



"Falsehoods Fly: Why Misinformation Spreads and How to Stop It" by Paul Thagard. Columbia University Press

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Every so often, a book comes along that quickly proves that its main title sentence is true. *Falsehoods Fly* is one such book. This book on “misinformation” is riddled with claims that, by now, most reasonable people should see as false. This is particularly the case with regard to the book’s treatment of the epidemiology of SARS-CoV-2, the evidence of its origins, and facts about the vaccines that mitigate some of its harms. These are not just claims the author asserts to be true. They are claims that the author thinks could only be denied or disbelieved by malicious or highly motivated actors.

More on this soon. First, let’s back up. What is the book about and what are its central claims? The central claim of the book is that “Misinformation cause[s] deaths.” (p. 2) And that “Even when misinformation is not lethal, it can be dangerous.”(p. 2) The book, we are told, “offers a systematic explanation of information and misinformation, along with concrete advice on how improved thinking and communication can benefit individuals and societies.” (p.2) But we should be perfectly clear: while Thagard thinks that some of the problems of misinformation can be remedied using the tools of critical thinking he offers, he is not nearly this optimistic, nor are his suggestions anywhere this mild. Improved critical thinking might be a salve for a select group of non-deplorables, Thagard argues. But for many groups, “abolition is probably the best hope because changing their policies, values, and norms is unlikely to work.” He adds that “social media companies can be lobbied to encourage them to limit the transmission of conspiracy theories more strictly.”(p. 184).

It’s clear that, for Thagard, misinformation is a very urgent problem that warrants the curtailment of what is ordinarily regarded as protected speech.¹ He notes

¹ It’s clear that Thagard is arguing for the prohibition of speech (or the restriction of free assembly on the basis of speech of those who assemble) that reaches far beyond what, for example, U.S. courts regard as regulable speech. A canonical example of a claim he thinks warrants censoring is the claim he calls the “replacement theory”: that low birth rates among European and North Americans of European descent combined with high rates of immigration are part of an amorphous movement to “replace” Euro-

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that “Since 2020, Twitter had a policy against coronavirus misinformation that led to the suspension of more than eleven thousand accounts and removal of more than 100,000 pieces of content.” (p.148) He laments that “This policy was ended in November 2022.” (p.148) What he fails to note is that Mark Zuckerberg deeply regrets much of what “the establishment” asked him to censor during the pandemic because much of it turned out to be “debatable or true”². Thagard also fails to note that later reporting (based on information disclosed in lawsuits, data released after Musk acquired Twitter/X, etc) revealed that many tweets that were suppressed by Twitter contained nothing but CDC data!³

It seems, however, that this would not concern Thagard. After all, he approves of a feature of a definition of misinformation⁴ that “includes information that is misleading as well as false because even true reports can be harmful.” (p.3) Explaining his view, he writes, “For example, someone who posts on social media that a friend got a blood clot after getting a COVID-19 vaccination may be reporting the truth, but the anecdote is misleading if it suggests that vaccines are dangerous despite ample evidence that their risks are minuscule compared with the dangers of COVID-19.”(p.3) In fact, I would argue that the quoted sentence (about minuscule risks) is misleading, in the very sense Thagard makes so much of, for a number of reasons. First, Thagard fails to note that at least one COVID vaccine (*Johnson and Johnson’s*) was taken off the market precisely because of its risk of blood clots. Second, what might matter is whether the risks are minuscule compared to the risk of *alternative* vaccines. That’s in fact what the CDC decided. Third, whether the risks of a vaccine are minuscule compared to the disease it is designed to mitigate depends on how effectively it mitigates that risk, and how high the risk of the disease is *for the person in question*. For a fifteen year old who has already been infected by Covid-19, many experts believe the risks of various candidate vaccines outweigh the degree of risk they mitigate.⁵ Indeed, the UK does not advise vaccinating children under age 18, regardless of prior infection, and Germany and the Netherlands does so only under special conditions⁶ In the US, many children were de facto forced to take these same vaccines, even after prior infection.

Footnote 1 (Continued)

peans with people of other ancestries. This claim is almost certainly false and obviously motivated by pernicious racism, but doesn’t fit any of the obvious exceptions to freedom of speech, like defamation, fighting words, speech integral to illegal conduct, speech that incites imminent lawless action, speech that violates intellectual property law, or true threats. He also wants the government to coordinate with social media companies to censor posts that are true but “misleading”.

² <https://lexfridman.com/mark-zuckerberg-2/#>

³ <https://twitter.com/davidzweig/status/1607387725065232384>

⁴ In the end, like most discussions of misinformation, he admits it is a concept that is incredibly difficult to define. It requires “identifying the psychological and social mechanisms that produce information and by describing how breakdowns in these mechanisms promote misinformation” (p.3).

⁵ <https://www.medpagetoday.com/opinion/second-opinions/93340>

⁶ <https://www.medpagetoday.com/opinion/second-opinions/93340>. (Here, the risk in question is myocarditis, not blood clots, but the details are irrelevant. Facebook and Twitter also censored or shadow banned posts about myocarditis, and there’s nothing in Thagard’s book to suggest he doesn’t heartily endorse this.)

We needn't adjudicate who is right on any of these topics to be worried about a policy wherein the government pressures social media companies to censor posts with documented truths in them because they might mislead someone into believing things that public health experts in the UK, Netherlands, and Germany believe. This is especially true given that we know that the mechanisms being used at Twitter (under the policy Thagard applauds and laments the ending of) to determine which posts were "misleading" often involved either bots, or untrained low wage contractors in outsourcing facilities in places like the Philippines.⁷ It's genuinely odd that Thagard seems to think that bots and outsourcing facilities can identify misinformation, given that he thinks identifying it requires not only omniscience about the first order facts, but being able to predict what truths will be misleading, and about "the psychological and social mechanisms that produce information" and about how breakdowns in these mechanisms promote" (p.3) what is shared.

Enough about what Thagard wants "abolished" or what he thinks social media companies should be pressured by the government to censor, or even whom, as a result of the misinformation they consume, "military forces may be required to control" (p.184). Most of these remarks are embarrassingly illiberal for a philosopher. Sadly, I should remark, Thagard hardly needs singling out here. It is, in my opinion, an embarrassment to our profession that a climate even exists where a philosopher would express views like this, and expect (correctly!) to find a sympathetic audience among other philosophers and a prestigious university press willing to publish it.⁸ What we should be discussing is not whether this part of the book is right, but what made the disciplinary conditions conducive to the very possibility of a book like this being published in philosophy. So let's move on to his proposals to combat misinformation in a more liberal fashion: via "the process of correcting misinformation by repairing or remedying it to restore, reclaim, or recover real information. The goal is to explain how information often works well, sometimes breaks into misinformation, but can be mended by reinformation."

The proposal is actually well summarized in the following table. (p.8)

TABLE 1.2 Profiles of real information and misinformation

| Process | Real information | Misinformation |
|-------------|--|---|
| Acquisition | Collecting by perception, instruments, systematic observations, and controlled experiments | Making stuff up, faulty observation, sloppy experiments |
| Inference | Evidence-based causal reasoning | Motivated reasoning, flawed causal reasoning |
| Memory | Evaluation-based storing and retrieving | Motivated storing and retrieving |
| Spread | Evaluation-based sending and receiving | Motivated sending and receiving |

He calls this "AIMS". The idea is that responsible knowers Acquire, Infer, reMember, and Spread information in completely different ways than misinformation

⁷ <https://twitter.com/davidzweig/status/1607385019101884418>

⁸ Let me clear that I am not criticizing the press for publishing the book. I am criticizing the community for producing a climate in which the press correctly perceived an appetite for this book.

mongers. Of course we can all agree that it is better to acquire information using perception, instruments, systematic observations, and controlled experiments, than it is to “make stuff up”. And we can all agree that motivated reasoning is bad, and that it is better to follow the evidence where it leads you than to jump to the conclusions that one likes. The problems that I have with what Thagard is up to here, however, are twofold.

First, he has an unbelievably naïve, simplistic, and I would even say patronizing view of where the claims he disagrees with come from. He seems to think that it's a very simple matter to determine which of a large set of claims are the well supported ones and which ones are peddled by mindless simpletons who don't follow any basic epistemic norms. He thinks, in short, that it's very easy to tell what's true and what's false about almost all the important topics of the day. But as I will show, when it comes to his discussion of topics surrounding the pandemic, almost everything he says is either demonstrably false, or, I would at least argue, not the most reasonable thing to believe given present evidence. This is especially ironic given that he reports that it was the spread of misinformation during the pandemic that motivated him to write the book. I'll have nothing to say about what he says about the war in Ukraine or about political conspiracy theories. (I'm going to especially avoid the topic of Ukraine because, other than to simply state that, like all unprovoked aggression, the Russian invasion was a morally heinous war crime, I personally think it's just too epistemically risky for me to comment on the details of a war as it progresses.) I'll have a little bit to say about his chapters on the science of climate change and on inequality research, but mostly to make my second point. My second point is that even when he correctly identifies instances in which what appear to be factual disagreements are, in actuality, disagreements about values, he has some odd beliefs about how values operate and when they can be objectively adjudicated.

Let's start with the pandemic. I will focus on four sets of claims Thagard makes that I regard to be completely factually wrong. I do this in part to set the record straight (since, after all, falsehoods fly), and in part to illustrate that determining what is true on many important topics of the day is *hard*. I doubt Thagard believes he violated his AIMS when he formed his beliefs about the pandemic, and yet, I'm here to argue that he has formed poorly evidenced beliefs about a number of important matters. I also hope that readers will be persuaded, *inter alia*, that I came to have true beliefs about the pandemic, in part, by having access to the speech of people who, if Thagard had had his way, would have been silenced.

The four categories of claims have to do with

- Covid-19 origins
- the epidemiological models that guided pandemic mitigation policy in many places
- the efficacy of mask mandates and public mask-wearing recommendations
- the efficacy of Covid-19 vaccines in *preventing community spread*, as well as their risk-benefit profile for select members of the public (a topic which we already covered above.)

Let's start with the origins of the virus that causes Covid-19. It's quite clear that Thagard regards the hypothesis (call it "lab leak") that the Wuhan Institute of Virology was "conducting research on a collected or manipulated virus that infected lab researchers and then spread to the general population in Wuhan and the rest of the world" (p.91) to be misinformation. He says "The problem with this hypothesis is that the intermediate links in the causal chain that it proposes have not been substantiated. No evidence shows that the Wuhan institute was manipulating or studying the novel coronavirus..." (p. 91) He goes on to say that, because there were incomplete causal chains in the zoonosis hypothesis as well, there was a time when it was appropriate to "refrain from making any inference until the gaps in at least one of the explanations [were] filled in."(p. 91) But this situation changed, he says, in 2022 when a paper published in Science (usually known as Worobey et al⁹) showed that "The earliest known cases of COVID-19 in December 2019 were geographically centered on the Wuhan market that sold several species of animals susceptible to coronaviruses. This centering is easily explained by spread of the disease through the animals, but the alternative lab-escape theory has to make additional assumptions about the virus spreading from the lab to the market." (p.91, Thagard's paraphrase). Subsequent to this, according to Thagard, belief in lab leak could only be explained by "motivated reasoning to blame China for the disease." (p.91)¹⁰

Let's start with the claim that "no evidence shows that the Wuhan institute was manipulating" the novel virus. This is about as close as one can get to a documented falsehood. Since Thagard holds Worobey et al in high regard, let's consider what one of its authors, Kristian Anderson, thinks about this claim. Andersen, by the way, is the virologist who, submitted a paper on Feb 4th 2020 called "The proximal origins of SARS-CoV-2"¹¹that concluded "Our analyses clearly show that SARS-CoV-2 is not a laboratory construct or a purposefully manipulated virus," but just three days earlier had privately shared with his co-authors that "I think the main thing still in my mind is that the lab escape version of this is so friggin' likely to have happened because they were already doing this type of work and the molecular data is fully consistent with that scenario."¹² Here is what Sir Jeremy Farrar, Chief Scientist at the World Health Organization, said about Andersen's reaction to his first discovery of the earliest evidence that the WIV was in fact manipulating the virus. "Then Kristian delivered his denouement: he'd found a scientific paper where exactly this technique had been used to modify the spike protein of the original SARS-CoV-1 virus. At first glance, the paper Kristian had unearthed looked like a how-to manual for building the Wuhan coronavirus in a laboratory. [Andersen and "Proximal Origins" co-author Edward Holmes] knew of a laboratory where researchers had been experimenting on coronaviruses for years: the Wuhan Institute of Virology". "Fuck,

⁹ <https://www.science.org/doi/10.1126/science.abp8715>

¹⁰ I'll note for the record that my credence in the lab leak hypothesis is very high, but certainly not because of motivated reasoning. That this is so if evident from the fact that it went from very low to very high when new evidence came out in roughly early 2022.

¹¹ <https://www.nature.com/articles/s41591-020-0820-9>

¹² <https://usrtk.org/wp-content/uploads/2023/11/so-friggin-likely.png>

this is bad' was [Holmes]'s reaction to Kristian's observation. His second instinct was to *call me on the burner phone.*"¹³ (p.47)

This much has been known since 2020. But we have learned much more since: Freedom of Information Act requests have unearthed a 2018 grant proposal to DARPA called "Project Defuse: Defusing the threat of bat-borne coronaviruses." These documents contain a wealth of evidence that SARS-CoV-2 was manipulated at the WIV. This includes not only evidence of plans to do something exactly like building SARS-CoV-2 at WIV, but also molecular evidence that the virus is manipulated.¹⁴

Is any of the above proof that the virus was manipulated at the WIV? Of course not. Unless China hands over all of the laboratory's records (something they have not done and will almost certainly never do) we will never have proof. Is it remotely consistent with the claim that "no evidence shows that the Wuhan institute was manipulating" the novel virus? Not on any theory of evidence that I am familiar with.

What about the claim that Worobey et al. tipped the scales (balancing lab leak with zoonosis) so far that only motivated reasoning, at this point, explains anyone's belief in lab leak? Recall, first of all, that Worobey et al. was also co-authored by Andersen and Holmes, the very people who, in February 2020, submitted a paper to *Nature Medicine* that said "Our analyses clearly show that SARS-CoV-2 is not a laboratory construct or a purposefully manipulated virus" despite having said, over the previous three days that lab leak was "so friggin' likely" and "Fuck, this is bad", right before calling Sir Jeremy Farrar "on the burner phone." Much more importantly, Worobey et al. is a deeply flawed paper. There are two problems with this paper. The first is the model, the second is the data the model relies on. We'll start with the data. First of all, we know that the number of identified cases is much smaller than the total number of people who would have been infected. The authors of "The Huanan Seafood ..." insist that that the data they have is representative. They deny, in other words, that there was "ascertainment" bias in collecting the cases. Ascertainment bias is what you would have if you looked for discarded bottlecaps in the dark, and concluded that they were primarily discarded in the vicinity of lamp posts. But recently, George Gao, director of the Chinese Center for Disease Control, admitted that there almost certainly was ascertainment bias in the collection of cases. He says there was special focus on the Seafood Market and people associated with it in the early search for cases.¹⁵ It has also been shown that someone deleted some of the early sequence data from the NIH's "Sequence Read Archive".¹⁶ Some of this data has been recovered and suggests that there were cases with a closer ancestry to bat viruses than any of the Seafood Market cases.¹⁷

¹³ https://books.google.ca/books/about/Spike.html?id=7JkfEAAAQBAJ&redir_esc=y

¹⁴ See <https://ericwinsberg.substack.com/p/oh-my-god-theres-been-an-outbreak> for many more details.

¹⁵ <https://www.bbc.co.uk/sounds/play/m001ng7c> (Begin listening around 24:30 if you want to skip to the relevant comment.) Alina Chan has highlighted this fact.

¹⁶ <https://www.washingtonpost.com/opinions/2022/11/17/covid-early-cases-wuhan-china-mystery/>

¹⁷ <https://www.biorxiv.org/content/10.1101/2021.06.18.449051v1>

What about the model? In January 2024, Stoyan and Chiu (2024), published "Statistics did not prove that the Huanan Seafood Wholesale Market was the early epicentre of the COVID-19 pandemic." in the *Journal of the Royal Statistical Society Series A*.¹⁸ Even taking the data at face value, they argued that "statistical conclusion is invalid on two grounds: (a) The assumption that a centroid of early case locations or another simply constructed point is the origin of an epidemic is unproved. (b) A Monte Carlo test used to conclude that no other location than the seafood market can be the origin is flawed. Hence, the question of the origin of the pandemic has not been answered by their statistical analysis."

Perhaps more alarmingly, in a subsequent blog post on the website of the Institute of Mathematical Statistics, they wrote: "We are pleased to have published our critique. However, **we are astonished that no other colleagues have reported similar findings.** This situation raises doubts about the current state of the system of modern science and the general understanding of basic principles of statistics in modern society, not to speak about the reviewing process of Science."¹⁹

Let me be perfectly clear what I think is going on here. "Lab leak" was labelled "misinformation" in a very successful propaganda campaign by people who were, for reasons that aren't fully clear, terrified enough that the hypothesis would gain traction that they communicated about it over a burner phone. (As we will see later, this is just how people who were terrified of a Donald Trump re-election, and people terrified that people would decide they didn't support lockdowns, behaved.) People like Paul Thagard, the author of this book, as well as other philosophers, and many other academics, have convinced people that misinformation is a real thing and poses a real danger. And these two things in combination have corrupted the "current state of the system of modern science" and "the reviewing process of *Science*." It has also, as we will see, corrupted journalism and the proper role that the state plays in regulating protected speech. To the philosophers and other academics engaged in these discussions of misinformation: would you please just stop?

Let's turn next to a claim that Thagard makes about Covid-19 vaccines. He says that clinical trials have shown that "vaccines, produced by Pfizer, Moderna, AstraZeneca, and other companies, are effective at preventing the spread ...of COVID-19." This is false. In fact, in October of 2022 "Janine Small, president of international markets at Pfizer, told the European Parliament on Monday that Pfizer did not know whether its COVID-19 vaccine prevented transmission of the virus before it entered the market in December 2020."²⁰ In keeping with the kind of strategies Thagard champions, every major media outlet labelled the retransmission of this fact "misleading" because (here quoting the Associated Press fact checkers) "Pfizer never claimed to have studied the issue before the vaccine's market release."²¹ The Moderna trial tested for asymptomatic infection while Pfizer did not. No clinical

¹⁸ <https://www.biorxiv.org/content/10.1101/2021.06.18.449051v1>

¹⁹ <https://imstat.org/2024/02/15/challenging-the-misuse-of-statistics-in-the-question-of-the-origin-of-covid-19/>

²⁰ <https://apnews.com/article/fact-check-pfizer-transmission-european-parliament-950413863226>

²¹ <https://apnews.com/article/fact-check-pfizer-transmission-european-parliament-950413863226>

trial tested for transmission.²² Did subsequent clinical trials establish this? No. We will never know whether the original vaccines would have prevented the spread of the early strains of the virus because this was never studied, and by the time the vaccines were released, the early strains were displaced. During Omicron ,a Danish household study found no difference in transmission rates based on vaccination status.²³ Even for the booster, we can see that the cumulative infection rate ends up being the same after around 160 days.²⁴ Despite this, vaccine mandates were imposed all over the world, with justifications offered in terms of their public health benefits. This was almost certainly facilitated by people who labelled claims that ‘the vaccines don’t prevent transmission’ as misinformation.

Finally, let’s consider Thagard’s claim that: “A group led by Neil Ferguson at Imperial College London began in January 2020 to use a variety of mathematical techniques to build computer models to predict the course of the pandemic and the effects of different strategies for dealing with it. These models unavoidably make assumptions such as the reproduction rate of viral infections and the proportion of infected people who will die, and risk the danger of the existence of unknown factors that would invalidate the model’s predictions. *Nevertheless, the models are frequently revised to account for the most recent data about the pandemic.* “ (p. 90, my emphasis)

When Ferguson et al. published the famous “Report 9”²⁵ in March 2020, the fatality rates and hospitalization rates per age decade in the model came from a paper known as "Verity et al."²⁶ which used the number of deaths in Hubei province reports (the numerator) from newspaper and estimated the rate of infection (the denominator) by looking at the repatriation flights of non-Chinese citizens in Wuhan back to Europe and the US. Six people, in total, tested positive on those flights, and so that n=6 was used to estimate the fatality rate of the virus in the ICL model. This is consistent with Thagard’s claim that they “unavoidably made assumptions”²⁷. To be clear, these assumptions were far from accurate. Verity et al used an infection fatality rate (IFR) for people between the ages of 20-29 of 0.03%. Contemporary estimates of the IFR in that age bracket (in the absence of vaccination or prior infection) are about 15 times lower than that (0.002%).²⁸

But what about Thagard’s claim that the models were frequently revised to account for the most recent data? The ICL group never did a sensitivity analysis on

²² It’s a tricky affair to document a negative claim like this, but I have available, for anyone who doubts this claim, confirmation in an email from Tracy Høeg, Dept of Epidemiology & Biostatistics- University of California-San Francisco. I thank her for this as well as for providing the following two references.

²³ <https://www.nature.com/articles/s41467-022-33328-3>

²⁴ <https://www.nejm.org/doi/full/10.1056/NEJMoa2210058>. See especially figure 1.

²⁵ <https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/disease-areas/covid-19/report-9-impact-of-npis-on-covid-19/>

²⁶ [https://www.thelancet.com/article/S1473-3099\(20\)30243-7/fulltext](https://www.thelancet.com/article/S1473-3099(20)30243-7/fulltext)

²⁷ Although it wasn’t completely unavoidable, as there was by that time the data that came from the Diamond Princess data. Verity at all knew of these data, and mentioned them, but threw the away. In retrospect they would have provided by estimates. And prospectively, an easy argument could have been made that they were better, as they involved no estimation whatsoever of either denominators or numerators.

²⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9613797/>

the parameters in their model. But in June, 2020, sensitivity analyses began to show that the ICL model "lacks practical parameter identifiability from data. The analysis also showed that this limitation is fundamental, and not something readily resolved should the model be driven with data of higher reliability."²⁹ A more detailed study came out in November, 2020.³⁰ It found that almost two-thirds of the differences in the model's results (with respect to how many lives suppression could save) could be attributed to changes in just three especially important variables. It was unable to closely reproduce the real data for any settings in the model with any parameter values. And it showed that for most values of the three parameters, five to six times as many people die during "maximum suppression" than the model predicted using the values that the ICL group used. This was a clear sign that the model might very well have large errors that were cancelling out, making it fundamentally useless for evaluating counterfactuals: overly high mortality of the virus, failure to represent the mechanisms that make Covid-19 come in waves, and overly high effectiveness of non-pharmaceutical interventions (NPIs). This suspicion was greatly heightened by looking at what was happening in Sweden.

On March 26th, a few days after they published report 9, the ICL group published Report 12.³¹ In it, they predicted that Sweden would have 90,157 deaths if they did not go into maximum suppression. (Which they did not. Technically, Sweden implemented only one of the many policies that constituted "suppression" in ICL-speak: closing large events—in Sweden this was defined as events of over 50 people.) According to the model, those deaths should have all happened by the end of July, and the epidemic should have burned itself out. Of course, nothing like this happened. According to Thagard, therefore, we should fully expect that by the end of June, the ICL group would have radically recanted, and fundamentally altered their model to show that lockdowns were much less effective and the virus was both considerably less lethal, and much more susceptible to downturns in the absence of lockdowns.

They did the opposite. The ICL group doubled down on their model. In June 2020, they published the infamous paper known as "Flaxman et al" (with Neil Ferguson as co-author).³² In it, they "showed" that lockdowns had saved three million lives in Europe in the spring of 2020 (in a period ending May 4th). Shockingly, they "showed" that Sweden had averted 26,000 deaths. With NPIs! How is this possible? The model also "showed" that nothing other than NPIs was effective. The only NPI Sweden employed was closing large events. The answer is that they made the effect of closing large events in Sweden 45 times larger than it was in any other European country. In most countries, the country-specific effect, for closing large events, on the reproduction number of the virus was nearly zero. "Because of this country-specific effect, their model found that banning public events had reduced transmission by ~72.2% in Sweden, but only by ~1.6% everywhere else. Moreover, according to

²⁹ <https://www.medrxiv.org/content/10.1101/2020.06.10.20127324v1>

³⁰ <https://www.nature.com/articles/s43588-021-00028-9>

³¹ <https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/disease-areas/covid-19/report-12-global-impact-covid-19/>

³² <https://www.nature.com/articles/s41586-020-2405-7>

the prior they used for the country-specific effect, the probability that it would be that large was only ~0.025%.”³³ Not only this, but none of these facts were revealed in the printed paper, published in *Nature*. I’ll leave it as an exercise for the reader to determine whether this confirms or refutes Thagard’s claim that “models are frequently revised to account for the most recent data about the pandemic. Indeed, it is well documented that the Covid-19 projection models continued to make rhetorically powerful but wildly overly pessimistic projections in the absence of NPIs for most of the pandemic³⁴ and that very few of them did an adequate job of assessing their own performance and adhering to best practices in model self-evaluation.³⁵

The last thing I want to do is exasperate the reader with the most annoying debate in the history of culture wars: the debate about the efficacy of masks and mask mandates. Suffice it to say that Thagard is deeply confused about the evidence. His diagram on page 89 clearly suggests he thinks that the 2023 Cochrane Report “Do physical measures such as hand-washing or wearing masks stop or slow down the spread of respiratory viruses?” is just one study that ought to be weighed against other studies, such as the Bangladesh Mask study. But of course the Cochrane group, who are world-leading experts in evidence-based medicine, weighed all the available evidence themselves, obviously including the Bangladesh study³⁶, and concluded that “Wearing masks in the community probably makes little or no difference to the outcome of laboratory-confirmed influenza/SARS-CoV-2 compared to not wearing masks...The use of a N95/P2 respirators compared to medical/surgical masks probably makes little or no difference for the objective and more precise outcome of laboratory-confirmed influenza infection...One previously reported ongoing RCT has now been published and observed that medical/surgical masks were non-inferior to N95 respirators in a large study of 1009 healthcare workers in four countries providing direct care to COVID-19 patients.”

One reason that, *pace* Thagard, the Bangladesh Mask study failed to contribute to a clear difference with the use of surgical masks (which the study employed) is that the effect in that study was minuscule. That study found that among more than 300,000 subjects allocated to a mask group and a non-mask group, the non-mask group had 20 more cases of COVID over 6 months. What I don’t believe the Cochrane group took into account was that even this tiny effect was almost certainly due to ascertainment bias. As Chikina et al (2022) note: “Upon reanalysis, we find a large, statistically significant imbalance in the size of the treatment and control arms evincing substantial post-randomization ascertainment bias by unblinded staff. The

³³ <https://necpluribusimpar.net/reply-to-andrew-gelman-and-flaxman-et-al-on-the-effectiveness-of-non-pharmaceutical-interventions/>

³⁴ <https://www.news-medical.net/news/20211005/How-accurate-is-COVID-19-modelling.aspx>

³⁵ [https://www.thelancet.com/journals/landig/article/PIIS2589-7500\(22\)00148-0/fulltex](https://www.thelancet.com/journals/landig/article/PIIS2589-7500(22)00148-0/fulltex)

³⁶ We included 11 new RCTs and cluster-RCTs (610,872 participants) in this update, bringing the total number of RCTs to 78. Six of the new trials were conducted during the COVID-19 pandemic; two from Mexico, and one each from Denmark, Bangladesh, England, and Norway. We identified four ongoing studies, of which one is completed, but unreported, evaluating masks concurrent with the COVID-19 pandemic. <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD006207.pub6/full>

observed decrease in the primary outcome is the same magnitude as the population imbalance but fails significance by the same tests."³⁷

Enough about masks. Enough about all the things Paul Thagard labelled as misinformation based on false reporting of the underlying facts. I'll come back in a moment to why I have subjected the reader to this tedious "fact-checking" of Thagard's book. Before that, I promised to say something about his chapter on Climate Science and to elaborate on my claim that even when Thagard correctly identifies instances in which what appear to be factual disagreements are, in actuality, disagreements about values, he has some odd beliefs about how values operate and when they can be objectively adjudicated. Regarding people who are anti-egalitarian, he summarizes their values as "freedom is a more fundamental value than equality." (p. 199) Let's set aside the question about whether this is a correct diagnosis of the values held by anti-egalitarians. (Many of them believe, I think, that overall prosperity is more important than equality, rather than that freedom is. They believe free markets lead to greater prosperity.) The more puzzling claim that Thagard makes is that these claims can count as misinformation because some of these values are objectively wrong. He writes:

"We can grant that values are emotional attitudes but still see them as potentially objective given a rich theory of emotions. Emotions are not just bodily reaction but also require cognitive appraisals of the significance of a situation for a person's goals. For example, my reaction to the prospect that 50 million people will die because of climate change is visceral but it is also cognitive because my goals include the flourishing of the human species." (p.128)

The first thing I want to note is that this argument is odd, especially from a philosopher. I don't want to dispute that some values are objectively better than other values. This is contentious, to be sure, but also surely something that many reasonable people hold. But the argument given for that claim here is odd. Of course, if my goal is to consume as much chocolate ice cream as possible, then valuing an opportunity to eat vanilla ice cream over an opportunity to eat chocolate ice cream is wrong. But this only shows that goals and values are intricately related. It doesn't show that valuing vanilla ice cream is objectively wrong. Maybe this worry of mine is pedantic, but I have a deeper one, and it relates to my overall evaluation of his chapter on climate change.

Unlike in the pandemic chapter, I agree that the claims Thagard labels misinformation are very, or even extremely, likely to be false. They are claims that, in my opinion, it is extremely difficult for a reasonable person to affirm given the presently available evidence. The claims he subjects to his AIMS analysis in this chapter are primarily limited to these three: that global warming is increasing, that human influence is the main cause of this increase, and if humans continue to emit more CO₂ and other heat-trapping gases, the warming trend will continue into the future. I'm hesitant to label the denial of these claims misinformation³⁸, but only because

³⁷ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9479361/>

³⁸ I'm happy to label some instances of the denial of these claims "disinformation" if it can be shown that, in these instances, the actors in question *wilfully misrepresented what they believed* for financial gain or other nefarious motives. This is a separate question.

I don't love the term, not because I disagree that the people who deny them are unreasonable.

But Thagard doesn't stop here. He admits that "Values are an indispensable part of decision making," but goes on to say "applying them has two dangerous pitfalls. First, good decisions depend on values that are legitimately based on universal human needs. The values deployed by the IPCC...include avoiding harm, saving lives, and promoting equality, which help to satisfy the needs of the huge majority of people. In contrast, the values of climate change deniers are skewed toward the needs of a small minority of rich and powerful people."(p.136).

First of all, let's back up one step. The use of the word "climate change deniers" in that paragraph is a non-sequitur. The paragraph is about values and decision making, not about fact evaluation. So, the relevant group of people here are not climate change deniers, but opponents of various mitigation measures. More importantly, Thagard seems absolutely convinced that the only reason you could oppose climate mitigation is because you value "the needs of a small minority of a small minority of rich and powerful people" over saving the lives of 50 million people. But this is confused for a number of reasons. First of all, the claim that unmitigated climate change will, in the foreseeable future, kill 50 million people is nowhere near as contentious as the negations of the claims, canvassed above, that Thagard argues are misinformation in the chapter called "storms"³⁹.

People have various reasons for doubting this. Some believe climate repair strategies can save us (a highly contentious claim but one that would be hard to label misinformation. Indeed, it's a claim that has recently been gaining traction in the climate science community in the last few years.) Some believe that adaptation can dramatically lower the harms of climate change. Some believe that the specific damage that climate change will cause is too local for our best models to reliably project. The important point is that you can't have your cake and eat it here. You can't limit yourself to claims like "climate change is real" when you argue for about misinformation but then use claims like "climate change will kill 50 million people" when you argue that some people are employing values that are not legitimately based on human needs. Second, Thagard is going way out over his skis when he suggests that those who oppose mitigation only value "the needs of a small minority of rich and powerful people." Consider, for example, that I vigorously advocate for the mitigation of climate change by aggressively building nuclear power plants around the world. The many, many people who disagree with me, and therefore oppose an (in my opinion) important strategy for mitigation, do not only value "the needs of a small minority of rich and powerful people." Many people, moreover, who oppose other mitigation strategies do so because they fear that such strategies will slow economic growth, and that this will disproportionately hurt the global poor, potentially

³⁹ It's slightly ironic that Thagard chose this title for the chapter, since, contrary to much popular belief, there is very little consensus in the climate science community about the effect of climate change on storms. Perhaps more precisely, there is overwhelming consensus that storms will be wetter, but much uncertainty about whether they will change in frequency and intensity. And we do not have enough good data from the past to say with any confidence whether storms are more frequent or more intense now than they were, e.g., in the early 20th Century. <https://www.gfdl.noaa.gov/global-warming-and-hurricanes/>

leading to more deaths by economic deprivation than they save. Or they think that politicians cannot be trusted to enact effective climate mitigation policies that won't do more harm than good. Or they think the political backlash from policies that hurt rural people more than urban dwellers will be dangerous and bad. Again, one doesn't have to adjudicate any of these debates to see that it is unhelpful to accuse such people of misinformation and having illegitimate values and lacking a rich set of emotions. These are hard policy questions and the people who raise these objections deserve detailed, nuanced answers to their worries. It is not helpful to lump them together with people who do not believe carbon-dioxide can warm the planet or with people who think further enriching Jeffrey Bezos is more important than saving lives (if any of the latter such people even exist).

Let me finally come back to why I have subjected the reader to the tedious "fact-checking" of Thagard's book. I believe "misinformation" accusations are a dangerous and illiberal propaganda tactic—nothing but a raw exercise of power—and I want philosophers and other academics to understand how difficult, complex, and sometimes tedious it can be to really get to the bottom of some of the factual disputes that underly some of the biggest policy disputes of the day. This was true during the pandemic, and, when it comes to policy-relevant claims, it's true about climate science. It's also true in politics. Recall the infamous story, which broke in the New York Post in the leadup to the 2020 election⁴⁰, detailing emails allegedly found on the Biden son's laptop. Accusations of misinformation flew (see what I did there?) around almost immediately. Facebook blocked or restricted posts of the newspaper story. Twitter completely banned them⁴¹, even deleting links to the story in people's personal direct messages⁴². Glenn Greenwald, a co-founder of *The Intercept*, left the publication because they refused to publish his reporting on the story. But most of the stories and allegations underlying the claim that the *Post* article counted as misinformation have not held up as the owl of Minerva has taken flight. In particular, the claim that the laptop itself was a Russian plant have been falsified, and there is no disagreement among major sources that the laptop is real, that it belonged to Hunter Biden, and that it made its way from Hunter Biden, to the computer store, and then to the New York Post. And the New York Times reports that many if not all the emails have been "authenticated"⁴³.

Or consider another case more closely related to Thagard's chapter on Covid-19. Early in the pandemic, there was a desire, among some people (myself included), for vigorous debate about the wisdom of lockdowns. This was partly true because lockdowns contradicted almost all of the existing science and wisdom about how to act in a pandemic. Sunetra Gupta of the University of Oxford, Jay Bhattacharya of Stanford University, and Martin Kulldorff of Harvard University wanted such debate, and signed an open letter to that effect called the "Great Barrington Declaration" (GBD)⁴⁴. Privately, Francis Collins, the director of the NIH, emailed Anthony

⁴⁰ <https://nypost.com/2020/10/14/email-reveals-how-hunter-biden-introduced-ukrainian-biz-man-to-dad/>

⁴¹ <https://www.vox.com/22992772/hunter-biden-laptop>

⁴² <https://techcrunch.com/2020/10/16/twitter-new-york-post>

⁴³ <https://www.nytimes.com/2022/03/16/us/politics/hunter-biden-tax-bill-investigation.html>

⁴⁴ <https://gbdeclaration.org/>

Fauci, who needs no introduction, that “This proposal from the three fringe epidemiologists...seems to be getting a lot of attention – and even a co-signature from Nobel prize-winner Mike Leavitt at Stanford. There needs to be a quick and devastating take down of its premises. I don’t see anything like that on line yet—is it underway?”⁴⁵ The devastating takedown was underway. After the publication of the Great Barrington Declaration, the “fringe epidemiologists” were censored on social media, Google deboosted search results for the GBD, putting pieces critical of it above the link to the actual declaration.⁴⁶ Reddit removed links to the Declaration from COVID-19 policy discussion forums.⁴⁷ In February 2021, Facebook deleted the Great Barrington Declaration page for a week.⁴⁸ On March 18, 2021, Governor Ron DeSantis of Florida held a roundtable discussion with some of the GBD signatories. YouTube removed the video, claiming that it "contradicts the consensus of local and global health authorities regarding the efficacy of masks to prevent the spread of COVID-19."⁴⁹ Was this all for the best? Even Francis Collins now seems to think it wasn’t. In a panel discussion, held in mid-2023, called “A deplorable and an elitist walk into a bar”⁵⁰ Collins said, “if you’re a public health person and you’re trying to make a decision you have this very narrow view of what the right decision is and that is something that will save a life... So you attach infinite value to stopping the disease and saving a life [and] you attach a zero value to whether this actually totally disrupts people’s lives, ruins the economy and has many kids kept out of school in a way that they never right quite recover...This is a public health mindset and I think a lot of us involved in trying to make those recommendations had that mindset and that was really unfortunate. That’s another mistake we made.”

But this “mistake” was literally exactly the one Gupta, Bhattacharya, and Kullendorff were trying to draw attention to in the open letter that Collins labelled misinformation and kept people from having access to.

Now, it’s possible to believe that the ends justified the means. Especially in the first case. Maybe labelling the Hunter Biden laptop story misinformation, keeping the New York Post story about it off of social media, and stopping Glen Greenwald from writing about it in the Intercept, kept Donald Trump from being re-elected. Maybe this saved democracy. So maybe it was worth it. But if you think this, you

⁴⁵ <https://www.wsj.com/articles/fauci-collins-emails-great-barrington-declaration-covid-pandemic-lockdown-11640129116>

⁴⁶ Fraser Myers (2020) “Why Has Google Censored the Great Barrington Declaration?” Spiked Online. October 12, 2020. <https://www.spiked-online.com/2020/10/12/why-has-google-censored-the-great-barrington-declaration/>

⁴⁷ Ethan Yang (2020) “Reddit’s Censorship of The Great Barrington Declaration” American Institute for Economic Policy Research. Oct. 8, 2020. <https://www.aier.org/article/reddits-censorship-of-the-great-barringtondeclaration/>

⁴⁸ Daniel Payne (2021) “Facebook removes page of international disease experts critical of COVID lockdowns” Just the News. February 5, 2021. <https://justthenews.com/nation/technology/facebook-removes-page-internationalexperts-who-have-been-critical->

⁴⁹ 4 Wall Street Journal Editorial Board. (2021) “YouTube’s Assault on Covid Accountability” Wall Street Journal. April 8, 2021. <https://www.wsj.com/articles/youtubes-assault-on-covid-accountability-11617921149>

⁵⁰ <https://youtu.be/W1eAvh1sWiw?si=Y1DFOhX8vlN8PUux>

should write a book entitled "Falsehoods Fly: Misinformation and how to use it for political advantage." I would have declined to review such a book.

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