

How Fallacies Fuel Conspiracies

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There are a number of cognitive biases and logical fallacies that help generate belief in conspiracy theories. Take the Dunning-Kruger effect, for example, people's tendency to (roughly put) believe they are smarter and more capable than they actually are.¹ Ignorance can blind a person to their own ignorance. Since conspiracy theorists consistently think they know better than experts—that they are “in the know” and all others are just “sheeple”—the Dunning-Kruger effect undoubtedly plays a role in people starting to believe conspiracy theories.

Or take the representative heuristic which, among other things, causes people to believe that effects should resemble their causes. “Like causes like.” In one study, Psychologist Patrick Leman showed that people were very unlikely to invoke conspiracies to explain a news story about a gunman who shot and wounded a world leader, but were very likely to invoke a conspiracy to explain the same story if the leader was killed.² In reality, of course, the only difference would be where the shooter was pointing his gun. But since people think big events must have big causes, invoking the something like the illuminati seemed necessary to explain why the gun was two inches to the right.

Then there is HADD (our “hyperactive agency detection device”) which causes us to conclude agents are behind natural events, and apophenia which causes us to see patterns that don't really exist.³ Undoubtedly, in concert, these lead to belief in conspiracy theories by causing people to see grandiose patterns in world events that don't exist and then to attribute them to nefarious agents working behind the scenes.

But once a conspiracy theory is established in a person's mind, motivated reasoning is what keeps it going—what fuels it, if you will.⁴ And in my experience, there are a few specific cognitive biases and logical fallacies that are especially noteworthy in this regard: confirmation bias, evidence denial, availability error, suppressed evidence, subjective validation, and what I call “the factoid fallacy,” “the countless counterfeits fallacy,” and “the mystery therefore magic fallacy.” It stands to reason, therefore, that if you wish to avoid being duped by conspiracy theories, you need to learn how to recognize these fallacies and how to avoid them. This, it turns out, is the goal of this chapter.

Confirmation Bias

Confirmation bias is the human tendency to only look for evidence that confirms what one wants to believe, or already thinks is true. The prime example can be found in many people's cable news viewing habits; they only (and obsessively) watch the channel that tells them what they want to hear. And you can see how prevalent this tendency is in people by looking up how high the ratings are for the news channel that does this best. But confirmation bias fuels conspiracy theories too.⁵ Once the conspiracy theorist believes, they will seek out only the evidence that confirms the conspiracy is true; they will never intentionally seek out evidence that it is false. Indeed, this is why some people elect to watch only certain news channels: they feed conspiracy theories.”

The tendency to engage in confirmation bias is powerful, and often demonstrated with a game:

I'm thinking of number pattern. The sequence 2,4,6 follows that pattern. You are supposed to discover the pattern I'm thinking of by giving me more strings of numbers and asking if they fit the pattern. What do you say?

If you are like most, you think the pattern is “ascending even numbers” and try something like “8,10, 12.” That sequence does match, but that's not the pattern I have in mind. Your mistake? You tried to confirm your theory with a sequence that matched it. What you should have done is tried to prove your theory wrong by giving me a sequence that doesn't match it, like 1,3,5. When I tell you that does match the pattern, you'll have proved yourself wrong but also be one step closer to the truth. You'll now

think the pattern is numbers ascending by two; but don't test that theory with a pattern that fits it, like 7, 9, 11. Try something like 10, 20, 30. When I say that also fits, you are again wrong but closer to the truth. Do you now think it's just any three ascending numbers? Well don't guess "1,2,3." Guess "3,2,1." Turns out, that *doesn't* fit the pattern—and your theory was right: any three ascending numbers.

This little game also demonstrates how engaging in confirmation bias is one of the most powerful ways to delude yourself. You could have confirmed your "ascending even numbers" hypothesis all day, but never discovered the real pattern. In fact, if you look hard enough, you can find some evidence for anything; but if you don't also seek out contrary evidence, you can fool yourself into thinking that thing is true when it's not. Want evidence that Santa is real? Millions of people believe that he is real, have professed to see him personally and that he delivered their presents on Christmas, and there are dozens of songs about him. If you only sought out those facts, and not any evidence against Santa's existence, you could fool yourself into really believing he exists when he doesn't.

And this, of course, is something that fuels conspiracy theories. In their famous study, "Conspiracy Theories: Causes and Cures," Sunstein and Vermeule demonstrated that one way conspiracy theorists engage in confirmation bias online is by collecting into online communities, now known as echo chambers, where they are only exposed to information and arguments that confirm their already established conspiratorial views.⁶ Of course, there are online communities for sharing information about everything, even spinning tops. But another study (by Del Vicario, et. al.) showed that information spreads and is reinforced in conspiracy theory echo chambers differently—and more dangerously. Put simply, unlike factual scientific information which is quickly spread and absorbed by the interested parties, conspiracy theories linger and fester, even long after they have been debunked.⁷

Evidence Denial

Another upshot of Del Vicario's study was that, in conspiracy theory echo chambers, confirmation bias goes hand in hand with evidence denial.⁸ Instead of just *seeking out* only confirming evidence, the conspiracy theorists will also willfully ignore or deny disconfirming evidence when it's presented or happened across. The human propensity to do this, especially with issues that one is passionate about (like conspiracy theories), is well documented. In one study, when conservatives who supported the Gulf war were presented with direct evidence that Saddam did not have WMD's, those conservatives more adamantly believed that he did.⁹

Generally, to deny the evidence, people will either excuse the evidence away, ignore it entirely, or even try to turn it into evidence for their theory. Excusing the evidence away occurs when "end of the world" predictions fail. Take for example, Harold Camping, who predicted the end of the world in the 80s and the 90s. Did the clear evidence of the world not ending convince him that he had no basis for thinking the world was going to end? No! He just excused it away by claiming he had made calculation errors and made another prediction: the rapture would happen on May 21st, 2011. And when no one flew up into the air on that day, he again excused the evidence away by saying there was actually a "spiritual" rapture that happened up in heaven that we couldn't see.¹⁰ This might seem funny—and it is—but some of his followers sold all their positions and donated their life savings in anticipation of this event.¹¹

Some of the best examples of just flat out ignoring contrary evidence comes in beliefs about government conspiracies. In 2008, the boyfriend of a student (who was obviously distraught by all the critical thinking skills my class had given his girlfriend) came to me arguing that there was going to be a government mandated "bank holiday" in September, to keep everyone from getting their money out of the bank after the government instigated martial law.¹² I told him I would bet him any amount of money that wouldn't happen. He didn't take the bet. But when it didn't happen, he didn't admit that he was wrong. He just ignored his error, and moved on to the next government conspiracy, and then the next. In 2015, he was trying to convince people that the Jade Helm military exercise was really a front for Obama declaring martial law.¹³ Of course, that didn't happen either. And multiple failed martial law conspiracy theories is direct evidence that such theories are bunk; but that fact was simply ignored and he's still endorsing them. (My student eventually dumped him.)

Turning evidence against your theory into evidence for it is very prevalent in conspiratorial thinking because conspiracies essentially have that kind of excuse baked right in. If there's evidence that proves a conspiracy isn't real, the conspiracy theorist can simply insist that evidence was planted by the conspirators to cover their trail—to throw us off the track. “Yeah, that's what THEY want you to think.” If, for example, I pointed to the “Adam Ruins Everything” which demonstrates why the parallel shadows in videos of the moon landing were impossible to fake with cinematography in 1969, the “moon landing hoax” conspiracy theorist will simply insist “that's what they want you to think” and conclude the show is in on the hoax too.¹⁴

To demonstrate the problem with this line of reasoning, consider what I call the ultimate conspiracy theory:

There are nefarious actors, I know not who, with nefarious intentions, I know not what. All I do know is that all the other conspiracy theories out there were planted by these actors to throw you off the track. So you think the moon landing was a hoax, the Earth is flat, and 9/11 was an inside job? Yeah, that's what THEY want you to think!

Notice that, by using the logic of conspiratorial thinking itself, the ultimate conspiracy theory proves all conspiracy theories false. So, in a way, conspiratorial thinking is actually self-refuting. But it also demonstrates how irrational denying the evidence is. Nothing could prove this theory false; anything that did would be turned into evidence that it is true. And that's what makes it absurd: it's unfalsifiable.

The Availability Error and Subjective Validation

Something that fuels both confirmation bias and evidence denial is called “the availability error,” the tendency to pay attention to or be compelled by the readily available evidence—that which is obvious, noticeable, or what you want to hear—instead of taking into account all the evidence there is. For example, when buying a car, one is more likely to base their decision on the experience of one person they know with than a consumer report that provides statistical evidence (which collates many people's experiences).

The availability error itself is fueled by the fallibility of memory, specifically our tendency to remember things that confirm certain beliefs and forget the things that don't.¹⁵ This is often called “remembering the hits and forgetting the misses” and professional psychics take advantage of it with gusto. They'll make multiple predictions, or say many things that could be true, because probability dictates that at least one of them will be—and then that's the prediction that people will remember. People will forget all the other predictions the psychic made that were wrong which prove that they are not psychic at all.

Another trick psychics use is taking advantage of something known as subjective validation. A claim's truth is validated *objectively* when some kind of objective test can be done, like a measurement. A claim is validated *subjectively*, however, when one decides whether a statement is accurate based on their reaction to it—whether it feels or seems to be true to them. For example, subjective validation is at play when you read the predictions of soothsayer Nostradamus. It may seem, after the fact, that he was writing about WWII; but in reality, his writings are so vague and open to interpretation, they could be about anything (or, in actuality, nothing at all).¹⁶ A similar tactic is used by astrologers and those who write horoscopes. They will say something vague, and then bet that people will interpret it as applying to themselves specifically. Usually, that bet pays off. In one famous study, Bertram Forer showed that, when presented with the same vague personality profile, around 84% of people will think that it describes them. This is now called the Forer Effect.¹⁷

Availability error and subjective evaluation fuels conspiracy theories in many ways. For example, availability error is at play when conspiracy theorists are apt to notice and remember anything, no matter how small, that confirms their conspiracy of choice, and to not notice or forget anything, no matter how big, that proves it wrong. For example, thanks to Oliver Stone's movie *JFK*, everyone

remembers that JFK's head moved "back and to the left," supposedly as it would if shot by someone standing in the grassy knoll (which was in front and to the right of Kennedy). But everyone forgets the rather mundane fact that, when shot, objects usually fall toward the point of impact because of the explosion that the bullet causes on the other side. Bullets slip into their targets with little resistance, but leave with a lot. Kennedy's head moved back and to the left because the bullet that Oswald shot into the back-left of his head made the front-right of Kennedy's head explode.

Subjective evaluation fuels conspiracies because whether an event or piece of information supports a conspiracy theory is often a matter of interpretation. In the evening sky, you will simply see trails of condensation produced by jet planes engines, which are actually always there, but made visible by the changing angle of the sun light. A conspiracy theorist will see evidence of a government conspiracy to control our mind with "chemtrails." On a trip to the Denver Airport, the conspiracy theorist will see "DZIT DIT GALL," "Au Ag" and dots on a time capsule capstone (donated by the New World Airport Commission) and see clues that members of the New World Order, with the help of an alien race, are going to press the buttons on the capstone to release "Australian antigen" into the atmosphere to dwindle the world's population. You will see the Navajo words for the Colorado Rockies, the chemical symbols for silver and gold (which are mined in the Rockies), and the brail translation of the capstone's inscription (respectively).¹⁸

Suppressed Evidence and The Factoid Fallacy

One commits the suppressed evidence fallacy when one presents an argument but leaves out evidence or information (either willingly or unwillingly) that would show the conclusion of the argument false. It's obviously related to the topics of the last sections—especially confirmation bias, evidence denial, and the availability error—but is different because it is a mistake committed while making an argument, rather than a human psychological tendency. To clarify this distinction, we might say that confirmation bias, evidence denial, and the availability error often compels us to suppress evidence when making an argument.

Examples of this fallacy abound. Advertisers commit it when they argue that you should buy their product but leave out the evidence that you should not. In 2009, in ads for their wrinkle cream, Olay suppressed the evidence that they retouched the images they used of the 62 year-old actress Twiggy.¹⁹ In arguments against homosexuality, religious fundamentalists will quote Leviticus 20:13, "If a man lies with a male as with a woman, both of them have committed an abomination," but leave out the fact that this prohibition lies in the middle of a list of other prohibitions that they willful ignore: including against consuming pork and shellfish, (11:4-12), sex during a woman's period (18:19), wearing mixed fabrics (19:19), beard trimming (19:27), tattoos (19:28) and charging loan interest (35:37).

But it fuels conspiracy theories when it takes the form of what I call "the factoid fallacy," where one takes some true fact that seems to support a view, but leaves out information that explains why it doesn't. For example, it is indeed a fact that jet fuel does not burn hot enough to melt steel. (The hottest jet fuel can burn is about 1500°F; steel doesn't melt until 2750°F.) This fact has been used, ad nauseum, by conspiracy theories to fuel the idea that 9/11 was "an inside job." What they leave out is that steel does not have to be melted—turned into liquid—in order for it to be significantly weakened and unable to support weight. In reality, at the temperature at which jet fuel burns, steel is extremely malleable and is not able to hold up any structure. Indeed, steel framed buildings are brought down, for this very reason, by ordinary fires all the time.²⁰

Another perfect example is this factoid that is used to fuel the conspiracy theory that climate change is a hoax: 95% of all the CO₂ that is produced every year is the result of natural forces. That's true! And, by itself, it makes it seem like climate change could not possibly be the result of human activity. But what those who cite this factoid leave out is the additional fact that natural forces take out just as much CO₂ as they put into the atmosphere; only humans put it in without taking it out. So humans are responsible for 100% of the *increase* in atmospheric CO₂ each year; natural forces are responsible for none.²¹

This is why non-experts should listen to experts. The experts know the relevant information and thus whether some factoid should be considered convincing or needs to be put in context. And this is why we should definitely defer to the experts when they are in agreement, like they are with climate change. According to John Cook (et. al.), a full 97% percent of papers published by experts on the topic agree that climate change is real and caused by humans.²² If you needed to cross a bridge, and 97 engineers said it would collapse when you tried to cross it, and 3 said it was fine, you wouldn't cross the bridge.

Of course, you may have heard (from conspiracy theorists) that Cook's 97% statistic is wrong; but those who argue it is wrong are not experts. They are journalists for *Forbes*, or bloggers for "Watts Up With That." When other climate scientists reviewed Cook's work by trying to replicate his analysis, they got the same results. Six different studies have showed that Cook was right, and every attempt to show that he was wrong has been debunked.²³ In fact, when climate scientist Rasmus E. Benestad (et. al) examined the dissenting papers in the 3%, errors in them were found that, when corrected, brought them in line with the consensus view.²⁴ Conspiracy theorists are merely trying to suppress the evidence for that which is true: climate change is happening, and it's caused by us.

The Countless Counterfeits Fallacy

One commits the counterfeits fallacy when one takes a large portion of faulty evidence for a conclusion to be good reason to think that conclusion is true. When stated like that, it seems absurd—so absurd that one might assume that no one ever commits this fallacy. But they do. Indeed, even academics and intellectuals commit this fallacy. In an article about Catholic belief in ghosts, Boston College Philosophy Professor Peter Kreeft argued that the large number of fake and false ghost sightings was evidence that ghosts exist. "The existence of [a great deal of] counterfeit money strongly argues for the existence of real money somewhere." There is so many ghost sightings, his argument goes, that they can't all be fake. And if just one such story is true, ghosts exist.²⁵

In conspiracy land, this kind of reasoning is often used to fuel the conspiracy that the government is covering up alien visitations. The fallacy usually appears in an argument like this: First, the conspiracy theorist will pull out the big guns: The Roswell incident, the famous Phenix lights, and the UFO spotted during a 1991 Mexico City solar eclipse. You, then, debunk all these: Roswell was Project Mogul, the Phenix lights were leftover flairs from a military exercise, and the "eclipse UFO" was just the planet Venus.²⁶ But this won't deter the conspiracy theorist.

"Yeah, but there are so many other stories about UFO sighting out there! Hundreds! Thousands! It's unlikely that they are all false, right? And if only one of them is real, aliens exist, so it's likely that aliens are real and the government is covering it up."²⁷

It's hard to pinpoint exactly what is wrong with this line of argument. There must obviously be something wrong with it because there is tons of crappy debunked evidence for every conspiracy theory out there, and even for the most devout conspiracy theorist, it would be a stretch to believe them all. But the mistake seems to lie in thinking that whether a piece of evidence is good is a matter of chance so that, the more you find, the more likely it is that one of them is going to be true. While it is true that if you keep throwing dice you'll eventually get a Yahtzee, that is not how evidence works. Whether a piece of evidence is good is not a matter of chance.

To see why, suppose I lined up a thousand witlessness, that don't even know you, and paid them all to say you murdered someone named Bob to get you convicted of murdering Bob. Now, obviously, this would prove nothing. In each case, the evidence of a payed off stranger is very weak. But by the line of logic we have been discussing here, I could say, "But there is 1000 of them! What are the chances that they are all wrong? And if only one is right, you're guilty." Obviously, this is not how evidence works.

In fact, the logic behind this line of reasoning is exactly backwards. By simply debunking just a few pieces of bad evidence for something, I actually provide good reason to think that all such evidence

is flawed. Consider an example. Suppose a young boy, amazed by his first magic show, sets out to find out whether the performer really has magic powers. In doing so, he figures out how the tricks were done: slight of hand, misdirection, illusions, etc. He investigates another magician, and another...all turn out to be using simple tricks. After just a few such investigations, isn't the boy justified in believing that all magicians are using tricks—that none of them have supernatural powers? Of course! Even if he came across a new magician, with feats he had never seen, the boy would still be justified in believing that the magician was using simple tricks to fool him. By debunking just a few, he effectively debunks them all.

And so it is with any massive amount of low quality evidence for any conspiracy theory. The fact that there is a lot of crappy evidence for a conspiracy theory is not good reason to think it's true. Indeed, once you have explained away just a few such pieces of evidence, you are justified in just ignoring the rest. In fact, once you have debunked a number of conspiracy theories in this way, you would be justified in doubting any others that come along. (Although, of course, as Dunning has pointed out, sometime conspiracies have actually occurred.)²⁸

The Mystery Therefore Magic Fallacy

The magician example from the last section might make you wonder: "What if the boy came across a magician that did things he couldn't explain? Suppose he investigated and came up dry. Wouldn't the boy be justified in believing the magician had magic powers then?" No. And if you thought that, you fell victim to yet another logical fallacy that fuels conspiracy theories: The Mystery Therefore Magic Fallacy.

One commits The Mystery Therefore Magic Fallacy when one takes the fact that something can't be explained (that it's a mystery) to be evidence of magic. When committing this fallacy, "magic" need not necessarily be construed as "magic powers" however--although it often is. But it could also be any kind of supernatural, paranormal, or pseudoscientific explanation that the one committing the fallacy wishes to invoke. "I don't know, therefore aliens"... or "ghosts," or "Bigfoot," or "miracles." Whatever is a person's favorite explanation will fit. Indeed, that's partly how you know this line of argument is fallacious. The fact that you can't explain a magic trick is just as much evidence that the performer has magic powers, as it is that he has alien technology, or is being helped by a ghost—and those can't all be true together.

Why is this line of reasoning faulty? It's a variety of the appeal to ignorance fallacy, the idea that not being able to prove something false is a reason to think it's true (and vice-a-versa). In this case, not being able to prove that some event isn't supernatural (by finding the natural explanation) is thought to be reason to conclude that the event is indeed supernatural. This is fallacious because you might not be able to prove that it is false for other reasons. Maybe the evidence isn't available. Maybe you are looking in the wrong place. Maybe you just aren't that bright.

Now, technically speaking, appealing to ignorance isn't always fallacious. If you would expect to see evidence of something if it were true, not finding it is evidence that it is false. Not finding any milk in your fridge, for example, is good reason to think that there is no milk in your fridge because you would expect to see it if it were there. And, in general, when it comes to existential matters—questions about whether something exists—the burden of proof is on the believer. A lack of solid evidence for Bigfoot is good reason to think that Bigfoot does not exist. So, one could wonder, might there be an exception for seeming magical events too? If you really look hard for a natural explanation but don't find one, could that be good reason to think there isn't one?

In short, no. Why? Because natural explanations aren't the kind of things that you would always expect to find even if they are there. Consider *Penn & Teller*, two of the most famous and knowledgeable magicians in the world. They host a show called *Fool Us*, where they invite other magicians to try and do magic tricks that they can't explain. They are fooled at least once an episode, but never once, in being fooled, have they concluded that the participant actually had magic powers. Even though they are likely the best in the world at finding natural explanations for such things, when presented with a performance they can't explain, "we aren't smart enough to figure it out" is still, always, the better explanation. And if that's true for them, the same is true for you. In order for "it's

magic” to be the justified conclusion in the case of a mystery, “it’s magic” will have to be the best explanation. But in any such case, your own ignorance will always be the better explanation. It’s just simpler.²⁹

How does this fallacy fuel conspiracy theories among conspiracy theorists? “My favorite conspiracy theory is true” is their magic explanation. Instead of invoking “magical powers” when they come across something they can’t explain, they invoke their conspiracy theory of choice. So every mystery becomes another piece of evidence for the conspiracy. “We can’t explain the pyramids?” the conspiracy theorist will ask. “Well then it must have been ancient aliens.” Of course, we actually have explained the pyramids. We know quite well how they were made.³⁰ But even if we didn’t, that would not be good reason to invoke conspiracy theories involving ancient aliens to do so. Our own ignorance would be the simpler explanation.

Save Yourself!

Conspiratorial thinking is a rabbit hole; when a person believes one they often believe many—even if the theories contradict one another.³¹ This is likely because the cognitive biases and logical fallacies that fuel conspiracy theories, some of which we discussed, can lead one astray on any topic. If you don’t know how to guard against them, you could end up believing anything. The safely line, to ensure that you don’t fall down the conspiracy theory rabbit hole, is to study and know them. Be able to recognize logical fallacies when you see them committed by yourself and others. Be mindful of your cognitive biases and guard against them. Because of things like confirmation bias and evidence denial, pointing out cognitive biases and logical fallacies in the arguments of conspiracy theorists may not always be effective at changing their minds—although, to be honest, you may change the minds of others in the conversation, and recent studies have shown that debunking efforts are not totally ineffective.³² But at least you can avoid being led astray.³³

¹ See “Dunning-Kruger Effect” in Steven Novella’s *The Skeptic’s Guide to the Universe: How to Know What’s Really Real in a World Increasingly Full of Fake*. Grand Central Publishing, 2018. (Chapter 8, pp. 45-49)

² Patrick Leman, “Who Shot the President? A Possible Explanation for Conspiracy Theories,” *Economist* 20, (March 2003).

³ For more on HADD, see Chapter 5 (p. 33-35) in Novella (2018). For more an amateur but informed rundown on apophenia, and a related phenomenon called pareidolia, see Ian McKay, “Pareidolia and Apophenia Explained.” Owlcation, March 31, 2019. <https://owlcation.com/stem/Pareidolia-Explained> You can also see the RationalWiki entry on apophenia at <https://rationalwiki.org/wiki/Apophenia>

⁴ For more on the phenomena of motivated reasoning in general, see “Motivated Reasoning” (Chapter 9, pp. 50-56) in Novella, 2018.

⁵ So does, of course, watching certain cable news channels.

⁶ Cass Sunstein and Adrian Vermeule, “Conspiracy Theories: Causes and Cures.” *The Journal of Political Philosophy*, Vol. 17 (2). 2009. Pp. 202-227.

⁷ “Science news is usually assimilated, i.e., it reaches a higher level of diffusion, quickly, and a longer lifetime does not correspond to a higher level of interest. Conversely, conspiracy rumors are assimilated more slowly and show a positive relation between lifetime and size.” Michela Del Vicario (et. al.) “The Spreading of Misinformation Online.” *PNAS*, January 19, 2016 113 (3) 554-559; first published January 4, 2016. <https://doi.org/10.1073/pnas.1517441113> (I don’t have a page for the quote, because I am using the online version, which can be found here: <https://www.pnas.org/content/113/3/554#ref-33>. The quote is from the conclusion.)

⁸ “Our findings show that users mostly tend to select and share content related to a specific narrative and to ignore the rest.” Del Vicario (et al.), 2016. (Again, the quote is from the conclusion.)

⁹ Brendan Nyhan, and Jason Reifler. “When Corrections Fail: The Persistence of Political Misperceptions.” *Political Behavior* (2010) 32(2): 303-30.

¹⁰ Mark Memmott, “‘Rapture’ Prophet Camping: Did I Say May 21? I Should Have Said Oct. 21.” NPR: The Two-Way, May 24, 2011. <https://www.npr.org/sections/thetwo-way/2011/05/24/136606098/rapture-prophet-camping-did-i-say-may-21-i-should-have-said-oct-21>

¹¹ Later Camping just ignored disconfirming evidence. He had said, after the rapture on May 21st, that Jesus would return on Oct 21st. When that didn’t happen, his radio station just played reruns and he went into hiding for a

while. He did eventually admit to having made mistakes, and then subsequently died in 2013. See Geoff Herbert, "Harold Camping says May 21 was a 'spiritual' Judgment Day and end of the world is still coming." *Central NY NEWS*, May 24, 2011.

https://www.syracuse.com/news/2011/05/harold_camping_may_21_judgment_day_end_still_coming.html. See also Robert D. McFadden, "Harold Camping, Dogged Forecaster of the End of the World, Dies at 92." *The New York Times*, Dec. 17, 2013. <https://www.nytimes.com/2013/12/18/us/harold-camping-radio-entrepreneur-who-predicted-worlds-end-dies-at-92.html>

¹² His claim was based on a rumor going around at the time. See David Mikkelson, "Receipt of special "closed" signs by Bank of America signals that U.S. banks will soon be shut down by the government for one week." *Snopes.com*, Oct 6, 2008. <https://www.snopes.com/fact-check/bank-holiday/>

¹³ Kim Lacapria. "Jade Helm Concludes." *Snopes.com*. Sept. 15, 2015. <https://www.snopes.com/news/2015/09/15/jade-helm-over/>

¹⁴ See the "Adam Ruins Conspiracy Theories" episode of *Adam Ruins Everything*. TruTV, Oct 10, 2017. (Available on Amazon Prime Video.)

¹⁵ For more on the fallibility of memory, see "Memory Fallibility and False Memory Syndrome" in Novella (2018). (Chapter 1, pp. 9-18).

¹⁶ See Brian Dunning, "The Greatest Secret of Nostradamus." *Skeptoid Podcast #66*, Sept. 18, 2007. <https://skeptoid.com/episodes/4066>

¹⁷ Robert Todd Carroll, "Forer Effect." *The Skeptic's Dictionary*. 27 Oct. 2015. <http://skeptid.com/forer.html>.

¹⁸ For more on this nutbar conspiracy, see "The Denver Airport Conspiracy" in Brian Dunning's *Conspiracies Declassified: The Skeptoid Guide to the Truth behind the Theories*. (Adams Media, 2018). Pp. 33-36.

¹⁹ Karlee Weinmann and Kim Bhasin "14 False Advertising Scandals That Cost Brands Millions" *Business Insider* (Sep. 16, 2011) <http://www.businessinsider.com/false-advertising-scandals-2011-9?op=0#>

²⁰ For more, see David Dunbar's *Debunking 9/11 Myths: Why Conspiracy Theories Can't Stand Up to the Facts*. (Hearst Publishing, 2011).

²¹ For more on this mistake, and others that are used to deny climate change, see John Rennie, "Seven Answers to Climate Contrarian Nonsense" *Scientific American*. Nov. 30, 2009. <http://www.scientificamerican.com/article/seven-answers-to-climate-contrarian-nonsense/>

²² John Cook et al "Quantifying the consensus on anthropogenic global warming in the scientific literature." *Environmental Research Letters*, 8. 2013. <https://iopscience.iop.org/article/10.1088/1748-9326/8/2/024024/pdf>

²³ Skeptical Science, "The Cook et al. (2013) 97% consensus result is robust." Last updated, June 2016. <https://skepticalscience.com/97-percent-consensus-robust.htm>

²⁴ Rasmus E. Benestad, "Learning from mistakes in climate research." *Theoretical and Applied Climatology*, November 2016, Volume 126, Issue 3–4, pp 699–703. <https://link.springer.com/article/10.1007/s00704-015-1597-5>

²⁵ Tim Townsend, "Paranormal Activity: Do Catholics Believe in Ghosts?" *U.S. Catholic*, Oct. 30, 2013. <http://www.uscatholic.org/articles/201309/paranormal-activity-do-catholics-believe-ghosts-27887>

²⁶ For more on the explanation of these sightings see David Thomas, "The Roswell Incident and Project Mogul." *CSI*. 1 Aug. 1995. http://www.csicop.org/si/show/roswell_incident_and_project_mogul, Tony Ortega, "The Phoenix Lights Explained (Again)." *eSkeptic*, May 21, 2008. <https://www.skeptic.com/eskeptic/08-05-21/>, and the episode of the *National Geographic* show *Is It Real?* Entitled "UFOs," April 25, 2005.

²⁷ Intellectuals commit this version of the fallacy too. I'm almost quoting, verbatim, a former colleague—who was trained in logic!

²⁸ See Dunning (2018), "Part 8: Conspiracies that turned out to be...true?" pp. 211-238.

²⁹ For more on how to find the best explanation for anything, and why "it's magic" never would be a good explanation, see Theodore Schick and Lewis Vaughn, *How to Think About Weird Thing* (8th edition). McGraw-Hill Education, 2019.

³⁰ Radford, Benjamin. "How Were the Egyptian Pyramids Built?" *Live Science*. June 1, 2010. <http://www.livescience.com/32616-how-were-the-egyptian-pyramids-built-.html>

³¹ Petar Lukić, Iris Žeželj, Biljana Stanković. "How (I)rational Is it to Believe in Contradictory Conspiracy Theories?" *Europe's Journal of Psychology*. 2019. Vol. 15(1), 94-107.

³² Benjamin R. Warner & Ryan Neville-Shepard, "Echoes of a Conspiracy: Birthers, Truthers, and the Cultivation of Extremism." *Communication Quarterly*, (2014) 62:1, 1-17.

³³ For more on the logical fallacies I have mentioned in this chapter, see my entries on them in *Bad Arguments: 100 of the Most Important Fallacies in Western Philosophy*, edited by Robert Arp, Bruce Robert & Steve Barbone (Wiley-Blackwell, 2018).