The Wrong Thinking in Conspiracy Theories

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> *"In our reasonings concerning matter of fact, there are all imaginable degrees of assurance, from the highest certainty to the lowest species of moral evidence. A wise man, therefore, proportions his belief to the evidence."—David Hume[1]*

> *"The confidence that individuals have in their beliefs depends mostly on the quality of the story they can tell about what they see, even if they see little."—Daniel Kahneman[2]*

As the essays in this volume make clear, conspiracy theories vary widely in their content, the individuals and groups who believe in them, and in their effects on the behavior of these believers. For this reason, it may be difficult or impossible to come up with a completely general definition of *conspiracy theory* that captures all and only those theories that fit under this general label. Nevertheless, there are a significant number of conspiracy theories that share something like the following form:

> *There exists a certain small group of people that share a certain characteristic such as race, religion, occupation, or nationality. They have secretly undertaken actions that have harmed, or are intended to harm, me and people like me. The fact that these actions have not generally been recognized is due to the conspirators' ability to conceal evidence of this.*

Within the general scheme, there is plenty of room for variation. For example, the conspirators may be anonymous figures living otherwise unremarkable lives, or they may be well-known and powerful political, religious, or media elites. Similarly, some purported conspirators actively wish harm upon the believer and others—such as conspiracies positing "traitors" or "spies" working to ensure their own country loses some conflict—while others are held to have much more mundane motives, such as the desire for money or power. In this latter case, the harm in question may simply be an especially unpleasant side effect, though one that was foreseen by the conspirators. Finally, the harms attributed to the conspirators' actions come in a number of forms. So, for example, it may be that the actions of the conspirators have led (or will lead) to the deaths of particular individuals, financial crises or crashes, military defeats, outbreaks of disease or illness, the overthreoval of the government, and so on.

Conspiracy theories of this type all crucially involve failures of what philosophers often call *inductive reasoning*, which involves using our available evidence to determine what is probable or likely to be true. Inductive reasoning is usually contrasted with *deductive reasoning,* which involves attempts to *prove* with 100% certainty that a conclusion follows. As it turns out, inductive reasoning makes up a huge part of our day-to-day lives. We reason inductively, for example, when we try to determine what

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[1] David Hume, *An Enquiry Concerning Human Understanding*, ed. Eric Steinberg, 2nd ed. (Indianapolis: Hackett Publishing, 2011), sec. 10.

[2] Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus and Giroux, 2011), 88.

was the *cause* of some event that we just observed, or when we try to figure out what the *effects* of this same event might be. We also reason inductively any time we make predictions about the future, or decide whether to trust what we've read or heard, or make generalizations about a large population based on the smaller sample that we are familiar with.

For this reason, conspiracy theories, and the errors of inductive reasoning that they exemplify, should be of interest to all of us. After all, if it turns out that many of the crucial errors committed by conspiracy theorists are ones that we ourselves are prone to, this will provide a strong reason for thinking hard about our own beliefs, and the process by which we have arrived at them.

1 DON'T BELIEVE EVERYTHING YOU'RE TOLD: HUME ON MIRACLES

Conspiracy theories often serve as simple, attractive rivals to other, more complex theories about politics, history, or science. So, for example, where political scientists may offer theories that tie the outcome of a particular election to factors such as economic conditions, demographic shifts, incumbency bias, and the relative appeal of the candidates' platforms and personae, conspiracy theorists often see the hidden hand of conspirators as being responsible for unwelcome outcomes. Similarly, where mainstream medical and scientific research suggests that conditions such as autism, drug addiction, or obesity have complex causal backgrounds, conspiracy theorists might reply that these bad things are actually due to the hidden side effects of vaccines, the clandestine activities of the CIA, or the machinations of "Big Ag."

One way in which conspiracy theories are distinguished from their mainstream rivals is their method of origin and spread, which is often outside traditional scientific and academic channels. In the modern era, for example, conspiracy theories often begin in the so-called "dark corners" of the internet, as opposed to in peer-reviewed journal articles. They then spread, via both alternative media sources and social media, to larger and larger audiences. To what extent should this sort of difference in origin matter to the credibility of the theories in question?

The Scottish philosopher David Hume (1711-76) takes up a very similar question in the "Of Miracles" section of his *Enquiry Concerning Human Understanding*. Hume was among the first to clearly distinguish between inductive and deductive reasoning, and his account of the problems inherent in inductive reasoning has influenced (and often troubled) scholars studying inductive reasoning ever since. In "Of Miracles", Hume considers whether or not one should ever believe peoples' accounts of miracles. His answer is a resounding "No!", and many of the reasons he provides are applicable to conspiracy theories as well.

Hume recognizes that the reasons people believe in miracles—because they hear or read about them from sources that they normally trust—are based in the same sort of inductive inference that underpins many of the things we believe. For example, nearly all of our beliefs about history, scientific theories, current events, and even the lives of our closest friends and family are, of necessity, based on what textbooks, teachers, newspapers, and other people tell us about these things. Because of the probabilistic nature of inductive inference, this means that is always *possible* that these sources are incorrect. However, we don't normally take this possibility as grounds for dismissing everything we hear or read. So, what makes reports of miracles (or conspiracy theories) any different?

Hume provides a number of considerations for treating reports of miracles differently than other sorts of "testimony," many of which are applicable to conspiracy theories. First, the chain of testimony supporting miracles often looks quite different than that of ordinary events. Miracles are almost universally said to have occurred long ago and/or in places far away, and under conditions that would have made it difficult or impossible for any skeptic to check on the truth of the claim. In conspiracy theories, by comparison, it is often held that the conspiracy theory is happening "right now!" or "under our noses!". However, just as in the miracle case, it is a central part of the theory that there can be no possible recording/confirmation of the conspiration, since the conspirators have prevented this (perhaps by murdering witnesses or manipulating the media). The fact that reports of miracles and conspiracy theories haven't been and can't be, checked out by skeptical listeners doesn't mean that they are necessarily false, of course. What it does mean, however, is that these reports lack the sort of safeguard that comes with most testimony regarding strange or unlikely events—that is, if they *were* false, we would likely have some evidence of this.

A second key difference Hume notes relates to the *motivations* of those who talk about miracles. After all, one reason that miracles matter so much is that they can serve as evidence for the truth of certain religious views. This provides a strong motivation for people who already hold these religious views to believe in such reports (after all, we all like being shown right!), and it *also* provides motivation for them to spread these tales, even if they don't fully believe in them. After all, telling tales of miracles might win converts for the faith, or signal to other members of the group your "loyalty to the cause." Something quite similar can be said of many conspiracy theories—insofar as belief in these theories is closely linked to membership in some group, we have good reason to doubt the impartiality of those telling tales of conspiracies. Finally, Hume observes that, while one might think that the sheer strangeness and outlandishness of miracles would make people less likely to believe and repeat them, experience shows that something the opposite often seems to be the case—people seem to *enjoy* believing and repeating stories about events that are utterly unlike things they have experienced themselves. This, again, has close analogues with conspiracy theories. Odd as it may seem, the very claims of a conspiracy theory that seem the furthest detached from evidence and ordinary experience may be the claims that encourage its spread.

2   MAKING MISTAKES: HEURISTICS AND BIASES

In the generations since Hume first wrote, scholars in disciplines ranging from philosophy to economics to statistics to psychology have studied the nature of inductive reasoning from a variety of perspectives. While many of these investigations have aimed at uncovering better methods for inductive reasoning, others have aimed at figuring out how good ordinary humans are at inductive reasoning in a variety of contexts. Most of us do well enough when the conclusions of inductive reasoning concern our immediate experience, for example—we learn quickly to avoid hot stoves, or to avoid drinking bottles labeled "poison," but it is much less clear how successful we are when it comes to dealing with big-picture issues regarding statistical or causal reasoning in areas such as economics, science, or politics. These, of course, are precisely the areas where conspiracy theorists are most prone to get things wrong. So, why might this be? And just how common are these errors?

Starting in the late 1960s, two Israeli psychologists—Amos Tversky and Daniel Kahneman--began investigating just these sorts of questions. In a series of influential articles[3], they argued that humans are not intuitively "good statisticians," and they make a number of *systematic* mistakes when engaging in inductive reasoning. Tversky and Kahneman's research has had an impact far behind psychology, and in particular caused considerable problems for the view (once common in both economics and some areas of philosophy) that humans generally acted *rationally.*[4] While Kahneman and Tversky don't explicitly consider the problem of belief in conspiracy theories, their work provides a helpful framework for identifying and classifying many of the major inductive mistakes that conspiracy theorists make.

A foundational concept of Kahneman and Tversky's approach is that we make many decisions using intuitive *heuristics,* or simple rules for making inductive decisions. In particular, they suggest that, when we are faced with making a complex decision, we often (without realizing it) "substitute" a simpler, easier-to-answer question, and answer that instead. And while this may work well enough in many day-to-day cases, it can also easily lead to fallacious reasoning of the sort exemplified in conspiracy theories.

3 THE STORY JUST "FITS": THE REPRESENTATIVENESS HEURISTIC

Conspiracy theories often begin with the intuition that some bad event—a recession, an outbreak of a disease in the local community, or a school shooting—cannot be adequately explained by any combination of normal causal processes discussed by scientists, public health officials, or psychologists and sociologists. They then conclude that this event must have been caused by a carefully planned process (instigated in secret by the conspirators!) that was designed to result in just this sort of outcome. This way of reasoning exemplifies what Kahneman and Tversky label the *representativeness heuristic,* in which the probability of a certain process P causing event E is judged solely by the "resemblance" between P and E and NOT by any careful consideration of how probable it was that P actually occurred, or the potential alternatives to P, or even how good of evidence for P we happen to have.

In the case of conspiracy theories, the representativeness heuristic might explain several inductive failures. First, it accounts for the way conspiracy theorists often seem to ignore the comparative *base rates* of "bad things caused by a combination of ordinary factors" versus "bad things caused by powerful secret organizations working in secret to cause just this sort of harm in each and every gory detail." While the resemblance heuristic pushes us toward the conspiracy story (since it better "resembles" the bad thing in question), this is a bad inference. After all, the vast, vast majority of the harms that we in incur in life are NOT the result of explicit conspiracies intended to cause this exact outcome, but instead are the result of perfectly mundane causal factors acting in combination (that is, plain old "bad luck").

For similar reasons, the representativeness heuristic can plausibly account for conspiracy theorist's tendency to posit highly specific causes for events that are better explained by appeal to statistics. So, for example, small samples are more variable than large samples, and so we should be very careful in drawing conclusions based on what we have observed in small samples, even if the sample in question

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[3]See especially "Judgment under Uncertainty: Heuristics and Biases," *Science* 185, no. 4157 (1974): 1124–1131; "Prospect Theory: An Analysis of Decision under Risk," *Econometrica* 47, no. 2 (1979): 263–292. A good summary of both their work and related research is provided in Kahneman's *Thinking, Fast and Slow* (2011).
[4] In 2002, Kahneman won the Nobel Prize in Economics for this work. Unfortunately, Tversky died in 1996.

seems odd to us. So, for example, if two people in a small office of ten people each have a heart attack during the same month, this might seem unusual, but it doesn't provide strong evidence the office coffee has secretly been poisoned by management seeking to save money on future pensions. By contrast, if 200 people in an office of 1,000 people suffer such attacks in a month (the same percent, but a much larger sample), this really does suggest something out of the ordinary is going on. However, in practice, conspiracy theorists (along with the rest of us) systematically overlook this difference in sample size, and too often jump to conclusions on the basis of small samples.

 For similar reasons, the confidence we have in our conclusions about the causes of events ought to reflect the strength and variety of evidence that we have seen—after all, it is surely better to read ten high-quality journal articles and one moderately plausible social media post about a conspiracy theory than just the moderately plausible blog post. However, the representativeness heuristic (which ignores quantity or quality of evidence and cares *only* about its "fit" with a theory) can lead us to ignore this and, in some cases, to feel *more* confident in our conspiracy theory after reading just the social media post, since there are no additional sources to interfere with the nice clean fit between this story and our believing in the truth of the theory it describes. Basically, once we decide to give the social media post any credence whatsoever—as opposed to simply dismissing it out of hand—it can be very difficult to not *overweight* its value as evidence.

4   PROBLEMS WITH PROBABILITIES: PROSPECT THEORY

The decision to adopt a conspiracy theory can be thought of as a sort of "bet" about the way the world will turn out, and what the "winning strategy" for living in such a world will be. So, for example, if I suspect there is a good chance that the members of the US Federal Reserve Board are an evil cabal intent on crashing the world economy to enhance the wealth of their corporate masters, I might buy gold and bury it in my back yard to hedge against this. If I assign a significant probability that pharmaceutical companies have hidden the evidence of vaccines causing autism, I might not vaccinate my children. Finally, if I believe it likely that some suspect group of people is up to no good, I might take action against them, potentially including violence.

Most of us would like to think that we are good at making such bets, since they are crucial to making decisions about how we invest our money, vote, and generally lead our lives. So, for example, it seems obvious that a 1% risk of a bad outcome is different than a 5% chance, which is in turn different from a 50% chance or 95% chance, and our choices and actions should reflect this difference. Unfortunately, according to Kahneman and Tversky, this is not how we actually make these sorts of decisions. Instead, we get things wrong in a number of ways.

First, we tend to focus not on the relative merits of a set of outcomes, but on how we think of ourselves as having arrived at these outcomes, and whether we view them as "gains" or "losses" from a psychological baseline. As it turns out, we care much more about potential losses than we do about potential gains, and simultaneously don't care as much about the relative size of these gains or losses as we should. Conspiracy theorists offer excellent examples of this. First, in cases where they weigh large potential benefits from a change versus (much smaller) potential losses, they can be highly risk averse, for example when they reject the large potential benefits of vaccines or GMO foods on the grounds that there might be hidden health risks associated with these. Second, in cases where the conspiracy

theorists already feel that they are below some psychological baseline, they can instead become *risk-seeking,* and adopt conspiracy theories that lead to highly risky actions in a last-ditch attempt to put themselves back over the baseline, even though the most probable outcome of such behavior would be to put them even further under this baseline than they already feel themselves to be. So, for example, if the members of a certain group worry they are "losing control of their country" to their political rivals, they might respond by abandoning democratic norms or engaging in violence, even though these actions are, on balance, likely to lead to even greater losses.

Prospect theory also suggests that we systematically underweight the probabilities of some events while overweighting others. In particular, while we sometimes tend to treat extremely unlikely but possible events as being equal to 0, we quickly *inflate* the probabilities of unlikely events once we begin to treat them as being genuinely possible, no matter how "objectively" unlikely they might be. In the case of conspiracy theories, this might plausibly explain the simultaneous urge to (1) dismiss out-of-hand the possibility that the harms that have occurred to them are due to statistical "chance", and (2) vastly inflate the probability that these harms are caused by the secret actions of conspirators.

5 CAN WE AVOID MISTAKES WHEN IT COUNTS?

So, what's the take-away from all of this? It might be summarized as follows: conspiracy theorists, like the rest of us, notice bad things happening in the world around them. They (again, like the rest of us) are convinced that there must be a cause for these events. However, when they begin to consider what sort of cause this might be, they are led astray by the resemblance heuristic, which predisposes them towards a causal story (the conspiracy theory) that most closely "resembles" the limited samples they are familiar with, and the limited, biased evidence they have reviewed. This completely ignores the possibility that the events in question are simply the result of statistical "chance." These errors are compounded by the failure to deal with probabilities and "risky decisions" properly, as described by prospect theory. Conspiracy theorists are often attached to some (perhaps imaginary) baseline about the way things "used to be" or the way "nature intended things," and are willing to take risks to avoid accepting losses from this baseline. Simultaneously, they improperly dismiss the possibility of some unlikely events (such as the sorts of chancy processes that *often* explain strange-looking results in small samples) and the inflate the probability of others (such as the conspiracy theory they've heard so much about on talk radio).

In *Thinking, Fast and Slow*, Kahneman argues there are other heuristics and biases waiting to trip us up, beyond those described here. The *halo effect,* for example, predisposes us to (without any evidence!) assign good qualities to people/things we *already* believe are good in other respects, and bad qualities to those we already dislike or distrust. *Outcome bias,* meanwhile, presents us with a false view of the past, whereby we assume that the things that did happen (for good or bad) were *predictable.* This conveniently allows us to avoid giving credit to decision makers for decisions that turned out well while blaming them for decisions that went wrong. These sorts of processes plausibly lend fuel to the fire of conspiracy theorists' tendency to blame any and all bad outcomes on the actions of the purported conspirators (who, not coincidentally, tend to belong to groups the theory's proponents already hold in ill regard). Finally, and perhaps most concerning our intuitive sense of how likely a given outcome is strongly affected by the detail in which one have imagined or described this outcome. So, the mere act

of talking or reading about a conspiracy theory in detail might well serve to inflate our sense of how probable this sort of really thing is.

All of this happens generally happens without even thinking, and it can happen to even smart, knowledgeable people, since inductive fallacies don't present themselves as defective means of reasoning. Instead, these processes present themselves as a strong feeling that certain theories or ideas are correct, and invite us to adopt and defend these ideas as our own with all of the intellectual creativity and rigor that we can muster. This suggests that that vulnerability to conspiracy theories may be linked to neither ignorance nor stupidity. Rather, it might be that conspiracy theorists are mentally "lazy" in the ways that many of us are lazy, and it is this laziness that undercuts their ability to make cogent inductive inferences. In particular, belief in a conspiracy theory allows one to avoid all sorts of uncomfortable thoughts, such as fully grappling with the role of chance in events, or the poverty and bias of the news we consume, or the systematic ways in which our sense of what's possible misleads us about what is actually probable. Conspiracy theories reassure us that the bad guys really are all bad, and that, if we stop them next time, we can assure things will turn out well.

If correct, this suggests that there can be significant value in reflecting on the inductive failures of conspiracy theorists, even for those who feel quite confident that they themselves could never fall into the trap of believing in such a theory. Such confidence, as it turns out, may be a poor guide to one's actual vulnerability. However, it may be that we can partially inoculate ourselves against conspiracy theories by paying close attention to the *specific* ways in which they exemplify bad inductive reasoning. This, in turn, might make it at least somewhat easier to catch our own errors, and to become better, more careful inductive reasoners[5].