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Down the Misinformation Rabbit Hole: Falling or Jumping In?

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Introduction

      One of the biggest problems facing our society today is misinformation and misinformed belief. The massive growth of the internet has dramatically worsened this problem, and there is no better example of it at the current moment than the controversy surrounding the COVID-19 pandemic and vaccine. Widespread misinformation has resulted in a variety of problems from an increase in polarization to a straight refusal to take the vaccine, blatantly against the recommendations of the CDC and doctors everywhere. Misinformation and distrust in science have resulted in many unnecessary deaths and stagnation in our progress against the pandemic. It is clear that such widespread misinformed belief affects us all and certainly harms society and individuals in countless ways. What is less clear however, is who, if anyone, should be held responsible for these harms. Should we hold every individual who adopts the relevant misinformed beliefs responsible, or only a particular group of people? Perhaps only those who share or promote the ideas in bad faith are blameworthy, or maybe the conditions for blameworthiness are something else entirely. The primary goal of this paper is to determine in which cases, if any, an individual is culpable for adopting, expressing, or acting upon a misinformed belief. To determine this, it is necessary to understand the mechanisms by which individuals select beliefs and the biases or mistakes that lead them to adopt false ones. I will compare and evaluate the views of Neil Levy and Dan Kahan, who offer opposing viewpoints on the source of misinformed beliefs. I will also consider the attempts to model belief adoption and expression through signaling theory. Finally, I will propose a particular standard to which we can

hold individuals to consider if they are culpable for their misinformed beliefs, and explore how best to counteract the proliferation of these beliefs in light of their causes.

The type of beliefs with which I am concerned are similar, in part, to what Levy calls "bad beliefs." These are beliefs which Levy describes as meeting two fundamental criteria. In his own words,

> A bad belief, in my sense, is a belief that (a) conflicts with the beliefs held by the *relevant epistemic authorities* and (b) held despite the widespread public availability either of the evidence that supports more accurate beliefs or of the knowledge that the relevant authorities believe as they do (Levy, 2021, p. 2).

I would like to specify these criteria even more, however. Firstly, I intend to limit the discussion to beliefs regarding matters of fact. Additionally, I would like to specify that a misinformed belief is one that conflicts with the *consensus* of the relevant epistemic authorities. This specification serves to stop the disqualification of certain beliefs as "bad" simply because they are in line with the beliefs of a select handful of relevant epistemic authorities. Levy also specifies that bad beliefs are not necessarily false, and that false beliefs are not necessarily bad. Rather, bad beliefs are necessarily *unjustified* (Levy, 2021, p. 2). What that standard means is a matter of debate among the authors below, but in general, I agree with Levy on this requirement. In the analyses below, I will discuss different perspectives on what constitutes justification for a belief.

Section 1: Kahan's Motivated Reasoning and Cultural Cognition

In his paper "Misconceptions, Misinformation, and the Logic of Identity-Protective Cognition," Dan Kahan explores why many people hold beliefs that are directly contrary to the scientific consensus. To explain his perspective, he presents

results from surveys where respondents were asked to rate their concern regarding the issue of climate change. He also recorded their political ideology and their score on an exam that measured scientific and numerical literacy.

There is a very straightforward expectation for the results of this survey. About 97% of climate experts believe that anthropogenic climate change is happening, passing all but the very highest standards for a scientific consensus (. Given the homogeneity in the scientific community regarding this topic, it seems reasonable to believe that an increase in a person's scientific literacy would correspond with an increase in their concern for climate change. However, the results of the survey did not support this expectation. In fact, the results of the survey showed that, averaged for both groups, concern for climate change stayed relatively constant as scientific literacy increased, even slightly decreasing. It was also found that concern for climate change among liberal Democrats increased as scientific literacy increased, while the concern for climate change among conservative republicans decreased as their scientific literacy increased. This reflects an increase in polarization regarding the issue of climate change as scientific literacy increases (Kahan, 2013).

We should first examine what this study shows is *not* the problem. The study gives evidence against perhaps the most popular explanation for the disparity among climate experts and the general public. That is, it is not a lack of scientific education or reasoning skills among climate change skeptics that accounts for their lack of concern, nor is it an increased level of education of reasoning skills that accounts for a person's

agreement with the scientific consensus. In fact, similar levels of scientific literacy

actually resulted in even more division regarding climate change (Kahan, 2013, p. 418).

Instead of scientific literacy being the best predictor of concern about climate

change, the best predictor is political affiliation. While this seems like a straightforward

statement to make, the implications are very much worthy of note. Climate change, like

many scientific issues, seems to be a matter of fact. That is, there is an objectively true

answer as to whether it exists and poses a threat. Science, which has historically been a

trustworthy and effective way to uncover truths about the world, seems to show that

climate change exists and is a significant threat to humanity (AAAS, 2013). Despite the

scientific consensus, the public still disagrees over this fact. Why does this not happen

with every scientific discovery? Well, a significant difference between climate change

and other topics of consensus in science is that climate change has been very widely

politicized, whereas others seemingly have no bearing on politics or identity and are

thus accepted more readily by the public. Kahan believes that politicization yields what

he argues is the main mechanism by which people adopt false beliefs: motivated

reasoning.

Generally, reasoning regarding the acceptance of a belief is thought to start with

objective facts about the situation. We then use these facts as a basis upon which we

adopt a belief. For example, consider a person trying to decide between two types of

milk at the store, type A and type B, with no prior conception of which is the better milk.

They have sampled both types and looked at the nutrition facts and expiration dates for

each one, deciding that, based on the above factors, type B is better in every category.

Because of this they choose it over type A. In this case, the person considered several factors and decided based on these factors.

Motivated reasoning, on the other hand, is when a person filters or interprets information with the motivation of getting a particular result. Kahan provides an example of this, where he gave statistics problems to individuals of varying political persuasions and numerical literacy. He asked the individuals in the study to analyze the statistics of a new skin-rash treatment. As expected, performance in the statistical analysis was directly correlated with numerical literacy. However, when he gave individuals in the study the same set of numbers, this time in the context of gun control evaluation, the responses of the subjects became more politically polarized and less accurate. This was even the case with individuals who had high numerical literacy. In fact, those with high numerical literacy reflected more polarization in their responses than those with lower numerical literacy (Kahan et al., 2013).

Kahan argues that our own identity plays a large part in determining how we process information. Specifically, we tend to apply a type of motivated reasoning he calls identity protective cognition by being more inclined to accept facts that support beliefs we consider as fundamental to our worldview, including political and moral beliefs (Kahan et al., 2010). We also tend to quickly discredit those who present facts that may challenge our worldview. He provides a great deal of experimental evidence for this idea with a study regarding climate change. Subjects of different political persuasions with varying scores on factors like individualism and belief in hierarchy were presented with the same climate scientist, and the scientist was given a quotation either

supporting human-accelerated climate change or doubting it. The study found that people were more likely to rate the scientist as an expert if his statement was in line with their prior beliefs regarding climate change (Kahan et al., 2010, pg. 10). According to Kahan, the subjects were faced with a person who presented a view that is contrary to their political persuasion, and the individuals in the study saw the view as threatening to their identity, immediately dismissed the opposing claim as false, and employed motivated reasoning to protect their identity by discrediting the person's qualifications. This, to Kahan, gives good reason to believe that "identity protective cognition" is a major factor in the way people interpret information.

In fact, identity protective cognition actually changes what individuals believe is the scientific consensus. One of Kahan's studies showed that people are more likely to claim that their own perspective actually falls in line with the scientific consensus regardless of what the actual scientific consensus is (Kahan 2013, pgs. 14-15). The results of this study dispel another common misconception: that people who disagree with the true scientific consensus are willfully rejecting science. In fact, it is quite the opposite. This kind of rationalization of certain beliefs brings up some important questions. Are these people adopting their beliefs and seeking out evidence from "credible" sources to support them, or are they being convinced of a particular view from sources that seem, but are not, scientifically legitimate?

Why think that this kind of reasoning is identity protective? Kahan outlines this in his cultural cognition thesis. According to Kahan,

Cultural cognition refers to the tendency of individuals to fit their perceptions of risk and related factual beliefs to their shared moral evaluations of putatively dangerous activities. The *cultural cognition thesis* asserts that individuals are psychologically disposed to believe that behavior they (and their peers) find honorable is socially beneficial, and behavior they find base socially detrimental (Kahan, Braman, Monahan, Callahan & Peters 2010, Kahan, Braman, Jenkins-Smith, 2011)

Consider the climate change case above. Generally, the solution that is put forward to combat the effects of climate change includes limits on commerce and increased taxes on corporations that sell fossil fuels. A conservative Republican, who may believe in free market capitalism, sees these measures as threatening to their worldview. Because of this, they are more skeptical of climate change, as many of the problems it poses and its suggested solutions include things with strong government involvement and oversight. Conversely, a liberal Democrat, who may already have a negative opinion of large corporations, would not feel threatened at all by these solutions, and in fact has their worldview furthered if the aforementioned resolutions were put in place to combat climate change. For a person who holds these beliefs, it would be advantageous to accept the belief that climate change is real and poses a massive threat since it confirms their beliefs and identity.

Kahan also provides a reasonable explanation for the increase in polarization with the increase in scientific literacy. According to Kahan, those who were more scientifically literate were able to better recognize the threat that the evidence with which they were presented poses to their identities (Kahan, Jenkins-Smith, Braman, 2010) . In other words, the more that people recognize the evidence as threatening to

their identity, the more they discount it. This phenomenon can also be applied to explain the recent rise in distrust in the medical community. A topic currently central to many people's lives is the COVID-19 pandemic. A pandemic brings medical sciences directly to the forefront through news and research updates, while governments at all levels play a major role in mitigating the effects of the pandemic through public policy, often based on the recommendations of doctors and scientists. This interrelatedness makes it difficult to completely separate politics and the advice of the medical community, effectively politicizing well-established and effective solutions such as masks, social distancing, and even vaccines. Conservative Republicans, who are more skeptical of government intervention, saw these measures as a violation of their freedom, while liberal Democrats, who are more comfortable with a higher degree of government control, saw these measures as the government taking the appropriate steps to effectively protect its citizenry.

Kahan's solution to this problem is to avoid motivated reasoning by protecting certain extremely important scientific findings from politicization. This would function by averting the creation of widespread pre-formed beliefs on the topic. While this makes sense in theory, the feasibility of this solution is unclear. Due to the nature of the internet, it is extremely difficult to stop a particular idea from spreading or to stop a group from commandeering a scientific topic for a political justification. As mentioned before, the politicization of the COVID-19 pandemic and vaccine has reached completely unprecedented levels, despite all efforts to give CDC findings the perception of objectivity. Additionally, science as a whole has political undertones for many people, as

well as centers of research like government-sponsored labs and colleges and universities. Any kind of scientific findings that are produced from these places, according to Kahan's own model, would then be threatening to some people's identities, causing them to immediately discount them. It seems that for these people, restoring trust in science as an entity would require these labs and universities to also be protected from politicization, which is also very difficult to achieve.

Kahan puts forward another solution, also within the context of climate change. Rather than protecting a topic from politicization, scientists should communicate these topics in a non-political way, thereby depoliticizing them. Kahan found that people are likely to be more polarized in questionnaires regarding climate change if they had just read a piece of scientific literature that proposed solutions that were contrary to their pre-formed views. However, when given a piece of scientific literature that only discussed the research itself, only saying that more research should be done to find solutions and not proposing specific ones, people were less polarized. He proposed extracting potentially political conclusions and solutions from these articles to achieve less polarization and more acceptance of scientific facts on both sides. Considering Kahan's model, this is a good solution. It effectively removes the part of science and science communication that causes motivated reasoning by removing any content that could challenge a person's identity. It also keeps each person more in-touch with the problems that society is facing and with contemporary scientific research. This seems like a more reasonable solution than protecting issues from politicization, as scientists

can more easily control the content they write than the discussions and writing of others regarding the results of their research.

Section 2: Levy's Epistemic Environments and Authorities

In his book, *Bad Beliefs: Why They Happen to Good People*, Neil Levy advances the idea that the adoption of misinformed beliefs is mostly the result of a polluted epistemic environment. That is, the access to and loyalty towards certain sources of information which are inaccurate is the main culprit of this issue. Levy believes that there are many cases in which misinformed beliefs take place completely rationally, and in fact argues that many of the mechanisms for belief evaluation that we use in everyday life are also at work in the adoption of "bad beliefs." In short, we reliably do things like defer our belief to others, engage in social cognition, and distinguish between trustworthy sources and non-trustworthy sources to adopt accurate beliefs in an efficient way. However, when a person is in a polluted epistemic environment, these things lead us astray and cause us to adopt "bad beliefs." In fact, he believes that it is generally extremely difficult for individuals to correctly identify epistemic authorities, and that those who trust the wrong ones are not particularly at fault for their adoption of misinformed beliefs (Levy, 2020, pgs. 71-78).

Levy provides developed reasons for the average person's inability to correctly choose an epistemic authority, which are sensible. For example, they may be connected to a certain political ideology or the person who presents the information may have personal or financial interest in people accepting it as true. Levy explains that this accounts for the distrust many people have in academic and government research, since

the perception of academia is that it is heavily liberal and government agencies are directly linked to the administration of the time. There is also a view that scientists presenting research on politicized topics are exaggerating their results to increase their status in society and academia.

What should we make of his claim that the epistemic environment is the main source of these bad beliefs? Levy argues that the reason many are unable to correctly identify epistemic authorities is because they 1) know that the epistemic environment is polluted and 2) understand that the markers of epistemic authority do not correlate with expertise in a polluted environment. It is certainly not outrageous to claim the truth of the former; after all, we are all aware of the prevalence of misinformation on social media. Levy claims the truth of the second point by claiming that part of the epistemic solution consists of the mimicry of certain well-known markers of expertise, like credentials, argumentative capacity, and agreement with the consensus (Levy, 2020, pgs. 71 & 72). It is clear to see how the truth of this might interfere with a person's ability to distinguish between experts and non-experts. In fact, there is significant evidence for this in the vaccine debate. People's inability to distinguish experts from non-experts, in this case exacerbated by false balance bias or bothsidesism, led to individuals adopting bad beliefs.

Bothsidesism, in itself, lends credibility to some who may not otherwise have it by putting them on the same platform and giving them equal time as experts. When the vaccine debate was at its most intense, bothsidesism was incredibly prevalent. When media outlets would present the vaccine debate, they would often pit one vaccine

supporter (often a pediatrician) against one anti-vaxx sympathizer, very often Barbara

Loe Fisher, or a mother of a child with autism. This kind of debate, whether or not the

intention of the news network was to honestly present the two perspectives, gave the

indication to many viewers that there is serious and widespread disagreement about

the safety of vaccines. This was made worse when the anti-vaxx supporter happened to

be Andrew Wakefield, since his status as a former physician gave the impression that

there was controversy within the medical community over the safety of vaccines.

Andrew Wakefield's credibility was not only boosted by the bothsidesism, but also by

his credentials (despite his medical license having been revoked).

The extent of the effect that bothsidesism can cause is shown in a study

concerning the BBC special "MMR: Every Parent's Choice," in which the findings from an

upcoming paper by Andrew Wakefield were given equal time with pediatricians who

represented the scientific consensus that vaccines are generally safe and effective. A

surge of media coverage of the vaccine debate ensued, with many of the articles

presenting the two sides of the argument equally due to a desire to appear unbiased

and therefore trustworthy. However, this had extremely negative effects on the

acceptance of the scientific consensus, which was in reality much better supported than

the anti-vaxx platform. According to the study from Cardiff University, "although almost

all scientific experts rejected the claim of a link between MMR and autism, 53% of those

[the people] surveyed at the height of the media coverage of the issues assumed that

because both sides of the debate received equal media coverage, there must be equal

evidence for each. Only 23% of the population were aware that the bulk of evidence

favoured supporters of the vaccine (Dobson, 2003)."

Of course, it isn't always true that presenting both sides necessarily increases the

prevalence of misinformed beliefs on the topic. However, when the equal presentation

of both sides has the effect of obscuring the line between experts and non-experts, it

does have this effect. For example, the situation above specifically increased the

perceived argumentative capacity and added to the track record of non-experts by

giving the same individuals more television appearances where they debate medical

professionals. This, as well as the dominance of this debate across all media programs at

the time and the lack of background knowledge of the audience, dramatically increased

the amount of people who doubted vaccine science.

It is, to me, hard to blame the viewers of this program for being influenced by

these programs. If an overwhelming number of sources featured the vaccine debate and

gave equal time to vaccine advocates and anti-vaxx advocates, from the perspective of

an average viewer it seems to be reasonable to assume that both views are equally

supported. This is certainly a fallacious conclusion, but again, we cannot expect people

to perfectly logically evaluate these types of situations, especially since the vast majority

do not have adequate training to do so. Additionally, as Levy argues, we also know the

markers for sources being untrustworthy. If a news source were to only provide the side

of the scientific consensus, people might assume that the news source is biased. If a

source presents both sides, the source gains the illusion of being unbiased, bolstering

the trust a viewer places in it even more. One might say, however, that the viewer then has a responsibility to follow segments like these with further research.

Is it fair to argue that checking new information from supposed reputable sources is obligatory and feasible? Levy thinks not. Dogmatism, to Levy, in cases of very basic truths and deep-rooted beliefs, is both practically and epistemically rational (7, pg. 65). Suppose I use the assumption in this paper that the Earth is spherical. Contrary perspectives certainly exist, and it would be extremely easy to find an argument against the Earth's spherical shape. I know from what I consider to be reputable sources (teachers, experts, photos) that the Earth is spherical, and also that it is very much a fringe view to believe otherwise. In this way, it may be epistemically unreasonable to check beliefs like these, as they are based on such a small amount of evidence that adopting the belief would be unfounded. Additionally, I am very confident in the truth of this belief. I am so confident, in fact, that I can admit to mentally dismissing any article that presents an argument contrary to it. For well-founded beliefs like this, it may also be practically unreasonable to consider other perspectives, as I would by no means read these ideas with an unbiased perspective, resulting in these considerations ultimately being a waste of time. For these reasons, a person may argue that skepticism of a trustworthy source is not a reasonable thing to expect from the average person.

A person might also argue that, for the purposes of only adopting true beliefs, checking the truth of information from all sources is ideal. This would include doing individual research, checking the potential belief against the beliefs of experts, and checking the scientific consensus. However, there is no guarantee that this process of

checking would yield positive results. In fact, Levy actually believes one is at greater risk of losing knowledge from "doing their own research (7, pg. 62)." For example, the sources a person reviews could be biased without the reader's knowledge, or an argument that leads to a false belief could possibly compel them more than the arguments supporting a true belief. Moreover, Levy brings up the point that many people are ill-equipped to be able to evaluate information regarding things like vaccines. With most people lacking a deep understanding of scientific research and the medical field, they do not have the background to go directly to the source of the scientific research and results. It then becomes necessary for them to outsource this belief to other sources that they feel do understand these things. This is again choosing whether a source is reputable, which puts them in a similar place as the start. Additionally, as we know from Kahan, the sources that people consider "experts" are not chosen based on objective standards, but instead based on their pre-formed views.

Levy includes a substantive discussion on selecting an epistemic authority. Each person must inescapably choose a variety of epistemic authorities, but Levy portrays the situation as a truth-seeking person trying to sort through all sources and information to find an epistemic authority that is least likely to provide them with misleading information. The choice itself is affected by a variety of factors, but we must also consider the results from Kahan's studies in examining this situation. The choice of an epistemic authority can very easily be based on motivated reasoning and biases (Kahan, 2010). Not only that, but when an epistemic authority is chosen in one area, we tend to trust them and give them a platform even when they speak about areas outside of their

expertise (Jones, 1996). Take, for example, Ivar Giaever, a physicist who was awarded the Nobel Prize in Physics for showing that electron tunnelling occurs in superconductors. He is also one of the loudest voices against anthropogenic climate change and is often cited with the expectation that his credentials in physics would also make him more knowledgeable in climate science. In fact, he is currently a science advisor for The Heartland Institute, an organization that is infamous for its rejection of anthropogenic climate change, among other things (Heartland Institute, 2016). Another example is Albert Einstein, who was offered the presidency of Israel in 1952, despite not being an Israeli citizen nor having any experience in politics (New York Times, 1952).

Levy agrees with Kahan that the mechanisms by which we adopt false beliefs can be practically rational. However, Levy also adds that these mechanisms are epistemically rational. These factors include things like outsourcing belief, belief shallowness, and belief shifting. In my opinion, the most important of these factors is outsourcing belief. We rely heavily on social knowledge to decide our beliefs. This is not only completely normal, but also very much encouraged. Many facets of our education system are built off of the outsourcing of belief, and this allows us to gain a type of surface-level knowledge over a wider range of topics. Levy calls this "metaknowledge." Most of the time, we consider teachers and professors to be trustworthy sources of information, and we give them particular labels that symbolize their knowledge in certain areas. These labels (e.g. degrees, certifications, titles) help us decipher which sources we can trust regarding a body of knowledge. If we were expected to continually question the information we receive from such sources, we would have been unable to develop as far

as we have. Levy argues that the success of humanity depends in large part on our ability to outsource belief and collaborate, and in this way, I believe he is correct. He also explains that the shallowness of belief and belief shifting are very advantageous for updating our beliefs, since they provide easier mechanisms to incorporate improvements in our understanding of reality to our beliefs. As beliefs are shallow, they can be easily uprooted. This is advantageous for rational belief update in a very straightforward way. At the same time, belief shifting is clearly practically rational, as it allows people to fit into their in-group more easily. He also gives a case for its epistemic rationality, arguing that being able to track changes in the opinion of experts and shifting our belief to reflect that change is an epistemically positive practice to employ. Levy presents a very compelling argument for the epistemic rationality of these processes in the specific cases that he is examining. However, this comes with the assumption that the majority of people are interested in the truth, which is not necessarily a safe assumption to make. We will explore this point in a later section.

The problem, however, comes when the many aspects of our epistemic environment (that is, our trusted sources) provide us with false information. The entities to which we rationally outsource our belief mislead us, leading us to adopt these misinformed beliefs. The only way in which we can feasibly avoid this is for a person to have selected the correct sources to outsource beliefs to and to take cues from when shifting beliefs. How do we select those we consider "experts" and those we discredit? To Levy, though we can have some guidance in this process, our starting point is largely circumstantial. Aspects of our background, education, and intuition play roles in this

process, making it extremely variable from person to person. We know from Kahan that he believes this selection is based on identity-protective cognition. However, Kahan thinks that the social approval of a belief is epistemically irrelevant. This is where Levy disagrees. He thinks that social approval is epistemically relevant evidence for the truth of a belief. I think there is good reason to think this, with some limitations of course. If the beliefs of one's peers were not epistemically relevant, why should we consider the consensus of scientists regarding climate change to be compelling? Scientists constantly outsource belief to each other through collaboration and the division of labor, so on the scale of the average scientist, should the consensus of their peers not be relevant to them? I believe that Levy presents a more compelling case here. For this reason, I will assume that for some, the processes that create misinformed beliefs can be both practically and epistemically rational. However, this is not the case for all cases of belief adoption, which we will see in the sections below.

Levy's approach to solving this problem is very clear: we should simply clean up the epistemic environment. He advocates for trying to restore society's trust in the scientific community. However, he is not completely clear as to how that might happen. He provides some ideas, like incentivizing press releases for scientific results, as well as for nudging for first and higher-order evidence. This includes limiting the dissemination of sources that often provide incorrect information and increasing the amount of traffic for sources that are reliable. He argues that this does not actually violate autonomy, and that it is perhaps the most feasible way to re-shape the epistemic environment. To me,

this seems to be one of the most effective and direct ways to solve this issue if the problem is indeed in the epistemic environment.

However, his claim of feasibility is not fully compelling, even aside from the potential soundness of his argument that nudging does not technically violate autonomy. With a topic that affects the general population as directly as this one, it is important to take public perception of the solution into account when considering the practical feasibility. If that perception is bad, we take on a huge risk in using techniques like nudging to solve this issue. In other words, we have to face the fact that Levy's justification will not be taken into account (or even encountered) by the vast majority of the people that the nudging will affect. This is especially true in the United States, as the limitation of certain sources or views is historically frowned upon, and autonomy is treated by many as something of a sacred right that should not be touched. In fact, it has already received somewhat significant pushback with the deactivation of Donald Trump's account on Twitter due to misinformation. Another example of this kind of pushback is Fox News losing 32% of its primetime viewership after it announced that Donald Trump had lost the 2020 election (WSJ, 2021). Given this culture in the United States, if a person finds out that a certain institution employs nudging in its reporting, it could actually lessen trust in the institutions that present them. This is very contrary to Levy's own goals, as he places great emphasis on restoring the public's faith in institutions like universities and government research facilities. I believe that there is a middle-ground between Kahan's solution and Levy's solution that might not be the most

effective option but would certainly be a more feasible option than the ones presented by the two authors.

Section 3: The Belief-Signaling Hypothesis

Another view of belief adoption comes from those who emphasize the social utility of beliefs. For this perspective, we will focus on the view outlined by Eric Funkhouser in his papers, "A tribal mind: Beliefs that signal group identity or commitment." The central claim of the paper is that some beliefs, specifically some socially relevant ones, are signals that are meant to indicate tribal identity or express other related sentiments. As a result, these socially relevant beliefs can be successfully modeled by signaling theory (Funkhouser, 2020).

Funkhouser offers the following definition of a signal:

1. Any object that is successfully *designed* or *selected* to communicate information,

2. as to be *detected* by some receiver,

3. in order to *modify* its behavior. (Funkhouser, 2017, pp. 811-812, Funkhouser, 2020, pp. 3)

One of the key parts of this view is that the signal is designed or selected. This implies that the belief itself does not just incidentally signal tribal identity, but that the believer adopts the belief due to its ability to serve as a signal (Funkhouser, 2020, pp. 3). He specifies however, that despite the belief being selected due to its social utility, it is still a genuine belief. This is what distinguishes it from impression management, which does not have to reflect a person's genuine belief. Though they can start out as simple cases

of impression management, repeated professions of belief or support can turn into a self-deceptive belief over time (Hogan, 1983). Funkhouser provides two benefits of these beliefs being genuine rather than being faked. Firstly, it is easier for a person to express a genuine belief than to have to curate their speech and behavior for the purposes of deceiving a group of people. Secondly, if the person gets things wrong, there is less blame placed on them since they only made a mistake and didn't intentionally misrepresent the situation.

He goes on to explain the reasons that individuals use beliefs to signal. Funkhouser argues that we mostly use these signals to promote cooperation and trust within a social circle. More specifically, he claims that that the beliefs signal intentions and trustworthiness to other members of a group and that we are "worthy of receiving benefits from the tribe (and perhaps others) (Funkhouser, 2020, pp. 5)."

There are two main examples of beliefs as signals that he discusses in the paper. Firstly, he offers the case of anthropogenic climate change. Expressing doubt in anthropogenic climate change is one way that Republicans can signal their political affiliation to each other and express that they are a trusted source. One study, for example, found that acceptance of climate change acceptance is aligned more with a person's identification with a political party than their own political beliefs (Hornsey et al., 2016). This provides support for the idea that doubt in climate change is intimately connected with social identification, even more so than their personal belief on the topic. However, Funkhouser goes on to explain that there is overlap in belief between Democrats and Republicans regarding climate change, which can cast doubt on the

fitness of the belief as a signal. He posits that expressing more radical views on the topic

is a way to express tribal affiliation more effectively. The others in the group, wanting to

maintain their standing as trusted individuals, tend to follow in agreement with the

increasingly radical beliefs. Discussion within the in-group thus results in increased

polarization as a whole. This idea is supported by multiple studies. Republicans and

Democrats interact with very different bases of information. On social media, both tend

to see arguments and news stories that align with their beliefs, with very little

representation of the beliefs on the other side. The selective encounters result in a

strong imbalance of arguments, resulting in more polarized positions due to their

increasing confidence in the soundness of Republican and Democrat favoring arguments

(Sunstein, 2009). When they discuss these views with their social circle, there is

increased pressure to polarize among the others in their group (Goidel and Shields,

1997). There is more evidence that as they interact with opposing viewpoints in a group

of like-minded people, they are more likely to move to more polarized positions as a

result (Levendusky et al., 2016). This is also reflected in the polls regarding concern

about climate change, which have shown more polarization over time (Egan & Mullin,

2017). This kind of polarization, according to Funkhouser, sets increasingly more radical

standards for members of a tribe to experience "the full benefits of tribal membership

(Funkhouser, 2020, pp. 7)." The resultant skepticism towards anthropogenic climate

change is extremely resistant to relevant evidence supporting its reality, mainly due to

the social cost of expressing a belief in it as a Republican. According to Funkhouser, it

has the benefits of establishing a tribe of loyalists, establishing epistemic communities, and self-signaling a sense of belonging (Funkhouser, 2017, pp. 8-9).

The second case of signaling that Funkhouser denotes is religious belief. This, to me, is very clear. Religious beliefs and their expression can be used to signal belongingness to a religious group and indicate a particular worldview. He introduces studies that found that genuine and self-deceptive religious beliefs are socially desirable and beneficial (Leak & Fish, 1989, Burris et al., 1994), but attempts to connect this fact to the idea that religious beliefs can act as signals, and sometimes are chosen for that purpose. Funkhouser argues that despite the decrease in truly religious belief, secular signals advertising religious beliefs have taken their place. These are beliefs that are not chosen for their religious content (in fact, they generally lack religious content) but are instead chosen for the purpose of signaling to others that one is religious. One reason for this is the negative social repercussions of not being religious, perpetuated by many who consider religious belief "as a prerequisite for trustworthiness (Funkhouser, 2020, pp. 11)." He brings up statistics that support this, including a poll that showed that 40% of American voters would not vote for an atheist candidate for president (Gallup, 2015) and six studies that reflected that rapists were the only group considered "less trustworthy" than atheists (Gervais et al., 2011).

One of the most fundamental parts of the signaling view is that despite these beliefs being selected due to their social utility, they are genuine beliefs. However, many self-expressed religious believers do not act on their beliefs in ways that are normally expected from believers. For example, the majority do not attend religious services

regularly, though they claim that it is not for lack of belief (PEW, 2018). Funkhouser

offers that it could simply be more socially valuable for them to give off the appearance

of belief rather than actually believe in the religion. However, it is still unclear as to why

these individuals would not attend religious services. It seems that attending a religious

service would maximize the appearance of religiosity, especially among those who

regularly attend service. Funkhouser also mentions professions of faith, like certain

creeds in Christianity or the Shahada in Islam, and how these help to "increase the

chances of honest signaling (Funkhouser, 2020, pp. 11)." At the same time, it seems like

attending regular services would also increase these chances, especially since these

creeds are usually recited in the service itself. I believe more clarification is needed on

this front. Perhaps the minimum standard for being perceived as religious no longer

includes attending services. At the same time, if the point of the belief is to act as a

signal in social settings and establish an epistemic community, there seems to me no

better place to do so than at a religious service.

> Funkhouser's view, in his words, is that religious beliefs are signals because:
>
> (1) religious beliefs are prominently displayed in environments designed to produce sincerity;
>
> (2) such beliefs successfully communicate prosociality and tribal affiliation;
>
> (3) this perception benefits the believer; and
>
> (4) these beliefs are often contrary to reason and evidence (Funkhouser, 2020, pp. 12).

Reasons 1 through 3 fit well with the definition that he gave for a signal earlier.

However, reason (4) is relevant because if it is contrary to reason and evidence, there is

likely another reason that a person would adopt the belief. He clarifies, however, that

this view does not imply that people would adopt any belief that is socially beneficial, since the epistemic costs of beliefs that stray too far from the norm are far too high to justify the signal being adopted. Additionally, if a belief is unjustified, it is more likely that it could harm us if we base our actions on it. Finally, as mentioned before, the social costs are high if a person fakes a belief. The costs are also proportional to the normative force that it has on our society, and so is the difficulty in faking a belief. These factors temper our ability and willingness to adopt a high volume of beliefs for the purpose of signaling.

Five benefits are presented for the signaling hypothesis. Firstly, the hypothesis explains the development of certain prominent beliefs in a given tribe. Some ideas that are not central to the ideology of a tribe may become prevalent due to their effectiveness as a signal and the responses they generate. Other ideas may be fundamental to a tribe, but they initiated and became so widespread due to their signaling value, while genuine belief in the ideas only come after it has effectively permeated. One example that fits the latter description is the concept of transubstantiation in the Catholic faith. Secondly, the signaling hypothesis explains the importance of some beliefs to a group. If the belief is a highly effective signal, it is treated as a fundamental belief that grants a person inclusion or status within a tribe, and more emphasis is placed on the belief as a result. Thirdly, signaling can explain the increase in polarization due to the desire of individuals to emphatically demonstrate how *like* the tribe they are and how *unlike* the other tribes they are through embellishment. Fourthly, signaling can explain why people get benefits and harms from

expressing certain beliefs but not others. They would get a social reaction from belief-signal expression but not from other beliefs that do not act as signals. Lastly, it also explains the tendency of individuals to reject and or not even consider challenges to their view, even when the challenges are relevant and substantive. If a belief is adopted due to its ability to signal, it is easy to see that evidence does not play a deciding role in whether they adopted the belief or not. For this reason, being faced with disconfirming evidence is not so much of an issue.

Funkhouser also discusses some solutions, most of which have to do with dissociating the tribal identity from individual beliefs. For one, he suggests that we can do things like challenge the person's tribal identity. If they do not hold a particular tribal identity, then they will not adopt the beliefs that act as signals of membership to that tribe. Another suggestion is to identify members of the group that do not hold the belief or believe opposite of that which a signaler might use to indicate their belongingness. We could also argue that the signal is not actually in line with other fundamental beliefs of the tribe, or spin solutions and evidence for things like climate change to align more with the values of its deniers. Lastly, and perhaps most effectively, we could change the normative view of what it means to belong to the tribe. However, this would most likely result from changing the cultural norms. If cultural norms shift, large tribes like Democrats and Republicans would presumably shift their values to fall more into those norms so the groups can still be considered a viable political option in the era. Some of these solutions are feasible while others are not. The solutions that involve changes to the mindset of an individual are perhaps the most feasible. Convincing somebody that

they should not be a part of a certain tribe, or that they can be a member without holding a particular belief are certainly smaller goals than changing "what it means to be a Republican" in general (Funkhouser, 2020, pp. 18). The advantage of the most feasible solutions are that they can be implemented on any scale, including a simple person-to-person interaction. I will discuss this further in the solutions section.

As a whole, this idea fits very well with Kahan's view. We can expect that a person might not only use motivated reasoning to protect their personal identity, but also their status or perception within a social group (Kahan, Jenkins-Smith, Hank & Braman, 2010). This also relates to a phenomenon Kahan calls cultural cognition, where a person tends to favor and adopt beliefs that align with the views of the group with which they identify. Kahan also found that, polarization generally increases when this is the case, which is in line with the signaling view.

The mechanisms of belief adoption proposed by the signaling theory are somewhat counterintuitive, especially when considering the component of self-deception. Most people like to think that they have relatively objective standards when considering a belief, and that standard is mostly based on the merit of the claim. If the merit of the claim does not meet their threshold for acceptance, then it is not adopted. So why do we do this? Kahan thinks that the endorsement of a belief, in some cases, is a practically rational process due to its social utility. In other words, it is beneficial to a person to signal through belief expression, as opposed to being epistemically rational, or there being compelling evidence to adopt the belief. This makes sense, as there are clear psychological benefits to us being a part of an in-group. It also matches well with

and frankly requires his concept of motivated reasoning. Motivated reasoning, similarly to cultural cognition, can be very practically rational. It is quite an ordeal to change our fundamental beliefs and accepting evidence that challenges them puts us at risk of doing so. This kind of change can very directly affect quality of life, as a person's in-group can abandon them, also sometimes forcing one to navigate the world in a different way than the one that has previously worked so well for them. Looking at it in this way, identify protective cognition is very practically valuable to the individual despite its tendency to cause problems for society as a whole. Later on, I will discuss how adopting a belief based on practical rationality relates to responsibility.

If the signaling hypothesis is true, one of the most important conclusions we can make is that epistemic justification is secondary at best to social utility, and perhaps only used as support for the adoption of some socially relevant beliefs. The epistemic justification may simply be a means by which we can self-deceive. The signaling view also provides an explanation for expressive responding on political surveys. Headlines from major news outlets report survey results like "Majority of Republicans Believe the QAnon Conspiracy Theory" and "Polls Find Most Republicans say 2020 election was stolen (Forbes, 2020 & CNN, 2021)." If we take acting on a view as an indication of true belief, there is reason to think that these numbers do not accurately reflect the proportion of people that truly believe these things. It is more likely that these people are indicating more radical options on these surveys than they truly believe to signal support for and belongingness to their in-group. Choosing a belief based on its potential to signal and provide benefits to the believer would have a significant impact on

whether or not a person should be held responsible for a belief, which I will now

consider.

Section 4: Responsibility - Who's to Blame?

The parameters for holding a person responsible for adopting and expressing

beliefs are difficult to determine. We can use the modified version of Levy's bad belief

definition as a guide here. The first point is that the beliefs must be contrary to the

consensus of the relevant epistemic authorities. I agree with Levy on the fact that this,

by itself, is not enough to warrant blame. A person could have a view that conflicts with

the consensus due to a lack of access to the opinions of the epistemic authorities.

However, the second point is that the belief must be held despite the widespread

availability of the opinions of the epistemic authorities. There are two standard ways in

which I could envision this occurring:

1. The agent has encountered the consensus, and has rationalized it away in

   some sense

2. The agent actively avoids the consensus, instead opting to consult sources

   from those who are not epistemic authorities or simply ones that agree with

   her.

How should we treat the above situations when considering responsibility? Firstly, we

should consider intentionality, which I consider to be one of the most pertinent (and

uncontroversial) factors to determining responsibility. If a person were to intentionally

dismiss the consensus in favor of a view that supports their cultural and moral values

simply because it supports them, I believe they should be held both epistemically

responsible and socially responsible. That is, if a person is faced with a choice to accept what they know to be fact, but reject it in favor of their current worldview, that is straightforwardly epistemically reckless. However, is it the case that people who reject the scientific consensus know that it is the scientific consensus? As we saw in Kahan's results, we can know that this is not the case for everybody. Motivated reasoning was the root cause of the subjects' rejection of the scientific consensus, but the study also showed that many who rejected it saw their view as consistent with what they believed was the "true" consensus. If an expert were to explain to them that their view is not consistent with the consensus and they still rejected it, it is still unclear that these people are made more aware of the true scientific consensus. Recall that Kahan's study also showed that people are more likely to view somebody as an epistemic authority if they express beliefs that do not challenge their moral and political values. If an expert began to explain that the subject was incorrect, it is likely that the subject would not consider them an epistemic authority in the first place, or perhaps believe that the expert is mistaken in some way. It seems unreasonable to claim that that they consciously adopt an irrational belief. In fact, demanding that a person consciously choose a belief (misinformed or not) is even shaky, as it implies a degree of doxastic voluntarism. We know, however, that this is not the case. Choices to consider a person an epistemic authority or interpret evidence in a particular way, and the motivated reasoning that accompanies them, are largely unconscious. Can we still hold people responsible if these mechanisms are unconscious? I will argue that people can be held responsible for adopting misinformed beliefs even if the mechanisms by which they do

so are unconscious and unintentional. However, they must adopt these beliefs under specific circumstances to be held fully responsible in my view, which I will further specify later.

For this discussion, we will adopt the definitions for conscious and unconscious processes that Julie Huang and John Bargh put forward in their paper, "The Selfish Goal." They define conscious processes, in short, as processes of which the person is aware, intends, and can control. Unconscious processes, on the other hand, are processes that influence thought and behavior, but are undetectable. That is, these are unintentional processes (Huang & Bargh, 2014). These processes, they argue, can be goal oriented. This provides a mechanism for motivated reasoning. But are these mechanisms conscious or unconscious? Levy argues that they are unconscious in his paper, "Self-Deception and Moral Responsibility." Because of this, he claims that self-deception is simply a mistake, and that we cannot hold people responsible for it (Levy, 2004). Bermudez, on the other hand, believes that the self-deceived adopt beliefs purely based on the desire to believe. This idea stems from the selectivity of the beliefs which people adopt. Bermudez also argues that one can intentionally self-deceive without knowing that they are doing so (Bermudez, 2000).

There is a sense in which one might claim that people are deceiving themselves, especially those who are more scientifically literate. To some, but certainly not all, philosophers, this requires that a person hold two contradictory beliefs. That is, they are convincing themselves of the truth of a claim (i.e., that their belief is in line with the scientific consensus) while having the knowledge that it is either not true or while

having uncertainty in the truth of the belief. Here, it might be important to draw a distinction. For those that are very much not scientifically literate, it is possible that they are truly unaware of what the scientific consensus is. They are at the very least convincing themselves of a belief without the knowledge that it is true. However, as Kahan showed, polarization increases as scientific and numerical literacy increases. These people *should* be able to identify the correct answer somewhat reliably. However, when presented with data, they interpret it in such a way that it fits with their moral or cultural values. There are cases when people may have a first or second-order desire to believe contrary to the scientific consensus (or simply the data, in some cases), as Bermudez suggests. I will categorize these people as those who are not in the truth "game." We will consider these people first.

There are multiple types of people who we can consider as not being interested in truth. Individuals who express, but do not adopt, misinformation as a belief are straightforwardly responsible, in my view. These people are interested only in manipulation (it need not be the negative kind), and in impression management. Regardless of whether or not this expression leads to self-deception and adopting it as a genuine belief, they can be held responsible for it, since they were able to prevent themselves from getting to that point in the first place. They could reasonably have been expected not to make repeated avowals of belief in misinformation, so even though the processes by which they adopted the belief are unconscious, they can still be held responsible.

Another type of believer that I will consider as not being interested in truth is the avoidant believer. That is, a person for whom it is practically reasonable to question or go against the scientific consensus. This approach may include consciously seeks out only sources that provide "evidence" against the consensus and/or avoiding sources that provide evidence in favor of it. This could be for any number of reasons, though perhaps the best example of this is climate change. For a free market capitalist, it may be practically reasonable for them to reject climate change, since the solution tends to involve limitations in free market capitalism. Because of this, they might seek out sources that question the validity of climate change or its solutions. Even if they interact with sources that support the consensus, they are often quick to dismiss it, and they give much more weight to those that support their view (Nickerson, 1998). I see these people as responsible for their contrary beliefs, as their approach to adopting their belief was based on a desire to believe a certain thing, not the evaluation of evidence.

Even if one disagrees that there is a controllable desire to believe for political reasons, the practical value of holding a belief in general still does not provide a relevant moral justification for believing it. Funkhouser argues that one of the main functions of belief is to represent the world as accurately as possible (Funkhouser, 2017). The utility of this is that it supposedly allows us to navigate the world as best as we can. The more accurately our beliefs represent the world, the better we can navigate it. Is it justified to believe in something based on its utility? To answer this, let us consider the example of the free will debate. A person may believe or disbelieve in free will, but in navigating the world, they have little choice but to act *as if* we have free will. The same goes for

concepts like inductive skepticism. An inductive skeptic may believe that there is no rational non-question-begging justification for induction, but they cannot go through their life (at least, pleasantly) and do anything other than assume that certain inductive inferences hold. These useful beliefs (i.e., that free will exists and that the laws of nature will not suddenly break down) are heuristics that allow us to better navigate the world, but does this constitute sufficient justification for the belief that they are true? I am not convinced. The reason that these debates still exist is that we require an epistemic reason to believe for it to be justified, and the practical rationality of the belief is irrelevant to that justification. Because of this, a person can be held responsible for a belief that one holds purely based on its practicality. Examples of this include one who has a true belief in a certain moral system because it has positive results socially. Even though there is no easily accessible "correct answer," the belief is still unjustified. Thus, when applied to issues for which there is a scientific consensus, it is reasonable to argue that a person should be held responsible for a bad belief based on practicality.

Here, I should draw a distinction. The key here is that the person's motivation for going against the consensus is because it is practically reasonable for them to do so. This excludes individuals who consult sources that go against the consensus purely because they believe that those sources are the most trustworthy. I will mention these people later in the discussion.

Based on the above circumstances, we can conclude that on my view, it would be a better standard to hold somebody responsible if they could have reasonably been expected to do a better job of checking their beliefs.

This may seem like a subjective or non-committal standard at first. However, we hold an analogous standard in cases of moral responsibility. If a person commits a moral transgression when they are intoxicated, they generally do not have full control of their actions. However, we still assign to them the moral responsibility that comes with their transgression. This is because they had control over getting intoxicated, despite not having control over their actions when they are intoxicated. We can take a similar approach to accepting misleading beliefs. There are certainly times when people can reasonably be expected to have checked their beliefs or stop themselves from placing their trust in a misleading epistemic authority. We can then hold them responsible for the belief and polarization that results from these things despite not consciously controlling whether they adopt them, since they had control over getting to that state in the first place.

Some individuals simply lack the necessary background knowledge or ability to understand the consensus or its support regardless of their access to it. Their expertise could be in a completely different field, or their life is such that they did not have the access to learn about these things. It certainly takes a lot of training to be able to understand good scientific reasoning. They also might not be great at critically evaluating arguments, or at identifying flaws in reasoning. To me, this is the group of people to which Levy's reasoning applies to the most.

As I mentioned before, people cannot be expected to check every belief that they adopt. Levy's case for the utility and rationality of outsourcing belief is compelling. Choosing an epistemic authority in a field where you have no background is a difficult

thing to do. Many are also not able to sever a person's expertise in one area to their expertise in another. Levy is persuasive in arguing that it is difficult for the average person to choose a reliable expert due to the pollution of the epistemic environment. Additionally, laypeople often have very different criteria for weighing benefits and risks when it comes to trusting experts than scientists do, and different groups have varying levels of trust in experts (Slovic 2000; Jenkins-Smith 2001). The pollution of the epistemic environment and the inconsistency of standards for who one considers an expert makes the choice of an epistemic authority difficult. If a person makes the mistake of choosing a biased source as an epistemic authority with the motivation of being more informed, I don't think they are *fully* responsible for the beliefs that they might adopt in these circumstances. Take the example I provided earlier of the vaccine debates on local and national news stations. In general, I think we can consider these people as being relatively truth-seeking. The presentation of the debates was such that viewers believed that there was a well-supported and significant base of opposition to the consensus of doctors. The fact that it was featured on usually reliable news stations lent credence to the proponents of the contrary view, further complicating the choice of epistemic authority. With these variables, and the apparent stakes of the issue, it is relatively easy to see why a person without a scientific or medical background may have felt more compelled to believe Wakefield and Fischer's views. To me, these people are best considered as misled rather than as wilfully denying the consensus. However, if the source is biased, and they outsource belief to it, then I believe that is where the majority of motivated reasoning begins, provided that the issue did not have a previous political

association. After that decision, it is easy to believe that any source that is contrary to the "expert" they chose is biased or flawed in some way, and that they should discount their opinions. When we choose to trust an epistemic authority, we lower our guard in a sense. Levy mentions this in his book; being correct about information in the past lends people credibility as a reliable source of information. From a Bayesian perspective, the markers of expertise I mentioned earlier effectively raise the prior probability in our view that they will generally be correct in the future. Though I don't feel that they should not be blamed for their initial choice in epistemic authority, they should be able to temper the commitment that they show to that source. In recognizing that they do not have a significant background in the area, and in the process of outsourcing belief, they should reasonably be able to recognize that they can very easily be wrong. After all, that is why they were outsourcing their belief in the first place.

For example, Levy mentions distrust in universities and government institutions as reasons that people are skeptical of the scientific results that they produce. Specifically, some people use the common view that the faculty of colleges and universities mostly lean Liberal to somewhat discount these results. In this case, these people may have chosen a person on the Right as an expert for one of their beliefs, and for that reason, they are discounting the results that come from these institutions. There is certainly room to do better here, as I believe that this is an irrationally strong commitment to a source. For example, a person should also take into account the fact that the results and data analysis are peer reviewed, many times by those who have opposing views. Additionally, they could separate the scientific findings of researchers at

universities from the political or philosophical writings produced at the same institutions. The political leanings of universities are certainly things we should take into account when choosing an epistemic authority, but it seems to me a massive jump in reasoning to stop at this level or to think that this factor immediately discredits all information that universities produce, especially scientific ones.

Another consideration for determining the responsibility of these individuals is the existence of people who have overcome their biases and corrected their beliefs. The mere existence of these people shows that biases and trust in misleading sources are not inescapable. Under my model, individuals are blameworthy for adopting beliefs when one could reasonably expect them to better critically analyze them. Since these cases show that it is possible for others of similar critical reasoning ability to do better, even those under the influence of significant biases, we can still consider them blameworthy. However, they are blameworthy to a lesser extent purely as a result of their irrational commitment to a source or view. The individuals who are not truth-seeking are blameworthy due to this kind of irrational commitment and due to their deprioritization of truth.

To be clear, believing a claim that is contrary to the scientific consensus is not inherently blameworthy if it is simply a result of poor reasoning. These people are simply misled in my view. However, if the basis of such a belief is motivated reasoning, that is blameworthy. When a person employs motivated reasoning to self-deceive, they can be categorized as non-truth-seeking, and therefore considered blameworthy.

Section 5: What's the Solution?

Kahan and Levy both present solutions that are geared towards directly addressing what they see as the biggest mechanisms that influence the adoption of false beliefs. Though I disagree with Kahan regarding the epistemic rationality of these mechanisms, his data and analysis are both still accurate representations of reality, in my opinion. We are not only faced with the problem that the epistemic environment is polluted, but also that motivated reasoning and more specifically identity-protective cognition are major factors in our perception of sources. That is, we employ the mechanisms Kahan specifies when deciding which sources are trustworthy and which we will use to fill our epistemic environment. Out of the solutions Kahan presents, I think his idea to change the way we present scientific information is the most feasible one. More specifically, in our news and science, it would be beneficial to provide the pure scientific conclusions with only limited reference to possible solutions, especially if those solutions have political implications. However, if the solutions do not have political implications, it may still be okay to include them. For example, an article could be published regarding the dangers of COVID-19 for informational purposes, but it would not include warnings to wear a mask and get vaccinated. This has advantages and disadvantages. One advantage is that it might provide a new default for belief, as Levy would say. It would separate questioning the existence of issues like anthropogenic climate change from political identity. This would make rejection of the scientific consensus more of an unreasonable stance to take regardless of political persuasion, as it would limit identity protective cognition to how we address the consensus rather than to the fact itself. The

disadvantage is, of course, that it does not address the solutions that the scientists themselves have recommended for the problem, as that has been itself politicized. It may lead to an improvement over disagreement about the facts themselves, however, it does call into question the value of simply agreeing about the facts if we would still reject the scientific consensus on how to solve the problem.

As I briefly discussed earlier, Levy's main solution to this problem is a form of nudging. Nudging, as described by Cass Sunstein and Richard Thaler, is a method by which we can change harmful behavior, choices, and biases by changing the environment in which we make these choices. These environments would be changed in such a way to encourage choices that promote individual or social welfare (Thaler & Sunstein, 2008). For example, a grocery store could use nudging to encourage individuals to choose healthier options by placing fruits and vegetables closer to the front of the store or moving junk foods further away from the entrance. Levy suggests that nudging should be used to ensure that markers of expertise indicate genuine expertise by making the voices of those who are genuinely qualified to speak on an issue more accessible and more widespread. He also suggests using nudging on news networks to fix the bothsidesism issue I mentioned before by ensuring that the coverage each side gets is proportionate to the number of experts that agree on each point (Levy, 2020, p. 90). However, I argued that Levy's solution is not very feasible due to its high risk. It would also be somewhat difficult to coordinate. In trying to shape an entire epistemic environment that nudges people to the correct solutions, we would need to know the sources from which people get their information and somehow have them all work together to provide nudges to an

agreed upon solution. We also would need to choose a person to decide what these nudges will be and how to implement them. However, if we can move the idea of nudging to a smaller scale, it might be more effective. According to Kahan, people are more comfortable receiving first-order evidence, or scientific findings, if it does not allude to higher-order evidence, in this case, the proposed interpretations of the findings, to suggest certain solutions (Kahan, 2013). Because of this, nudging might not be particularly necessary when it comes to the mere presentation of scientific findings. However, when it comes to solutions, it could be possible for official sources to use nudging to give readers suggestions for solutions. Levy explains that these suggestions are often implicit, and work by re-framing issues and solutions and providing new defaults for belief. Because of this, the problems with coordination and risk may be mitigated, as the number of sources that employ nudging would be decreased and the allusion to certain solutions would be decreased, but not altogether gone.

This may actually achieve one of Levy's other goals of restoring trust in institutions of science and universities. Because other sources of news will not reduce their direct references to certain solutions (depending on their bias), the contrast between institutions like these and the more biased sources would be increased. This could restore trust in these institutions, since both sides would feel more comfortable getting information from sources they see as less biased. This, coupled with the nudging of higher-order facts, would slowly push groups on both sides to shift their default belief regarding solutions to one that is more in line with the scientific consensus.

Both Levy and Kahan's solutions depend on a collective effort among media executives and individuals to solve the problem. For Levy, news executives need to agree to implement nudging into their news, which seems unlikely to me. It could not only cause a loss of readership or viewership due to content, but if it was revealed that this was happening, it could be very detrimental to the reputation of the source. Kahan's solution requires a collective effort to protect certain scientific facts from politicization. It is a big ask to stop the politicization of scientific results, especially when public policy is required to address them. For example, it would be incredibly difficult to shield the COVID-19 vaccine from politicization, as almost every other aspect of the pandemic has been connected to politics in one way or another. I will suggest an alternative solution that prioritizes feasibility and quickness of implementation.

There is a common theme across all three of the above perspectives, and that is the importance of social factors in the adoption of beliefs. In Kahan's view, the phenomenon of cultural cognition shows the importance of a person's social circle in how they weigh beliefs in a Bayesian way. They give a much higher prior probability to views that align with the moral and political views that align with their own and give a lower prior probability to ideas and facts that challenge them. In Levy's view, the public opinion is epistemically relevant, which allows us to have greater confidence in an idea if it is a widely held belief. It is also both beneficial and encouraged to rely on others through outsourcing our belief to epistemic authorities, given our limited ability to learn certain concepts and check the reasoning behind every belief we have. The signaling view is based, fundamentally, on the undeniable relevance that beliefs have in our social lives. It

emphasizes this more than the other views, going so far as to say that the social utility of some beliefs is the reason that we believe them in the first place. Though expression of the belief may begin as a form of impression management, repeated expression and repetition causes us the belief to become genuine through self-deception.

Though these views are compatible in some ways and not in other ways, the importance of social relationships in belief is a major theme across all of them. The solution that I believe is the best combination of feasibility and effectiveness takes advantage of this theme. This solution is belief correction through interpersonal communication. Importantly, this communication must be face-to-face and verbal, as this kind of communication increases levels of cooperation, even if people are unsure whether the cooperation is being reciprocated (Behrens & Kret, 2019). Merely providing people with the information that there are others who believe differently than they do seems to do more harm than good. A psychological study at Stanford University gathered individuals and recorded their opinions on the death penalty. They then showed the individuals empirical evidence that supported and challenged their view. They found that the subjects were more likely to accept the supporting evidence at face value while being more likely to critically evaluate the evidence that challenged their view. This is nothing new. However, the study found that, after their exposure to the disconfirming evidence, they were more likely to revert to their prior positions and find support for their view in unrelated or random evidence. In their own words:

> Whether they encountered the disconfirming result first or second, both proponents and
> opponents seemed to be swayed momentarily by this evidence, only to revert to their

former attitudes and beliefs (and in 23% of the individual cases, to even more extreme

positions) after inspecting the procedural details and data, and the critiques and rebuttals

found in the literature (Lord, Ross, Lepper, 1979, pp. 8).

They found that this rebound in opinions was statistically significant across all subjects.

Another study showed that, when provided with a set of studies on a politicized topic,

groups of subjects who had common opinions would polarize. Subjects were asked to

record their perspective based on if they believed the death penalty deters people from

committing crimes and were separated into two groups accordingly. They were then

given the same set of studies on the death penalty and then asked to record their

perspective again. Both groups reported being even more convinced of their original

opinion (Benoit & Dubra, 2015).

The results of these studies show that we cannot cause people to reconsider their

beliefs simply by making them aware of other perspectives, or by showing them data that

might support those other perspectives. We equally must do our best to avoid letting

them remain in echo chambers. Both of these things worsen polarization, and as a result,

worsen the issue of motivated reasoning and rejection of the scientific consensus. What

can we do then? I believe that the best way we can fight this problem is to actively discuss

people's beliefs with them, either individually and informally, or in an organized group

setting. That is, we should facilitate and seek out discussions with those who reject the

scientific consensus. There is evidence that this interpersonal approach would work well.

James Fishkin and Larry Diamond's results from their America In One Room experiment

show considerable promise for a Deliberative Polling approach, for example. Delibarative

Polling takes a representative sample of individuals and creates a forum where people of varying political and moral persuasions can discuss certain issues (Stanford, 2020). The individuals who participated reported a significant change in their overall dispositions toward the other political party and its members. They also reported much less polarized views, especially among those who began the study with the most polarized opinions (Fishkin et al., 2020). Presumably, the reason their interaction with opposing ideas in this kind of setting was effective in depolarizing them (while simply exposing them to another perspective was not) is the fact that they interacted with the actual people who endorsed the view in a face-to-face setting that was conducive to respectful discussion. If it is not possible to do this in an organized setting, I believe that a respectful discussion between individuals could also be effective, since it shares the virtues that Fishkin and Diamond emphasized in their paper.

Additionally, the simple act of engaging with people regarding their opinions helps to depolarize them, especially if they are not confident in their reasoning for their beliefs (Abeywickrama & Laham, 2020). Kunda found that accuracy plays an even more important role in belief evaluation and adoption when people:

> expected to be evaluated, expected to justify their judgements, expected their judgements to be made public, or expected their evaluations to affect the evaluated person's life (Kunda, 1990).

This is good news when it comes to the ability of discussion to depolarize and change belief. Approaching an individual who denies the scientific consensus or endorses conspiracy theories and simply asking them to explain why they believe those things could

lead to genuine consideration of whether or not the belief is justified on the part of the believer. It is also important not to approach as a person who is openly hostile to their beliefs, as there is potential that they could immediately discount their status as an epistemic authority or as a person with trustworthy intentions.

Conclusion

Through the analysis of all of the above views, I believe I have determined relatively good standards for ascribing blameworthiness to those who hold bad beliefs. In my conception, the standard for blameworthiness is that the individual must have reasonably been expected to better evaluate the belief and failed to do so. This automatically includes the group of people that I considered to be non-truth-seeking. However, if a person adopts a bad belief due to their being misled, they are not blameworthy for that. After being misled, however, they can be held responsible for showing an irrational commitment to the source or view by using motivated reasoning to dismiss opposing evidence and support confirming ones.

Regardless of a person's responsibility for their beliefs, I concluded that the best solutions for solving the proliferation of bad beliefs is deliberative polling, open conversation, and asking people to explain the basis for a person's beliefs. These solutions are supported by experimental studies and have shown great results thus far. They also have the benefit of prioritizing feasibility, as a person would be able to implement some of these solutions individually and on an everyday basis. More research should be done on the effectiveness of interpersonal communication and discussing beliefs in mixed groups on polarization. Another area to consider research into is the effectiveness of the

most feasible solutions proposed for the signaling view, as those are also valid approaches

to encourage more accurate beliefs.

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