216. Klonick, *supra* note 19, at 1641–42.

217. *Id.* at 1640.

218. *E.g. id.* at 1644 n.319.

219. *Community Standards: Safety: 9. Bullying and Harassment*, FACEBOOK, <https://www.facebook.com/communitystandards/safety>

Though Facebook does not use the phrase “conspiracy theory,” it is clear by the language “otherwise paid or employed” that such content is what the rule proscribes – baseless assertions that an unknown third-party is secretly employing crisis actors in attempt to mislead the public. This rule seems to have provided the basis for banning Alex Jones from the site for promoting false conspiracy theories that Sandy Hook was a hoax.²²⁰ Arguably, Holocaust denialism would also be covered by the text of this rule, though past statements made by Facebook founder Mark Zuckerberg indicate not.²²¹ Facebook ultimately banned Holocaust conspiracy theories under a different rule, prohibiting hate speech.²²²

In any case, there is company precedent for outright banning content that spreads harmful and patently false conspiracy theories, so long as the content “maliciously” targets a specific person or group of people. This has significance for chemtrail misinformation, insofar as conspiracy theory content targets a specific scientist or group of scientists. Some solar geoengineering researchers already report that chemtrail content interferes with their work and their efforts to communicate its significance to the public.²²³

[<https://perma.cc/9BKW-HYXJ>] (last visited October 31, 2020) (emphasis added).

220. Cristiano Lima, *Facebook Wades Deeper into Censorship Debate As It Bans ‘Dangerous’ Accounts*, POLITICO (May 2, 2019), <https://www.politico.com/story/2019/05/02/facebook-bans-far-right-alex-jones-1299247> [<https://perma.cc/R2B8-4CAX>].

221. See Karen Zraick, *Mark Zuckerberg Seeks to Clarify Remarks about Holocaust Deniers after Outcry*, N.Y. TIMES (Jul. 18, 2018), <https://www.nytimes.com/2018/07/18/technology/mark-zuckerberg-facebook-holocaust-denial.html> [<https://perma.cc/8494-K4XJ>] (reporting Facebook founder Zuckerberg’s distinction between conspiracy-theory content harassing Sandy Hook survivors, which is banned, and conspiracy-theory content denying the Holocaust, which was not at the time).

222. Monika Bickert, *Removing Holocaust Denial Content*, FACEBOOK (Oct. 12, 2020), <https://about.fb.com/news/2020/10/removing-holocaust-denial-content/>; see also *Community Standards: Objectionable Content: 12. Hate Speech*, FACEBOOK https://www.facebook.com/communitystandards/hate_speech (last visited Nov. 1, 2020). Internal guidance leaked in 2012 revealed that Facebook required content moderators to automatically escalate Holocaust denial content to more experienced content moderators, suggesting the applicable rule was nuanced even then. See oDesk, *Abuse Standards 6.1: Operation Manual for Live Content Moderators* at 14, <https://www.scribd.com/doc/81863464/oDeskStandards> [<https://perma.cc/P6ZV-V9ZA>] (cited in Klonick, *supra* note 19, at 1644 n.319).

223. James Temple, *How One Climate Scientist Combats Threats and Misinformation from Chemtrail Conspiracists*, MIT TECH. REV. (Jul. 26, 2018), <https://www.technologyreview.com/2018/07/26/240379/how-one-climate-scientist-combats-threats-and-misinformation-from-chemtrail-conspiracists/> [<https://perma.cc/H5CB-DKMN>] (reports researcher David Keith: “For us, it’s

5. Paths Not Taken: Stricter Content Controls Abroad

Governments willing to threaten social media companies can wield significant influence over their content moderation policies – free speech commitments of Facebook, YouTube, and Twitter notwithstanding. The influence of those countries is obviously greatest over the media markets within their jurisdictions, but sometimes Internet regulatory practices developed in one country can seep into others.²²⁴

The European Union, for example, has taken a stronger regulatory approach than the United States to misinformation cascades on social media.²²⁵ The European Commission has created a Code of Practice on Disinformation (“Code”), which defines disinformation, sets forth principles for its management, and establishes commitments by online platforms to sanction accounts and content creators that disseminate disinformation.²²⁶ Social media platforms agreeing to the Code pledge to be more transparent in advertising, “dilute the visibility of disinformation,” implement user-facing fact-checking tools, and share data with researchers.²²⁷ They also agree to invest in technologies, programs, and tools to meet these objectives, as well as to publicly report progress in meeting these goals.²²⁸ Google, Facebook, Twitter, and Microsoft consented to the Code,²²⁹ but reportedly out of fear of “more heavy-handed legislation.”²³⁰

While Facebook asserts that its content policies are universal,²³¹ the company often hires rank-and-file content moderators who live in the same country as the user base being moderated. Facebook does so because content

definitely already causing us some trouble, in the sense that we’ve taken time and even money to talk to Harvard security people and think about physical security measures for us. And I think it is making some people nervous about working on this topic, because they’re worried about physical security. I think we’ll have to take extra time to think about physical security when we do the experiment or have meetings.”).

224. See Paul M. Schwartz & Karl-Nikolaus Peifer, *Transatlantic Data Privacy Law*, 106 GEO. L.J. 115, 165–170 (2017) (describing the diplomatic, security, and market incentives that lead to “convergence” in data privacy practices in Europe and the United States).

225. See Nunziato, *supra* note 161, at 1531–38.

226. EUR. COMM’N, CODE OF PRACTICE ON DISINFORMATION (Sep. 26, 2018).

227. *Id.* at Part I, viii–x.

228. *Id.* at Parts II.D, III (16).

229. Nunziato, *supra* note 161, at 1532.

230. Foo Yun Chee, *Facebook, Google to tackle spread of fake news, advisors want more*, REUTERS (Sep. 26, 2018), <https://www.reuters.com/article/us-eu-tech-fakenews/facebook-google-to-tackle-spread-of-fake-news-advisors-want-more-idUSKCN1M61AG> [<https://perma.cc/K2X6-GJQQ>].

231. *Community Standards: Introduction*, FACEBOOK, <https://www.facebook.com/communitystandards/introduction> [<https://perma.cc/24FA-N8J3>] (last visited June 1, 2020).

moderation often requires familiarity with the language and cultural contexts of the speech governed.²³² This implies that jurisdiction-tailored implementation of the universal standards is important to the company. YouTube similarly states that its content standards apply to all user-posted material on their site.²³³ Exceptions are made, however. In late 2006, for example, YouTube, acting on behalf of the Thai monarchy, removed videos from its platform that mocked the king from streaming within Thailand. One of Google's top lawyers at the time framed the decision as a moment of cultural sensitivity and humility by the company.²³⁴ The decision was also likely influenced by the monarchy's threat "to block YouTube to anyone using a Thai IP address,"²³⁵ cutting the company off from a valuable media market.

Stricter content requirements created for one jurisdiction may spill over into content moderation policies in less restrictive jurisdictions.²³⁶ The extent of inter-jurisdictional spillover is hard to demonstrate because social media companies share little of their internal thinking about platform design and content moderation policies. But there are some examples. For instance, leaked internal guidance from Facebook instructs first-response content moderators to always escalate certain content politically sensitive in Turkey to higher-level review. Flagged content includes images depicting a burning Turkish flag or maps of Kurdistan or otherwise mocking Mustafa Kemal Atatürk, the founder of modern Turkey.²³⁷ It is unclear from the document whether that rule applies universally, but there is reason to think it might. The Turkish government temporarily blocked YouTube in Turkey after Google refused to globally ban videos that mocked Atatürk.²³⁸ It seems not to have blocked Facebook at the time over this particular issue.

Readers may note the preceding analysis is speculative, relying on inference, rumors covered in the press, and leaked documents stripped of their institutional context. This fact-sourcing problem arises from one of the major challenges of misinformation governance. The entities best situated to gather data, the platforms, rarely share this information with the wider research community and are seldom forthcoming about their policy decisions and moderation infrastructure.²³⁹ Until that situation changes, outside observers must rely a great deal on speculation and unverifiable factual assertions – an

232. Newton, *supra* note 127.

233. See *Policies*, YOUTUBE, <https://www.youtube.com/about/policies/#community-guidelines> [<https://perma.cc/T6WW-7FWT>] (last visited June 1, 2020).

234. Klonick, *supra* note 19, at 1623.

235. *Id.*

236. Nunziato, *supra* note 161, at 1532.

237. oDesk, *supra* note 222, at 14; *see also* Klonick, *supra* note 19, at 1644 n.319.

238. Klonick, *supra* note 19, at 1624 (citing Jeffrey Rosen, *Google's Gatekeepers*, N.Y. TIMES MAG. (Nov. 28, 2008)).

239. *See, e.g., id.* at 1644 n.319.

ironic turn for a field seeking to limit the spread of misinformation from unreliable or unverifiable sources.

IV. PROPOSED METHODS OF CHEMTRAIL MISINFORMATION GOVERNANCE

This Part considers different methods that could be used to limit the spread and influence of chemtrail misinformation online. Some methods respond directly to chemtrail conspiracy theory content, with the hope of affording people better access to quality information on solar geoengineering. Others take a wider look at the structural factors that enable the spread of misinformation as a whole. Some responses could be implemented quickly, but the strategies most likely to have the greatest impact would require more resources and time, especially information literacy education. A few methods that should be avoided are also considered, explaining why the risk of backfire or severe collateral damage outweighs potential benefits.

A. Direct Responses to Chemtrail Misinformation

A few measures can directly counter chemtrail content with minimal risk of backfiring. First, opening up governance processes regarding solar geoengineering research could help alleviate the feelings of exclusion and powerlessness that feed conspiracy theories. Second, direct petitioning of social media platforms could nudge them toward limiting the spread of harmful information on their websites. Third, a more organized public communications campaign by solar geoengineering research advocates would provide a focused counternarrative to the chemtrailer worldview. Finally, defamation actions may be available for individuals targeted by maliciously false information.

1. Inclusive Administrative Procedures for Solar Geoengineering Decision-Making

Chemtrail misinformation thrives on feelings of exclusion from control over issues of vital public concern.²⁴⁰ Opening such decision-making procedures up to the public to the widest extent possible could do much to strike at the emotional core of the chemtrail narrative. There are a few legal instruments that could be of use in the case of a federal agency researching solar geoengineering. For example, environmental review under the National Environmental Policy Act can provide substantial opportunities for public participation, hearings, and airing of concerns, so long as the agency is willing to entertain expansive deliberative process.²⁴¹ The public comment process

240. See Bakalaki, *supra* 32, at 13.

241. James W. Spensley, *National Environmental Policy Act*, in ENVIRONMENTAL LAW HANDBOOK 681, 695–97 (Thomas F. P. Sullivan ed.,

on environmental review analysis also obligates the agency to thoughtfully respond to those critiques, creating a record of the public's concerns.²⁴² Maximizing the potential of these administrative processes would require significantly more outreach and publicization than agency decision-making usually receives regarding research programs. There are also limits: a more deliberative administrative process would not create democratic control over administrative outcomes, beside presidential elections. But more inclusive administrative processes would help facilitate better informed stakeholders and help keep decisionmakers attuned to the concerns of those groups.

Potential participation by chemtrailers in these processes raises little reason for concern. Reports of encounters between chemtrailers and scientific experts describe the events as civil and occasionally productive.²⁴³ Furthermore, because chemtrailers theories rely on flimsy evidence, experts and public officials present can quickly counter and debunk them, likely limiting the spread of the belief to other participants. Some conspiracy theory communities encourage violence against supposed perpetrators of the conspiracy, but the chemtrail community is not one of them²⁴⁴

2. Direct Petitioning of Platforms to Control Chemtrail Content

The simplest governance method would be to identify problem areas of misinformation online and bring them to the attention of the platforms in an authoritative, conspicuous, and persuasive manner. Something similar may have already occurred with YouTube and chemtrail misinformation. Anecdotal speaking, in February 2019, a search of “geoengineering” on YouTube and Twitter returned almost exclusively chemtrail conspiracy misinformation.²⁴⁵ This experience was confirmed by empirical research of YouTube's search engine, published later in 2019, reporting the same phenomenon.²⁴⁶ But while researching in November 2020, searching

2019); *see also* Charles R. Corbett, “*Extraordinary*” and “*Highly Controversial*”: *Federal Research of Solar Geoengineering Under NEPA*, 115 NW. U. L. REV. ONLINE ____ (forthcoming 2021).

242. *Id.* at 702 (citing 40 C.F.R. § 1503.4); *see also* Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 1722 (Jan. 10, 2020) (proposed revisions to CEQ's implementing regulations for NEPA containing the same obligation cited in present regulations).

243. *See, e.g.*, Temple, *supra* note 223; Morton, *supra* note 29, at 104.

244. *Cf., e.g.*, Matthew Haag & Maya Salam, *Gunman in 'Pizzagate' Shooting Is Sentenced to 4 Years in Prison*, N.Y. TIMES (Jun. 22, 2017), <https://www.nytimes.com/2017/06/22/us/pizzagate-attack-sentence.html> [<https://perma.cc/N5W9-2MR5>].

245. Without more open sharing of algorithm information by social media companies, it is difficult to gather more than anecdotal evidence on search returns. *See supra* Part III.C.5.

246. Allgaier, *supra* note 15, at 1.

“geoengineering” on YouTube returned only high-quality informational videos on the first page (both for and against scientifically researching stratospheric aerosol injection proposals). Directly searching “chemtrails” returned debunking content, as it also did on Google’s search engine. It seems that YouTube has made good on recent promises to limit user exposure to conspiracy theory content.²⁴⁷

Searching “geoengineering” on Twitter, however, still returns a large amount of chemtrail conspiracy theory content. Twitter is considered more resistant to content restrictions than its peer social media websites,²⁴⁸ but the company has changed its content policies in the past in response to substantial public pressure.²⁴⁹ Petitioning Twitter to respond to especially odious categories of misinformation could be sufficiently popular to repeat the success of previous campaigns.

3. High-Quality Accessible Content on Solar Geoengineering Research

Another approach would be to create more high-quality content on solar geoengineering designed for lay audiences. Counterspeech may be of limited use, but it still has the potential to inform viewers and dispel baseless concerns.²⁵⁰ There is a question, though, of which groups should go about producing such content. It may be the case that only a group dedicated to advocating for scientific research on solar geoengineering would have sufficient capacity and institutional focus to create informative and engaging content over a sustained period. Such a public communications outfit may already be necessary, though, given the emergence of a federal initiative for climate research on stratospheric aerosols.²⁵¹ Alternatives could include partnerships with popular producers of online entertainment-education to create videos on solar geoengineering research. *Kurzegesagt*, a YouTube channel with over 13 million subscribers, in fact released an infotainment video on geoengineering in October 2020 and may be interested in producing

247. See Casey Newton, *YouTube Says It Will Recommend Fewer Videos about Conspiracy Theories*, THE VERGE (Jan. 25, 2019).

248. See, e.g., Issie Lapowsky, *Twitter Finally Axes Alex Jones—Over a Publicity Stunt*, WIRED (Sep. 6, 2018) (reporting Twitter deplatformed right-wing conspiracy theorist Alex Jones only after “Facebook, Apple, YouTube, Spotify, and other tech giants” banned him).

249. Klonick, *supra* note 19, at 1629 (responding to outcry over coordinated harassment by users during GamerGate).

250. Cf. Christine Shearer et al., *Quantifying Expert Consensus Against the Existence of a Secret, Large-Scale Atmospheric Spraying Program*, 11 ENVTL. RES. LETTERS no. 084011 at 8 (2016) (providing an authoritative research document to debunk chemtrail conspiracy theories).

251. See Emily Pontecorvo, *The Climate Policy Milestone That Was Buried in the 2020 Budget*, GRIST (Jan. 8, 2020).

follow-up content.²⁵² This YouTube channel and others have experience in distilling complex scientific topics into digestible, visually appealing short videos, and they have built large audiences for their work.²⁵³ They would make good partners for communicating developments in solar geoengineering research to a wider audience.

4. Tort Actions for Speech-Based Harms

There are signs that federal courts are becoming more receptive to defamation lawsuits and other causes of action for speech-based harms arising factually false news coverage.²⁵⁴ The potential trend reflects “more judges embracing the notion that major news outlets are partisan combatants,” not objective reporters.²⁵⁵ For example, the United States Court of Appeals for the Second Circuit recently held that a lawsuit could proceed against Fox News and two of its reporters, alleging malicious investigation and reporting on the murder of Seth Rich.²⁵⁶ Rich, a Democratic National Committee (“DNC”) employee, was shot to death in 2016, in Washington, D.C., during a botched robbery.²⁵⁷ Conspiracy theorists baselessly speculate that Rich was murdered under orders of the then-presidential candidate Hillary Clinton, and her husband, Bill Clinton, in retaliation for the 2016 DNC email leak.²⁵⁸ The complaint, brought by Rich’s parents, alleged Fox News reporters had

252. Kurzgesagt, *Geoengineering, A Horrible Idea We Might Have to Do*, YOUTUBE (Oct. 27, 2020) [https://www.youtube.com/watch?v=dSu5sXmsur4.](https://www.youtube.com/watch?v=dSu5sXmsur4.;);

253. Kurzgesagt, YOUTUBE, <https://www.youtube.com/user/Kurzgesagt/about> (last visited Nov. 1, 2020) (reporting over 1.1 billion video views); CrashCourse, YOUTUBE, <https://www.youtube.com/user/crashcourse/about> (last visited Nov. 3, 2020) (reporting 11.5 million subscribers and over 1.3 billion views).

254. See Josh Gerstein, *Media’s Legal Defeats Trouble First Amendment Advocates*, POLITICO (Sep. 23, 2019).

255. *Id.* Gerstein cites three separate rulings against media companies: (1) *Butowsky v. Folkenfilk*, No. 4:18cv442, 2019 WL 3712026, at *2–3 (E.D. Tex. Aug. 7, 2019) (alleging a conspiracy between National Public Radio and others in coverage connecting businessman Butowsky to the spread of conspiracy theories about the murder of Seth Rich); (2) *Palin v. New York Times Co.*, 940 F.3d 804, 807–08, 813–15 (2d Cir. 2019) (defamation action brought by former vice presidential candidate Sarah Palin, arising out of an editorial connecting a map released by Palin’s political action committee to the attempted assassination of congresswoman Gabrielle Giffords); and (3) *Rich v. Fox News Network, LLC*, 939 F.3d 112, 117 (2d Cir. 2019) (discussed below). Empirical analysis would be needed to determine whether these three cases are, indeed, part of a larger trend.

256. *Rich*, 939 F.3d at 122–130 (alleging intentional infliction of emotional distress and tortious interference with contract by the reporters, as well as negligent supervision by Fox).

257. *Id.* at 117.

258. *Id.* at 117 n.3.

harassed the Rich family and promoted baseless conspiracy theories about Rich's death on cable news, causing them great emotional harm.²⁵⁹ The Second Circuit panel unanimously found that the pleadings cleared the "actual malice" requirement for public figures bringing suit for defamation or intentional infliction of emotional distress – historically, a very high bar even at the pleadings stage.²⁶⁰

Some argue that lowering such barriers to defamation suits would be good, especially in the context of weaponized defamation via false news reports and coordinated harassment campaigns.²⁶¹ But lowering the bar to defamation suits could significantly harm freedom of the press for the sake of a few private reputations, specifically, those reputations with enough resources to bring suit. As solar geoengineering research continues to develop, however, it is likely that outrageous, false, and damaging claims will be made by chemtrail conspiracy theorists against specific researchers, scientists, or policymakers. A defamation lawsuit may be the least bad option in those circumstances.²⁶² An intriguing side effect would be a court's on-the-record inquiry into the plausibility of chemtrail conspiracy theories allegations, serving as an opportunity to debunk these baseless ideas in the

259. *Id.* at 118–19.

260. *Id.* at 126. More recently, Fox News has come under fire for spreading misinformation about the coronavirus pandemic on some of its television news programs. *See, e.g.,* Todd Gitlin *et al.*, *Rupert Murdoch, Fox News' Covid-19 Misinformation Is a Danger to Public Health*, THE GUARDIAN (Apr. 9, 2020) (open letter by nearly 200 hundred U.S. journalists and teachers of journalism).

Early research indicates conspiracy theory misinformation on Fox News's *Hannity* led to worse social-distancing compliance among its viewers and thus greater incidence of COVID-19. *See* Leonardo Bursztyn *et al.*, *Misinformation During a Pandemic* 1–2 (Becker Friedman Inst. for Econ, U. Chi., Working Paper No. 2020-44) https://bfi.uchicago.edu/wp-content/uploads/BFI_WP_202044.pdf (comparing compliance and infection rates to viewers of Fox's *Tucker Carlson Tonight*, which provided more accurate coverage).

261. *See McKee v. Cosby*, 139 S.Ct. 675, 682 (2019) (mem.) (Thomas, J.) (concurring in denial of cert.) (calling for a reconsideration of *New York Times, Co. v. Sullivan*'s "actual malice" standard for defamation suits).

262. Depending on their prominence, certain geoengineering researchers or academics could be required to show "actual malice" at the pleadings stage in defamation actions. *See Gertz v. Robert Welch, Inc.*, 418 U.S. 323, 345, 351 (1974) (explaining that some people have reduced protection from defamatory speech because they have "thrust themselves to the forefront of particular public controversies in order to influence the resolution of the issues involved," thereby "invit[ing] attention and comment"). *Gertz*, as it happens, concerned reporting by the John Birch Society falsely claiming the lawyer Elmer Gertz was part of a vast communist conspiracy seeking to overthrow the U.S. government. *Id.* at 325; *cf.* Hofstadter, *supra* note 121, at 80.

eyes of people receptive to court authority on fact-finding.²⁶³ For example, a federal court in Canada recently refused to admit evidence presented in support of a lawsuit alleging a covert chemtrail program carried out by the Canadian government, concluding that the expert affidavit was poorly reasoned.²⁶⁴

B. Broader Responses to Online Misinformation

Chemtrail misinformation is symptomatic of larger trends in online misinformation, meaning a more comprehensive response should target those underlying causes. Information literacy education could help equip ordinary people with better tools to make sense of the online media landscape for themselves. Better policies by social media companies would allow outside researchers to analyze the way information flows on their platforms, potentially leading to better ideas for misinformation management. Finally, an informal “public trustee agreement” between social media companies and public advocates could help foster a greater sense of responsibility among platforms for the information needs of their users.

1. Information Literacy Initiatives

The sudden deluge of misinformation is somewhat reminiscent of the explosion of consumer-chemical products in the 1940s and 1950s, exposing Americans to countless unfamiliar chemical compounds in cleaning solvents, hygiene products, and pharmaceuticals.²⁶⁵ Public education efforts developed in the mid-twentieth century to inform consumers of the health risks of ingesting these chemicals, an initiative which, eventually, matured into Poison Control.²⁶⁶ Perhaps one day *Snopes* will be the Poison Control for misinformation, helping Internet users distinguish reliable stories from hoaxes.²⁶⁷ A problem with this analogy, though, is that mid-twentieth century Americans seemed more willing to trust something like Poison Control as an authoritative institution.

263. See Tracy Hester, “Liability and Compensation,” CLIMATE ENGINEERING AND THE LAW, *supra* note 1, at 239–40.

264. *Pelletier v. Her Majesty the Queen*, [2018] F.C. 805, *7–8 (Can.).

265. *Poison Control, on Radiolab*, (WNYC Studios 2018) <https://www.wnycstudios.org/podcasts/radiolab/articles/poison-control> [<https://perma.cc/4QVA-ARZQ>] (describing the efforts of Dr. Edward Press and others “in creating a formalized poison control system in Chicago in the early 1950s”).

266. Robert G. Scherz & William O. Robertson, *The History of Poison Control Centers in the United States*, 12 CLINICAL TOXICOLOGY, 291, 292 (1978).

267. See SNOPEs, <https://www.snopes.com/about-snopes/> [<https://perma.cc/4ZJ6-X7XU>] (last visited May 1, 2020) (Snopes is “the oldest and largest fact-checking site online, widely regarded by journalists, folklorists, and readers as an invaluable research companion.”).

Given the fragmentation of trust and the ease of access to conflicting factual assertions, it is critical to improve community resilience to weak factual claims. That resilience is called “information literacy,”²⁶⁸ and it describes an attitude of skepticism toward unfamiliar factual claims; a sensitivity to bias in reporting; and a set of analytical tools to assess a source’s trustworthiness.²⁶⁹ It is a mindset and a toolkit to assist in weighing information, though it is not necessarily the ability to determine whether a statement is true or false.²⁷⁰ The end goal of information literacy could therefore be described as sophistication enabling an informed sense of trust.

An information literacy campaign could consist of short-term and long-term education goals. In the short-term, public awareness campaigns could urge caution against potentially deceptive claims. Easily sharable informational content, like the infographic *How to Spot Fake News*, is one example: it reminds the reader of basic source-checking steps, like looking up the author and publisher or checking the date of the article.²⁷¹ The infographic may be too thorough, though. It would benefit from simplifying its message to a simple, memorable slogan in the spirit of “stop, drop, and roll,” or “if you see something, say something.” Libraries have produced learning tools like the “CRAAP Test” and the “RADAR” method assessing source credibility,²⁷² but, again, both tools consist of checklists that are too cumbersome to be used regularly in day-to-day life.²⁷³ A better public education campaign is needed that gets across the basic idea of caution.

Skepticism can play only a limited role in the resilience of Internet users. While a skeptical attitude is critical to resisting shaky factual claims, online information consumers appear to be *overly* skeptical of reliable new sources.²⁷⁴ Trust is therefore essential to developing a socially optimal mode

268. EUR. COMM’N, *supra* note 87, at 2; Darrel M. West, *How to Combat Fake News and Disinformation*, BROOKINGS (Dec. 18, 2017) (advocating for reader and viewer skepticism); FACEBOOK, *supra* note 196 (calling for “promoting news literacy”).

269. *Facts and Trust in a Post-Truth World*, *supra* note 125 (interview with Rachel Buchanan).

270. *Id.*

271. INT’L FED. LIBR. ASS’NS & INSTS., *How to Spot Fake News* (digital image) (last updated Jan. 8, 2020) <https://www.ifla.org/publications/node/11174>.

272. MILNER LIBR., ILL. STATE U., *CRAAP Test Worksheet*, https://guides.library.illinoisstate.edu/ld.php?content_id=14672390, (last visited Mar. 6, 2020) (Currency, Relevance, Authority, Accuracy, and Purpose); Jane Mandaliou *RADAR: An Approach for Helping Students Evaluate Internet Sources*, 39 J. INFO. SCI. 470 (2013) (Relevance, Authority, Date, Appearance, and Reason for writing).

273. Mathew C. Sullivan, *Libraries and Fake News: What’s the Problem? What’s the Plan?*, 13 COMMS. INFO. LITERACY 91, 101 (2019)

274. Gordon Pennycook & David G. Rand, *Fighting Misinformation on Social Media Using Crowdsourced Judgments of New Source Quality*, 116 PROC. NAT’L ACAD. SCI. 2521, 2525 (2019) (reporting that survey subjects underrated the

of skepticism. Perhaps an information literacy program would begin early in students' lives, growing more sophisticated as they progress through their education.²⁷⁵ It's worth noting that building an analytical skillset to facilitate informed trust would be difficult and would likely have unpredictable results. By definition, such a program could only give communities the ability to fluently navigate and assess information streams; what learners do with those tools would be left up to them. Nonetheless, when taking the democratic long view on the misinformation problem, such education programs seem necessary. Communities will adjust, one way or another, to the deluge of information online, and it would be foolish for educators not to assist with this transition.

2. Safe Harbor for Research

How social media shapes public discourse is poorly understood by researchers²⁷⁶ and social media companies themselves.²⁷⁷ In the case of Facebook, the lack of information is partly due to the platform's terms of service, which limit "automated collection of public information" and prohibit "the creation of temporary research accounts," both of which are necessary for researchers and journalists to better understand how the website works.²⁷⁸ The Knight First Amendment Institute at Columbia University publicly called upon Facebook to modify its policies to allow this important research, including proposed revisions to its terms of use to allow for such research activities while addressing privacy concerns and other issues.²⁷⁹ Climate researchers of all stripes, including geoengineering academics, could join in efforts to nudge social media platforms toward modifying their terms of service in this regard. There are obvious reasons for company pushback: desire to avoid embarrassment, trade secret concerns, and obligations to protect user information. Facebook, however, has stated in its content policies its commitment to "[c]ollaborating with academics and other organizations to help solve [the issue of false news],"²⁸⁰ which could give advocates some leverage. Perhaps framing the request in terms of promises made and broken, rather than pointing only to the need for research, would give additional persuasive force.

reliability of prominent news sources compared to the assessments of professional fact checkers).

275. JOANNA M. BURKHARDT, *COMBATting FAKE NEWS IN THE DIGITAL AGE* 29 (2018).

276. See Sullivan, *supra* note 276, at 105 (calling for interdisciplinary research to better understand and respond to the problem of misinformation).

277. Letter from Jaffer et al., *supra* note 136, at 1.

278. *Id.* at 2.

279. *Id.*

280. FACEBOOK, *supra* note 196.

3. Public Trustee Agreement

Social media companies have repeatedly stated their commitment to free speech and enacted policies to facilitate the free expression rights of speakers. What is needed, however, are additional commitments to the needs of listeners.²⁸¹ A non-binding agreement between big technology companies and public stakeholders could recognize the responsibilities that come with the influence they wield over the content flows on their networks. Information consumers rely on social media companies to direct their attention to informative, entertaining, and worthwhile content, and filter out the uninteresting and unhelpful. The technologies that structure users' online attention should be guided by not only "engagement," but also concern for the quality of the information being shared. If social media companies are to receive the legal protections of newspaper editors, if not higher, they should be expected to take on the traditional, norms-based responsibilities that come with the editorial role.

A public trustee agreement could, among other things: (1) recognize the connection between information consumption and democratic processes; (2) name social media companies' roles as "public trustees" over the information exchange at the heart of the public discourse;²⁸² (3) assert a commitment to building healthy information exchanges on their websites; and (4) allow users to understand why they are being shown certain content.²⁸³ Much of this agreement would recognize commitments made by social media companies within Europe and quasi-formally import them to the United States. The agreement could be joined by a wide range of prominent civic organizations, universities, and media companies. While it would not include government entities, it should include political advocacy groups so as to increase legitimacy across the political spectrum.

There are a few advantages to a non-binding agreement. First Amendment doctrine prevents most content-based government regulation of private speech. It is therefore unlikely that Congress could create a mandate,

281. See Wu, *supra* note 123, at 569 (advocating for inclusion of listener interests within First Amendment doctrine).

282. Cf. *id.* at 577 (examining and then rejecting a "public trustee" concept for platforms resembling the fairness doctrine that once governed the content decisions of radio and television broadcasters); see also Jack M. Balkin, *Information Fiduciaries and the First Amendment*, 49 U.C. Davis L. Rev. 1183, 1205–09 (2016) (arguing the relationship between social media user and platform owner giving rise to certain fiduciary duties akin to those owed by "doctors, lawyers, and accountants"). Balkin's model describes the obligations of trustworthiness, loyalty, good faith, and care arising out of the power social media platforms have over their users, as well as the societal need for the companies' services, with regard to personal data management.

283. See EUR. COMM'N, *supra* note 226, at part I(iii) (social media companies pledging to "enable users to understand why they have been targeted by a given advertisement.").

say within the Communications Decency Act, requiring a “fair, reliable, and robust” exchange of ideas on large social media platforms.²⁸⁴ A non-binding agreement, however, would not have to find its way through Congress and survive judicial review, nor would it provoke the same fears of thought control from Oceania’s Ministry of Truth. The proposal draws on the workings of international law, where non-binding agreements can be powerful tools to enforce norms and encourage good behavior in the absence of an overarching government authority.²⁸⁵ While advocates should be wary of uncritically porting the principles of international law into an arena where they may not belong, this does seem to be a situation in which a non-binding agreement could help.

There also is something to be said for the value of a range of interest groups, universities, and media companies *declaring* social media companies as public trustees, simply because of the power the companies possess, without the assent of the companies themselves. Though there are many reasons why these companies would not want to agree, absent threat of state sanction,²⁸⁶ signing onto such an agreement could help restore their reputations.

C. Proposals to Avoid

This Subpart argues that two widely discussed strategies for countering misinformation have drawbacks that would likely far outweigh their benefits. Targeted debunking campaigns of chemtrail conspiracy content could inadvertently draw attention to and spread chemtrail misinformation. The better approach would be to continue communicating a clear, accessible, and prominent narrative on what solar geoengineering research actually is. Paring back third-party liability protections under the Communications Decency Act, meanwhile, would severely harm the vigorous exchange of ideas online. Advocates should seek other forms of leverage over social media platforms to push them toward improving their content moderation practices.

284. See *Reno v. ACLU*, 521 U.S. 844, 849 (1997) (striking down overly broad anti-indecency content requirements in the Communications Decency Act); see also Volokh & Falk, *supra* note 180, at 893 (“It is clearer still that the government may not demand that a search engine live up to some hypothetical and undefined expectations of abstract objectivity.”).

285. See also Stephen P. Mulligan, CONG. RES. SERV., *International Law and Agreements: Their Effect upon U.S. Law* 12 (2018) (“such commitments may . . . carry significant moral and political weight”); see also Restatement (Third) of Foreign Relations Law of the United States § 301, Reporters’ Notes 2, Nonbinding agreements (1987) (“the political inducements to comply with such agreements may be strong and the consequences of noncompliance may sometimes be serious.”).

286. See Foo Yun Chee, *supra* note 230.

1. Targeted Counterspeech Campaigns to Debunk Chemtrail Conspiracy Theories

It is doubtful that authoritative institutions can launch effective directed debunking campaigns against conspiracy communities. First, singling out a conspiracy theory for debunking gives it publicity, which causes more people to be exposed to the problematic content.²⁸⁷ Second, being targeted by an authority figure is easily twisted into unfalsifiable evidence in support of the conspiracy: “They are suppressing us because we speak the truth.” Third, belief in outlandish conspiracy theories arises from a *feeling of distrust* more than the strength of the theory’s supporting evidence.²⁸⁸ Debunking conspiracy theories through covert infiltration of conspiracy communities, as some have proposed,²⁸⁹ seems even worse since it proposes an elaborate, real conspiracy to debunk outlandish, baseless ones.²⁹⁰ The “cure” would realize many of the fears of the communities targeted. Pro-research advocates of solar geoengineering absolutely should debunk misstatements describing the field, but they should avoid *targeting* individual conspiracy theory groups with those debunking materials.

2. Stripping Section 230 of the Communications Decency Act of Platform Liability Protections

Section 230 of the Communications Decency Act limits the liability of digital intermediaries like Facebook and YouTube for third-party statements posted on their platforms; the platforms also cannot be liable for good faith removal of “objectionable material” from their websites.²⁹¹ Section 230 is of fundamental importance to the Internet as it exists today and the profit models of social media platforms.²⁹² Without it, operating a website like Facebook or YouTube could prove too risky due to threat of litigation. Because of Section 230’s value, it is a powerful source of leverage for federal lawmakers over big tech companies.

287. Wu, *supra* note 123, at 559.

288. See Jones, *supra* note 80, at 15; Cairns, *supra* note 20, at 80; Bakalaki, *supra* note 32, at 13.

289. See Sunstein & Vermeule, *supra* note 114, at 227 (making the case for covert “cognitive infiltration”).

290. David Coady, *Cass Sunstein and Adrian Vermeule on Conspiracy Theories*, 3 ARGUMENTA 299–300 (2018) (“There is a glaring pragmatic inconsistency . . . [in] assurances that governments rarely get away with secrecy in open societies like ours and . . . advocacy of government secrecy (and indeed deception).”) at 9 (2017).

291. BRANNON, *supra* note 172, at 10–11 (citing 42 U.S.C. § 230(c), (f)).

292. Ammori, *supra* note 94, at 2264.

Admittedly, leverage is needed to bring social media companies to the table on content control, such as with the supposedly voluntary Disinformation Code, created by the European Commission and agreed to by Google, Facebook, and others out of fear of more intrusive regulation.²⁹³ It is important, though, not to lose sight of the problem at hand: the careless mass dissemination of patently false information to users ill-equipped to sift through floods of contradictory claims. The liability shield created by Section 230, by contrast, is widely recognized as a good idea and fundamental to the contemporary information economy.²⁹⁴ Threatening limitations on this immunity may therefore be seen as a bluff. Perhaps concomitant responsibilities could be attached to this grant of immunity, though it is highly doubtful that a law establishing an obligation to limit “misinformation” or “objectively false” content could survive constitutional review.²⁹⁵ In any event, the Section 230 shield should stay in place – destroying it would be a drastic and self-defeating option.

V. CONCLUSION

The legitimacy of solar geoengineering research depends, in part, upon a free and productive public debate of the proposal’s merits and results. Chemtrail content, however, blights public discourse by obscuring facts and amplifying mistrust of scientific experts. Some may be tempted to write this problem off as unimportant. But experience has shown that baseless conspiracy theories can take root, spread, and alter political landscapes when they give voice to widespread anxieties.²⁹⁶ Chemtrailer narratives speak concretely to solar geoengineering’s most worrisome aspect, namely, the planet’s climate controlled by an unaccountable elite.²⁹⁷ There is good reason, then, to believe the idea could spread as scientific research of solar geoengineering advances, with the consequence of distorting its politics.

Considerations of solar geoengineering governance thus must be expanded to consider the mass-information structures that shape public deliberation. Misinformation governance in turn must sharpen its focus and analyze separately the different types of popular false information for their social function, appeal, and impact. The foregoing analysis suggests a few immediate measures to take, like more open cooperation between social media companies and outside researchers, or algorithmic design choices that limit amplification of chemtrail content. But the governance of both solar

293. Foo Yun Chee, *supra* note 230.

294. *E.g.*, U.N. Human Special Rapporteur on Freedom of Opinion and Expression et al., *supra* note 200, at 2 (stating as a general principle of the right to free expression under international law that digital “[i]ntermediaries should never be liable for any third party content relating to those services unless” certain conditions are met).

295. *See Reno v. ACLU*, 571 U.S. 844, 870–71 (1997).

296. *See generally* Hofstadter, *supra* note 121.

297. *See generally* Cairns, *supra* note 20.

geoengineering and misinformation are multi-generational projects. It is critical to approach both problems with an eye on the centuries to come. Information literacy programs and more open governance processes could go far in combating the factors that spur belief in conspiracy theory misinformation. But there will be no going back to the pre-online world, just as there will be no return from the Anthropocene.