*Journal of Contemporary Rhetoric, Vol. 7, No.4, 2017, pp. 203-216.*

# Rhetorical Logic Bombs and Fragmented Online Publics of Vaccine Science

Miles C. Coleman*

*Vaccine denialists are commonly conceived as those who trade "internet articles" within their own "worlds." Such fragmentation of publics is often regarded as a problem exacerbated by the technical features of the web (e.g., the algorithms of search engines and news aggregators) allowing people to avoid texts inharmonious to their already established worldviews. I make the point that such fragmentation is not simply a technical problem, solved by adding "diversity of texts," exposing members of fragmented publics to new content, but also a rhetorical one, requiring adaptive engagement with the forms, and lines of argument, practiced between others', and one's own, publics. Rhetorical logic bombing is offered as the strategy of placing media within the common network of texts that constitutes a given fragmented public in order to "sneak in" a critique of the belief-structures of that public.*

**Keywords:** digital rhetoric, rhetoric of science and technology, vaccination, rhetorical logic bombs, networked publics

> What a thing was this, too, which that mighty man wrought and endured in the carven horse, wherein all we chiefs of the Argives were sitting, bearing to the Trojans death and fate! Then thou camest thither, and it must be that thou wast bidden by some god, who wished to grant glory to the Trojans, and godlike Deiphobus followed thee on thy way.[1]

In the legend of the "Trojan Horse," Greek soldiers hid inside a large horse, carved of wood, as the rest of their comrades feigned retreat and sailed away from Troy. Thinking they had won the battle, the Trojans pulled the horse into the city walls. Later that night, the Greeks snuck out of the horse and opened the gates, giving entrance to the returning Greek army. It was from here that the Greeks attacked Troy—from the inside. The "glory" that the Greeks achieved was not the result of brute strength, or bare courage. It was the result of patient awareness of Trojan culture and habitus (at least enough to predict that they would claim the horse as a post-victory trophy); not by demanding that the Trojans take down the wall, or even attacking the wall itself, but by gaining entrance through the front gate.

In this article, I wish to show that the Trojan horse legend is not unlike the modern problem of fragmentation, endemic to online publics. Only, instead of trying to "trick" publics, we are interested in effectively introducing truth claims to our fellow community members—such as vaccine denialists—despite their congregation in online networks, aloof from mainstream science. As the story of the Trojan Horse informs us, perhaps the best way to approach the boundaries that separate publics is not by attacking the boundary itself, by merely calling a particular network pseudoscientific, but rather to investigate the "web epistemologies," or ways of knowing interwoven with

* Miles C. Coleman (Ph.D., the University of Washington) is an Instructor in the program on Digital Technology and Cultures at Seattle University. He can be reached by email at colemanm@seattleu.edu.

[1] Homer, *The Odyssey with an English Translation by A.T. Murray, PH.D. in Two Volumes* (London, William Heinemann, Ltd. 1919), http://www.perseus.tufts.edu/hopper/text?doc=urn: cts:greekLit:tlg0012.tlg002.perseus-eng1, 4.265-4.314.

ISSN 2161-539X (online) 

the very media that constitute a given public—to better understand the cultural *ethos* and lifeworld that characterizes that public.[2] Today, in the academy, we are attempting to move "upstream" in order to more responsibly engage (and advocate) for public "matters of concern," like vaccine science, whose counterpublics are notoriously suspicious of arguments from scientific consensus, and tend to turn to online sources for their information.[3]

For the remainder of the article, with the help of some web crawling, and network visualization tools, I map two fragmented publics: one of vaccine denialism and the other of pro-vaccination. From there, I employ rhetorical analysis of the discourses of these publics in order to grab glimpses of the values that undergird the lifeworlds of each respective public. From unpacking the discourse, it is shown that these publics calculate "crowd wisdom" differently. And, consequently, the formal conventions regarding what constitutes reliable evidence shifts along the lines of this logic. To the vaccine denialist public, homogeneity of the content that circulates the public allows for an "enlightened" crowd to congregate and enhance density of belief. This logic brings its own *modus operandi* of media use; thus, pieces of media that simply would not be perceived as scientific within the consensus of normal science, actually constitute, for the vaccine denialist public, reliable sources of scientific knowledge. *Rhetorical logic bombs* are described as pieces of media that emulate the style of such media artifacts, but which actually carry critiques of the beliefs of a given public. As we will find later, rhetorical logic bombs are a strategy aimed not at appropriating the cultural logic of a particular networked public in order to "negate" that logic, but rather to insert questions where a given public might ordinarily find answers, by "pranking" that public: "playfully and provocatively folding existing cultural forms in on themselves."[4] The essay will give examples of rhetorical logic bombs, which emulate the practice of using the Vaccine Adverse Events Reporting System in order to question the unique logic of "crowd wisdom" that characterizes the vaccine denialist networked public. I now move to develop a theoretical backdrop for thinking about proactive engagements with fragmented publics of vaccine denialism that are rhetorical and not merely technical.

## Fragmented Publics: The Need for Proactive Engagement

In pursuit of dialogue, and in line with the value that we give dialogue with respect to healthy society, we find ourselves investigating the problem of "echo chambers."[5] In both the academic and popular spheres, the fragmented character of our contemporary "virtual public sphere" is commonly conceived as a problem with regard to lacking diversity of content—a constraint on productive public engagement, because it isolates persons from oppositional points of view.[6] Person-

---

[2] Richard Rogers, *Information Politics on the Web* (Cambridge, MA: MIT Press, 2004).

[3] Harry M. Collins and Robert Evans, "The Third Wave of Science Studies: Studies of Expertise and Experience," *Social Studies of Science* 32, no. 2 (2002): 235-296; Bruno Latour, "Why has Critique Run out of Steam? From Matters of Fact to Matters of Concern," *Critical Inquiry* 30, no. 2 (2004): 225-248; Eve Dubé, Caroline Laberge, Maryse Guay, Paul Bramadat, Réal Roy, and Julie Bettinger, "Vaccine Hesitancy," *Human Vaccines & Immunotherapeutics*, 9, no. 8 (2013): 1763-1773.

[4] Christine Harold, "Pranking Rhetoric: 'Culture Jamming' as Media Activism," *Critical Studies in Media Communication* 21, no. 3 (2004): 189-211.

[5] Porismita Borah, Kjerstin Thorson, and Hyunseo Hwang, "Causes and Consequences of Selective Exposure Among Political Blog Readers: The Role of Hostile Media Perception in Motivated Media Use and Expressive Participation," *Journal of information Technology & Politics* 12, no. 2 (2015): 186-199; Kathleen H. Jamieson and Joseph N. Cappella, *Echo Chamber: Rush Limbaugh and The Conservative Media Establishment*, (New York, NY: Oxford University Press, 2008).

[6] Paul R. Resnick, Kelly Garrett, Travis Kriplean, Sean A. Munson, and Natalie Jomini Stroud, "Bursting Your (Filter) Bubble: Strategies for Promoting Diverse Exposure," in *Proceedings of the 2013 Conference on Computer Supported Cooperative Work Companion* (New York, NY: ACM, 2013); Neil Thurman and Steve Schifferes, "The Future of Personalization at News Websites: Lessons from A Longitudinal Study," *Journalism Studies* 13, no. 5-6 (2012): 775-790; Stuart Dredge, "Digital Politics: Are We Trapped Within our Online Filter Bubbles?" November 11, 2015, *The Guardian*, http://www.theguardian.com/technology/2015/nov/11/digital-politics-online-filter-bubbles; Holly Green, "Breaking Out of Your Internet Filter Bubble," August 29, 2011, *Forbes*, http://www.forbes.com/sites/work-in-progress/2011/08/29/breaking-out-of-your-internet-

A only goes to websites he or she agrees with, and so, only gets information that he or she is already biased toward. This problem of "hiding" within one's own refuge of belief has been addressed in the literature with a strong aim at enhancing media literacy and media tools on the part of users as *consumers* of information, by noting such phenemona as "selective exposure" and "motivated information processing."[7] However, proactive engagement—*making* media—with specific regard for effective advocacy, despite the fragmentation of publics online, remains wanting.

When scholars discuss fragmented online publics it is almost exclusively a pejorative term as there is a presumption that fragmentation should be ruptured through technology design in order to promote ideal conditions for dialogue.[8] Scholars have interrogated, for instance, algorithms and their encouragement of the problem of homogenous perspective amid public engagement and debate, and/or the overriding effects of preexisting attitudes for content selection, even when multiple viewpoints are present.[9] Even the "material practices" and "social arrangements" associated with offline political segregation, and how they can be "remediated" into online publics has been studied.[10] Such studies are telling of the potential and real problems of polarization of viewpoints inherent to fragmented publics, and fit well with potential solutions in the form of software redesign.[11] However, as I will discuss in the following section, for issues, like vaccine denialism, we are also in need of modes of engagement, willing to be more proactive, to advocate for public health, without relying primarily on other parties to fix our information technologies, or for fragmented publics of science to "help themselves" to become more informed.

## Rhetoric and Fragmented Publics: Breaching the Lifeworld of Vaccine Denialists

Fragmented publics are constituted and justified by the very public discourses that compose them; they seek out "confirmation that such a public exists, with greater or lesser success—success being further attempts to cite, circulate, and realize the world-understanding it articulates."[12] Consequently, as Habermas will point out for us, the "competent subjects" who are in touch with the

---

filter-bubble/#7a79be77e90a; Zizi Papacharissi, "The Virtual Public Sphere: The Internet as Public Sphere," *New Media & Society* 4, no. 1 (2002): 9-27.

[7] Resnick et. al., "Bursting Your (Filter) Bubble."

[8] Valentina Maccatrozzo, "Burst the Filter Bubble: Using Semantic Web to Enable Serendipity," in *The Semantic Web – ISWC 2012 Lecture Notes in Computer Science vol 7650,* eds. Philippe Cudré-Mauroux, Jeff Heflin, Evren Sirin, Tania Tudorache, Jérôme Euzenat, Manfred Hauswirth, Josiane Xavier Parreira, Jim Hendler, Guus Schreiber, Abraham Bernstein, Eva Blomqvist (Berlin: Springer, Heidelberg, 2012).

[9] Eli Pariser, *The Filter Bubble: What the Internet is Hiding from You* (London: Penguin Press, 2011); Engin Bozdag and Jeroen van den Hoven, "Breaking the Filter Bubble: Democracy and Design," *Ethics and Information Technology* 17, no. 4 (2015): 1-17; Tien Nguyen, Pik-Mai Hui, Maxwell Harper, Loren Terveen, and Joseph Konstan, "Exploring The Filter Bubble: The Effect of Using Recommender Systems on Content Diversity," in *Proceedings of the 23rd International Conference on World Wide Web* (New York, NY: ACM, 2014); Engin Bozdag, "Bias in Algorithmic Filtering and Personalization," *Ethics and Information Technology* 15, no. 3 (2013): 209-227; Kate Crawford, "Can an Algorithm be Agonistic? Ten Scenes from Life in Fragmented Publics," *Science, Technology & Human Values* 4, no. 1 (2015): 77-92; Liao, Q. Vera and Wai-Tat Fu, "Beyond the Filter Bubble: Interactive Effects of Perceived Threat and Topic Involvement on Selective Exposure to Information," in *Proceedings of The SIGCHI Conference on Human Factors in Computing Systems* (New York, NY: ACM, 2013); Elad Yom-Tov, Susan Dumais, and Qi Guo, "Promoting Civil Discourse through Search Engine Diversity," *Social Science Computer Review* 32, no. 2 (2014): 145-154;

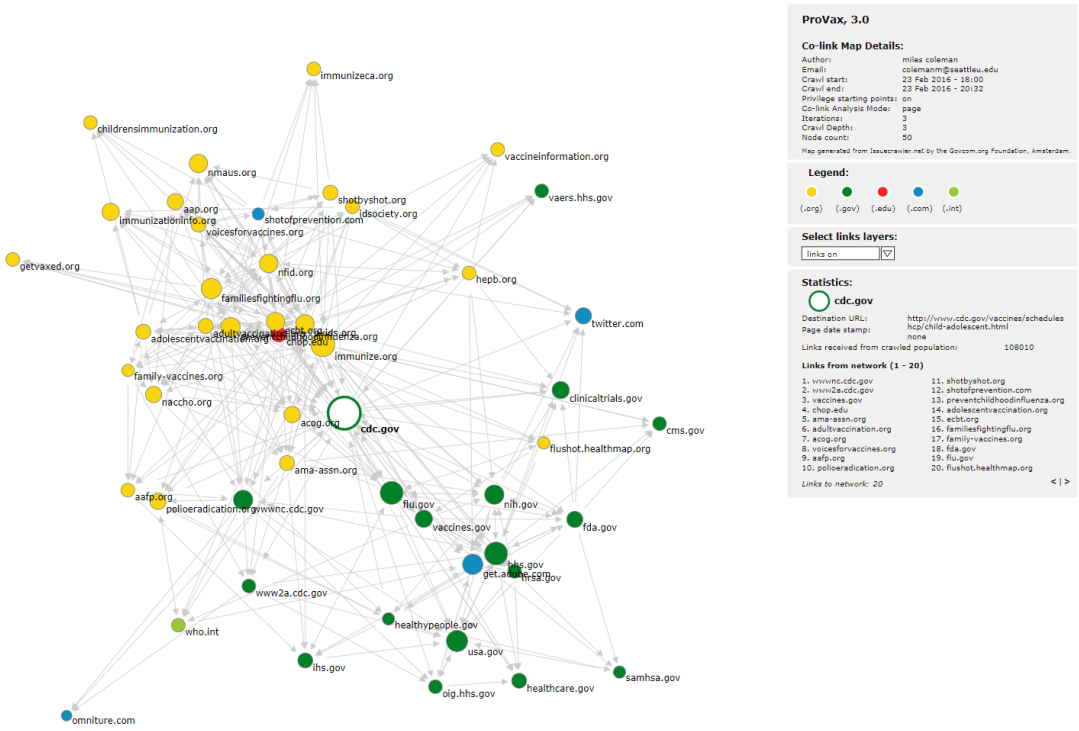
[10] David J. Bolter and Richard A. Grusin, "Remediation," *Configurations* 4, no. 3 (1996): 311-358, 357; Engin Bozdag, Qi Gao, Geert-Jan Houben, and Martihn Warnier, "Does Offline Political Segregation Affect the Filter Bubble? An Empirical Analysis of Information Diversity for Dutch and Turkish Twitter Users," *Computers in Human Behavior* 41 (2014): 405-415.

[11] Batya Friedman and Helen Nissenbaum, "Bias in Computer Systems," *ACM Transactions on Information Systems* 14, no. 3 (1996): 330-347; Ian Bogost, *Persuasive Games: The Expressive Power of Videogames* (Cambridge, MA: MIT Press, 2007).

[12] Michael Warner, "Publics and Counterpublics," *Public Culture* 14, no. 1 (2002): 49-90, 6; Borah, Thorson, and Hwang have shown that agents in digital networks—specifically politically biased blogospheres—will exhibit defensive media selection in response to perceptions of "hostile perceptions of mainstream news," in turn, making media choices that allow them to remain in their own respective "echo chambers" with other agents who share their beliefs. With respect to something like compulsory vaccination, many mainstream messages are, in fact, hostile to vaccine denialist counterpublics. Thus, it is reasonable to assume that vaccine denialists would also retreat to networks less likely to challenge their views. Porismita Borah, Kjerstin Thorson, and Hyunseo Hwang, "Causes and Consequences of Selective Exposure Among Political Blog Readers: The Role of Hostile Media Perception in Motivated Media Use and Expressive Participation," *Journal of information Technology & Politics* 12, no. 2 (2015): 186-199, 187.

"moral intuition" of a given public, "are constituted as individuals by growing into an intersubjectively shared lifeworld; and the lifeworld of a language community is reproduced in turn through the communicative actions of its members."[13] Put in terms of fragmented publics online, when individuals come together in ways unprecedented regarding preference for lifeworld, via the (re)circulation of texts (and the ideas they represent) in highly focused hyperlink networks, they too constitute their own unique versions of competent subjects, and, consequently, their own expectations of persuasive rhetorical action on the part of those subjects.

Papacharissi, in her description of online "affective publics," describes them as "networked infrastructures that present people with environments of a social nature, supporting interactions that are aligned with the particular cultural *ethos* deriving from a historical or geographic context."[14] Is this cultural *ethos*, inextricably woven with the texts that circulate within, and constitute, a given public, that gives the texts in that public their own unique persuasiveness. Take for example the pro-vaccination public depicted below.[15] Its central node, the Centers for Disease Control (CDC), links out to many other governmental webpages and sites, almost categorically in favor of vaccination. The texts that constitute this public represent a material account of influence. The CDC website, for instance, manifests itself as an authoritative text, demonstrating centrality within the network. One would expect, then, that when other texts link to the CDC website they are doing so in a way that presumes the CDC's authority, and by proxy, the scientific consensus the CDC represents.

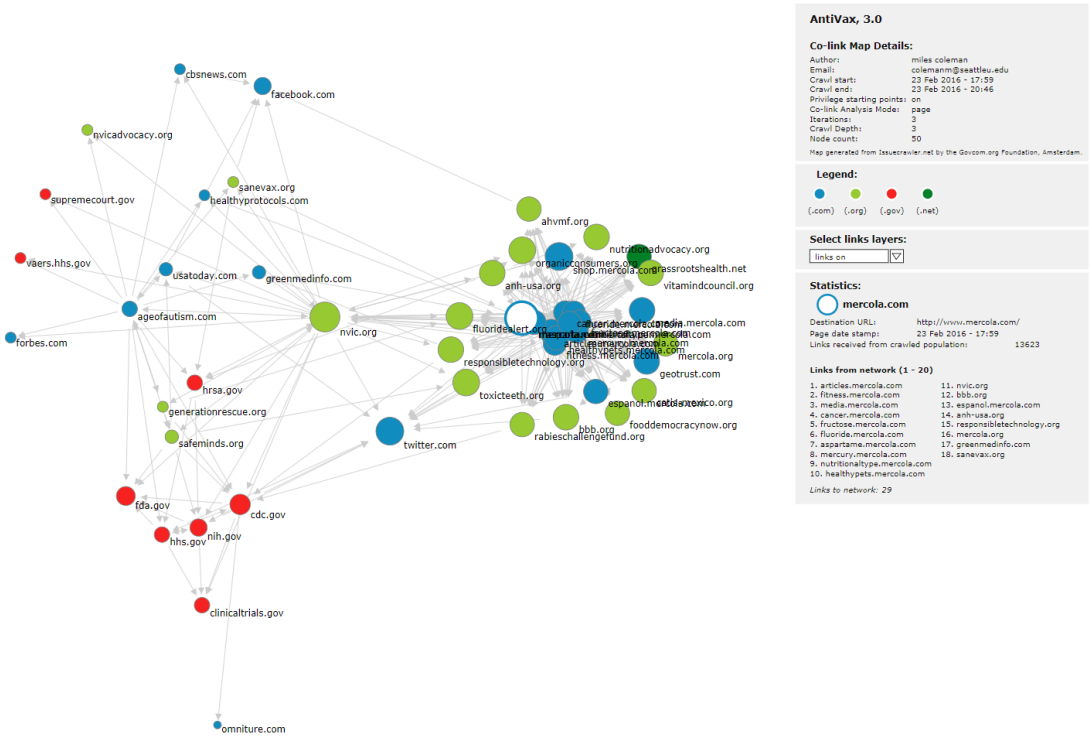



[13] Jurgen Habermas, "Morality and Ethical Life: Does Hegel's Critique of Kant Apply to Discourse Ethics?" *Northwestern University Law Review* 83, no.1-2 (1989): 38–53, 42. With respect to lifeworld, Kraus makes a tremendously useful distinction between "life conditions" and "lifeworlds," to help better deal with the fact that empirical realities are not the same as the phenomenological experience of those realities. Though I do not invoke life conditions directly, the distinction is one that informs the entire analysis. Björn Kraus, "The Life We Live and the Life We Experience: Introducing the Epistemological Difference between 'Lifeworld' (Lebenswelt) and 'Life Conditions' (Lebenslage)," *Social Work & Society* 13, no. 2 (2015), http://www.socwork.net/sws/article/view/438/816.

[14] Zizi Papacharissi, *Affective Publics: Sentiment, Technology, and Politics* (Oxford University Press, 2014), 121, emphasis mine.

[15] See Table One in appendix and the legend in the network map for more information on the settings and "seed" URLs used. Map generated using IssueCrawler. "Instructions of Use," http://www.govcom.org/Issuecrawler_instructions.htm. See also Govcom, "About Govcom.org," http://www.govcom.org/about_us.html.

Conversely, the vaccine denialist public, visualized below, has as a central node, the National Vaccine Information Center (NVIC). Interestingly, although one only needs to do a brief glance at each network map to see that they are starkly different from one another, there is at least one overlapping text. At the outer left edge of the vaccine denialist network and at the right outer edge of the pro-vaccination map, we can see some "cross linkage" to the CDC, and more specifically, to its Vaccine Adverse Events Reporting System (VAERS). *Prima facie*, it might seem that these publics are demonstrating diversity of perspective. But, as we will learn later, in actuality, they are not, for just because two fragmented publics share a text, does not mean that they necessarily share in cultural *ethos*—their lifeworlds can still be very different. And so, the ways that they use and make sense of media, too, are different.




Further, some members of pro-vaccination publics might argue that "watching youtube videos and visiting wacky web sites isn't actually research, it's an exercise in ignorance and confirmation bias."[16] But, such arguments demonstrate a lack of awareness regarding the situated "knowledge domains" that can shape the making of scientific beliefs.[17] In fact, some might argue that such arguments actually represent self-effacing attempts to "courageously" stand for scientific consensus by ignoring the very audience one might be attempting to persuade, and choosing instead to "impatiently" perpetuate polarization by "restating slogans of scientific consensus," instead of working to meet a disagreeing public within their own media-infused lifeworld.[18] To move toward a glimpse of the lifeworld of a vaccine denialist public, I now turn to the logic of crowd wisdom.

---

[16] This statement was taken from a reader comment posted to a *Washington Post* article, linked to the @CDCIZLearn Twitter feed. ndavis2. January 23, 2015, 11:08 AM, "Disneyland Measles Outbreak Strikes in Anti-Vaccination Hotbed of California," January 22, 2015, *The Washington Post*, https://www.washingtonpost.com /news/morning-mix/wp/2015/01/22/disney-measles-outbreak-strikes-in-anti-vaccination-hotbed-of-california/?Post+generic=%3Ftid%3Dsm_twitter_washingtonpost.

[17] Patrick Sturgis and Nick Allum, "Science in Society: Re-Evaluating the Deficit Model of Public Attitudes," *Public Understanding of Science* 13, no. 1 (2004): 55-74.

[18] Miles Coleman, "The Role of Patience in Arguments about Vaccine Science," *Western Journal of Communication* (In-Press): http://dx.doi.org/10.1080/10570314.2017.1294708, 2.

## The "Wise Citizenry" of the Vaccine Denialist Fragmented Public

For better or worse, public opinion is influential, even in the anonymous, capricious landscape of the web. Describing a framework for understanding aspects of "smart crowds," or crowds that stand to contribute reliable information as a crowd, Suroweiki gives four conditions. The first condition is, "*diversity of opinion*," the idea that "each person should have some private information, even if it's just an eccentric interpretation of the known facts." The second condition is "*independence*," where people's opinions are not determined by the opinions of those around them." The third condition is "*decentralization*," which allows for "people…to specialize and draw on local knowledge." The fourth condition is "*aggregation*," wherein "some mechanism exists for turning private judgments into a collective decision."[19] Suroweiki goes on to say, "if you ask a large enough group of diverse, independent people to make a prediction or estimate a probability, and then average those estimates, the errors each of them makes in coming up with an answer will cancel themselves out."[20]

In the context of the vaccine denialist fragmented public, a kind of crowd wisdom is represented, but one specific to that particular public.[21] Ordinarily, one might recognize that it is only through diverse perspectives having been assessed by a decentralized public, composed of independent actors, that errors can "cancel themselves out."[22] But within the vaccine denialist fragmented public, the homogeneity of perspective is widely recognized. And, yet, legitimacy is nonetheless maintained, not because it represents the diversity of the grander public sphere, but because it represents the solidarity of the enlightened.

## The "Crowd Wisdom" of the Vaccine Denialist Fragmented Public

Upon visiting one of the central nodes in the vaccine denialist public depicted above—The National Vaccine Information Center—one is met by a webpage with a grassroots aesthetic. Cluttered with busy arrays of hyperlinks, photos, and what some might consider "unflashy" but effective HTML coding, the webpage appears to be run by competent people with a modest budget for design. This aesthetic itself works well into the idea that this is the webpage of a "national charitable, non-profit educational organization" established for the advocacy "of vaccine safety and informed consent protections."[23] It is a grassroots approach to tearing down the "orthodoxy" of vaccine science via the unfettered accumulation of evidence for the case that vaccines can be dangerous. An excerpt from the NVIC attests:

> Today in America, when we take the initiative to become educated about vaccination and infectious diseases, we are publicly labeled as "ignorant" and "selfish" if our newfound knowledge leads us to disagree with vaccine orthodoxy. Knowledge *is* power and, as a 19th century poet said so well, "doubt grows with knowledge." So, it is no wonder that physician keepers of vaccine risk knowledge, secrets

[19] James Suroweiki, *The Wisdom of Crowds* (New York, NY: Anchor Books, 2005), 10, emphasis mine.
[20] Ibid., 10, emphasis mine.
[21] If one requires further evidence for the claim that crowd wisdom can be a persuasive influence, one needs not look further than the tradition of work done in the spirit of Solomon Asch's famous studies of "social conformity," wherein it is made rather clear that individuals can concede to even ridiculous conclusions if they perceive those conclusions as ones represented by the consensus of a given group. For example, see Solomon Asch, "Opinions and Social Pressure," *Scientific American*, 193, no. 5 (1955): 31-35.
[22] Suroweiki, *The Wisdom of Crowds*, 10.
[23] "About," *National Vaccine Information Center*, http://www.nvic.org/about.

> and myths are threatened in the 21st century by the people's ability to gain free access to the Library of Medicine online and engage in uncensored conversations about vaccination.[24]

By necessity, in order to liberate oneself from a false scientific paradigm one must become amenable to unconventional ways of knowing—they must operate *outside* of the scientific "orthodoxy."[25] Galileo, for instance, exemplified this character as a citizen ("scientist" as a professional career did not yet exist in Galileo's day) who was unafraid to speak the truth of his astronomy, relying heavily on a social network of fellow enlightened citizens with whom he interacted outside of the mainstream in order to develop that science.[26] It is in this way that the vaccine denialist fragmented public perceives isolation from the mainstream not as an effect of self-deception, or as a hindrance to generating crowd wisdom, but as necessary recourse for a public of enlightened citizens to appropriately engage science. This sentiment of empowerment is underscored by the texts that constitute the public, in that they are spoken of as bringing together competent subjects, despite "corporate, government, and mass media hype that diverts you away from what is truly best for your health and often to a path that leads straight to an early grave."[27]

The *topos*, or line of argument, that allows crowd wisdom—which inherently requires diversity of points of view to exist at all—to nonetheless endure within a public, united by self-declared minority view, is revealed. *If a scientific perspective is true, but unavailable to the paradigm of mainstream science, then the input of the grander public sphere becomes irrelevant to the calculation of crowd wisdom*. Galileo did not allow the dominant, Earth-centered, astronomy of his day to temper his theory of a Sun-centered galaxy. Why would he? The majority of persons in his day would have been wrong, because many did not understand the science in the first place. In turn, the very dominance of consensus that defines the current "vaccine paradigm" is what facilitates the logic of an enlightened citizenry, which, in turn, apparently absolves this public of the requirement to be dialogically related to the pro-vaccination orthodoxy. As such, engaging such publics is made difficult. One can surely try to share brochures or point members of vaccine denialist fragmented publics to more mainstream sources, or even make "Twitter bots," designed to "correct" scientific misinformation by linking to peer-reviewed articles, as one person did in response to climate change denialist arguments on Twitter.[28] But these will likely be ineffectual because they are based on resources not moored within the use of media interwoven with the lifeworld of a science denialist fragmented public. Rather, they are moored in the "orthodoxy" of science itself.

In contrast to the mainstream news programs and news webpages that Deluca and Peeples discuss as constituting the "public screen," the vaccine denialist public uses strategies not aimed at appealing broadly *per se*; it is not just a deliberative move, which attempts to persuade the mainstream public that they are wrong.[29] Conversely, they employ an *epideictic* ("celebratory") rhetoric that encourages congregation and isolation of individuals who share lifeworld, outside of normal science. One such instance of this can be found in the particular way that this public reads the Vaccine Adverse Events Reporting System webpage, and utilizes its data as a resource for

---

[24] Barbara Fisher, "Knowledge is the Antidote for Vaccine Orthodoxy," *National Vaccine Information Center*, January 2016, http://www.nvic.org/nvic-vaccine-news/january-2016/knowledge-is-the-antidote-for-vaccine-orthodoxy.aspx, emphasis in original.
[25] Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago, IL: University of Chicago Press, 2012).
[26] Drake illustrates Galileo's stealthy, uncensored correspondence with fellow enlightened natural philosophers regarding heliocentric ("sun-centered") astronomy amid a paradigm accustomed to a vision of the Earth as the center of the cosmos. Stillman Drake, *Galileo at Work: His Scientific Biography* (Chicago, IL: University of Chicago Press, 1978).
[27] Joseph Mercola, "About Dr. Mercola," *Mercola.com*, http://www.mercola.com/forms/background.htm.
[28] Clay Dillow, "Tired of Repetitive Arguing about Climate Change, Scientist Makes a Bot to Argue for Him," November 3, 2010, *Popular Science*, http://www.popsci.com/science/article/2010-11/twitter-chatbot-trolls-web-tweeting-science-climate-change-deniers.
[29] Kevin DeLuca and Jennifer Peeples, "From Public Sphere to Public Screen: Democracy, Activism, and the 'Violence' of Seattle," *Critical Studies in Media Communication* 19, no. 2 (2002): 125-151.

making claims about vaccine safety. In fact, as will be illustrated in the following section, the lifeworld, the very logic of crowd wisdom that characterizes this public, further inoculates it against mainstream texts of science, even when those texts do make it into the network of that public.

## The VAERS as Bridge Between Vaccine Denialist and Pro-Vaccine Fragmented Publics

The Vaccine Adverse Events Reporting System (VAERS) is a US-based webpage that exists as a node that connects the vaccine denialist and pro-vaccination networked publics depicted in the network maps above.[30] As stated on the VAERS webpage, it is "co-sponsored by the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) agencies of the U.S. Department of Health and Human Services."[31] Despite being funded by organizations that represent normal science, the webpage serves as a major source of evidence for many vaccine denialist arguments.[32] For instance, a link and instructions for how to report adverse vaccine effects to VAERS are indicated on both the sanevax.org and mercola.org webpages found in the vaccine denialist fragmented public network map. The sentiment that accompanies the inclusion of links to VAERS on these webpages can be summed up in vaccine skeptic and public advocate, Michael Belkin's comments, located on the National Vaccine Information Center website at the center of the vaccine denialist network: "There are thousands of deaths and many thousands of cases of disability and neurological damage lurking in the FDA Vaccine Adverse Event Reporting System."[33] To report an adverse event, individuals have but to visit the CDC homepage, navigate to the VAERS page, and submit an online form (or fax or traditional mail). The forms only require basic information from the submitter, like home address and phone number.[34] The information from these reports is then compiled into a database in order to help inform practitioners and administrators of vaccines of any potentially dangerous effects.[35] A statement on the VAERS page, explaining its existence: "Very rarely, people experience serious adverse events following immunization. By monitoring such events, VAERS helps to identify any important new safety concerns and thereby assists in ensuring that the benefits of vaccines continue to be far greater than the risks."[36] While the webpage is explained to act as a safety mechanism for checking the possible side effects of vaccines, it nonetheless is very clear that the data reported on the website can be reported by anyone, and therefore does not constitute scientifically rigorous conclusions as much as a heuristic for discovering phenomena that might require further investigation.

> It is important to remember that many adverse events reported to VAERS may not be caused by vaccines. Although VAERS can rarely provide definitive evidence of causal associations between vaccines and particular risks, its unique role as a national spontaneous reporting system enables the early detection of signals that can then be more rigorously investigated.[37]

---

[30] "Vaccine Adverse Event Reporting System," *Human and Health Services*, https://vaers.hhs.gov/contact.
[31] Ibid.
[32] Earnst, an "anti-vaxxer," turned "pro-vaxxer" discusses on her blog: "inevitably, in the course of speaking with someone who wants to support her decision not to vaccinate her child, you will be asked to read the VAERS (Vaccine Adverse Events Reporting System) database." Karen Ernst, "The Incredible Hulk Vaccine Side Effect: Or, Understanding VAERS," October 24, 2011, *Moms Who Vax*, http://momswhovax.blogspot.com/2011/10/ incredible-hulk-vaccine-side-effect-or.html.
[33] Michael Belkin, "Scientific Fraud and Conflict of Interest in Vaccine Research, Licensing and Policymaking" (paper presented at the annual meeting of the International Public Conference on Vaccination, Arlington, Virginia, September 2000), http://www.vaclib.org/basic/shootfirst.htm.
[34] "Report an Adverse Event," *Human and Health Services*, https://vaers.hhs.gov/esub/index.
[35] "VAERS Data," *Human and Health Services*, https://vaers.hhs.gov/data/data.
[36] "VAERS Home," *Human and Health Services*, https://vaers.hhs.gov/index.
[37] "VAERS FAQs," *Human and Health Services*, https://vaers.hhs.gov/about/faqs#analyzed.

Within the vaccine denialist networked public, however, the VAERS database is legitimized as a safe haven for the congregation and affirmation of enlightened citizens. The "open access" character of the webpage is key to this appropriation. The ease of access and sharing, facilitated by the web, allows actors to congregate and share information, despite the "gatekeeping" of the mainstream.[38]

> An important aspect of VAERS is that *anyone can both read and post vaccine adverse events to this database*. So, if your doctor discounts your concerns about vaccination (or afterward, if your child regresses or gets ill after a vaccine), you can verify or report them yourself -- and people are doing just that when doctors or other vaccine providers refuse to report to VAERS after a vaccine reaction occurs.[39]

For the vaccine denialist public, VAERS is a means to accessing the "evidence" that the mainstream will not report. Within the lifeworld of the vaccine denialist networked public, the VAERS can be used as evidence, both as proof that adverse effects of vaccines exist, and that those adverse effects exist in the face of what mainstream science might report.

The VAERS webpage not only exists as a node in both networked publics, but it is also discussed via one of the other shared nodes between the publics, Twitter. Despite this shared node, the two publics remain fragmented. A telling example from the #NVIC (National Vaccine Information Center) Twitter feed is an image shared by user, Becky Johnson, in which a table of aggregated reports from the VAERS are displayed with red circles highlighting the contrast between total number of reports, and the number of reported deaths. "Speaking of dead babies. #VAERS claims for 1-8 vaccines."[40] Responding to the post, are other users, like Jacobo Menioroz, who states that "[the] VAERS database cannot be use[d] to establish causation," or Clay Jones, "She knows that. She doesn't care."[41] Apparent from the exchange between Becky Johnson and her respondents is a kind of "cosmic incommensurability" or lack of a shared means of understanding the same object, based on the lifeworlds each actor inhabits.[42] Becky is applying an interpretive framework that sees data from VAERS not only as reliable, but significant evidence of harm from vaccines, whereas Menioroz and Jones's responses allude to the fact that the VAERS cannot support such claims. Again, it is worth reiterating, this is most emphatically not merely a problem of sharing "correct" science—the actors are obviously interacting with the same object of evidence, the same content. The way those facts are interpreted is different among the actors. This is a problem of *lifeworlds*, which, if recognized, has "possibilities of resolution and understanding, of reconfiguring the mismatches in pragmatic and semantic terms."[43] For the remainder of the essay, I will discuss rhetorical interventions, which go past merely asserting "correct" science into a given fragmented public, and instead, port claims about the invalidity of pseudoscientific beliefs by emulating the characteristic ways of arguing—including media practices—endemic to a given public.

---

[38] I have argued elsewhere that constructing new media spaces, which allow members of the general public to look in, and comment on, how scientific questions are answered, is actually a courageous act to "sit" for audiences as it does not rashly discount potentially beneficial interjection. In this sense, it is important to note that the VAERS presents a genuine call for everyday citizens to be included in the processes of evaluation that occur in the technical spheres of medical science. Miles Coleman, "Courage and Respect in New Media Science Communication," *Journal of Media Ethics* 30, no. 3 (2015): 186-202.

[39] Joseph Mercola, "Vaccines Have Serious Side Effects-The Institute of Medicine Says So," *Mercola.com*, http://articles.mercola.com/sites/articles/archive/2011 /09/27/vaccines-are-dangerous-says-the-government.aspx, emphasis added.

[40] Becky Johnson, Twitter Post, April 16, 2016, 4:08 PM, https://twitter.com/BeckyJohnson222/status/721475275020632064?s=17.

[41] Jacobo Menioroz, Twitter Post, April 16, 2016, 4:13 PM, https://twitter.com/JacoboMendioroz/status/721476670423724032?s=17. Clay Jones, Twitter Post, April 16, 2016, 4:42 PM, https://twitter.com/skepticpedi/status/721483844180910080?s=17.

[42] Randy Harris, editor, *Rhetoric and Incommensurability* (West Lafayette, IN: Parlor Press, 2005).

[43] Ibid., 40.

## Hacking the Logic of Vaccine Science: Engaging Across Lifeworlds with Rhetorical Logic Bombs

A "logic bomb" according to, Avižienis, Laprie, Randell, and Landwher, is a "*malicious logic* that remains dormant in the host system till a certain time or an event occurs, or certain conditions are met, and then deletes files, slows down or crashes the host system, etc."[44] Usually, when one discusses logic bombs they are speaking of the work of "hackers" attempting to exploit and profit from security soft spots. However, within about the last decade, the notion of "hacktivism" has risen in usage, denoting a kind of hacking in which agents can use their knowledge of a digital technology to raise awareness or offset injustice.[45] With this rise in hacktivism comes an appropriation of the notion of a logic bomb to denote acts not for profit, but for justice. For instance, a "Google bomb," or a concerted effort on the part of a network of interested agents to cite each other repeatedly in order to bring a particular webpage up higher in internet search engine results, is an idea that can be appropriated for justice. A "justice bomb," Kahn and Kellner explain further, denotes a phenomenon where advocates can use the logic of the algorithm to raise awareness, like when one group created a blog, and solicited links to that blog from fellow activists. The blog, titled, "Lies about Their Fries," consequently jumped to the top of the Google results when the word "McDonalds" was typed into the search engine.[46] They were able to have an effect on the texts that circulated within a particular public.

Such logics, however, not only exist strict terms of the algorithm (e.g., checks for relevance to common terms, timeliness, and number of links) but outside it too, in the ways we discourse amid the algorithm. For example, gay rights advocates, attempting to breach the membranes of conservative fragmented publics, used "glitter bombs," instances where conservative politicians, publicly outspoken against gay marriage, were doused with glitter by pro-gay marriage agents.[47] The glitter bombings were filmed and posted online, where, replete with their message intact, they were recirculated and discussed within conservative fragmented publics. With these glitter bombing videos, gay marriage advocates "popped into" the membrane and onto the "public screen" of conservative fragmented publics to get their message heard by playing off the logic of public entertainment, interwoven with the culture of "sharing" video files. "Look at this person dumping glitter on Newt Gingrich!" These actions are what Deluca and Peeples describe as "visual-philosophical-rhetorical fragments, mind bombs that expand the universe of thinkable thoughts," by working with the logic of a given public in order to introduce a counteroppositional discourse.[48] "Stop the hate! Stop anti-gay politics. It's dividing our country. And, it's not fixing our economy!"[49] Glitter bombs, then, are not as much an appropriation of the logic of the algorithm—the "hardware"—as they are an appropriation of the cultural logic—the "software."

Similar to a glitter bomb, in that it plays off the logic of a technological culture to bridge lifeworlds, is another kind of bomb, what I will term a "rhetorical logic bomb." A rhetorical logic bomb attempts to get onto the "public screen" of a fragmented public, but does so while also disrupting the very logic that maintains the isolation of that public in the first place. For instance,

---

[44]Algirdas Avižienis, Jean-Claude Laprie, Brian Randell, and Carl Landwehr, "Basic Concepts and Taxonomy of Dependable and Secure Computing," *Dependable and Secure Computing, IEEE Transactions on Secure Computing* 1, no. 1 (2014): 11-33, 18, emphasis in original.
[45] Brett Lunceford, "Programs or People? Participation and the Ethics of Hacktivism," in *Controversies in Digital Ethics*, eds. Amber Davisson and Paul Booth (New York, NY: Bloombsbury, 2016).
[46] Richard Kahn and Douglas Kellner, "New Media and Internet Activism: From the 'Battle of Seattle' to Blogging," *New Media & Society* 6, no. 1 (2004): 87-95, 92.
[47] Associated Press, "Raw Video: Gingrich Hit with Glitter in Minn.," May 17, 2011, *Youtube*, https://www.youtube.com/watch?v=LSb3kTA6vVI.
[48] Deluca and Peeples, "From Public Sphere to Public Screen," 144.
[49] Associated Press, "Raw Video," 00:40-00:46.

James Laidler, a vaccine denialist, turned vaccine advocate, was able to create a report to the the VAERS that the influenza vaccine had turned him into The Incredible Hulk, where it was momentarily posted, and later discussed and explained publicly by Laidler.[50] Laidler planted an object that very directly critiqued the knowledge logic undergirding the lifeworld of the vaccine denialist fragmented public. Laidler did not argue that the vaccine denialist's fragmented public should not use the VAERS in the way that they do. Rather, he stepped into their lifeworld and posed an indirect speech act that confronts the *modus operandi* of media use and epistemology as they are interwoven with one another for a vaccine denialist fragmented public. The critique is one that says, "Your media use is questionably scientific," but which directly emulates the characteristics of media use, endemic to the public. By putting the critique squarely within form of a media practice, unique to a vaccine denialist public, it is given added force, for it does not represent the forms of mediated arguments from normal science, it represents the forms of media use and practice used by one's own fellow "enlightened citizens."

At this point, it is important to recognize that the strategy of rhetorical logic bombs is not meant for correcting audiences who already possess strong allegiance to a particular position. Because we also know that there can exist "backfire" effects, where persons' political misperceptions can remain not only unaffected by others' "corrections" of their information sources, but actually might increase misperception among such audiences, there is impetus to move closer to a playful tactic than a directly corrective one.[51] So, rhetorical logic bombs are presented here not as a strategy interested in "converting" persons committed to the gospel of vaccine denialism. Nor is the strategy meant for attacking the credibility of a given networked public's common sources of information by directly calling them incredulous. Instead, rhetorical logic bombs are a strategy for meeting persons at their own networked publics, and engaging at the level of lifeworld, by imitating the characteristic media objects that constitute them, in order to disrupt the narratives interwoven with those media objects as they work to persuade. Put bluntly, rhetorical logic bombs are a strategy for persuading publics not that their media sources are incorrect *per se* (this is not likely to be effective), but rather that the conclusions publics might draw from some media objects are inappropriate, by showing that a completely erroneous conclusion can be drawn from the same exact media object. Thus, rhetorical logic bombs, within the context of vaccine science, are meant for persons as of yet undecided—"doing their research"—so that as they discover sources of information against vaccines, they also discover information in support of vaccines, but which engage directly—no matter how pseudoscientific—at the level of lifeworld to disrupt, expose, and render visible the logic of the vaccine denialist network. Compelling arguments, after all, do not look like arguments, they look like "common sense." Rhetorical logic bombs attempt to work within a particular lifeworld in order to make that lifeworld obvious—to disrupt the common sense of a given networked public.

With regard to mediated sources of "data," like the VAERS, this is especially important. There is social science work on the VAERS, for instance, which demonstrates that, when presented with specific narratives from the VAERS, participants—even those who were not necessarily already strongly committed to the position that the human pappillomavirus virus (HPV) vaccine might be

[50] Because Laidler was aparently asked by VAERS for permission to remove the post, and Laidler complied, a primary source for the report is not accessible anywhere online. Based on secondary sources, the report seems to have existed. Even if it did not, it remains a useful example of a rhetorical logic bomb. Orac, "How Vaccine Litigation Distorts the VAERS Database," January 18, 2008, *Scienceblogs.com*, http://scienceblogs.com/insolence/2008/01/18/how-vaccine-litigation-distorts-the-vaer/; Ernst, "The Incredible Hulk."

[51] Brendan Nyhan and Jason Reifler, "When Corrections Fail: The Persistence of Political Misperceptions," *Political Behavior* 32, no. 2 (2010): 303-330.

responsible for adverse events—exhibited reduced trust in the CDC specifically, and vaccine acceptance broadly.[52] Moreover, if the specific narratives located in the VAERS can do harm to public understandings of science, even for those who are not zealots of the "anti-vaxx" platform, it makes sense to meet persons at the nodes in which VAERS narratives manifest online, while emulating the forms of expression that give those narratives persuasive force in the first place.

While Laidler's "sick Hulk" example above gives an instance of meeting directly at a significant node in the vaccine denialist network, Twitter, already noted earlier as a connection point between vaccine denialist and pro vaccination publics, also provides a meaningful place in which to sneak in a disruption of narrative, ported to vaccine denialist publics at the level of lifeworld. Specifically, while the #VAERS hashtag might seem a trivial repository of pseudoscientific gibberish, unworthy of engagement to most within the networked publics of normal science, with the current discussion of rhetorical logic bombs, one might better envision the site as a rich one for pro-active engagement, where, increased numbers of self-report data submitted to the VAERS are used as evidence for the danger of vaccination. Take for example, another Twitter post by Becky Johnson, which demonstrates a bar graph of reports submitted to the VAERS, which shows an increase in reports from one thousand in 1991 to nearly 4000 in 2010.[53] Within the grassroots science narrative of the vaccine denialist public, the graph represents an increase of persons reporting adverse events, which doctors, bought by "big pharma" will not report. Within the vaccine denialist lifeworld, the graph is not evidence that the VAERS is being used more, it is evidence that increased harm is coming from vaccines. As such, the post earns a response from Twitter user, Matt C., who attempts to "correct" the information (albeit, in a fairly antagonistic tone), stating, "All the graphs and pithy memes in the world don't change that simple fact [that VAERS is not evidence of vaccine harm]", followed by another post, which shows a line graph of "No. of lawyers in NY possible. Also cost of potato chips? #CorrelationNotCausation"[54] Matt C.'s post is clever, but, it ostensibly is attempting to persuade by offering an antagonistic critique, based on an assumption that a vaccine denialist public is unlikely to have. Moreover, despite the post's form of a graph, worked into the format of a Twitter post, resembling much of the vaccine denialist discourse that populates the #VAERS feed, it still falls into the trap of operating without the necessary self-awareness of one's own particular, network-situated epistemology to fashion reasons that might stand to be persuasive outside it. The assumptions acknowledged in the post are not those of a vaccine denialist public, but of a vaccine supportive one. Put curtly, Matt C.'s post, clever as it may be, asserts the "facts" of a vaccine supportive public, in essence, problematically forwarding the claim: "Your evidence is invalid, because it doesn't align with my lifeworld."

Conversely, one post that stands out among the #VAERS feed is that of Tyeren Deacon, self-described as a "Pharmacy Student – Researcher – Ultramarathon Runner – Slightly smarter than placebo." Specifically, it is a post in which, like Laidler, he is placing a rhetorical logic bomb into the vaccine denialist network as it concerns the reliability of the VAERS as a source of scientific information. "When people say #VAERS vaccine injury report is a valid source. Here's my document." Included in the post is an image of "step 4 of 5" in submitting a report to the VAERS. The form is completely filled out, including the date of the adverse event—"04/05/2017"—as well as a description of the "adverse event(s) (symptoms, signs, time course) & treatment, if any": "I

[52] Laura Scherer, V. Shaffer, Niraj Patel, and Brian Zikmund-Fisher, "Can the Vaccine Adverse Event Reporting System be Used to Increase Vaccine Acceptance and Trust?" *Vaccine* 34, no. 20 (2016): 2424-2429.
[53] Becky Johnson, Twitter Post, December 15, 2016, 6:43 PM, https://twitter.com/BeckyJohnson222/status/809589820351619072?s=17.
[54] Matt C., Twitter Post, December 15, 2016, 7:47 PM, https://twitter.com/mc_momo/status/809605732521754624?s=17; Matt C., Twitter Post, December 15, 2016, 12:08 PM, https://twitter.com/mc_momo/status/809671607878721537?s=17.

started listening to Nickelback, cat puked on the floor. I didn't die from preventable diseases."[55] By composing the post with an image of the very act of filling out one of the reports that carry so much weight within the vaccine denialist networked public, the post is more directly engaging at the level of lifeworld to say, in essence: "I have spent time within your particular networked public. And, subsequently, with the lifeworld of that public enough to understand the media practices entangled with it. If the conclusions you're drawing about vaccines come from VAERS, perhaps they are worth a second thought." In juxtaposition to Matt C.'s earlier post, Tyeren Deacon, rather, is able to emulate media practice from the vaccine denialist networked public, but also to express regard for the lifeworld of that public.

Humorous analogy unlocks Tyeren Deacon's critique, allowing for it to push past asserting the "facts" of the vaccine supportive networked public, and into the lifeworld of the vaccine denialist public. By confronting the viewer directly with a spurious variable and outcome (i.e., Nickleback's music, and a cat vomiting), the post works within the lifeworld of the vaccine denialist network to make the point that, if someone can use the VAERS to take a dig at an oft-derided Canadian rock band, maybe it can be used to make any claim one wants to believe. Further, by mimicking the act of filling out a VAERS report with such content, the critique very directly takes the form of a media practice that might otherwise appear within the vaccine denialist networked public, and reshapes it to deliver a vaccine-supportive critique. Instead of attempting to "courageously" demand that frequenters of the #VAERS hashtag succumb to the "fact" that VAERS does not represent causal data linking vaccines to harm, the post demonstrates a patient recognition of the idea "that chasms between audiences are more effectively abridged by demonstrating rhetorical awareness of the tokens of expression most precious to disagreeing audiences."[56] A graph showing annual increases in VAERS reports is better met with a rhetorical logic bomb, which uses the crowd wisdom logic of the vaccine denialist network against itself, rather than meeting it with a brand new logic and demanding that one's interlocutors "teach themselves" to be persuaded about causation and correlation. Put differently, the Nickleback VAERS report asks members of the vaccine denialist network to apply the very thing that makes VAERS reports such powerfully compelling pieces of evidence to the vaccine denialist networked public: that it comes from an enlightened citizenry. In effect, Deacon's post is saying, "I see where you are coming from, but can anyone 'get it' with this particular media practice?" This is representative of a proactive engagement with pseudoscientific publics, and one that demonstrates a willingness not just to meet a public at their own network, but one that is distinctly amenable to recognizing that the media practices of a given network (including the practices of media literacy and consumption) are not trivial when it comes to effectively participating in 21st century public debate.

## Conclusion

Rhetorical logic bombs—Trojan Horses of new and old—are a strategy for planting discourse within a given networked public, which sources the media practices and logic of that public in order to wager critique. This sort of an approach is not just a "patient rhetoric" by which to discover appealing terms of engagement, but also one for thinking about public critiques that require arguments ported to the most becoming of media forms too.[57] Further, at least in the case of public controversies of science, the strategy of rhetorical logic bombs underscores the need for exploring

[55] Tyeren Deacon, Twitter Post, May 8, 2017, https://twitter.com/TyerenDeacon/status/861578829172801536.
[56] Coleman, "The Role of Patience," 4.
[57] Coleman, "The Role of Patience in Arguments about Vaccine Science."

argument tactics useful for refuting science denialists but also the necessity to interrogate the new and emerging media practices that color such debates online.[58] It is in this respect that rhetorical logic bombs do not present macro-events of persuasion, meant to change peoples' minds with one engagement. Rather, rhetorical logic bombs are better thought of as micro-event interventions that garner effect by introducing density and repetition to ideas within a given networked public.

With regard to researching and theorizing digital rhetorics, the approach of the current article is useful to those who wish to discover, describe, and analyze the particular shape and constitution of networked publics. By mapping the texts that tend to link to one another around a given issue one can bound his or her analysis to specific publics online.[59] And, from here, the cultural *ethos* and lifeworld entangled with that constellation of texts can be analyzed with respect to similarities and dissimilarities to other networked publics. What texts constitute a given networked public? What lifeworld characterizes those texts?

And, finally, the manner in which rhetorical logic bombs demands that rhetors engage, understand, and incorporate a given networked public's media practices into one's own critiques, further recognizes the important of differentiating one's "imagined" audiences from one's "actual" audiences online, without falling into the illusion that designers and engineers can fix all of the instrumental (and cultural) "errors" of our information communication technologies.[60] Where technology has evolved in ways that facilitate the growth and ubiquity of fragmented publics, rhetorical practice too can evolve to explore thoughtful, meaningful critiques which exist between networked publics, connecting them at the level of lifeworld.

[58] Leah Ceccarelli, "Manufactured Scientific Controversy: Science, Rhetoric, and Public Debate," *Rhetoric & Public Affairs* 14, no. 2 (2011): 195-228.
[59] Richard Rogers and Noortje Marres, "Landscaping Climate Change: A Mapping Technique for Understanding Science and Technology Debates on the World Wide Web," *Public Understanding of Science* 9 no. 2 (2000): 141-163.
[60] Nancy K. Baym and Danah Boyd, "Socially Mediated Publicness: An introduction," *Journal of Broadcasting & Electronic Media* 56, no. 3 (2012): 320-329, 323. Benjamin Hill," Revealing Errors," *Error: Glitch, Noise, and Jam in New Media Cultures*, ed. Mark Nunes (New York, NY: Bloomsbury Publishing, 2011).