

Extreme Beliefs and Echo Chambers

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For *Mapping the Terrain of Extreme Belief and Behavior*, Rik Peels and John Horgan (eds.) Oxford University Press.

Abstract: Are extreme beliefs constitutive of echo chambers, or only typically caused by them? Or are many echo chambers unproblematic, amplifying relatively benign beliefs? This paper details the conceptual relations between echo chambers and extreme beliefs, showing how different conceptual choice-points in how we understand both echo chambers and extreme beliefs affects how we should evaluate, study, and engage with echo chambering groups. We also explore how our theories of extreme beliefs and echo chambers shape social scientific research and contribute in a practical way when treating these phenomena, focusing on examples of climate change scepticism.

Keywords: Echo chambers; extreme belief; extremism; totalising narratives; motivated meaning-making; climate change scepticism

1. Introduction

What is the relationship between echo chambers and extreme beliefs? One popular thought is that echo chambers and algorithmic filtration architecture help to nurture and reinforce extreme beliefs (An et al. 2012; O’Hara and Stevens 2015; von Behr et al. 2013). As Sunstein puts it:

the Internet is serving ... as a breeding ground for extremism, precisely because like-minded people are deliberating with greater ease and frequency with one another, and often without hearing contrary views (Sunstein, 2007: 67).

On this view, although echo chambers and extreme beliefs existed before the internet, social media and digital media personalization have merged them in pernicious ways. People can more easily form and sustain groups around social and political beliefs, exploiting social media and web personalization to amplify their views and filter criticism (Nguyen 2021). While many groups encounter counter-arguments, the architecture of social media helps to protect their beliefs from rebuttal (Jamieson and Capella 2008).

However, understanding and assessing these claims requires more clarity on what ‘extreme’ beliefs and ‘echo chambers’ are. Do echo chambers facilitate *extreme* belief specifically? (Couldn’t there be echo chambers surrounding certain pop artists, video games, or artwork?)¹ Are extreme beliefs a constitutive part or necessary outcome of the structure of echo chambers, or are they only sometimes the outcome of particular echo chambers? The answer to these questions turns on how we conceptualize ‘echo chambers’ as much as it does ‘extreme belief’, but as many scholars have recognized, not only is there “no universally accepted definition” of extremism and extreme belief, but there are a variety of ideas about what makes a belief extreme (Aldera et al. 2021: 42385). So, how can we effectively probe the idea that echo chambers facilitate extreme belief if we don’t yet have clarity on what extreme beliefs even are?

One strategy is to understand the beliefs that are echoed within echo chambers as ‘extreme’ in virtue of features of echo chambering groups. Some, like Nguyen (2020), conceptualize echo chambers as social structures which create a “significant disparity in trust” between the in-group

¹ For the idea that echo chambers are active in the artworld, see Robson (2014).

and the out-group, unified by a core set of beliefs (Nguyen 2020: 146). If that's right, perhaps groups which display echo chamber-like features necessarily have extreme beliefs in virtue of reflecting their excessive—or 'extreme'—trust in group certified sources (e.g., excessive trust in alternative right-wing media, coupled with excessive distrust in mainstream media).

Still, even if the structure or outcomes of echo chambers is epistemically problematic, the beliefs which unify the in-group and regulate their engagement with the out-group can be otherwise benign, reflecting beliefs about academic sub-disciplines, dieting, exercise, art and so forth (see Nguyen 2020: 149-150). Incels, Islamists, and climate-change denialists don't have a monopoly on echo chambers.

Others see echo chambers as essentially extremist-incubators because of their propensity to polarize, fragment, and isolate groups from criticism, promoting certainty, facilitating a "more extreme position" (Sunstein and Vermeule 2002). If that's right, then the link between echo chambers and extreme beliefs is that the content of echo chambering groups' beliefs become more extreme. Think of how, in a 2005 Colorado experiment, conservatives began with a neutral view of climate change legislation, but then opposed the legislation after deliberating with each other (Schkade, Sunstein, and Hastie 2006). *What* they believe became extreme (Talisie 2019, 108).

Thus, because of the variety of claims about the role of echo chambers in facilitating and reinforcing extreme beliefs, addressing conceptual questions will be unavoidable here. Clarity on conceptual issues also impacts the extent to which policy makers and security forces should be worried about echo chambers as such, rather than specific echo chambering groups. Our main goal in this paper is thus to reveal how different conceptualizations of 'echo chamber' and 'extreme belief' will (or ought to) affect how echo chambers are both studied and governed or regulated.

This chapter is organized as follows. Section 2 explores theories of extreme belief, zooming in on extreme belief in *content* (§2.1), *attitude* (§2.2), and their role in totalising *systems of belief* (§2.3). This foregrounds our discussion of echo chambers (§3), focusing on the *standard* and *social dynamics* accounts. We then explore whether beliefs formed and sustained within an echo chamber are extreme; and second, how echo chambers might cultivate the formation of extreme beliefs (§4). We argue that on the standard account of echo chambers, there are echo chambers of 'normal' non-extreme belief, whether understood normatively or statistically. Later (§5), we'll zoom in on the case of climate change scepticism, to explore how different conceptualisations of extreme belief and echo chambers might alter our understanding of each phenomenon. We'll conclude with some critical reflections on the conceptual choice-points facing researchers, especially social scientists, of extreme belief and echo chambers.

2. Extreme Beliefs

Consider David Icke, who purports to believe that the world is controlled by evil lizard aliens. This belief seems *extreme*. Why? Some researchers say that beliefs are extreme when they are "far removed from the ordinary", and this belief is far from the ordinary (Coleman & Bartoli 2, 2003). Others unpack extreme belief in different ways, for example, in terms of opposition to "society's core values" (Neumann 2013; see also Stephens, Sieckelink, and Boutellier 2021). In the case of Icke's conspiracy theory belief, we might say that it underlies a systematic distrust of the mainstream: mainstream science, media, and politics, which thereby reflects an opposition to society's 'core values'. Others conceptualize extreme belief in terms of certain attitudes, dispositions, or ways of thinking, like dogmatism or vilifying others (see Cassam 2022, 100-114).

In this section, we'll zoom in on these ways of understanding extreme belief. We propose that there are at least three broad ways to understand extreme beliefs: in terms of the *content* of beliefs, in terms of their *strength* and other attitudinal and dispositional features, and in terms of how they contribute to a broader psychological frame; more specifically, how extreme beliefs perform regulative and meaning-conferring roles within a system of belief.

2.1 The Content View

On what we call *the content view*, beliefs are extreme with respect to their content.² There are different ways of understanding this idea. The first is in terms of *statistically extreme* beliefs (see Cassam 2021, Chapter 2; and Malcolm 2023b for a critique). A belief is statistically extreme if what is believed deviates significantly from what the majority in a population believe. If a significant majority believe not- p , then, relative to the beliefs of the general population, it is statistically extreme to believe p .

Some conspiracy beliefs (though not all) may well be statistically extreme in this way. A recent study showed that 81% of people in the UK thought that it is false that the Manchester Arena attack was probably a hoax, whilst 12% thought that the attack was probably a hoax.³ Those 12% purport to hold a belief which is statistically extreme relative to the majority of the population who hold to an alternative view. Icke's beliefs about lizard aliens also falls outside the statistical norm: most people don't seem to believe that the world is controlled by evil lizard aliens, with 4% of US Americans purporting belief.⁴

Although many extreme beliefs seem to be statistically outside the norm, some cases might push us to say that statistical abnormality in belief is insufficient for extreme belief. Consider the fact that 29% of U.S. Americans are irreligious: either atheist, agnostic, or "nothing in particular" (Smith 2021), with only 4% identifying as atheists (Lipka 2019). Is believing that God does not exist extreme? While some studies reveal that "atheists are among the least liked people in areas with religious majorities (i.e., in most of the world)", we are hard-pressed to classify atheism as an extreme belief (Gervais, Shariff, & Norenzayan 2011). Here, the argument is based on conceptual intuitions. Imagine someone refers to Carl Sagan as an extreme believer, citing the fact that he was an atheist. The statistical interpretation should lead us to say that Sagan was indeed an extreme believer (i.e., extreme with respect to what he believed), but we would rather think that the person is confused or perhaps that their judgement belies their own extreme view (e.g., that atheists are extreme). According to this line of thought, something else aside from facts about the statistical distribution of belief explains doxastic extremeness.

The notion of the Overton Window makes for a complementary way of measuring statistically extreme belief. The Overton Window refers to the policies that members of the general public would support at a particular time.⁵ For instance, almost everyone in today's modern democracies support female suffrage – lack of support for female suffrage would fall outside of the Overton Window, representing a fringe and statistically extreme position. But this would not

² For example, Talisse (2019) argues that, in cases of belief polarization, people's beliefs can become more extreme in their content: "belief polarization might prompt an extremity shift in content; subjects replace their initial belief with one that has a more extreme proposition as its content" (Talisse 2019, 108).

³ See The Policy Institute (2022).

⁴ See Jensen (2013) Public Policy Polling.

⁵ See <https://www.mackinac.org/OvertonWindow>.

be the case in democracies in the early 19th century, where *support for* female suffrage would be extreme (Cassam 2022, 50-51).

The Overton Window model is helpful for understanding how our views about which beliefs are extreme may shift with time. The trouble is that we are also attracted to the idea that some beliefs are extreme *regardless* of whether they fall within or outside the Overton Window. For example, although the Nazi's dehumanizing beliefs were arguably within the Overton Window in Germany between 1933 and 1945, we might argue that their dehumanizingness makes them extreme irrespective of their popularity. On this picture, in the metric space of "distribution of political views in 1930's Europe", Nazi beliefs come out as non-extreme, but still may be considered extreme if we add deal-breaker constraints, whereby features like *being dehumanizing* can make views within the Overton Window extreme. This means that normative considerations could play a role in making beliefs extreme.

This thought suggests that normative considerations sometimes ought to play a role in qualifying a belief as extreme (henceforth *normative content view*). On this picture, extreme beliefs are those beliefs that society thinks shouldn't be held because they are socially problematic or dangerous. They include familiar examples, such as certain terrorist and fundamentalist beliefs, which government's attempt to prevent people from acquiring. These kinds of beliefs are normatively *and* statistically extreme because they are widely considered 'bad' or dangerous in some way and held by only a small minority.

Normatively extreme beliefs are not always statistically extreme. We may be at, or approaching a point in which, certain beliefs are thought of as dangerous and thus normatively extreme, despite being statistically close to, or in line with the population average. One such example could be certain racist views. In some countries, racist views may be statistically normal, but nevertheless deemed extreme, even by people who hold such beliefs. This is partly because prejudicial beliefs and implicit biases can be psychologically hard to dislodge, including by people who are self-aware of holding these beliefs for themselves, and yet who want to not believe them.

Although some researchers have argued that 'it would be possible to hold "extreme views" in that they are in opposition to societal values'—in line with the normative content view above—such ideas don't make space for the fact that *societal values can be extreme* as well (Stephens, Sieckelink & Boutellier 2021). This raises the following worry. If we accept the normative content view, then racist, sexist, and xenophobic beliefs are not extreme when they align with society's values (i.e., their moral standards, or core ethical or epistemic norms), as they arguably did in Nazi Germany's case. Rather, they are extreme only when there is misalignment between a person or group's beliefs and society's values.

However, we might see dehumanizing beliefs as extreme *irrespective* of their alignment with societies' standards.⁶ In these cases, perhaps there is something wrong with societies' standards, and claims like "that's an extreme belief" may function to draw our attention to this fact (as opposed to being a misattribution of 'extreme'). The normative content view, however, does not make sense of this idea.

2.2 The Attitude View

⁶ See Cassam (2022) for a discussion of objective and subjective ways of understanding evaluating societies' ethical standards.

Another way to have extreme beliefs is with respect to how they are formed and sustained by certain attitudes – what we will call *the attitude view*. The natural candidates for extreme belief-forming attitudes are the so-called *epistemic vices*, those attitudes and dispositions that enhance or detract from our capacity to acquire knowledge or true belief (Zagzebski 1996; Roberts and Wood 2007; Cassam 2019). On an Aristotelian account (2000), virtue occupies a middle-ground, flanked by two vices at either pole of excess and deficiency. For instance, the virtue of courage has cowardice as its deficiency, and rashness as its excess. The trait of cowardice stands in a relationship of extreme distance from that of rashness. But presuming these traits can come in degrees, *severe* cowardice or rashness could also be extreme with respect to courage – it can be especially far away from courage.

How might epistemic virtue and vice help us to understand extreme beliefs? Consider intellectual humility, which is an intellectual virtue that helps people to see their intellectual limitations and to act on the basis of those limitations (Whitcomb et al. 2017). For instance, being humble about one’s limitations with mathematics will steer one away from studying a mathematics degree. The vices at the two poles are intellectual arrogance, as excess, and servility, as deficiency. When formed and sustained by the vice of arrogance, the belief that one is excellent at mathematics is extreme with respect to the belief that one is poor at maths that is formed and sustained by the vice of servility. Beliefs formed and sustained on the basis of intellectual vices can be extreme beliefs in this way.

Attitudes may also form and sustain extreme beliefs by virtue of the strength of the attitude. For instance, if someone has confidence in p at or approaching 1, and believes p in line with this confidence, that belief may be extreme. However, the marker for this will be normative. It wouldn’t be extreme to be certain that that $2+2=4$. But if someone is significantly overconfident, way beyond the threshold for reasonableness, then we might judge beliefs held and sustained by such confidence as extreme. The measure of extremity in this case is distance beyond the threshold for reasonableness.⁷ This kind of extreme believing could hold regardless of the content of the belief. Someone’s confidence and belief that their business will be a roaring success despite no evidence to support this would be an extreme belief in this normative sense, just as much as someone who believes, without good evidence, that their government is organized by alien lizards.

Although normativity is necessary to make sense of the ‘strength of attitude’ view of extreme belief, one might think that reasonableness (a normative notion) is a *relative* notion. What’s reasonable for the Christian fundamentalist is not thereby what’s reasonable for the progressive Christian. On this way of thinking, what’s reasonable is relative to the attributor’s ‘epistemic system’, that is, their system of epistemic principles, norms, and beliefs that act as stable points against which they judge other beliefs (e.g., “The Bible is/is not reliable”, “One should/should not defer to religious authority”).⁸

The relativist view contrasts with two *non-relativist* interpretations of reasonableness: realism and constructivism (see, e.g., Lynch 2013). According to realism, one’s attitude qualifies *as reasonable* to the extent that it fits with an ‘objective’ principle of reasonableness, whereby whether one’s attitude counts as ‘reasonable’ is independent of human decision-making, akin to the way that

⁷ This notion of extreme belief seems to be the one at play in discussions of belief polarization. Consider Talisse (2019) “belief polarization is the tendency whereby discussion among likeminded people results in the participants shifting to a *more extreme version* of their pre-discussion belief” (Talisse 2019, 101; *our emphasis*). As previously noted, Talisse also thinks that beliefs can be extreme in their content.

⁸ See Hazlett (2014) for a development of this idea.

whether an object counts *as an electric conductor* is a matter of whether it fits with ‘objective’ principles of electromagnetic induction. On this view, normative principles have a status similar to physical principles, at least with respect to the fact that their satisfaction-conditions do not depend on human decision-making. According to constructivism, normative principles are born out of facts about human agency, something universal albeit not always manifest in the same ways.

If a belief is extreme to the extent that it exceeds the threshold of reasonableness, it might typically be a contested issue just which beliefs are extreme. This is because there is reasonable disagreement about what’s reasonable; some might find certain beliefs reasonable that others find unreasonable. Here, the type/token discussion will be important. It could be that many tokens of a belief, like certain conspiracy theory beliefs (e.g., “the Moon landing was a hoax”) are unreasonable, owing to unreliable or even discredited sources, but that the belief type—conspiracy theory belief—is not itself unreasonable; there’s nothing per se unreasonable about conspiracy theory beliefs as a class (see Dentith 2023). Similarly, researchers might urge that extreme belief tokens tend to exceed the threshold of reasonableness (an empirical matter), but that the type ‘extreme belief’ is not beyond the threshold of reasonableness (a conceptual matter).

2.3 Extreme Beliefs within Psychological Systems

We have seen that beliefs can be extreme with respect to their content and to how they are formed or sustained by other attitudes. We will now briefly discuss the role that extreme beliefs can occupy in wider psychological systems, structures, or mindsets. In particular, the way that extreme beliefs can be resilient and sense-making.

Historian Michael Barkun (2013) argues that some conspiracy theory beliefs are part of larger networks of beliefs that bear certain structural relations to each other. The belief that (A) there are alien lizards that rule the world, for instance, is part of a “super conspiracy theory” with many more specific conspiracy theory beliefs as component parts, such as that (B) 9/11 was ultimately orchestrated by politicians influenced (perhaps unwittingly) by such aliens. Belief A is part of the core of the super conspiracy theory belief system, whereas belief B, among many others, is more peripheral.

Taking into account the wider belief structure, the belief that there are extra-terrestrials which rule the world performs a variety of interrelated functions. It deflects criticism; it is what epistemologists call an *evidentially-insulated belief*. It also performs an identity-making role: it plays a role in defining the group. When believers encounter counterevidence to individual beliefs, like that 9/11 was orchestrated and carried out by Al-Qaeda, the super conspiracy theorist will argue that our evidence for this claim is untrustworthy, owing to the fact that it comes from mainstream sources (e.g., mainstream media and scientific publications). When someone defends these sources, the super conspiracy theorists can argue that there’s no independent evidence to support their claims: it all presupposes the trustworthiness of mainstream scientific and social institutions, which they view as corrupted by evil aliens. As we can see, their super conspiracy theory belief performs a certain normative epistemological role, then: the role of *deflecting counter-evidence*. But this also serves the function of *preserving the group*. If group members took the counter-evidence on board to update their beliefs rationally, they’d become less confident in their shared conviction, thereby undermining the group’s identity.

In this sort of example, it’s possible to see how the beliefs may be extreme, particularly if they have objectionable normative content, lead people to engage in harmful behaviour, hold the

beliefs too firmly, or form those beliefs through vicious thinking. It's possible to combine these conceptions of extreme beliefs, then, and show how to apply the notion of 'extreme belief' within a larger psychological framework with functional roles.

A similar example can be seen from work in the psychology of terrorism. For instance, according to Crenshaw (1986), when forming an identity, 'individuals seek both meaning and a sense of wholeness' as well as 'a need to have faith in something or someone outside oneself' (391-2). Ideologies deliver on these needs, and are offered to young people by organisations seeking to recruit them to their cause. Crises of identity make:

some adolescents susceptible to 'totalism' or to totalistic collective identities that promise certainty. In such collectivities the troubled young find not only an identity but an explanation for their difficulties and a promise for the future. (Crenshaw 1986, 391-2)

In this description, people embrace totalistic ideologies to form their identities and give them a sense of meaning. An individual will then interpret their experiences through these ideologies, enabling them to make coherent sense of the world. Extreme beliefs, as we have described them, will be essential to the formation of these totalising narratives.⁹ These beliefs could be held with a sense of certainty, as Crenshaw suggests, and their content will often be normatively extreme, as can be the case with some forms of religious fundamentalism (Malcolm 2023a).

So again, extreme beliefs perform a sense-making function within the psychological system, and will be difficult to dislodge given how much is at stake in keeping them in place. Not only are they integrated within a wider identity and totalising ideology/narrative, but they are also formed due to a loyalty or allegiance to a wider group who make holding such beliefs essential to belonging. Those groups will tend to be insular communities that make it harder to challenge or change one's beliefs – what may be referred to as “echo chambers”. In the next section (§3), we outline what echo chambers are, and then (§4) we explore the conceptual relationships between echo chambers and extreme beliefs.

3. Echo Chambers

There are two popular ways of understanding what echo chambers are, what we will call *the standard account* and *the social dynamics account*. In our own work (Ranalli and Malcolm 2023), we favour the standard account, and see the social dynamics account as a contingent way of cashing-out the standard account. Nevertheless, we will present them here as distinct positions, since the cultivation of extreme beliefs varies on each account.

According to the standard account, an echo chamber is a “bounded, enclosed media space” (Jamieson and Capella 2008, 176), or informational environment, in which the content of the information distributed within the environment is consonant with the pre-existing beliefs of the people receiving it. In consequence, echo chambers have “the potential to both magnify the messages delivered within it and insulate them from rebuttal” (ibid.).

Examples of echo chambers can be wide-ranging. The *sources of information* can include social media feeds, friendship and family groups, news media, websites and television. The *informational content* might typically involve support for or denial of anthropogenic climate change or vaccine

⁹ Narratives can also relate to extremism and extreme belief in other ways. For example, some narratives are what Jasko, LaFree, and Kruglanski (2016) call “violence-supporting”, which can be implicit in violent actions. (2016, 827). In these kinds of cases, narratives can function as justifications for committing violence.

efficacy, political partisanship, the truth or falsity of historical events, religious views, or sports team loyalties, though in principle information with any content can be distributed within an echo chamber.

We find there to be two distinctive features of echo chambers on the standard account – *echoing* and *blocking* (Ranalli and Malcolm 2023). According to the echoing feature, information is reiterated within the chamber. As Robson (2014) puts it, the “accepted view of a group is ... frequently repeated and reinforced” (Robson 2014, 2520). In particular, the “judgments of the opinion leaders are not merely transmitted but amplified” (ibid). Beliefs, along with trust, anger, resentment, or even hope can be amplified within echo chambers. For example, anti-vaccine echo chambers might echo their resentment towards vaccine mandates, or their hope that there won’t be vaccine mandates.

According to the blocking feature, echo chambers also restrict informational flow in a way that mitigates the distribution of content that is dissonant with the relevant in-group views. Echo chambers are “enclosed spaces”, whereby “dissenting views, if they are present at all, are drowned or ignored” (ibid).¹⁰ The blocking feature of echo chambers comes in degrees; some echo chambers might block more dissonant information than others, and in different ways. Blocking can be *structural*—through leadership decisions, social isolation, algorithms, or firewalls—or *epistemic*, whereby dissonant information that manages to flow into the group is pre-emptively downgraded in terms of reliability, trustworthiness, or evidential significance. Thus, its *uptake* is mitigated even if its transmission is not.

In contrast, the social dynamics account focuses on the trust and distrust dynamics present within groups, rather than restrictions of informational flow. As such, on this account, people within echo chambers can encounter contrary views and opinions. However, the sources of these views are given a credibility deficit. For instance, according to Nguyen (2020), echo chambers involve filters in which the views of those we agree with have their credibility *amplified*, and the views of those we disagree with have their credibility *diminished*. Nguyen proposes that non-group members are discredited by being “actively assigned some epistemic demerit, such as unreliability, epistemic maliciousness, or dishonesty”, whilst group members are amplified by being “assigned very high levels of trust” (2020, 146). So, whilst views that oppose your own will be encountered, they are given such low epistemic credibility that, to the person confronting them, they don’t elicit belief-revision. Indeed, they may be belief-*reinforcing*. For example, consider a ‘MAGA’ Trump supporter. She may believe that liberal media sources which challenge Trump are evidence that there is a conspiracy against him, which only reinforces his own claims on the matter. In general, she will treat views that oppose Trump as though they have little credibility, and give significant credence to sources who agree with her.

Nguyen’s account of discrediting provides one way of “blocking” dissonant information. However, some researchers think of echo chambers as blocking in a more robust sense: leading members to “*isolate* from viewpoints with which they disagree” (Vaccari et al. 2016; our emphasis), or by outright “*ignoring* the skeptics” of members’ views (Cossard et al. 2020, 130; our emphasis), which suggests that echo chambers not only moderate members’ engagement with dissonant information, but their access to it. Echo chambers become spaces whereby members

¹⁰ Sunstein (2009), Pariser (2011) and Elzinger (2020, 2) focus on restrictions in the flow of information to omit that which disagrees with one’s views, and selection of information that confirms them. See also Cinelli et al. (2021), Du & Gregory (2016) and Benkler et al. (2018) on ‘feedback loops’.

“wall themselves off from topics and opinions that they would prefer to avoid” (Sunstein 2017, 239). The metaphor is suggestive: sometimes dissonant information is not even considered.

Not all echo chambers will be as effective at blocking and echoing. An ideal or perfect echo chamber, as we might call it, will cut access to dissonant information altogether (think of states like North Korea, or isolated cults). The more deeply embedded the member within their echo chamber, we might think, the more distant the person will become from dissonant information—whether that’s explained in terms of ignoring dissonant information or a strengthened tendency to distrust it.

4. Echo Chambers and Extreme Beliefs

We now have accounts of both extreme beliefs and of echo chambers. In this section, we want to consider two issues: first, whether beliefs formed and sustained within an echo chamber are extreme; and second, how echo chambers might cultivate the formation of extreme beliefs. This latter issue is largely empirical, and so points to further potential social scientific research on extremism and echo chambers. But it also depends on what echo chambers and extreme beliefs are, and so may draw on the conceptual accounts we have outlined and developed in this chapter.

4.1 Echo Chambers and the Content View

Beginning with the content view of extreme beliefs, there will be many beliefs formed within an echo chamber that will not qualify as extreme – the fact that they are sustained within an echo chamber does not make them more or less extreme in terms of content. For example, an echo chamber around certain video games, fashions, or pop artists, need not be extreme in their content. Here, it is important to recall that the content view divides into what is *statistically* and *normatively extreme*. It’s easy to find instances where beliefs in an echo chamber are neither statistically nor normatively extreme, for example, echo chambers in which anthropogenic climate change is affirmed (Lackey 2021).

However, to the second issue, echo chambers would seem to cultivate more normatively extreme beliefs than groups or social environments which do not instantiate echo chamber-like structures. Here’s why. If someone is in an isolated community where highly deviant beliefs are endorsed and amplified, then each individual community member would seem likely to acquire those beliefs as well, which would become difficult to dislodge, owing to how resilient those beliefs become when one’s community pre-emptively discredits dissonant information. When this happens, the community’s beliefs seem to be normatively extreme, even if they are about video games, pop artists, or fashion, since their beliefs are held dogmatically, which is standardly treated as an epistemic vice.¹¹

Now consider how this looks on the standard account of echo chambers. If, due to their media feeds and personal networks, someone only hears the position of climate change denial rather than affirmation, they will be more likely to acquire climate change denialist beliefs. In this way, their position within an echo chamber leads them to statistically extreme belief, since climate change denialist’s beliefs are statistically extreme. Similarly, the social dynamics account of echo chambers implies that, once reliable climate change evidence enters the echo chamber, the group pre-emptively discredits it because they distrust the critics; it is just part of being in an echo

¹¹ Although see Battaly (2018) and Fantl (2013), who argue that dogmatism is sometimes not a vice.

chamber that there is this effect. There is likely to be little to no uptake of the counter-evidence, then. But on the standard account, once this environment is broken and climate change affirming information filters in, then the person's beliefs may change quite quickly – there is nothing inherent to the echo chamber that suggests that their beliefs will be difficult to dislodge.

This is where the empirical work of social psychology becomes relevant. If it's not some feature of the echo chamber which explains its members' belief retention when members are exposed to counter-evidence, then something else will need to explain this. What might do this? Some scholars have studied belief retention through the lens of socially adaptive benefits, like social bonding, and motivated meaning-making, a process which answers our *need to believe* (Inzlicht et al 2011). While echo chambers can in principle form around any kind of belief, the empirical interest in echo chambers seems to hinge on their effects on social, political, and religious (or religious-like) beliefs; beliefs which are good candidates for meaning-making and socially adaptive benefits. At least one empirical hypothesis that emerges here is that insofar as we have echo chambers which expose members to diverse counter-evidence—as both accounts allow—member's belief retention might be explained in terms of the socially adaptive and meaning-making benefits of their shared beliefs.

Now, on the social dynamics account, it is an essential feature of the echo chamber that the agent(s) within the environment display attitudes of inflated trust of insider sources, and deflated trust of outsiders. This leads to the following empirical question: if there are groups, unified under a core set of beliefs, within informational networks that display high exposure to criticism and counter-evidence, to what extent do they also display asymmetric disparities in trust? Their trust attitudes will need to be reformed before they can easily acquire the beliefs of those outside of the echo chamber – a process that generally happens through a gradual process of habituation. And so extreme beliefs will be more naturally resilient to change on the social dynamics account than the standard account of echo chambers. This feeds back into the previous point about empirical work in social psychology. The social dynamics account gives us an explanation from the echo chamber itself as to why people form and maintain extreme beliefs. This adds a layer of explanation to the social psychological work that itself can be tested and explored empirically: do people within echo chambers have inflated trust of insiders and deflated trust of outsiders? What role do such attitudes occupy in forming and sustaining extreme belief, even after exiting an echo chamber? These questions can be tested through social scientific methods.

4.2 Echo Chambers and the Attitude View

On the attitude view of extreme beliefs, the nature of the echo chamber partly determines whether beliefs formed within the chamber will be extreme. After all, consider beliefs held with certainty, or vices like closed-mindedness or insensitivity to counter-evidence; they are precisely the kinds of attitudes and behaviours echo chambers facilitate.

This relationship presents an important choice-point for empirical researchers because if we work with the social dynamics account of echo chambers, and view extreme beliefs as a matter of attitudinal extremism (i.e., strength of the attitude beyond a rational threshold, or as manifesting a vice, like dogmatism), then echo chambers *by definition* produce extreme beliefs. For the social dynamics account, the attitudes of improperly inflated trust of insiders and deflated trust of

outsiders could be interpreted as epistemic vices. Accordingly, beliefs formed and sustained by those attitudes are, according to the attitude view, extreme in this sense.

For the standard account of echo chambers, however, whether enclaved beliefs are extreme will be a contingent, empirical matter, because it will depend on what kind of beliefs are echoing within them. But there are good reasons to think that many beliefs formed in echo chambers will be extreme anyway. For instance, some of the “blocking” mechanisms that are thought to form part of echo chambers include epistemic vices (Elzinga 2021, 12).

The attitude account also involves having extreme beliefs on the basis of strength of attitude. A downstream effect of reiterating information to oneself without any challenge is that the beliefs one already holds will then tend to be held more firmly (Nickerson 1998). This might be warranted in some cases, as with belief in anthropogenic climate change, but if it is not warranted, then the effects of the echo chamber can make some beliefs extreme in terms of strength of confidence.

This plays into the second issue of whether, on the attitude view, echo chambers cultivate extreme beliefs. As we have been arguing, for the standard account, it is not clear that they will – an enclosed informational environment that amplifies in-group beliefs can but need not lead to beliefs that are unjustifiably strong. It will depend on a number of important issues: the nature of the echo chamber (is the blocking structural or epistemic?) as well as the content of the group’s belief (about highly contested or well-supported beliefs?). In this fashion, we cannot determine whether echo chambers cultivate extreme beliefs without considering the *content* of what the group’s believe—strength of attitude is not problematic for all cases, as with belief in anthropogenic climate change.

However, on the social dynamics account, it is inherent that echo chambers cultivate extreme beliefs since, what it is to be an echo chamber, on that view, is to form beliefs through the attitudes of improperly or unjustified deflated trust of outsiders and inflated trust of insiders. Hence, whilst it is likely and only contingent that echo chambers, on the standard account, will cultivate extreme beliefs, it is necessary that they will on the social dynamics account. And so ultimately, whether beliefs formed in an echo chamber are extreme depends on how we conceptualise both extreme beliefs and echo chambers.

5. Applications

In this section, we will discuss some of the consequences of our arguments for social scientific research and public policy makers. We begin with a case study of extreme beliefs cultivated within an echo chamber-like environment.

According to recent findings from the Pew Research Center,¹² a majority of adults in the US say that global climate change is a serious problem (57% overall). This figure rises to 70% amongst adults who are religiously unaffiliated, with only 20% of adults in the US saying that global climate change is *not* a serious problem. This represents somewhat of a statistical norm – thinking that global climate change is not a serious problem is outside of the norm of what US adults believe and is becoming somewhat of an outlying position. However, it may also plausibly be thought of as a normatively extreme position, in the sense that, according to certain standards, people ought to believe that climate change *is* a serious problem. These standards might concern contemporary scientific consensus or prevailing public or political opinion.

¹²See Alper (2022).

The same research also found that evangelical Christians in the US hold very different beliefs from the general public and the non-religious. Only 34% of evangelical adults in the US say that global climate change is a serious problem, whilst 38% say it is not a serious problem, compared with 11% of religiously unaffiliated adults in the US. Evangelical Christians are therefore more than three times more likely to believe that climate change is not a serious problem than those who are religiously unaffiliated. In this sense, they are statistically extreme, in relation to those who are non-religious, but also normatively extreme, given that their beliefs do not align with standards expected of people to believe in the seriousness of climate change.¹³

Why do evangelical Christians in the US take such an outlying position on climate change? One factor, it seems, is an echo chambering effect. From the same research, it was found that just 4% of evangelicals say that sermons they hear discuss climate change a great deal, or quite a bit, and only 2% of evangelicals say that they talk about climate change with people at their congregation. We could therefore conjecture that certain information around climate change has been “blocked” from serious consideration within their informational environment. And on the social dynamics account, if trust of insiders is inflated, then absence of discussion around the issue of climate change within the religious community might be taken as absence of a problem with climate change.

This example shows how to apply our conceptions of extreme beliefs and echo chambers to real-life case studies, and why conceiving of extreme beliefs and echo chambers in particular ways is important for researching and understanding the phenomenon. This is particularly important for social scientific research. But public policymakers must also understand why extreme beliefs formed within echo chambers are undesirable.

Echo chambers which echo and reinforce extreme beliefs are socially problematic for a variety of reasons; there is something politically problematic about fragmenting into likeminded groups which echo in-group beliefs and narratives, eschew serious consideration of counter-arguments, or otherwise distrust outgroup sources and counter-evidence; how are citizens supposed to deliberate or find common ground when they’re so informationally fragmented? Moreover, there are problematic epistemic consequences as well, like impeding epistemic diversity, understanding-why, and critical reasons development (Ranalli and Malcolm 2023). This suggests that we should try to break echo chambering groups up and prevent new ones from forming. How can we do this effectively?¹⁴

The social dynamics account of echo chambers suggests that certain kinds of interventions to break up echo chambers will likely strengthen their pernicious effects. If, following Sunstein’s (2009) recommendation, we utilise government and private resources to increase exposure to more diverse information, exposure risks reinforcing in-group member’s distrust towards the outgroup, and thereby strengthening the echo chamber effect (Nguyen 2020, 153). This is because echo chamber member’s beliefs are “inoculated” from contrary outsider information by “credentially isolating” its members in terms of their trust relations. It’s not merely that insiders have different views from outsiders and ‘echo’ their in-group views more than other kinds of groups, but that

¹³ For the role of normative expectations on people to have certain beliefs and consider certain evidence, see Goldberg (2017).

¹⁴ And yet it’s important to remember that there are extreme beliefs which don’t seem so problematic (or at least it’s an open question). Echo chambers can form around pop music artists, video games, sports teams, dieting or exercise regimens, like CrossFit (Nguyen 2020, citing Weathers 2014).

they don't *trust* outsiders or the sources outsiders trust; mere exposure to diverse information from outsiders would at best only luckily help them find their way out of the group.

So, working with the social dynamics account of echo chambers suggests that if we identify a variety of online social ecosystems as 'echo chambers' and seek to break them up by creating more online spaces for diverse coverage (if not directly intervening to expose members to diverse information), we risk reinforcing their epistemically problematic in-group relations even further. When groups (echo chambering or not) are exposed to contrary beliefs and information, they'll deny it (Abelson 1959) or trivialize it (Simon et al. 1995) to reduce dissonance, and groups united under a shared ideology will retain their shared beliefs anyway (Mackie et al. 2000). Hence, if we conceptualise echo chambers along the lines of the social dynamics account, then exposure to more diverse information will likely be a highly ineffective method for mitigating their pernicious effects. This conceptual choice-point thereby matters for policy surrounding how best to mitigate echo chambers and regulate online information ecosystems.

There's also evidence that people seek out diverse information merely to discover whether it is consonant with their beliefs or not (Knobloch-Westerwick & Kleinman 2012). If these are patterns of group dynamics more generally, we should expect them in echo chambers as much as any group structured along ideological lines, adjusting for the specific features of echo chambering groups (Bright et al. 2022). This 'adjustment' is where the conceptual choice-points matter for empirical scholars. Consider echo chambers around extreme beliefs. Knobloch-Westerwick & Meng (2009) urge that extreme beliefs are ripe for triggering cognitive dissonance when extreme believers are presented with counter-evidence, leading them to further avoid counter-evidence, in turn, due to the negative subjective effects of their dissonance (2009, 430). Echo chambers would be safe-havens for extreme believers.¹⁵ These features of extreme beliefs, then, might explain why echo chambers that amplify extreme beliefs are even more prone to avoid counter-evidence or downplay its significance. One policy payoff here is that increased exposure to counter-evidence won't break echo chambers.¹⁶

What's more, if echo chambers essentially display asymmetric patterns of trust, as the social dynamic account tells us, then we might reasonably expect echo chambering groups that amplify extreme beliefs to distrust outsiders to an even greater extent than echo chambering groups that don't amplify extreme beliefs, perhaps by signalling their distrust more frequently or enthusiastically. If confrontation with the counter-evidence is unavoidable, however, we can reasonably presume that believers will turn to other ways of dealing with such unpleasant information: trivializing it, disparaging it, or worse. Again, this suggests that policies which seek to break echo chambers through increased exposure to counter-evidence might inspire problematic behaviour. If, however, we conceive of echo chambers along the lines of the standard account, whereby a group 'echoes' consonant information and to some degree 'blocks' dissonant information, there will be less exposure to counter-evidence (and their sources) to refute or trivialize. The presence or absence of these behaviours might indicate what kind of beliefs the target echo chamber amplifies, and thus give researchers and policy makers a better indication of which echo chambers should be mitigated. At least, these are significant empirical hypotheses which naturally fall out of our different conceptual starting points.

¹⁵ As Brannon et al. (2007) experimental evidence suggests, people with extreme-in-attitude-strength beliefs tend to avoid dissonant information relating to their extreme beliefs.

¹⁶ This is in line with Nguyen (2020).

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