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# Conspiracy Theory as Individual and Group Behavior: Observations from the Flat Earth International Conference

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## Abstract

Conspiratorial thinking has been with humanity for a long time but has recently grown as a source of societal concern and as a subject of research in the cognitive and social sciences. We propose a three-tiered framework for the study of conspiracy theories: (1) cognitive processes, (2) the individual, and (3) social processes and communities of knowledge. At the level of cognitive processes, we identify explanatory coherence and faulty belief updating as critical ideas. At the level of the community of knowledge, we explore how conspiracy communities facilitate false belief by promoting a contagious sense of understanding, and how community norms catalyze the biased assimilation of evidence. We review recent research on conspiracy theories and explain how conspiratorial thinking emerges from the interaction of individual and group processes. As a case study, we describe observations the first author made while attending the Flat Earth International Conference, a meeting of conspiracy theorists who believe the Earth is flat. Rather than treating conspiracy belief as pathological, we take the perspective that is an extreme outcome of common cognitive processes.

*Keywords:* Conspiracy theories; False belief; Flat Earth; Community of knowledge; Explanatory coherence; Confirmation bias; Illusion of explanatory depth

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*There’s no such thing as outer space. We made it all up. Yeah, space is fake.*

—Flat Earth Man, “Conspiracy Music Guru”

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## 1. Introduction

Walking into the darkened ballroom of the Crowne Plaza Hotel off the highway near the airport outside of Denver, the atmosphere was electric. Hundreds sat at long tables talking excitedly, waiting for the conference to begin. A strobe light and pulsing music signaled the beginning of the opening act, a raucous musical performance by Flat Earth Man, a fixture of the Flat Earth community, whose popular YouTube videos feature catchy tunes, clever lyrics, and surprisingly high production value. After the music, the audience was treated to hours of talks on the main stage by Flat Earth experts, community YouTube celebrities, and so-called experts volubly articulating pseudoscientific theories about astronomical phenomena and other related topics. In a packed room nearby, a presenter with no credentials or formal physics education expounded his new theory of physics predicated on the concept of “buoyancy” in place of gravity.

This was the Flat Earth International Conference, the largest meeting of the most prominent community of Flat Earth adherents. The first author attended and watched talks, spoke with conference attendees, and tried to make sense of what he was seeing. Though not everyone at the conference was a dyed-in-the-wool believer, and there was quite a bit of variation in what people believed about the specific details of the Flat Earth theory, generally accepted facts included the following:

1. The earth is a flat disc with land and water in the center surrounded by a thick wall of ice.
2. Earth is covered by a dome a few hundred (or thousand) miles from the surface, and the heavenly bodies (i.e., the sun, moon, and stars) are impressions on the dome.
3. All images and videos of Earth, the moon landing, rocket launches, and other astronomical events are elaborate hoaxes perpetrated by a cabal, including those at National Aeronautics and Space Administration (NASA), which is controlled by Nazis.

Flat Earth belief is a paradigmatic example of a conspiracy theory, which has been defined as “elaborate fantasies that purport to show that various sinister, powerful groups with evil intentions, operating behind the scenes, are secretly controlling the course of world events” (Bale, 2007; see Vermeule & Sunstein, 2009, for an in-depth discussion of conspiracy theory definitions).

Conspiracy theories are gaining popularity and academic attention. In the last few years, the QAnon conspiracy theory featured prominently in both the 2016 and 2020 elections and the insurrection at the U.S. Capitol on January 6, 2020 (Alter, 2020; Rubin, Bruggeman, & Steakin, 2021; Stelter, 2016). The 2019 Coronavirus disease (COVID-19) pandemic has led to a proliferation of conspiracy theories, including claims that 5G cellular networks cause COVID-19, that the virus was intentionally released as a bioweapon, and that videos and images of hospitals filled with sick COVID patients were fabricated (see Uscinski et al., 2020, for a catalog of such theories, and see Miller, 2020, for a discussion of the interrelationship of these ideas). Conspiracy theories have become so prominent that there is even a well-known conspiracy theory satirizing other conspiracy theories (“Birds Aren’t Real,” Lorenz,

2020) and a conspiracy theory about the concept of conspiracy theories (Lewandowsky et al., 2015).

Conspiracy theories are not new. Writings in antiquity contain many examples. The Emperor Nero was purported to have been responsible for the great fire in Rome because he happened to be absent when it occurred (Brotherton, 2015). Analyses of *New York Times* letters by Uscinski and Parent (2014) show that conspiracy theories have been a constant feature of the American political discourse as far back as the letters go. The academic literature on conspiracy theories also has a long history, with roots in the writings of prominent scholars of history, political science, and philosophy such as Popper (2014) and Hofstadter (1964).

Yet societal concern about conspiracy theories has grown, perhaps due to three critical factors: First, conspiracy theorizing flourishes during crises (Grzesiak-Feldman, 2013; Van Prooijen & Douglas, 2017), and the current era is marked by geopolitical instability, political polarization, and a worldwide pandemic. Second, social media has invigorated conspiracy communities, allowing easier dissemination of misinformation, popularizing online evangelism, and increasing organizing capabilities (Glenski, Weninger, & Volkova, 2018). Third, people are consuming increasingly partisan news—and news sources are growing increasingly less centralized—as people with differing political views thereby become less likely to share news sources (Gentzkow & Shapiro, 2011). These balkanized “news communities” share increasingly non-overlapping information, thus fueling different political beliefs and attitudes (Brockman & Kalla, 2022). Rather than reducing false belief, as originally hoped (Negroponte, 1996), the Internet seems to be enabling groups to become informational islands—only encountering belief-confirming information—further fueling the growth of conspiracy theorizing.

Recent societal interest has been mirrored by a surge of psychological research on conspiracy theorizing (Douglas et al., 2019; Van Prooijen & Douglas, 2018) and other related topics including misinformation (Del Vicario et al., 2016), fake news (Pennycook & Rand, 2021), and science denial (Light, Fernbach, Rabb, Geana, & Sloman, 2022). Most of the work on conspiracy theories comes from social psychology. In this paper, we seek to introduce relevant issues to the cognitive science community and to explore what cognitive science can offer to understanding this perplexing phenomenon. In particular, cognitive scientists excel at connecting different levels of analysis in pursuit of understanding complex phenomena (e.g., Marr, 1982). As was made clear at the Flat Earth Conference, conspiracy belief is a highly complex socio-cognitive phenomenon that requires multi-levelled analysis.

## 2. Background: Misconceptions about flat earthers

Many of the beliefs of Flat Earthers are, assuredly, absurd. Moreover, conspiracy thinking can lead to heinous outcomes. Accordingly, the first author attended the conference with negative preconceptions about Flat Earthers: First, that Flat Earthers are closed-minded, unintelligent, and quick to believe anything they are told; and second, that they are antisocial, angry, and disaffected. Both of these preconceptions turned out to be wrong or at least highly incomplete.

Modern Flat Earth theories are rooted in the writings of Samuel Rowbotham, a utopian socialist, who published the pamphlet “Zetetic Astronomy” in 1849, laying out a theory of a disc-shaped Earth, centered at the North Pole and surrounded by a wall of ice. Throughout its history, Flat Earth theory has been heavily influenced by Christian theology, representing a rejection of the heliocentric view of the solar system for a model that is more consistent with biblical Christianity (Schadewald, 2015). Indeed, at the conference, most presenters and attendees appeared to come from a fundamentalist Christian background. The dome that is purported to cover the Earth, for instance, was often called the “Firmament,” a reference to the biblical creation story.

Nevertheless, the ethos of the conference abjured both dogmatism and the unquestioning acceptance of doctrine without proof. Flat Earthers are radical empiricists. Following in the tradition of Rowbotham, who developed his theory from his own measurements of drainage ditches in England, Flat Earthers only accept data that they collect themselves or that come from trusted members of the community. Nor are they closed-minded in the traditional sense but rather pride themselves on their openness to revising their theories in light of new evidence. At the conference, a story was told of a vibrant online argument in the community regarding the existence of 24 hour sunshine in the far North, a phenomenon inconsistent with the theorizing of many community members. One of the online interlocutors flew to Scandinavia, reported back to the group that indeed the sun did shine for 24 hours, and the community subsequently revised the Flat Earth theory to accommodate the discovery.

These observations are not meant to imply that the science conducted within the community is valid. Of course, scientific practice that leads to strongly held, incorrect conclusions cannot be valid (more on this below). The community’s disdain for credentialed scientific expertise is also without merit. But the problem is not stupidity or closed-mindedness. In fact, Flat Earthers consider *others* to be closed-minded for uncritically accepting that the Earth is round. Their point is not entirely baseless: Most people believe that the earth is round based solely on others’ testimony. Few can produce an argument that the Earth is round except by alluding to photos of Earth taken from space (which the Flat Earth community maintains are faked, a claim itself that most people would have a hard time refuting). In this way, the Flat Earthers’ charge represents a deep observation about the nature of knowledge and belief.

While the Flat Earth community does not share religious communities’ emphasis on faith, their conventions do match some religious experiences in another way: the atmosphere was one of fun and positivity, and its procession felt somewhat like religious revelry. Flat Earthers were, on the whole, welcoming, joyous, and inviting of dissenting opinions. Some were fervent believers and wanted to evangelize. Others were not completely convinced but enjoyed learning more about the theory and the community (in one of the conference rooms, a whiteboard was set up where people could record whether they were a believer, a dissenter, or somewhere in between; a running tally was kept). Flat Earthers are, of course, aware that their beliefs are frequently mocked, and there was some defensiveness about this. But the collective feeling was not disaffection, powerlessness, or anger. It was a community united around its excitement at having discovered a profound truth about the nature of the universe.

Clearly, something has gone wrong when a large group of people ardently believes something so absurd. But observations at the conference did not corroborate many of the first

author's preconceptions. Instead, these observations suggested a complex and nuanced tangle of individual and group processes that are less pathological, more typical of human cognition, but that can interact to yield extreme outcomes (like group belief in a Flat Earth conspiracy). This view is concordant with previous research demonstrating that scientific and supernatural beliefs have similar epistemic underpinnings (Shtulman, 2013) and with theories that argue that conspiracy thinking satisfies universal psychological motives (Douglas, Sutton, & Cichocka, 2017; Douglas et al., 2019).

### 3. Understanding conspiracy theories: Three levels of analysis

We postulate that, like all socio-cognitive phenomena, understanding conspiracy theories will require study at multiple levels of analysis as well as synthesis across levels. We propose a three-tiered organizing structure. The lowest level ("Level 1") is the level of cognitive processes, traditionally the purview of cognitive science. This level of analysis regards the in-the-moment thought processes that occur within the mind of an individual considering a conspiracy idea. Level 1 analysis chiefly concerns belief formation, evaluation, and updating. The intermediate level ("Level 2") is the level of the individual, typically studied by social psychologists through the investigation of personality and individual differences. These represent the mostly time-invariant cognitive tendencies that may either be considered universal psychological needs or may differ between individuals but remain relatively stable within individuals. At this level of analysis, we consider cognitive tendencies and personal demographics that tend to covary with belief in conspiracies. Finally, the highest level in our model ("Level 3") is the level of the social network, or community of knowledge, traditionally the domain of social sciences like economics and sociology (cf. Rabb, Fernbach, & Sloman, 2019; Sloman & Fernbach, 2017). At this level of analysis, we consider how group dynamics and social interactions reinforce beliefs and maintain coherent, if not valid, systems of belief. This paper begins from the observation that group- and individual-level cognition are fundamentally interdependent.

Much of the psychological research on conspiracy theories considers research questions at Level 2, the level of the individual. Such studies have looked for personal characteristics or personality traits that correlate with a tendency to subscribe to conspiracy thinking. Identified factors include political extremism (Enders & Uscinski, 2021), lack of education and cognitive ability (Van Prooijen, 2017), authoritarianism (Swami, 2012; Van Prooijen & Song, 2021), trait narcissism (Cichocka, Marchlewska, & De Zavala, 2016), being a member of a disadvantaged group (Goertzel, 1994), and powerlessness or lack of control (Abalakina-Paap, Stephan, Craig, & Gregory, 1999; Van Prooijen & Acker, 2015). Other researchers have suggested that propensity for conspiratorial thinking follows from a more generalized political attitude. For instance, Imhoff and Bruder (2014) argue that conspiratorial thinking is a stable political attitude characterized by a perceived threat and general distrust of high-status groups. This view treats conspiracy theorists like any other political group, defined by (1) feelings of group identification, (2) in-group bias, (3) claims to relative power deprivation, and (4) a tendency to blame the system for group-based disparities (Miller et al., 1981). Support for this

view also comes from evidence that belief in one conspiracy theory is predicted by belief in other, nominally unrelated conspiracy theories (Goertzel, 1994).

The focus on individual differences has led some researchers to pathologize conspiracy thinking, emphasizing what makes conspiracy believers personally or cognitively unusual (for a discussion of pathologization of conspiracy belief, see Butter & Knight, 2019). This negative focus seems reasonable in light of the substantial negative consequences of conspiracy beliefs, including promotion of antisemitism (Kofta & Sedek, 2005), reduction of trust in government (Einstein & Glick, 2015), and lowered intentions to vaccinate (Jolley & Douglas, 2014). But regarding conspiracy thinking as psychologically aberrant is hard to reconcile with the sheer prevalence of conspiracy thinking across people, cultures, and history (Pipes, 1999). Appreciating this, most contemporary research does not pathologize conspiracy thinking but rather explores how conspiracy beliefs can emerge among ordinary people based on situational triggers and contextual factors (Radnitz & Underwood, 2017) or universal psychological needs (Douglas et al., 2017, 2019). Relatedly, Van Prooijen & Van Vugt (2018) hypothesize that conspiracy thinking is an evolved psychological mechanism for group benefit rather than a psychological flaw.

In contrast to the breadth of research at Level 2, there has been relatively less research at Level 1 (on cognitive processes) and almost none at Level 3 (on group processes). At Level 1, some of the cognitive processes that have been implicated include illusory pattern perception (Van der Wal, Sutton, Lange, & Braga, 2018; Van Prooijen, Douglas, & De Inocencio, 2018), agency detection (Douglas, Sutton, Callan, 2016), holistic or System 1 thinking (Brotherton & French, 2014; Pytlik, Soll, & Mehl, 2020; Ståhl & Van Prooijen, 2018; Swami, Voracek, Stieger, Tran, & Furnham, 2014; Wabnegger, Gremsl, & Schienle, 2021), and the illusion of explanatory depth (IoED; Vitriol & Marsh, 2018). We consider these findings below in greater detail in order to extract some unifying themes.

While there is a small body of research connecting social motives with conspiracy thinking (e.g., Douglas et al., 2017, 2019; Wheeler, 2021), we do not take this to be Level 3 analysis since even these social motives are described in terms of (Level 2) individual needs. A recent meta-analysis by Biddlestone and colleagues makes progress in this direction by considering the psychological motives of the “collective self”—people’s need to feel tied to esteemed groups (Biddlestone, Green, Cichocka, Sutton, & Douglas, 2021). However, the observation that conspiracy communities satisfy people’s social needs should be considered Level 2 analysis (the individual), not Level 3 (social processes). Instead, we mean to offer a deeper sense in which conspiracy thinking is a group process. On our view of Level 3 analysis, we consider how knowledge is distributed across the group, how complex functions (including the development of theories and the planning of conferences) are group efforts that depend on specialization and the division of cognitive labor, and how individuals outsource most of their knowledge to others (Keil, Stein, Webb, Billings, & Rozenblit, 2008; Kitcher, 1990; Rabb, Fernbach, & Sloman, 2019; Sloman & Fernbach, 2017). It is from these complex social processes, we conjecture, that much of the phenomenon of conspiratorial thinking emerges. While these ideas have not been directly proposed or tested, related notions can be found in research hypothesizing that conspiracy theories substitute for religion and that conspiracy communities share many features with religious communities (Franks, Bangerter, & Bauer,

2013; Wood & Douglas 2018). The study of the social nature of conspiracy communities has gained recent scholarly attention among sociologists interested in social movements, but this work is still in its infancy (Bertuzzi, 2021).

An influential theory of conspiracy theorizing was proposed by Douglas et al. (2017; see also Biddlestone et al., 2022), who proffered three general motives that increase the tendency to believe in conspiracies: epistemic motives (understanding one's environment), existential motives (being in control of one's environment), and social motives (maintaining a positive image of the self and the social group). We view our typology as complementary with this theory. While the universal psychological needs that Douglas et al. (2017) identify are supported by associated underlying psychological processes that they discuss to some extent (i.e., Level 1 processes), their emphasis is on broader, universal psychological tendencies of individuals (i.e., Level 2). We complement their framework by placing greater relative emphasis on socio-cognitive processes rather than focusing solely on psychological needs. For instance, while a psychological tendency to see patterns in randomness may predict belief in conspiracies (as hypothesized by Douglas et al., 2017), the work of cognitive science is to add theoretical detail to that proposition in the form of theories or computational models of belief updating and inductive inference. That is the kind of work we hope to inspire with our framework. We further diverge from Douglas and colleagues by offering a structure that is hierarchical, describing different levels of analysis.

Given the dearth of research at levels 1 and 3, our goal here is to develop hypotheses about how conspiracy theories emerge from the interaction of individual and group processes, with an eye toward encouraging more research on these topics within the cognitive sciences. Our present focus on Level 1 and Level 3 analyses is not meant to suggest that Level 2 analysis is unimportant or misguided, merely to address our view that these other layers of analysis are relatively neglected and deserving of attention. In the next two sections, we speculate on these processes in more detail. To support our theorizing, we draw on observations made at the Flat Earth International Conference. These observations are anecdotal, and Flat Earth belief certainly has characteristics not shared by other conspiracies. Nonetheless, we aim to identify themes that are generalizable.

#### **4. Level 1: Cognitive processes**

Conspiracy theories occasionally turn out to be true and are sometimes dismissed too quickly (Bale, 2007). The problem with conspiracy thinking thus is not the falsity of the conclusion per se but with the thinking process itself that is so insensitive to the likelihood of its being true. On this view, the mistake that conspiracy adherents make is one of probabilistic reasoning and belief calibration, believing very strongly in something that is highly improbable (Kovic & Fuchslin, 2018). Conspiracy adherents also fail to properly revise their beliefs in light of disconfirming evidence. To Flat Earthers, strong contradictory evidence may not sway them and may, in some cases, even strengthen their views. In light of this, our focus is on the following two questions: What are the cognitive processes that draw attention

away from a conspiracy theory's unlikelihood, and why are people not responsive to copious counterevidence?

We propose two unifying ideas. First, we argue for “explanatory coherence” (Harman, 1965; Thagard, 1989) as a basic principle that explains the acceptance of conspiracy theories. Briefly, people attend to how well the pieces of a theory fit together, while neglecting the theory's overall likelihood. Second, conspiracy belief does not happen in an instant but rather unfolds over time as a dynamic process of belief updating. In general, people are not Bayesian updaters, and they are prone to confirmation bias and a host of attendant errors like biased assimilation of evidence, belief polarization, and belief perseverance (Nickerson, 1998). To our knowledge, concepts and findings from the belief updating literature have not yet been applied to conspiracy theories, which we view as an oversight.

#### 4.1. *Explanatory coherence*

At several points during the conference, a speaker would lay out a set of facts or observations that seemed strange or inexplicable and then, with a flourish, would bring everything together, often by appealing to a shadowy cabal at NASA. Such moments were met by audible gasps in the audience as people experienced an “aha moment,” which has been likened to a kind of orgasm of the mind (Gopnik, 1998). These sudden moments of apparent insight have a powerful phenomenology and seem to be an important factor in conspiracy belief.

Philosophers have identified inference to the best explanation (Harman 1965; Lipton, 2003) or abduction (Josephson & Josephson, 1996) as a form of inference that involves reasoning from a set of observations to a theory that explains those observations. There is an active debate in the philosophical literature on the nature of inference to the best explanation, how it relates to statistical theories of inference like Bayesian confirmation theory, and whether it is a unique form of inference (e.g., see Josephson & Josephson, 1996; Roche & Sober, 2013), though these issues are outside the scope of this review. This type of reasoning may be central to human cognition, a claim supported by evidence that people understand the world via stories that explain their observations rather than via statistical calculations or deductive inferences (Heider & Simmel, 1944; Kahneman, 2011; Pennington & Hastie, 1992).

Our interest is in the notion of explanatory coherence, a tenet of many theories of inference to the best explanation. One influential formulation comes from Thagard (1989), who proposes a computational model and theory of judgment asserting that a hypothesis is accepted if its constituent parts cohere. Thagard contrasts the explanatory coherence view with probabilistic approaches to confirmation such as Bayes' rule. He notes that in practice, probabilistic calculations are often impractical, while coherence is relatively easy to judge.

Conspiracy thinking offers a good example of this. Consider an audience member at the Flat Earth Conference who is shown a set of facts and a tidy explanation that ties them all together. Calculating the probability that the proffered explanation is true is quite difficult. It requires weighing alternative explanations against one another, calculating conditional probabilities of the various pieces of evidence under each potential explanation, and so on. Individuals are unlikely to have the requisite knowledge to even estimate many of these probabilities at all

accurately. In contrast, it is quite easy to see that the conspiracy paints a tantalizing picture that seems to reconcile all the pieces.

This notion of explanatory coherence captures many of the findings in the literature. Conspiracy belief has been connected to overactive pattern perception phenomena such as inferring causal connections between spuriously correlated events, finding meaning in random sequences, and seeing figures in chaotic modern art paintings (Van der Wal et al., 2018; Van Prooijen et al., 2018). Likewise, participants who ascribe intentionality to shapes moving on a computer screen are more likely to believe in conspiracies (Douglas et al., 2016). For each of these psychological tendencies associated with conspiracy belief, people are seeking explanations with a high level of coherence; they are creating a narrative to explain their observations rather than appreciating that their observations could be random and unconnected. Relatedly, people presume that large consequences only result from large causes (Ebel-Lam, Fabrigar, MacDonald, & Jones, 2010). This perhaps explains why conspiracy theories tend to emerge in situations where monumental outcomes (e.g., presidential assassination, attacks on the World Trade Towers) are attributed to relatively insignificant causes (e.g., a lone gunman, 19 paupers from across the Middle East; Leman & Cinnirella, 2007; Vonasch, Dore, & Felicite, 2022). Coherence-driven reasoning may undergird this tendency: Disproportionate causes and effects are harder to reconcile into a fluent story with all parts fitting together. In their place, more proportionate causal explanations (“it was an inside job!”) may emerge.

This tendency for coherence-based reasoning—rather than probabilistic reasoning—may also explain why conspiracy belief is more common among those prone to the conjunction fallacy (Brotherton & French, 2014; Wabnegger et al., 2021). The conjunction fallacy results from using a representativeness heuristic, which involves attending more to an easy-to-imagine story than the rules of probability when making an uncertain judgment. In the classic example, a protagonist, Linda, is judged more likely to be a feminist bank teller than a bank teller (a conjunction error) because the provided narrative description makes it seem like she is probably a feminist (Tversky & Kahneman, 1983).

Coherence-based reasoning may also help explain why the tendency to believe in conspiracies is predicted by susceptibility to the IoED (Rozenblit & Keil, 2002), the overestimation of one’s understanding of how things work (Vitriol & Marsh, 2018). The IoED results from abstract or holistic thinking (Alter, Oppenheimer, & Zemla, 2010). As Keil (2003) says, people tend to have “coarse interpretations of a complex reality,” experiencing the world at a gross level and failing to recognize hidden complexity. Thus, it is perhaps unsurprising that inducing analytic thinking has been shown to reduce conspiracy belief (Swami et al., 2014)—analytic thinking breaks the illusion by calling attention to the hidden complexity of the conspiracy beliefs that otherwise seem to cohere.

These kinds of coherence-driven reasoning processes were pervasive at the Flat Earth Conference. One such example comes from a panel discussion purportedly explaining the existence of videos showing astronauts in space. According to Flat Earthers, these videos must be faked since there is no space, let alone a space program. However, rather than offering evidence that the videos were fabricated, panelists relied more heavily on a coherent narrative. Panel members described how the videos were filmed in a swimming pool at NASA headquarters, explaining the astronauts’ apparent floating. In fact, the panelists

offered, what appeared in the video as blips or broken pixels were actually air bubbles from the astronauts' underwater breathing apparatus—an explanation offering even further evidence of the conspiracy. Many audience members were nodding their heads in agreement as each successive detail of the conspiracy was laid out. But what the audience seemed to be responding to was the seamlessness with which each piece of the story (e.g., blips on the video) was explained by the previous components (the astronauts were underwater). This coherence, we conjecture, distracted people from critically considering the (un)likelihood that such an elaborate hoax could be perpetrated by so many people in complete secrecy.

#### 4.2. *Belief updating*

The concept of coherence goes some way to answering the first question we posed: What draws adherents' attention away from the improbability of a conspiracy theory? Another perplexing aspect of conspiracy belief is its resistance to change in light of disconfirming evidence. In the case of Flat Earth, the counterevidence is abundant and strong, and yet adherents are not swayed by it. To understand why, it is instructive to think of conspiracy belief as a faulty process of belief updating that unfolds over time. At an early stage, the conspiracist is presented with the theory, usually through a curated set of facts laid out by an adherent. An initial strength of belief in the theory is thus formed. Over time, the conspiracist learns more, encountering evidence in favor and against the theory, and updating their initial strength of belief. By definition, a conspiracy theory is unlikely, so if the conspiracists were sampling data in an evenhanded way and updating beliefs appropriately, their strength of belief in the conspiracy at the end of the process should be low. So what explains the fact that conspiracy adherents tend to maintain or even strengthen their beliefs as they take in more data?

Given the belief updating literature, it is unsurprising that belief in conspiracy theories tends to strengthen over time since, in general, people are non-Bayesian updaters and are biased to be more likely to confirm rather than falsify pre-existing beliefs (Nickerson, 1998). To see how this happens, the belief updating process can be separated into two stages: data selection and belief revision. Bias appears in both stages.

In the data-selection phase, people tend to choose information sources that are congenial to pre-existing beliefs rather than the ones that are most informative (Hart et al., 2009). At the Flat Earth Conference, for instance, a video was shown that disputed counterarguments to the Flat Earth theory, while the original video presenting the counterarguments was not screened. Additionally, as noted, Flat Earthers like to conduct their own experiments (for instance, taking a high-powered camera to the beach to measure whether ships on the horizon disappear from view). Here too, we suspect that there is bias in favor of confirmation. When testing a theory, people tend to choose positive tests that, under some circumstances, are more likely to confirm than falsify (Klayman & Ha, 1987). Considering the beach example, when the camera is zoomed in the ship reappears, supposedly confirming the Flat Earth theory. But, absent a comparison using the camera on a putative sphere, this test lacks the possibility of falsification. In this way, conspiracists tend to only consider information, arguments, and tests designed to support their views, strengthening belief in the conspiracy as they take in more information.

The second stage, belief revision, also fails whenever people engage in “biased assimilation of evidence,” trusting data points that support a favored theory, while scrutinizing or dismissing counterevidence (Lord, Ross, & Lepper, 1979). This leads to perverse phenomena like belief polarization and belief perseveration. The tendency to uncritically accept belief-confirming arguments, while doubting belief-disconfirming facts, can cause people with even weak initial attitudes about a conspiracy to grow ever more confident about the conspiracy as time goes on. At the conference, evidence in support of the Flat Earth theory was accepted uncritically, while counterevidence was distrusted and easily dismissed.

This tendency toward confirmation has both motivated and non-motivated bases. The preference for positive tests, for instance, occurs even in non-motivated contexts (e.g., Wason, 1968). But motivation often also plays a strong role in faulty belief updating. When people are motivated to believe that something is true, they are especially prone to data selection and belief revision processes that favor confirmation (Kunda, 1990). An evocative example of such motivation came from one of the speakers at the conference who related a story about lying in bed as a child after just having learned about the size of the universe in school. He began to cry, asking himself, “How can God love us in such a vast universe?” He described this moment as the beginning of a lifelong “journey” toward Flat Earth belief, restoring his belief that the Earth is at the center of the universe (and thus God’s heart). Given such a strong motivation to believe in the theory, we suspect that his belief updating throughout this journey was biased toward confirmation.

In sum, conspiracy belief seems to result from deeply flawed—but altogether common—faulty belief-updating processes. Conditional on a belief in the foundational premise of many conspiracy theories—that there is a secret cabal of powerful elites trying to deceive the masses—it follows that belief in any specific conspiracy would come to strengthen as well. This is no different than (rightly) concluding that the chances of someone having a disease, conditional on a positive test, is greater if that person is in a high-risk group. Considered in this way, belief in conspiracies may be seen as a predictable result of fairly typical reasoning that (a) starts from different prior beliefs and (b) assigns different weights to new, contradictory information. In other words, what sets conspiracists apart from the rest of the population may not be that their reasoning process is especially flawed but rather that they rely on fairly typical reasoning from a different set of premises.

### 5. Level 3: Conspiracy theory as group behavior

Perhaps the most important insight gleaned from the conference came from observing the central role that the community plays in nurturing conspiracy belief. Conspiracy belief is an inherently social venture, complete with all the markers of any social community, including rituals, jargon, private information, active forums for social interaction, sharp in-group/out-group distinctions, and symbolic conflict with outsiders.

A critical function of membership in *any* community is that it provides social benefits that are independent of what group members believe. Not unlike a religious community, a conspiracy community may provide friends, purpose, and a sense of belonging. Such social benefits

are the subject of much research (Baumeister & Leary, 1995; Van Prooijen, 2015). While they are important to understanding conspiracy communities (Ren, Dimant, & Schweitzer, 2023), they are not our focus here. Moreover, a person cannot come to sincerely hold a view simply because doing so provides psychological utility. As in Pascal's Wager, cost-benefit analysis alone cannot convince someone to believe things that are untrue (Hacking, 1972). With Level 3 analysis, we are instead interested in the ways that the community encourages the cognitive processes described above, thereby allowing people to maintain such strange beliefs.

One way that the community influences the cognitive processes that facilitate conspiracy belief is via conventional wisdom about which sources of information to trust. Conspiracy communities like Flat Earth tend to disparage credentialed expertise while putting a premium on evidence that is generated within the community. These community norms regarding what sources to trust likely enable the cascading process of biased assimilation described above, causing faulty belief updating and strengthening false beliefs. Conspiracy communities are particularly susceptible to this kind of cascade because a core tenet of the conspiracy theory itself is the claim that institutional sources often fabricate evidence supporting their conspiracy. To Flat Earthers, one of the ways that NASA scientists perpetrate the round earth conspiracy is by fabricating official reports, publishing faked photographs, and so on. Thus, the conspiracy theory is self-reinforcing: Countervailing evidence from institutional sources provides even further evidence of the conspiracy itself.

A second way that group processes support conspiracy belief is by fostering a false sense of understanding. People tend to conflate what they know with what is known by others in their group (Sloman & Rabb, 2016). Thus, merely participating in a group where others seem to understand something makes people feel that they themselves understand it better. Sloman and Rabb describe the "contagious sense of understanding" felt by individuals when other members of their group seem to understand an idea. This social phenomenon is likely implicated in many conspiracy communities. A Flat Earther can be made to feel more confident in their understanding of the underlying physics when someone who seems like an expert is able to fill a chalkboard with equations. A Flat Earther can feel less worried about counterarguments to their views when "debunking" videos proliferate on YouTube, appearing to successfully refute any arguments put forth against the Flat Earth ideology.

This phenomenon was on full display at the conference. For example, during one keynote presentation, the speaker was responding to a common counterargument to the Flat Earth theory based on eclipses. He was describing in great detail the differences in how an eclipse would appear to someone standing on the surface of a flat versus round Earth. This is an exceedingly difficult concept to grasp: It requires thinking about orbital dynamics, occlusion, three-dimensional geometry, and so on. A group of nearby attendees was nodding along animatedly throughout the whole presentation as if they understood all the details. However, when asked after the presentation if they could really picture what an eclipse would look like from Earth under competing theories, they had a dawning realization that indeed it was more complicated than they had appreciated at first. Apparently, the presence of other people nodding along nearby facilitated their own feeling of understanding.

A third way that communities influence the thoughts of individual members is through conformity pressures and group polarization processes (for an overview, see Sunstein, 2019).

Such processes can result from two powerful social-psychological forces. First, people seek to maintain good standing within their groups, which can lead them to withhold private information contrary to the majority's view. Second, people often conform their personal beliefs to match the popular opinion of a group, especially when they lack complete information or subjective confidence. As a result of these two forces, group deliberation about a topic tends to create polarized belief alignment within the group. From citizens debating political issues (e.g., Schkade, Sunstein, & Hastie, 2007) to jurors deliberating about awarding damages (e.g., Schkade, Sunstein, & Kahneman, 2000), to federal judges hearing appellate challenges (e.g., Sunstein, Schkade, Ellman, & Sawicki, 2007), group discussion tends to shift even anonymous opinions toward the extremes of a group. In this way, people can enter conspiracy communities—online or at conventions—as doubters then quickly come to (1) shift their sense of the majority's consensus opinion, and gradually (2) assimilate their beliefs to match the majority's views within the conspiracy community. As individuals' views grow increasingly aligned with the conspiracy community, they become commensurately estranged from non-believers, further fueling this process. As a result, a hallmark of some conspiracy belief is the fervor with which these views come to be held and how all-consuming the conspiracy theorizing becomes (unlike, for instance, belief that the world is *not* flat).

Fourth, group processes can facilitate conspiracy belief by creating a specialized community of knowledge. All complex beliefs about the world are community efforts (Rabb, Fernbach, & Sloman, 2019; Sloman & Fernbach, 2017). People rarely appreciate the extent to which they lack the knowledge to defend their beliefs. Instead, knowledge is distributed across a community, with different community members mastering different bits, and no one knowing everything. Nonetheless, individuals often wind up with strong beliefs about complex issues they do not personally understand well. It is for these reasons that, for instance, individuals can come to hold strong views about the existence of climate change without deep mastery of atmospheric science. In lieu of such expertise, individuals can simply adopt the views espoused by climate experts. This is both useful and dangerous: lacking the knowledge to fully understand an issue means lacking the ability to easily recognize when one is wrong (Dunning, 2011). Conspiracists are thus able to maintain their views when it seems as if the details of the conspiracy theory have been worked out by trusted community members. An open question remains, however, how people choose whose information contributes to their sense of understanding (e.g., a Flat Earth physics expert's mastery of "anti-gravitics") and who is considered outside the knowledge community (and thus whose knowledge is ignored).

The conference was filled with small moments like this, where attendees outsourced their knowledge to those they deem experts in the community without appreciating that they were doing so. The audience did not need to think critically or to fully understand the explanation because the speaker had mastered the details on their behalf. Conspiracy belief is a kind of house of cards where each individual's conviction depends on the conviction of others. The stability of the structure is surprising, but it is due to the combination of the unsound cognitive and group processes described here.

## 6. Interactions of the three levels

A chief benefit of the proposed typology is the ability to consider interactions among the three levels. Psychologists have amply demonstrated the possibility of such interactions in other domains. For instance, social context (Level 3) can moderate attentional blindness (Brown-Iannuzzi, Hoffman, Payne, & Trawalter, 2014) and even perception of basic object properties (Sherif, 1935). Reciprocally, basic cognitive processes (Level 1) can influence perceptions of social interactions (Forgas, Bower, & Krantz, 1984; Fox, 2005). This invites the intriguing opportunity to better understand conspiratorial thinking by considering the interactions of our three proposed levels of analysis.

We offer an example to illustrate such a use of our framework. There is reason to suspect that the Asch (1951) conformity experiments demonstrate that people's *reports* of their perceptions can be altered by social pressure, not that their *actual* perceptions change (Haun & Tomasello, 2011). Unrelated recent work has shown that endorsement of misinformation can reflect a desire to express one's partisanship rather than a belief in the literal claim (Schaffner & Luks, 2018). Perhaps a combination of these forces can be used to explain some conspiratorial thinking: People may assert that "Monsanto is burying evidence of harm caused by Genetically modified organisms (GMOs)" or "Obama was born in Kenya"—under social pressure from others who also express this belief—in order to signal a tribal political identity. However, after asserting and hearing such a claim enough times, coupled with a tendency toward cognitive dissonance reduction (Festinger & Carlsmith, 1959), individuals may in fact come to genuinely, even fervently hold these views. In this way, social pressures may interact with cognitive processes to yield sincere belief in conspiracy theories. More generally, understanding the interactions between different levels of conspiracy thinking can reveal novel insight about the nature of conspiracy belief.

## 7. Conclusion

Recent events have shown that conspiracy theorizing can indeed lead to violent, horrific outcomes. But to dismiss conspiracists as aberrant fools is to miss the uncomfortable truth that conspiracy thinking—replete with motivated reasoning, biased search and processing of information, faulty belief updating, distributed understanding, incomplete and coherence-driven reasoning—fundamentally resembles ordinary human cognition. More to the point, conspiracy theories themselves can be uncomfortably close to mainstream views taken as true (e.g., the belief that anthropogenic climate change is an imminent threat whose existence is being obscured by a small group of well-heeled oil companies and their political lackeys). As such, conspiracy theories often resemble quotidian cynical political views and incorrect scientific theories (e.g., cold fusion). Indeed, the same cognitive and social processes are implicated. We hope that, by offering a framework for considering the three levels of conspiracy thinking, we help encourage a swell of cognitive science scholarship on conspiracy thinking to match its social importance.

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