

Essays on UFOs and Related Conjectures

Reported Evidence,
Theoretical Considerations,
and Potential Importance

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Preface

This essay collection explores the subject of UFOs and related conjectures. A key aim throughout most of these essays is to question strong assumptions that we might have accepted too uncritically, and which we may need to reconsider and recalibrate. In other words, the essays found here challenge some of our deep-seated intuitions, and they generally point toward a more open-minded and agnostic outlook than what we are used to.

0.1 Clarifying the scope

There are many hypotheses that one can explore with respect to the potential origin of seemingly anomalous UFOs. For example, beyond explanations that involve perceptual errors, there are various hypotheses that imply advanced technology with a human origin, such as governments or private groups. Alternatively, there are hypotheses that involve ancient origins on Earth, according to which some animal species developed advanced technology long before the first humans appeared.

The essays found here mainly focus on the extraterrestrial hypothesis (concerning the origin of at least some seemingly anomalous UFOs). The reason for this focus is not that I dismiss competing hypotheses, but simply because the extraterrestrial hypothesis seems plausible enough to be worthy of exploration in its own right.

0.2 Extraordinary claims?

When it comes to the possibility of advanced extraterrestrials visiting Earth, it is often quipped that “extraordinary claims require extraordinary evidence”. I suppose this can roughly be translated into the following: for any hypothesis to which we assign an extremely low prior probability, it takes strong evidence for us to assign it a high posterior probability (so far so good), *and* the hypothesis that advanced extraterrestrials are visiting Earth is a hypothesis to which we should assign an extremely low prior probability. But is this latter part really true?

Similarly, it is sometimes said that discovering the presence of advanced extraterrestrials around Earth would be a paradigm-shattering event. But is this true? In what sense would this prospect be

“extraordinary” and “paradigm-shattering”? It seems to me that there are two distinct notions of both “extraordinary claims” and “paradigms” that are worth distinguishing here, namely *social* and *epistemic* ones.

Obviously, the discovery of advanced extraterrestrials around Earth would be extraordinary in the sense that it would have extraordinary *social* implications, and it would likewise shatter our *social* paradigm, which is centered on the idea that humans are the most powerful creatures around.

However, this should not be confused with what we may call extraordinary *epistemic* claims that shatter our *epistemic* paradigm — that is, claims that are extremely surprising and revolutionary relative to what our best current knowledge would predict. After all, a prospect can have extraordinary *social* implications and shatter our *social* paradigm without necessarily being *epistemically* extraordinary or paradigm-shattering. An example might be the predictable rise of a dangerous dictator, or the creation of nuclear weapons based on known physical principles.

So, notwithstanding its profound change in our *social* paradigm, would the discovery of advanced extraterrestrials around Earth be *epistemically* extraordinary and *epistemically* paradigm-shattering? Well, if we step back and reflect on it, arguably not. In terms of our modern understanding of the world, such a presence is not necessarily the *most likely* hypothesis a priori, but it would still seem to fit quite well within our current scientific paradigm.

After all, we know that life evolved on our planet through natural processes; we know that there are innumerable planets throughout our galaxy and beyond; and we know that the universe is old enough for advanced civilizations to potentially have emerged many millions, if not billions, of years before the first humans emerged.

In light of this modern picture — which departs radically from the geocentric picture that was dominant a few centuries ago — it would hardly be *that* surprising if there were advanced extraterrestrials in our region of the cosmos, and if they had traveled here. (Them traveling here may be surprisingly likely conditional on them existing in our region of the cosmos, since advanced extraterrestrials could travel far in millions of years.)

In other words, from a brief glance at the big picture, our prior probability on “advanced extraterrestrials visiting Earth” should arguably not be extremely low, and hence this prospect is arguably not all that extraordinary in epistemic terms, even if it very much is in social terms. Indeed, one could argue that the conjecture lies squarely — and even quite boringly — inside the broad confines of our modern scientific paradigm, like a grey clump of “what you might predict if you put your base ingredients together”. This is presumably also why Fermi already in 1950 asked where everybody is: because that question reflected a fairly natural prediction of the known

paradigm, even decades before we discovered that exoplanets are more numerous than cat videos on the internet.

Yet perhaps our outlook is still secretly stuck in the geocentric-anthropocentric picture, and perhaps our myopic social paradigm is clouding our scientific and epistemic outlooks. Perhaps we have yet to catch up with the implications of our modern worldview, and to appreciate what would be plausible and implausible in light of what we currently know about the cosmos, even if it might be socially and existentially uncomfortable.

0.3 Brief overview of the content: Invitations to reflect

This essay collection is, among other things, an invitation to reflect on the prior probability that we assign to the possibility of advanced extraterrestrials around Earth. That is, it is an invitation to reflect on the probability we assign to this prospect before looking at any purported UFO evidence. I explore various well-known arguments in favor of a low prior probability, while also presenting arguments that seem to favor a fairly high prior. Overall, it seems to me that the balance of arguments suggests that the prior probability should not be particularly low. But either way, my primary aim in exploring these arguments is to invite deeper reflection on our priors, as opposed to mainly relying on unexamined intuitions.

Beyond reflections on priors, some of the essays also explore relevant Bayesian likelihoods. (A Bayesian likelihood is the probability of observing some specific evidence conditional on a given hypothesis being true.) In particular, the likelihoods explored here concern what we should expect to observe conditional on an advanced extraterrestrial presence around Earth. Here, too, I explore arguments that may question some of our deep-seated intuitions and assumptions. Indeed, this might be where we harbor the strongest and least examined intuitions — not in our priors, but rather in our expectations about what we should observe if there were advanced extraterrestrials in our backyard. I will say more about this in the second essay of this collection.

In addition to these theoretical considerations, I will present a list of UFO reports and incidents. I do not seek to analyze these reports; I merely present them here because I think they are worth taking a closer look at, and because many of them can otherwise be quite difficult to find. These reports are found in the first essay of this collection, and they provide some initial motivation for the theoretical explorations that follow. Such reports may likewise give us reason to reflect on and reconsider our long-held intuitions.

Finally, some of the essays seek to invite reflection on the moral implications of the extraterrestrial hypothesis: *if* there are advanced extraterrestrials around Earth, how, if at all, should our moral perspectives and priorities change? My exploration of these questions is highly preliminary, and it mostly seeks to advance the questions themselves.

0.4 Why I have written these essays

It might be helpful to provide some background as to why I have written these essays. The overriding focus of my work is to reduce extreme suffering, and a key focus area in this regard is to reduce risks of astronomical suffering, or s-risks — risks of severe suffering occurring on a scale far greater than anything that has taken place on Earth (see e.g. Tomasik, [2011](#); Althaus & Gloor, [2016](#); Baumann, [2017](#); [2022](#); Vinding, [2020](#), ch. 14).

While the potential existence and future of extraterrestrial intelligence may seem rather exotic relative to most of our concerns, it is in fact a rather natural issue to explore in the context of reducing s-risks, as well as when considering the future of suffering more broadly (see e.g. Tomasik, [2011](#); Knutsson, [2021](#), sec. 4; Vinding & Baumann, [2021](#); Cook, [2022](#); Buhler, [2023](#)).

Indeed, even relatively modest changes in our probabilities and models regarding the future of extraterrestrial intelligence may have significant implications in terms of how we can best allocate resources for reducing suffering. For example, as I will argue, increasing our estimated probability of advanced extraterrestrials around Earth would plausibly imply a greater focus on preventing suffering in the relatively near future and less on preventing suffering in the long-term future. Our beliefs about these questions have real-world implications, and hence it makes sense to explore evidence and considerations that may help sharpen these beliefs.

A related reason I have written these essays is simply that the topic seems extremely neglected. This is especially true from my perspective of exploring the potential implications for reducing suffering, yet it also seems true at a more general level. In particular, something that seems broadly neglected is to explore the strong assumptions that tend to underlie people's views on these topics, and not least to look at the subject of UFOs from a serious *theoretical* perspective (cf. Hanson, [2021](#)).

That is, some common attitudes and approaches toward UFOs are to either (1) completely dismiss the topic, (2) to immediately endorse a given hypothesis, or (3) to believe that the chief priority with respect to UFOs is to simply collect more data while holding back from theorizing. Yet while data is essential for understanding a given phenomenon, so is theory — and serious theorizing is notably absent from each of the three approaches outlined above.

By “theory”, I don’t here mean some singular overarching theory, but rather the diversity of theoretical considerations that are relevant to our overall views and assessments of a given topic. It has to do with the kinds of probabilistic predictions and inferences we might make based on our current best models and guesses about the world.

In my view, theory — in this broad and cautious sense — is plausibly what is most neglected when it comes to the subject of UFOs and the extraterrestrial hypothesis. Likewise, it seems to me that many core beliefs about this subject have their basis in implicit assumptions that are theoretical in nature (e.g. assumptions about whether there is any plausible theory that is compatible with barely visible advanced extraterrestrials around Earth). Thus, engaging with theory and theorizing seems critical for evaluating and refining those assumptions.

This view of the neglect and importance of theory also partly explains why most of the essays found here primarily consist of theoretical considerations.

0.5 Final prefacing notes

There is hardly a great way to say the following, but I feel it is nevertheless worth saying: when writing about UFOs and related conjectures, it is extremely easy to be misunderstood. For example, it is easy for one’s claims to be misinterpreted as being much stronger than they are, even when one writes qualifications and caveats ad nauseam. I think this is worth saying so as to highlight a certain inclination that seems common when approaching texts on this issue, namely the inclination to jump to strong conclusions and interpretations about what is being claimed. (Of course, this inclination may be present when we read about most issues, but my impression is that it is especially strong when it comes to this issue.)

Perhaps some helpful heuristics for avoiding this pitfall include being deliberately slow in forming interpretations, being cautious about drawing strong interpretations, and paying attention to caveats and qualifications. Yes, making these remarks at the outset is inelegant, but my experience suggests that it may be helpful.

I should note that there is some occasional overlap and repetition across the essays, mostly because they were each written as standalone posts, and I chose to keep them that way. However, I think the recurring points are generally made in different contexts that each add some further perspective (e.g. the respective contexts of hypothetical near aliens, optimized futures, and Earth-originating AI probes).

It is my hope that the essays found here can help stir further reflection on questions about UFOs, extraterrestrial intelligence, and how we can best reduce future suffering given our current state of uncertainty.

1. What credible UFO evidence?

Some have claimed that the strongest UFO reports are too compelling to be dismissed as mere mistakes (e.g. Hanson, [2023](#)). This has led others to ask what these strongest UFO reports are exactly. Hanson only provides two sources to back up his claim: a documentary by James Fox, titled *The Phenomenon* (2020), and a book by Leslie Kean, titled *UFOs: Generals, Pilots and Government Officials Go On the Record* (2010). Yet it is understandable if most people are skeptical toward these sources. After all, those who produce books and documentaries about UFOs may not be fully objective and dispassionate in their reporting. So it is only reasonable to ask for other sources of evidence.

As a skeptic toward Hanson's claims myself, I have spent some time trying to see if I could find any instances of credible UFO reports. This post is meant to be a collection of the sources and reported observations I could find that seem to reach a certain threshold of credibility, at least in my view. To be clear, the threshold in question is not anything like "this is 100 percent trustworthy and true", but more like "this seems credible enough to be worthy of further investigation/credible enough to cause us to take this issue more seriously".

A general point that may be surprising to those who have not looked much into the UFO topic — and something that was quite surprising to me — is that a large number of UFO reports come from esteemed navy pilots with no pre-existing interest in UFOs. Likewise, there are many high-ranking US officials and former officials who take the issue seriously, and who have actively been pushing for further investigation. In other words, many of the key figures talking about UFOs are not the fringe conspiracy theorists that are commonly associated with UFOs in the public imagination, but instead surprisingly reputable people.

I share the following names and reports because I think it is helpful if people are better informed about them. After all, even if none of these reports pertain to any extraordinary phenomena, it still seems helpful if people are familiar with some of the alleged sightings and reports that constitute the basis for the modern UFO discourse. This way, discussion about the issue can at least proceed in an informed manner.

For some preliminary background on the issue, and on how the discourse around it has changed in recent years, it might be helpful to read the short NPR article "[How UFO Sightings Went From Conspiracy Theory To A Serious Government Inquiry](#)".

1.1 People who have shared notable reports

The following are people who have shared what strikes me as fairly credible and update-worthy information:

- [David Fravor](#), former US Navy commander pilot, witness of the [Nimitz incident](#) that reportedly involved a ~12 meter long "tic-tac" object. See e.g. his [opening statement](#) made under oath in a 2023 congressional hearing ([text version](#)).
 - Interestingly, [James McDivitt](#) (Apollo astronaut) [reported](#) seeing a similar object in space in 1965: a white cylinder-shaped object with a "long white tube sticking out of it".
 - Likewise, a Danish airline pilot [reported](#) (around 32:00) seeing "the same" tic-tac object flying parallel to his airplane for around 20 to 30 seconds and then accelerating away near-instantaneously. (The incident took place over Italy, along the coast between Pisa and Rome, in 2018 or 2019.)
- [Alex Dietrich](#), former US Navy lieutenant commander pilot (Nimitz witness)
- [Kevin Day](#), former US chief radar officer (Nimitz witness)
- [Gary Voorhis](#), former computer technician at the USS Princeton (Nimitz witness)
- [Ryan Graves](#), former US Navy lieutenant pilot
- [Aldo Matic](#), radar operator in former Yugoslavia
- [Graham Bethune](#), former US Navy [commander pilot](#)
- [Jeremy Lane](#), former Royal Air Force pilot
- [David Hastings](#), former airline pilot
 - See also the similar report by pilot [Malcolm Smith](#)
- [Bart Burns](#), former military policeman at Hunter Army Base
- [Robert Salas](#), former US Air Force nuclear missile launch officer
- [Buzz Aldrin](#), [NASA Astronaut](#)
- [Deke Slayton](#), [US Air Force pilot](#), [NASA astronaut](#), and aeronautical engineer
- [Nathan F. Twining](#), [US Air Force general](#)
- [Alan H. Belmont](#), [assistant director](#) in the FBI in 1950-1961
- [Donald Keyhoe](#), Marine Corps naval aviator and journalist
- [Timothy Gallaudet](#), oceanographer and former rear admiral in the US Navy
- [John Alexander](#), retired US Army colonel
- Scott Bray, former Deputy Director of Naval Intelligence

- See e.g. the [2022 Public US Congress UFO hearing](#), in which Bray also notes that “China has established its own version of a UAP [Unidentified Anomalous Phenomena] task force.” (See also “[China military uses AI to track rapidly increasing UFOs](#)”.)
- Sean Kirkpatrick, former director of the Defense Department’s All-Domain Anomaly Resolution Office (AARO)
 - See e.g. the [2023 Subcommittee on Emerging Threats and Capabilities Hearing](#) and the [2023 NASA UAP meeting](#)
 - In the latter video, Kirkpatrick says: “We see these [‘metallic orbs’] all over the world, and we see these making very interesting apparent maneuvers.”

1.2 Notable reports and events

The following are some of the more notable UFO reports and events:

- [Foo fighters](#) observed during WWII
 - E.g. reported December 1944 in *The New York Times*
 - [Collection](#) of foo fighter reports
 - [Playlist](#) on foo fighter incidents
- [Washington DC UFO incident \(1952\)](#)
- [Milton Torres](#) ordered to shoot down a UFO (1957)
- [Robert Jacobs](#) allegedly saw a dummy ICBM demobilized by a UFO (1964)
- US nuclear facilities incidents (e.g. in [1967](#) and [1975](#))
 - See also the [2010 UFO Press Conference In Washington DC](#) by several former US nuclear missile launch officers
- [Tehran UFO incident \(1976\)](#)
 - See also [this pilot report](#) about the incident
- [Peruvian Air Force incident](#) with pilot [Oscar Santa Maria Huerta](#) (1980)
 - See also [this video](#) (auto-translate subtitles are available)
- [Brazilian UFO incident \(1986\)](#)
- [Belgian UFO wave \(1989-1990\)](#)
- Various reports from Russian officials and pilots (e.g. in [1990](#) and [1991](#)), including many reports about unidentified submerged objects (USOs)
 - See also the article "Soviet UFO Secrets" [here](#) (pp. 255-259)

- [Phoenix lights \(1997\)](#)
- [Arak nuclear facility incident \(2004\)](#)
- [The Nimitz incident](#) reported by Fravor, Dietrich, Day, et al. ([2004](#))
- [O'Hare International Airport UFO sighting \(2006\)](#)
- Recurrent reports of UFOs along the US East Coast ([2014-2023](#))
- See also [this playlist](#) of UFO sightings that are allegedly corroborated by radar

1.3 Selected UFO footage

- [Gulf Breeze sightings \(1987-1990s\)](#)
- [Footage from mass sighting in Mexico during solar eclipse \(1991\)](#)
- [Nellis Air Force Base UFO \(1994\)](#)
- [São Paulo glowing orb \(1998\)](#)
- [New York City glowing orbs \(2010\)](#)
 - A somewhat similar collection of orbs was observed and [filmed](#) in Greifswald, Germany (1990)
- [USS Omaha incident \(2019\)](#)
 - There is also [footage](#) of the associated radar readings (the objects were tracked by two different radar systems), which at one point showed 14 different objects. One of the objects appeared to move at 138 knots (around 255 km/h) while another object appeared to be hovering in a stationary position.
- [UFO videos released in 2023 by the U.S. Customs and Border Protection \(YouTube version\)](#)
 - The [2013 video](#) from Aguadilla in Puerto Rico is perhaps the most notable UFO video to date (the object was seemingly also [caught on radar](#), and highly anomalous radar readings were associated with the event, including an apparent jump with a speed in excess of 2,500 km/h; see Coumbe, [2022](#), ch. 5). This clip has been public for a number of years, but it was officially released in 2023. The official release was presumably due to the [UAP Disclosure Act of 2023](#).

Again, to be clear, this selected footage is included here because it appears puzzling and because it seemingly gives us tentative reason to take the issue more seriously. I am not claiming anything stronger than that.

1.4 High-profile people who consider the issue important

In addition to the stories and people listed above, it is worth noting that several high-profile US officials (both former and current ones) have taken the issue seriously. These include:

- [Kirsten Gillibrand](#), US senator
- [Marco Rubio](#), US senator
- [Harry Reid](#), former US senator
- [John Brennan](#), former head of the CIA
- [John Podesta](#), White House chief of staff to Bill Clinton
- [Christopher Mellon](#), former 'Deputy Assistant Secretary of Defense for Intelligence' in the Clinton and George W. Bush administrations
- Barack Obama and Mitt Romney have also made [statements](#) on the issue:
 - [Obama](#): “There is footage and records of objects in the skies. We don’t know exactly what they are. We can’t explain how they moved, their trajectory. They did not have an easily explainable pattern.”
 - [Romney](#): “I don’t believe they are coming from foreign adversaries. If they were that would suggest they have a technology that is in a whole different sphere than anything we understand, and frankly China and Russia just aren’t there, and neither are we by the way.”

In March 2024, the issue was also taken seriously and discussed in the [European Parliament](#), led by [Francisco Guerreiro](#).

Likewise, it is worth noting that various academics and intelligence analysts have taken the issue seriously. Besides [Robin Hanson](#) mentioned above (who has [done various podcasts](#) on the issue), these academics and analysts include:

- [James E. McDonald](#), senior physicist at the Institute for Atmospheric Physics and a professor of meteorology at the University of Arizona (see e.g. his [statement here](#))
- [J. Allen Hynek](#), professor of astronomy at Ohio State University, initial [debunker](#) who gradually changed his mind while serving as scientific advisor to various UFO studies conducted by the US Air Force
- [Peter A. Sturrock](#), professor emeritus of applied physics at Stanford University
- [Richard F. Haines](#), former researcher at NASA and associate professor of psychology at San Jose State University, creator of a [large archive](#) of UFO sightings
- [Kevin H. Knuth](#), associate professor of physics and informatics at University at Albany

- Tyler Cowen, professor of economics at George Mason University
- Alexander Wendt, professor of political science at Ohio State University
- Marik von Rennenkampff, former intelligence analyst in the U.S. Department of State's Bureau of International Security and Nonproliferation
- Daniel Coumbe, physicist, author of *Anomaly: A Scientific Exploration of the UFO Phenomenon* (review)
- Beatriz Villarroel, assistant professor at the Nordic Institute for Theoretical Physics in Stockholm

More broadly, in a survey conducted among US academics spanning 14 disciplines and 144 universities, a majority of respondents said that they were at least moderately curious about the topic of UFO/UAP. The survey also asked people whether they or someone close to them had observed anything of unknown origin that “might fit the United States government’s definition of UAP”, to which 18.9 percent said ‘yes’ and another 8.77 percent said ‘maybe’. Yet it should be noted that the survey was sent to nearly 40,000 academics by email, of whom only 1,549 answered, so there are likely strong selection effects in these results.

1.5 Recurrent patterns

Lastly, it is worth mentioning that there are some striking commonalities across many of the reports mentioned above. Specifically, the objects that are reported are often claimed to be:

- Almost or entirely silent
- Able to fly and navigate without any visible means of propulsion or steering
- Able to hover in a perfectly stationary position
- Able to accelerate rapidly and to travel at very high speeds (often above 10,000 km/hour), yet without causing a sonic boom
- Able to change direction near-instantaneously

From Iran and China to Peru and Brazil — and across time — these features are surprisingly recurrent in UFO reports (see also Knuth et al, 2019; Knuth, 2022). Another pattern is that the UFO reports are often connected to nuclear facilities (e.g. in Iran and in various incidents in the US, allegedly also in recent times). Moreover, the unidentified objects are frequently claimed to be orbs (in around 50 percent of recent reports), and they are typically reported to measure 1 to 4 meters in diameter.

It is difficult to know what to make of these patterns. Of course, there is good reason to be extremely skeptical of such a priori unlikely features, let alone the combination of many such features. But the fact that these features and abilities are often mentioned in UFO reports by professional aviators — people who are well aware that these are crazy unlikely and bizarre abilities — is arguably some reason to think that there really are objects that possess these abilities. At the very least, it raises the challenge of explaining why pilots across different nations and different eras would converge to report these same bizarre patterns. I myself am genuinely agnostic and puzzled.

2. Can we confidently dismiss the existence of near aliens? Probabilities and implications

The previous essay reviewed the most credible evidence I have managed to find regarding seemingly anomalous UFOs. My aim in this essay is to mostly set aside the purported UFO evidence and to instead explore whether we can justify placing an extremely low probability on the existence of near aliens, irrespective of the alleged UFO evidence. (By “near aliens”, I mean advanced aliens on or around Earth.)

Specifically, after getting some initial clarifications out of the way, I proceed to do the following:

- I explore three potential justifications for a high level of confidence (>99.99 percent) regarding the absence of near aliens: (I) an extremely low prior, (II) technological impossibility, and (III) expectations about what we should observe conditional on advanced aliens being here.
- I review various considerations that suggest that these potential justifications, while they each have some merit, are often overstated.
 - For example, in terms of what we should expect to observe conditional on advanced aliens having reached Earth, I argue that it might not look so different from what we in fact observe.
 - In particular, I argue that near aliens who are entirely silent or only occasionally visible are more plausible than commonly acknowledged. The motive of gathering information about the evolution of life on Earth makes strategic sense relative to a wide range of goals, and this info gain motive is not only compatible with a lack of clear visibility, but arguably predicts it.
- I try to give some specific probability estimates — Bayesian priors and likelihoods on the existence of near aliens — that seem reasonable to me in light of the foregoing considerations.
- Based on these probability estimates, I present simple Bayesian updates of the probability of advanced aliens around Earth under different assumptions about our evidence.
- I argue that, regardless of what we make of the purported UFO evidence, the probability of near aliens seems high enough to be relevant to many of our decisions, especially those relating to large-scale impact and risks.

- Lastly, I consider the implications that a non-negligible probability of near aliens might have for our future decisions, including the possibility that our main influence on the future might be through our influence on near aliens.

2.1 My own background with the topic

Around ten years ago, I was planning to write a short ebook titled *Why We Will Never Encounter Intelligent Extraterrestrial Life*. The core argument of the book would be based on (1) the vast distances of interstellar space, and (2) the Rare Earth hypothesis and the many “only-happened-once” steps that seem to have been involved in the emergence of technological civilization on Earth (akin to the arguments found here).

So to say that I was skeptical of extraterrestrial life in our vicinity, and to say that I was confident in my skepticism, would be an understatement. I think this background is worth sharing because it gives some sense as to where I am coming from in my approach to this topic. That is, I used to believe, and still do believe, that there are good reasons to be skeptical of the possibility of alien intelligence close to us. But what I have found worth reconsidering and exploring more deeply is the exact nature and strength of those reasons, and whether they can indeed justify the kind of extreme confidence that I used to hold. At this point, I no longer believe that they do.

2.2 Preliminary clarifications

This essay contains a lot of speculation and loose probability estimates. It would be tiresome if I constantly repeated caveats like “this is extremely speculative” and “this is just a very loose estimate that I am highly uncertain about”. So rather than making this essay unreadable with constant such remarks, I instead say it once from the outset: many of the claims I make here are rather speculative and they mostly do not imply a high level of confidence. My aim in this essay is to try to reason through a subject that puzzles me and about which I am quite agnostic. I hope that readers will keep this key qualification in mind.

Likewise, I hope readers will not focus too much on the specific probability estimates that I present. These probabilities are not the most central part of this essay. Rather, the central part consists of the object-level considerations that I explore, and my core claims in this essay rest on those considerations themselves, not on any specific probability estimate.

2.3 Real extraordinary UFOs need not imply aliens

Another basic clarification is that real UFOs with remarkable abilities would not necessarily have to be aliens. The extraterrestrial hypothesis is just one hypothesis among others, and even if it may be the most plausible one (conditional on extraordinary UFOs being real), we still need to consider the many other hypotheses that also deserve non-negligible weight. These include the hypothesis that some secret human organization has developed craft with remarkable abilities, as well as any other hypothesis that implies an Earth-based origin.

A related clarification is that aliens need not imply animal-like or biological-like aliens, since they could be entirely artificial or otherwise self-designed beyond their original form, which is arguably the most plausible hypothesis (again conditional on extremely advanced aliens being real). After all, any alien civilization capable of visiting Earth would likely be millions of years ahead of us, and it seems unlikely that a technologically advanced species would retain its initial form for so long.

2.4 Hypothetical near aliens and expected value: Worth taking seriously even if unlikely

It might be natural to assume that a fairly high probability in near aliens is required for the issue to be worth taking seriously. Yet that is by no means the case. From an expected value perspective, the issue would be worth taking seriously even if there were only, say, a 1 in 10,000 probability of advanced aliens near Earth, especially if we are concerned with analyzing risks that involve large-scale outcomes. Given how consequential it would be if aliens were already here, we seem to have good reason to explore the implications that would follow from such an alien presence. Indeed, this seems true even if we had no reports of UFOs whatsoever, as I will try to argue below. (To clarify, by “worth taking seriously” I do not mean to imply that considerations about near aliens should necessarily weigh strongly in our decisions given a 1 in 10,000 probability, but rather that the issue is worth exploring further and should not be dismissed as irrelevant.)

It is hardly a mystery why we may assume that a high probability of aliens is required for the issue to be worth taking seriously, since that is generally how our intuitive reasoning seems to work. That is, research shows that we are prone to belief digitization, which is the tendency to only consider the single most likely hypothesis in prediction and decision contexts, and to fallaciously disregard all other hypotheses as though they had no relevance whatsoever. Yet it would be a mistake to rely on this rough heuristic of “only consider the single most likely hypothesis” in more serious analyses. For example, any risk analysis that relies on this heuristic would be practically useless.

2.5 What can justify confidence about the absence of near aliens?

It is worth asking why many of us are — or have been — so confident about the absence of near aliens (i.e. advanced aliens on or around Earth), seemingly giving it much less than a 1 in 10,000 probability. I am not here interested in sociological explanations of this confidence (e.g. stigma and conformity), but rather in reasons that can provide legitimate justification for confidence in the absence of near aliens.

It seems to me that we can roughly divide the potential justifications into three classes (this resembles the breakdown found in Hanson, [2021](#)):

- **I. An extremely low prior in near aliens**
- **II. Technological impossibility**
- **III. What we currently see on Earth is not what we should observe conditional on aliens being here**

I will explore each of these in turn.

2.6 I. An extremely low prior in near aliens

One path to a very low probability in near aliens is to have an extremely low prior to begin with. (What I mean by the “prior” in this context is the probability we would assign to the existence of near aliens given our prior knowledge from fields like cosmology and evolutionary history, before we consider any events that we observe — or fail to observe — on and around Earth today.)

The two main reasons in favor of an extremely low prior in near aliens is the lack of clear signs of advanced aliens in the universe at large (call this the “big empty universe” argument), as well as the apparent rarity of the critical steps that led to intelligent life on Earth (call this the evolutionary argument).

I would agree that both these reasons count in favor of a low prior in near aliens. But the question is how low, especially when we factor in other aspects of our prior knowledge that may point in the opposite direction.

2.6.1 Counterpoints to the “big empty universe” argument

The “big empty universe” argument roughly says that if advanced aliens are common enough to have reached us, then we should expect to see clearly visible signs of advanced aliens in the

universe at large (because there would in that case be so many alien civilizations out there, and it seems unlikely that all of them would converge toward policies of low visibility). Therefore, since we do not observe any clear signs of aliens elsewhere, we should conclude that advanced aliens are not near.

What follows are some counterpoints to this argument.

2.6.1.1 The possibility of panspermia siblings

The absence of clearly visible aliens in the universe at large is not necessarily that strong of a reason to discount near aliens when we consider the possibility of correlated panspermia siblings. This is somewhat analogous to how the apparent rarity of life in general is not a strong reason to be surprised by the existence of non-human animal cousins here on Earth, conditional on our existence. A mostly lifeless universe need not speak strongly against the existence of living relatives in our vicinity.

Of course, the idea that Earth-based life might have panspermia siblings is highly speculative, yet the theoretical possibility still somewhat reduces the force of the “big empty universe” argument.

2.6.1.2 A priori arguments from theoretical models

A consideration that may weakly raise our credence in the panspermia hypothesis, as well as in the more general hypothesis that key steps in life evolution may have occurred early in our galaxy, is that a number of theoretical frameworks appear to support an earlier origin.

For example, the hard-steps model underlying Hanson et al.’s work on grabby aliens implies that the emergence of advanced civilizations should occur at an increasing frequency over time, and hence hypotheses that imply an earlier origin of the earliest life would a priori be more likely under this model. The related model explored in Snyder-Beattie et al. (2021, sec. 6.3) similarly favors an earlier origin of life, other things being equal (the authors only mention the possibility of an earlier origin on Mars, but their point generalizes to even earlier hypothetical origins).

2.6.1.3 An unusual galaxy

The “panspermia siblings” hypothesis is just one potential explanation as to why intelligent life might have evolved elsewhere in our galaxy despite not being clearly visible in the universe at large. Another class of explanations is that our galaxy happens to be uniquely suited for the emergence of life, and hence alien life could be close and have somewhat correlated origins with us even if the “panspermia siblings” hypothesis is false.

There is some evidence that our galaxy is indeed a rare outlier in various respects. For instance, our galaxy appears to exist within an unusually empty region of space, adjacent to an unusually large void, while being unusually large for a galaxy positioned at the edge of a “cosmological wall”. It is not yet clear whether these features make our galaxy especially conducive to life, yet it is conceivable that they do.

Relatedly, one could argue that the fact that we have emerged in this galaxy is itself a weak reason to think that our galaxy may be uniquely conducive to the emergence of life. That is, just like there is a Goldilocks zone around stars and within galaxies, there might likewise be an intergalactic Goldilocks zone defined by a unique set of galactic properties. If there is, we should expect to find ourselves — and hypothetical aliens — within that zone. (Note also that the panspermia hypothesis and the Goldilocks hypothesis could be complementary, i.e. intergalactic Goldilocks conditions could help explain why early panspermia happened here, if it did.)

2.6.1.4 Pseudo-panspermia

A specific way in which our galaxy could have been uniquely conducive to life even without full-blown panspermia is via pseudo-panspermia. In contrast to panspermia, pseudo-panspermia merely entails that many of the smaller organic compounds required for life originated in space. And unlike panspermia, pseudo-panspermia is fairly well-supported; indeed, a number of organic molecules have already been shown to exist in comets and cosmic dust.

Pseudo-panspermia could imply correlated and unusually prevalent life in our galaxy, provided that the “pseudo-panspermic conditions” of our galaxy were uniquely favorable to life. And again, the fact that we are here could be taken as weak support for that conjecture.

In other words, it is conceivable that a substantial part of the great filter (the “filter” that prevents visible large-scale colonization of the cosmos) lies in collecting the “right” mix of organic molecules in the first place, possibly even a unique composition of isotopes. Some perhaps relevant evidence in this regard is that a recent study found that “the chemical nature of the Milky Way is rare among galaxies of its rough shape and structure”. Relevant, too, both to the panspermia and pseudo-panspermia hypotheses, is that “the Milky Way is remarkably efficient at mixing its material, circulating molecules and atoms from the galactic center out into the galaxy’s spiral arms and back”.

2.6.1.5 Uncertainty about the prevalence of clearly visible aliens given prevalent alien life

That life may have arisen uniquely early and become uniquely prevalent in our particular galaxy is one reason the “big empty universe” argument might not speak strongly against near aliens. Another

reason has to do with uncertainty about the prevalence of clearly visible aliens conditional on a high prevalence of alien life.

That is, the “big empty universe” argument against the existence of advanced aliens in our galaxy assumes that we would see clear signs of life elsewhere (i.e. beyond our galaxy) if advanced alien life were prevalent in the universe at large. Yet just how sure can we be about this claim? Even if we grant that we would most likely see unmistakable signs of alien life if such life were prevalent, it seems that we still have some reasons to doubt that we would.

For example, we can hardly rule out that the ratio of “advanced aliens who are clearly visible” to “advanced aliens who are not clearly visible” (from vast distances) could be extremely low. After all, there might be strong strategic reasons not to become a clearly visible civilization, or to greatly postpone clearly visible activity. One of these reasons might be the info gain motive mentioned below. (For other potential reasons for expansionist aliens to be quiet, see e.g. [this section](#).)

In light of these considerations, it seems reasonable to me to assign at least a 5 percent probability to observing roughly what we observe even assuming that advanced aliens are fairly prevalent throughout the universe. (To be specific, “fairly prevalent” could here mean something like 1 advanced alien civilization per 100 large galaxies.)

Note that our uncertainty about alien visibility from vast distances is an independent reason to lower the force of the “big empty universe” argument, distinct from the reasons relating to the potentially correlated origin of near aliens.

2.6.1.6 A moderate prevalence of life + a moderate visibility ratio need not imply current visibility

Let us define the ‘visibility ratio’ as the ratio of advanced aliens who are “clearly visible” to those who are “not clearly visible” when observed from a vast distance within their future light cone. The “big empty universe” argument can seem to imply that we must assume an extremely low visibility ratio in order for intergalactic advanced aliens to be here *and* for us to not see clearly visible aliens in the universe at large. However, by taking a closer look and inserting some specific numbers, we see that this is not necessarily the case.

For example, say that we assume an average concentration of one advanced alien civilization per sphere with a radius of 300 million light years throughout the universe. Such a concentration could imply that advanced aliens from another galaxy would have been able to reach us by now. For instance, they could be the average advanced civilization from within our 300 Mly sphere, or they could even be from an adjacent sphere, provided that they originated around 600 million years ago.

Yet this concentration would also imply that the lack of clearly visible aliens in the universe at large is not strong evidence against the existence of near aliens given a moderate visibility ratio. For as we look beyond a radius of a few hundred million light years, the light that reaches us becomes increasingly out of date and thus requires increasingly early alien origins for us to observe any signs of them.

Hence, uncorrelated advanced aliens could be near, moderately prevalent throughout the universe, not yet visible, *and* have a moderate visibility ratio — say, 1 in 3 or even higher. The ratio can be higher or lower depending on the exact concentration and how recently we assume advanced aliens to have appeared. For example, if one thinks that a substantial fraction of advanced aliens likely appeared much earlier than a few hundred million years ago, then near aliens could likewise be much older and from much further away (e.g. from 2 billion light years away), and thus earlier origins and a lower concentration of distinct expansionist aliens could still imply near-alien presence, no current large-scale visibility, and a moderate-to-high visibility ratio. (Indeed, if we consider observer selection effects, the visibility ratio could even be extremely high, as we in that case arguably should expect to find ourselves within a large pocket of “not clearly visible” colonization.)

This point about how uncorrelated near aliens need not imply an extremely low visibility ratio is yet another independent point against the “big empty universe” argument, on top of both the possibility of correlated origins and the possibility of a low visibility ratio. Thus, when evaluating the probability of near aliens in an apparently empty universe, we should separately assign some weight to the hypotheses of “correlated origins”, “uncorrelated origins + a low visibility ratio”, and “uncorrelated origins + a moderate visibility ratio and concentration”.

2.6.2 Counterpoints to the evolutionary argument

What about the observation that many of the critical steps in the history of life appear to have happened only once? I see at least two reasons why this is not a strong point against the existence of near aliens.

2.6.2.1 A potentially large number of habitable planets

The number of planets in the Milky Way Galaxy is estimated to be around 100 to 300 billion. Research suggests that 300 million of these could be habitable, perhaps many more; and a non-trivial fraction of these planets might in some sense be more habitable than Earth. With such a large number of potentially habitable planets, it seems difficult to confidently exclude that intelligent life

might have evolved elsewhere in our galaxy, even if we grant that the evolution of intelligent life requires some exceedingly rare events.

Moreover, as noted earlier, our galaxy is by no means the only conceivable place from which hypothetical near aliens could have originated. If we go beyond our galaxy and look at, say, the ~2,500 large galaxies that exist within a radius of 100 million light years, a crude extension of the Milky Way estimates above would suggest that these galaxies contain around 250 to 750 trillion planets, and around 750 billion habitable planets. Extending this estimate to a radius of 300 million light years, we get 67,500 large galaxies with 7 to 20 quadrillion planets and around 20 trillion habitable planets. These staggering numbers make it much less plausible still to be confident about the absence of near aliens based on our own evolutionary history.

2.6.2.2 Crowding out evolutionary niches

The fact that many critical events seem to have happened only once on Earth is not necessarily strong evidence as to how often similar events might occur across different habitable environments, such as other planets. After all, it seems plausible that at least some evolutionary developments only happen once because they in effect crowd out a particular niche, thereby preventing similar steps from happening again in the same environment (cf. the competitive exclusion principle). This is not to deny that many of the events involved in the evolution of life on Earth are rare, but the crowding-out consideration does serve to question just how rare we should infer them to be based on our limited knowledge of evolutionary histories (n=1).

2.6.3 All-things-considered probability estimates: Priors on near aliens

Where do all these considerations leave us? In my view, they overall suggest a fairly ignorant prior. Specifically, in light of the (interrelated) panspermia, pseudo-panspermia, and large-scale Goldilocks hypotheses, as well as the possibility of near aliens originating from another galaxy, I might assign something like a 10 percent prior probability to the existence of at least one advanced alien civilization that could have reached us by now if it had decided to. (Note that I am here using the word “civilization” in a rather liberal sense; for example, a distributed web of highly advanced probes would count as a civilization in this context.) Furthermore, I might assign a probability not too far from that — maybe around 1 percent — to the possibility that any such civilization currently has a presence around Earth (again, as a prior).

Why do I have something like a 10 percent prior on there being an alien presence around Earth conditional on the existence of at least one advanced alien civilization that could have reached us? In brief, one of the main reasons is the info gain motive that I explore at greater length below.

Moreover, as a sanity check on this conditional probability, we can ask how likely it is that humanity would send and maintain probes around other life-supporting planets assuming that we became technologically capable of doing this; roughly 10 percent seems quite sane to me.

At an intuitive level, I would agree with critics who object that a ~1 percent prior probability in any kind of alien presence around Earth seems extremely high. However, on reflection, I think the basic premises that get me to this estimate look quite reasonable, namely the two conjunctive 10-percent probabilities in “the existence of at least one advanced alien civilization that could have reached us by now if it had decided to” and “an alien presence around Earth conditional on the existence of at least one advanced alien civilization that could have reached us”.

Note also that there are others who seem to defend considerably higher priors regarding near aliens (see e.g. these comments by Jacob Cannell; I agree with some of the points Cannell makes, though I would frame them in more uncertain and probabilistic terms).

I can see how substantially lower priors than mine could be defensible, even a few orders of magnitude lower, depending on how one weighs the relevant arguments. Yet I have a hard time seeing how one could defend an extremely low prior that practically rules out the existence of near aliens. (Robin Hanson has likewise argued against an extremely low prior in near aliens. See also my more recent essays “From AI to distant probes” and “Silent cosmic rulers”, which both present arguments that support a fairly high prior in near aliens.)

2.7 II. Technological impossibility

Another potential justification for a very low probability in near aliens has to do with claims about technological impossibility. That is, the technology that would be required seems impossible, and therefore we have strong reasons to doubt that aliens could be present around Earth.

This claim is relevant in at least two ways. First, it is relevant to the possibility of alien visits to Earth: could they even travel from their planet of origin to here in the first place? Second, it is relevant to how we evaluate purported UFO sightings: could hypothetical aliens have technology capable of the advanced feats that various pilots have reported, such as extreme acceleration and flying without visible means of propulsion?

These two questions belong to separate parts of our analysis — the prior and the likelihood, respectively — yet it seems worth treating them together in light of their similarity. Indeed, I would argue that the same basic line of reasoning applies to both cases. That line of reasoning is as follows: for any civilization that is millions, or even just several thousands, of years ahead of us in terms of their scientific and technological development, we should not be particularly confident that

they could not eventually achieve capabilities at this level. (It is also worth noting that there is some theoretical speculation as to how reported UFO capabilities could be physically possible, essentially by manipulating gravity.)

Specifically, it seems to me that we can hardly defend placing much less than 50 percent probability on the claim that an advanced civilization that is countless generations ahead of ours would possess capabilities like these. After all, such a civilization would presumably have exceedingly advanced AI, physics, materials science, and so on.

(I should clarify that this ~50 percent probability estimate does not change my prior listed in the previous section, since the implied ~50 percent probability that hypothetical aliens would *not* be able to travel through the galaxy is already factored into that prior.)

Overall, I suspect that most analysts would not give this technology-related objection as their main reason for doubting that aliens could be present around Earth, at least not on reflection. However, I suspect that many of us might nevertheless feel like it is a strong reason at an intuitive level, in which case we may need to adjust our intuitions. That being said, I think the need to update our intuitions is much greater when it comes to the third and final point, namely what we should expect to see if advanced aliens were in fact present around Earth.

2.8 III. Not what we should observe conditional on aliens being here

It is my impression that, at least for many people, by far the strongest reason to be confident that there are no near aliens is that the events we currently see on and around Earth are not what we should observe conditional on advanced aliens being here. But just how strong is this reason, and is it a strong reason at all? On closer examination, it seems to me that it is not.

2.8.1 Why so confident?

The assumption seems to be that if advanced aliens were here, they should be clearly visible and leave no doubt as to their presence. Yet this is a rather strong assumption. After all, there is a fairly broad class of motives for not being clearly visible, and we can hardly claim to be confident that advanced aliens would not have motives within that rather broad class of motives.

As Robin Hanson writes: “If we often have trouble explaining the behaviors of human societies and individuals, I don’t think we should feel very confident in predicting detailed behaviors of a completely alien civilization.” Hanson has speculatively proposed some specific explanations for

not clearly visible aliens, such as particular values or strategies for gradually causing humanity to submit, and he suggests that there are many other possible explanations as to why advanced aliens might be quiet (conditional on them being here).

2.8.2 The info gain hypothesis

To my mind, Hanson's specific explanations are not even among the most plausible ones. As I see it, the most plausible explanation for advanced alien visits to Earth is to gain information about the evolution of life on Earth, including our future evolution. We may call this the "info gain hypothesis" regarding the key motive for advanced alien visitation to Earth, conditional on them being here. (Of course, this motive can co-exist with other motives, such as preventing us from eventually rivaling their technology and colonizing space.)

To be clear, when I say that this seems to me the most plausible motive, this is not to say that I would necessarily place the majority of my probability mass on this motive, but rather that I would place a *plurality* of my probability mass on it (conditional on them being here). That is, I would assign a higher probability to this motive compared to any other single category of motives.

It is worth noting that many people seem to agree that this is a plausible motive. For example, in a Twitter poll conducted by Hanson (n=1,243), more than 65 percent of people thought that the most likely strongest motive for alien UFO visits to Earth would be to "study us as [an] independent example of life evolution". And there is indeed much to be said in favor of the plausibility of this motive.

2.8.2.1 The plausibility of the info gain motive

Perhaps the main reason that supports the info gain motive is the potentially extreme value of information concerning the evolution of life on Earth. Or expressed in more general terms: it may be extremely valuable to study any life-supporting planet in order to better understand the distribution of evolutionary trajectories across life-supporting planets.

There are a few reasons why this could be exceptionally valuable. First, even if we grant the existence of near aliens, it still seems likely that the evolution of complex life — let alone civilizations — is quite rare in the universe at large. Perhaps there are only a few civilizations within the (hypothetical) near aliens' reach, in which case there would be a large info gain to studying life on Earth: it would constitute a large relative update in the expected distribution of evolutionary trajectories.

Second, apart from its potential rarity, the information could be valuable because it might inform highly consequential decisions in the far future. For example, say that we assume some version of

the grabby aliens picture, and thus assume that multi-galaxy-spanning alien civilizations will meet each other in the future. Under that kind of scenario, perhaps the best way for expansionist civilizations to learn about the likely trajectory of other expansionist aliens (whom they will eventually meet) is to study emerging civilizations within their own reach. This might help them prepare their strategies for those cosmic meetings.

After all, even if we assume that expansionist civilizations would be able to run sophisticated simulations of other expansionist civilizations, those simulations would likely be significantly more accurate if they were based on data from real-world evolutionary trajectories. And the relevant data need not be restricted to data about the kinds of life forms and cultural groups that have actually built civilizations; it may also include the many life forms and cultural groups that did not develop into a powerful civilization, but which potentially could have under slightly different circumstances. Such broad data may not only help predict what other expansionist civilizations might be like, but also how prevalent and how far away they are likely to be.

A third reason to study us might be to better understand how to best deal with us and prevent us from eventually developing to the point where we can pose a threat to them. However, this can hardly be the main reason for studying us. After all, if the overriding goal were to prevent life on Earth from developing to the point of threatening them, they would presumably have neutralized that threat long ago.

2.8.2.2 Info gain as a plausible explanation for a lack of clear visibility

The info gain motive also tentatively predicts that the advanced aliens should not be clearly visible (I might give ~75 percent probability to “no clear visibility” conditional on them being here and having this motive). After all, ideas of non-reactive research, unobtrusive research, and the like are familiar from social science and animal studies, and the justification for such methodologies is fairly straightforward: if one interferes (too strongly) with the phenomenon under investigation, one risks dictating or otherwise distorting its outcome.

However, an info gain motive is also compatible with a certain level of experimentation, which could take the form of some occasionally visible interferences in order to test the reaction. So the info gain motive does not necessarily predict complete silence, even if it mostly predicts a not clearly visible presence.

2.8.2.3 Info gain as further (weak) support for a modestly high prior in near aliens

As hinted earlier, the plausibility of the info gain motive is also relevant to our prior. For example, if we combine a strong info gain motive with the above-mentioned hard-steps model, this would

imply a scenario in which the very first advanced civilization in our region of the cosmos would (mostly) quietly study other alien life forms and civilizations that emerge later at an increasing rate over time. And within this scenario, we should a priori expect ourselves to be among the more numerous later observees rather than the one very first (eventual) cosmic observer.

2.8.3 All-things-considered probability estimates: Likelihoods on near aliens

In light of the points raised above, what rough probability would I assign to advanced aliens being quiet, or not clearly visible, conditional on them being present around Earth (and conditional on our being here on Earth and not seeing clear signs of aliens in the universe at large)? As with all the numbers I give in this essay, the following are just rough numbers that I am not adamant about defending; I can readily see how different numbers can be defended.

I might place ~10 percent probability on advanced aliens being completely quiet conditional on them being present, meaning that they would leave no observable trace, not even occasionally visible UFOs. In addition, I might place ~30 percent probability on them being occasionally visible, yet without being clearly visible. That leaves roughly 60 percent probability mass on clear visibility conditional on them being here; this could include outcomes where they continuously engage in unmistakable acts of aggression, diplomacy, or experimentation. (Of course, “visibility” is gradual and could be subdivided into many levels, but I have here chosen three rough categories for simplicity.)

I think a combined ~40 percent probability in “not clearly visible conditional on them being here” is reasonable in light of the plausibility of the info gain motive, which seems instrumentally rational for a wide range of future goals. (If the info gain motive is so plausible, then why not assign an even higher probability than 40 percent to “not clearly visible” conditional on them being here? Partly because we should also give some probability to seeing “clearly visible” activity given the info gain motive, such as overt and continuous experimentation, and partly because there are alternative motives that would mostly imply “clear visibility”.)

What explains my ~10 percent in “totally quiet” conditional on them being here? The main reasons I would give are the desire not to disturb the phenomenon under investigation and the presumably high level of technological sophistication of a much older alien civilization, which might allow them to leave no trace whatsoever.

What explains my ~30 percent in “occasionally visible”? Despite the point made above, extensive studies still seem likely to involve some occasionally visible traces, either as an unavoidable side effect or as a deliberate consequence of an experimental procedure. And again, as noted by Hanson, there are other motives besides the info gain motive that could imply occasional visibility, such as

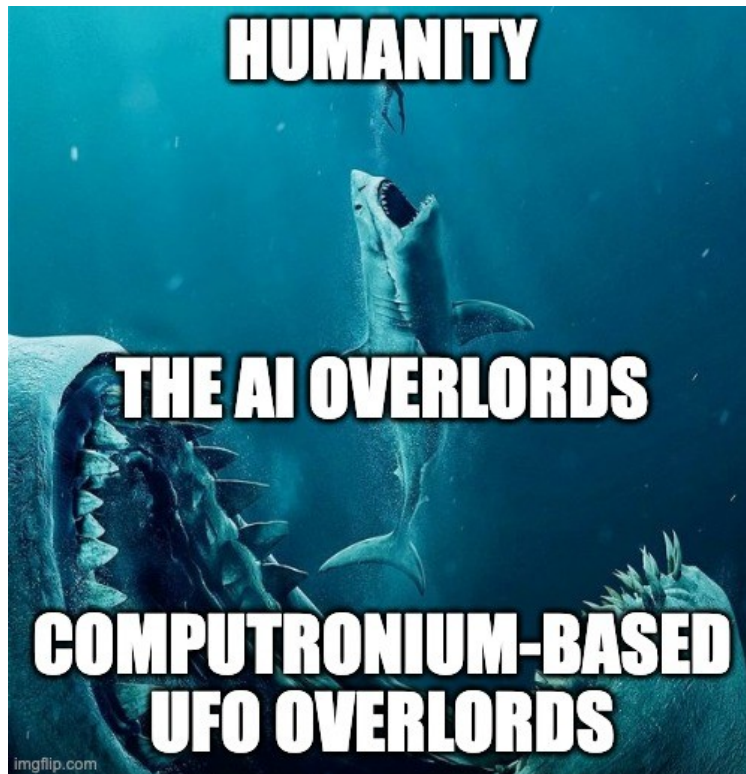
gradually causing humanity to submit or get assimilated. Note also that the info gain motive and the assimilation motive could be complementary: perhaps an alien civilization would see value in not only studying our evolution but also in assimilating and preserving Earth as a living library of sorts.

2.9 Puzzling intuitions

Before putting all these probability estimates together, it seems worth briefly reflecting on the core intuition explored in the previous section. That is, as hinted above, it seems that many people are intuitively confident that advanced aliens should be clearly visible conditional on them being here. But this seems puzzling considering the plausibility of the info gain motive, and not least considering that the plausibility of this motive seems widely accepted (cf. the earlier-mentioned [poll](#)). Moreover, it is quite likely that this is what we ourselves would do if we were to discover alien life on another planet, namely to study it with minimal interference. So why would our intuitions largely disregard this motive when considering hypothetical near aliens?

I suspect that part of the reason behind this intuition is that we may fail to intuit just how technologically advanced aliens might be. An interesting contrast in this regard is how an increasing number of people are talking about the potential abilities of future AI systems, and about how these systems might eventually be able to hide and make plans that we cannot readily understand. At the level of our intuitions, many of us seem to view near-term AI systems as far more capable than hypothetical advanced aliens with a presence around Earth. Yet the relationship would most likely be the opposite: the probes of an advanced alien civilization would be far more powerful than any self-improving AI system whose knowledge and technology are millions of years behind.

Indeed, just as some have speculated that future technology might make it possible to have a galaxy-scale population [on Earth](#), one can similarly speculate that advanced technology could allow near aliens to fit more than the existing (effective) computing power of present-day Earth into a one-meter orb (cf. Lloyd, [2000](#)). Thus, if our intuitions are out of touch when it comes to how advanced and inscrutable near-term AI systems might be, they seem completely out of touch as to how advanced and inscrutable hypothetical near aliens might be.



In any case, my point here is simply that it seems worth noticing whether we have strong intuitions about what we should observe conditional on advanced aliens being present, and to reflect on whether strong intuitions are justified.

2.10 Bayesian updates

My aim in this section is to present some Bayesian updates based on the estimates provided in the earlier sections. I will seek to provide two distinct posterior probabilities regarding near aliens, one in which our observed evidence is assumed to be “no trace of truly unusual UFOs”, and one in which the observed evidence is assumed to be “occasional sightings of truly unusual UFOs”. As hinted earlier, these are exceptionally broad and rough categories that could be partitioned much further, but they are helpful for keeping the analysis simple.

The general formula for the posterior probability is the following, where A is the hypothesis “advanced aliens around Earth”, E is the evidence, $P(A)$ is the prior, and $P(E|A)$ is the likelihood:

$$P(A | E) = \frac{P(E | A)P(A)}{P(E | A)P(A) + P(E | \neg A)P(\neg A)}$$

In the case of the first assumption about our observed evidence — “no trace of anything truly unusual” — my loose estimates imply the following:

$$P(A | E_1) = \frac{0.1 \cdot 0.01}{0.1 \cdot 0.01 + 0.98 \cdot 0.99} \approx 0.001$$

In other words, a 0.1 percent posterior probability of advanced aliens around Earth given the 1 percent prior and no trace of anything unusual. The evidence (only) reduced the prior by a factor of around 10 due to the estimated 10 percent probability of advanced aliens leaving no trace conditional on them being here. (The only new estimate introduced in the equation above is the 98 percent probability of seeing no truly unusual UFOs conditional on there being no advanced aliens around Earth.)

Next, we have the assumption that our evidence is “occasional sightings of truly unusual UFOs”, where my rough estimates imply the following:

$$P(A | E_2) = \frac{0.3 \cdot 0.01}{0.3 \cdot 0.01 + 0.015 \cdot 0.99} \approx 0.17$$

The posterior update is perhaps weaker than one might expect. The reason it is not stronger is partly the significant probability mass on something other than “occasional visibility” conditional on advanced aliens around Earth, and partly the non-trivial probability — around 1.5 percent in my rough estimate — of occasionally seeing truly unusual UFOs conditional on there being no near aliens, such as secret human-created or otherwise non-alien craft.

Of course, this is a rather crude and preliminary analysis. One could potentially refine it by looking at more specific predictions and evidence. For example, one could look at the predictions that would follow from the info gain motive in particular, and then explore the evidence related to those predictions. Specifically, one could argue that the info gain motive plausibly implies that hypothetical near aliens should be willing to make occasional interventions in order to prevent human self-destruction, since such preventive efforts would likely increase their info gain (after all, one would presumably learn more about future expansionist aliens from civilizations that survived rather than from those that went extinct or collapsed). And one could then try to hold that prediction up against the numerous reports made by nuclear missile launch officers regarding UFOs interfering with nuclear weapons.

Such further investigations are beyond the scope of this essay. What I will say, to share my own two cents, is that it seems to me that our observed evidence is more akin to “occasional sightings of truly unusual UFOs” than to “no trace of truly unusual UFOs”. For instance, it is difficult for me to see how one can take a closer look at the Nimitz incident and conclude that any conventional

explanation like birds, balloons, helicopters, or drones is a plausible explanation of the totality of the evidence (e.g. the reports from David Fravor, Alex Dietrich, and Kevin Day).

However, the main point I would stress in light of the preceding analysis does not rest on the specific UFO evidence that we may or may not have, nor does it rest on any given interpretation of this evidence. In my view, perhaps the most important takeaway is that even assuming “no trace of truly unusual UFOs”, it seems that the probability of advanced aliens around Earth, while not high in absolute terms, is still high enough for us to take this possibility into account in our decisions going forward. From a perspective concerned with large-scale influence, a 1 in 1,000 probability of advanced aliens around Earth — and even a substantially lower probability than that — makes it worth exploring what the decision-related implications might be.

2.11 Decision-related implications of hypothetical near aliens

As with everything else in this essay, the following will be a highly incomplete discussion. I should also clarify that the decision-related implications that I here speculate on are not meant as anything like decisive or overriding considerations. Rather, I think they would mostly count as weak to modest considerations in our assessments of how to act, all things considered. (Of course, the exact strength of these considerations will depend on our exact probability in near aliens.)

2.11.1 Influencing future alien actions?

Perhaps the main implication of (a non-negligible probability of) near aliens is that we might be able to influence their expectations and future actions. That is, if aliens have reached Earth, they are likely far more powerful than us, and they likely prefer to keep things that way, suggesting that most of our influence on the long-term future might be through our influence on them.

How could we possibly influence their future actions if they are so much more powerful than us? One way is by influencing their expectations about how other aliens in the universe might act. For example, if we act in a hostile way, such as by preparing to fight them, the near aliens might (marginally) update their expectations toward future conflict with other expansionist aliens. Conversely, if we show a willingness to cooperate, they might update their expectations toward greater cooperation.

One may object that near aliens would take our efforts to influence them into account, and hence we should not expect that any such efforts to influence them would make any difference. Yet even if hypothetical near aliens were aware of our intentions to influence them, our actions could still count as (weak) evidence regarding how other real-world agents might act in the future, and thus still

exert some influence. For example, our actions might provide some information about the distribution of values and decision strategies among real-world agents more broadly, agents who might face similar conditions of uncertainty as we do.

Assuming that we could influence near-alien expectations, how should we ideally influence them? Should we try to nudge them to prepare for conflict or cooperation? The answer is hardly clear. While it may feel intuitively obvious to say “cooperation”, it is conceivable that “conflict” might be better — for instance, if far expansionist aliens will be much worse than our near aliens, and if conflict preparations best enable our near aliens to win or otherwise create better outcomes. Of course, cooperation versus conflict is not the only relevant aspect to consider; it is just one example of the kinds of questions that might be worth exploring when it comes to such hypothetical alien influence.

2.11.2 Seeking a better understanding

A better understanding of the near aliens would be helpful for our decisions in this regard, and seeking such a better understanding would likely be a top priority conditional on their existence. From a circumstance of high uncertainty about their existence, it is obviously less of a priority, but it is probably still worth devoting some resources toward it, at least by some people.

Quite a bit has been written about the speculative possibility of understanding and cooperating with distant aliens (e.g. in the context of “acausal trade” and “Multiverse-wide cooperation”). Yet relatively little serious analysis seems to have been done on the possibility of understanding and interacting with hypothetical near aliens (which is also speculative, to be sure, though perhaps less so).

2.11.3 How to better understand near aliens

How, specifically, could we seek to gain a better understanding of hypothetical near aliens? One way might be to engage in informed theorizing to see whether we can draw any sensible inferences about them based on their lack of clear visibility (conditional on their presence). Another strategy would be to explore purported UFO reports in order to see whether any informative patterns might emerge. For instance, one could explore whether the many UFO reports connected with nuclear weapons are indicative of any consistent set of motives. A third strategy might be to seek out new data, such as by using advanced sensor technology to track purported UFO hotspots (see e.g. UAPx).

To be clear, none of these investigative efforts require us to assume that near aliens actually exist. And, of course, efforts like these may be unlikely to yield any clear or highly useful results, but they could still be worth pursuing given both the potential stakes and the neglectedness of the issue.

2.11.4 Wagers to focus on human-controlled scenarios versus alien-controlled scenarios

Regarding the potential stakes, one could argue that there is a wager against focusing on scenarios in which we mostly influence the long-term future through our — perhaps at best modest — effects on near aliens. In other words, one could argue that our influence on the future seems rather limited in this class of scenarios, which gives us reason to instead focus on scenarios in which we can determine our long-term future ourselves.

I think this is a sensible point, but I see at least two arguments that may push against it. First, the validity of the argument above seems to depend on who “we” are. Specifically, if “we” are a group of marginal actors who try to steer the future in a slightly better direction, then it is hardly clear whether our influence on human descendants would necessarily be greater than our influence on advanced near aliens (conditional on their existence). Indeed, one may argue that our influence on near aliens could be greater in some ways, as they might be less resistant to updating their views, be better informed about our actions, have broader attention bandwidth, and so on, compared to humanity at large.

Second, the wager to focus on vast human-controlled futures seems weakened by a wager in the opposite direction, namely a wager to focus on vast futures controlled by near aliens. And one could argue that the latter wager is stronger in some important ways. After all, if advanced near aliens exist, they are already an expansive species with cosmic-scale influence, whereas humans seem quite far from reaching that stage, and might well never reach it. Thus, a low probability of a human-controlled cosmic future could imply that the wager on near alien influence is overall stronger, even given uncertainty about their existence. To be clear, I am not saying that I endorse this argument, but it does seem worth considering, especially in a generalized form that pertains to our influence on all future aliens that might potentially learn about and be influenced by us.

2.11.5 Updating toward more of a short-term focus?

Another implication might be to update more toward helping beings in the short term. In particular, if one believes that near aliens would govern the long-term future in a mostly predecided manner regardless of what humans do, then a greater probability in near aliens would shift a greater fraction of our expected impact toward the short term. After all, under those assumptions, our expected

impact on the long-term future would be greatly reduced by near aliens, yet our potential to help fellow beings in the short term would be largely unchanged.

Thus, somewhat ironically, (greater degrees of) belief in near aliens could ultimately push us toward more commonsensical priorities in altruistic endeavors.

2.12 More research needed

The remarks above have barely scratched the surface. In light of the considerations reviewed in this essay, it seems to me that more serious attention to the possibility of near aliens is warranted, especially in terms of its potential implications for our decisions.

3. What might we infer about optimized futures?

It is plausible to assume that technology will keep on advancing along various dimensions until it hits fundamental physical limits. We may refer to futures that involve such maxed-out technological development as “optimized futures”.

My aim in this essay is to explore what we might be able to infer about optimized futures. Most of all, my aim is to advance this as an important question that is worth exploring further.

3.1 Optimized futures: End-state technologies in key domains

The defining feature of optimized futures is that they entail end-state technologies that cannot be further improved in various key domains. Some examples of these domains include computing power, data storage, speed of travel, maneuverability, materials technology, precision manufacturing, and so on.

Of course, there may be significant tradeoffs between optimization across these respective domains. Likewise, there could be forms of “ultimate optimization” that are only feasible at an impractical cost — say, at extreme energy levels. Yet these complications are not crucial in this context. What I mean by “optimized futures” are futures that involve *practically* optimal technologies within key domains (such as those listed above).

3.2 Why optimized futures are plausible

There are both theoretical and empirical reasons to think that optimized futures are plausible (by which I here mean that they are at least somewhat probable — perhaps more than 10 percent likely).

Theoretically, if the future contains advanced goal-driven agents, we should generally expect those agents to want to achieve their goals in the most efficient ways possible. This in turn predicts continual progress toward ever more efficient technologies, at least as long as such progress is cost-effective.

Empirically, we have an extensive record of goal-oriented agents trying to improve their technology so as to better achieve their aims. Humanity has gone from having virtually no technology to creating a modern society surrounded by advanced technologies of various kinds. And even in our

modern age of advanced technology, we still observe persistent incentives and trends toward further improvements in many domains of technology — toward better computers, robots, energy technology, and so on.

It is worth noting that the technological progress we have observed throughout human history has generally not been the product of some overarching collective plan that was deliberately aimed at technological progress. Instead, technological progress has in some sense been more robust than that, since even in the absence of any overarching plan, progress has happened as the result of ordinary demands and desires — for faster computers, faster and safer transportation, cheaper energy, etc.

This robustness is a further reason to think that optimized futures are plausible: even without any overarching plan aimed toward such a future, and even without any individual human necessarily wanting continued technological development leading to an optimized future, we might still be pulled in that direction all the same. And, of course, this point about plausibility applies to more than just humans: it applies to any set of agents who will be — or have been — structuring themselves in a sufficiently similar way so as to allow their everyday demands to push them toward continued technological development.

An objection against the plausibility of optimized futures is that there might be a lot of hidden potential for progress far beyond what our current understanding of physics seems to allow. However, such hidden potential would presumably be discovered eventually, and it seems probable that such hidden potential would likewise be exhausted at some point, even if it may happen later and at more extreme limits than we currently envision. That is, the broad claim that there will ultimately be some fundamental limits to technological development is not predicated on the more narrow claim that our current understanding of those limits is necessarily correct; the broader claim is robust to quite substantial extensions of currently envisioned limits. Indeed, the claim that there will be no fundamental limits to future technological development overall seems a stronger and less empirically grounded claim than does the claim that there will be such limits (cf. Lloyd, [2000](#); Krauss & Starkman, [2004](#)).

3.3 Why optimized futures are worth exploring

The plausibility of optimized futures is one reason to explore them further, and arguably a sufficient reason in itself. Another reason is the scope of such futures: the futures that contain the largest numbers of sentient beings will most likely be optimized futures, suggesting that we have good

reason to pay disproportionate attention to such futures, beyond what their degree of plausibility might suggest.

Optimized futures are also worth exploring given that they seem to be a likely point of convergence for many different kinds of technological civilizations. For example, an optimized future seems a plausible outcome of both human-controlled and AI-controlled Earth-originating civilizations, and it likewise seems a plausible outcome of advanced alien civilizations. Thus, a better understanding of optimized futures can potentially apply robustly to many different kinds of future scenarios.

An additional reason it is worth exploring optimized futures is that they overall seem quite neglected, especially given how plausible and consequential such futures appear to be. While some efforts have been made to clarify the physical limits of technology (see e.g. Sandberg, [1999](#); Lloyd, [2000](#); Krauss & Starkman, [2004](#)), almost no work has been done on the likely trajectories and motives of civilizations with optimized technology, at least to my knowledge.

Lastly, the assumption of optimized technology is a rather strong constraint that might enable us to say quite a lot about futures that conform to that assumption, suggesting that this could be a fruitful perspective to adopt in our attempts to think about and predict the future.

3.4 What can we say about optimized futures?

The question of what we can say about optimized futures is a big one that deserves elaborate analysis. In this section, I will merely raise some preliminary points and speculative reflections.

3.4.1 Humanity may be close to (at least some) end-state technologies

One point that is worth highlighting is that a continuation of current rates of progress seems to imply that humanity could develop end-state technologies in information processing power within a few hundred years, perhaps 250 years at most (*if* current growth rates persist and assuming that our current understanding of the relevant physics is largely correct).

So at least in this important respect, and under the assumption of continued steady growth, humanity is surprisingly close to reaching an optimized future (cf. Lloyd, [2000](#)).

3.4.2 Optimized civilizations may be highly interested in near-optimized civilizations

Such potential closeness to an optimized future could have significant implications in various ways. For example, if, hypothetically, there exists an older civilization that has already reached a state of

optimized technology, any younger civilization that begins to approach optimized technologies within the same cosmic region would likely be of great interest to that older civilization.

One reason it might be of interest is that the optimized technologies of the younger civilization could potentially become competitive with the optimized technologies of the older civilization, and hence the older civilization may see a looming threat in the younger civilization's advance toward such technologies. After all, since optimized technologies would represent a kind of upper bound of technological development, it is plausible that different instances of such technologies could be competitive with each other regardless of their origins.

Another reason the younger civilization might be of interest is that its trajectory could provide valuable information regarding the likely trajectories and goals of distant optimized civilizations that the older civilization may encounter in the future. (More on this point [here](#).)

Taken together, these considerations suggest that *if* a given civilization is approaching optimized technology, and *if* there is an older civilization with optimized technology in its vicinity, this older civilization should take an increasing interest in this younger civilization so as to learn about it before the older civilization might have to permanently halt the development of the younger one.

3.4.3 Strong technological convergence across civilizations?

Another implication of optimized futures is that the technology of advanced civilizations across the universe might be remarkably convergent. Indeed, there are already many examples of convergent evolution in biology on Earth (e.g. eyes and large brains evolving several times independently).

Likewise, many cases of convergence are found in cultural evolution in both early history (e.g. the independent emergence of farming, cities, and writing across the globe) as well as in recent history (e.g. independent discoveries in science and mathematics).

Yet the degree of convergence could well be even more pronounced in the case of the end-state technologies of advanced civilizations. After all, this is a case where highly advanced agents are bumping up against the same fundamental constraints, and the optimal engineering solutions in the face of these constraints will likely converge toward the same relatively narrow space of optimal designs — or at least toward the same narrow frontier of optimal designs given potential tradeoffs between different abilities.

In other words, the technologies of advanced civilizations might be far more similar and more firmly dictated by fundamental physical limits than we intuitively expect, especially given that we in our current world are used to seeing continually changing and improving technologies.

3.4.4 If technology stabilizes at an optimum, what might change?

The plausible convergence and stabilization of technological hardware also raises the interesting question of what, if anything, might change and vary in optimized futures.

This question can be understood in at least two distinct ways: what might change or vary across different optimized civilizations, and what might change over time within such civilizations? And note that prevalent change of the one kind need not imply prevalent change of the other kind. For example, it is conceivable that there might be great variation across civilizations, yet virtually no change in goals and values over time within civilizations (cf. “lock-in scenarios”).

Conversely, it is conceivable that goals and values change greatly over time within all optimized civilizations, yet such change could in principle still be convergent across civilizations, such that optimized civilizations tend to undergo roughly the same pattern of changes over time (though such convergence admittedly seems unlikely conditional on there being great changes over time in all optimized civilizations).

If we assume that technological hardware becomes roughly fixed, what might still change and vary — both over time and across different civilizations — includes the following (I am not claiming that this is an exhaustive list):

- **Space expansion:** Civilizations might expand into space so as to acquire more resources; and civilizations may differ greatly in terms of how much space they manage to acquire.
- **More or different information:** Knowledge may improve or differ over time and space; even if fundamental physics gets solved fairly quickly, there could still be knowledge to gain about, for example, how other civilizations tend to develop.
 - There would presumably also be optimization for information that is useful and actionable. After all, even a technologically optimized probe would still have limited memory, and hence there would be a need to fill this memory with the most relevant information given its tasks and storage capacity.
- **Different algorithms:** The way in which information is structured, distributed, and processed might evolve and vary over time and across civilizations (though it is also conceivable that algorithms will ultimately converge toward a relatively narrow space of optima).
- **Different goals and values:** As mentioned above, goals and values might change and vary, such as due to internal or external competition, or (perhaps less likely) through processes of reflection.

In other words, even if everyone has — or is — practically the same “iPhone End-State”, what is running on these iPhone End-States, and how many of them there are, may still vary greatly, both across civilizations and over time. And these distinct dimensions of variation could well become the main focus of optimized civilizations, plausibly becoming the main dimensions on which civilizations seek to develop and compete.

Note also that there may be conflicts between improvements along these respective dimensions. For example, perhaps the most aggressive forms of space expansion could undermine the goal of gaining useful information about how other civilizations tend to develop, and hence advanced civilizations might avoid or delay aggressive expansion if the information in question would be sufficiently valuable (cf. the “info gain motive”). Or perhaps aggressive expansion would pose serious risks at the level of a civilization’s internal coordination and control, thereby risking a drift in goals and values.

In general, it seems worth trying to understand what might be the most coveted resources and the most prioritized domains of development for civilizations with optimized technology.

3.4.5 Information that says something about other optimized civilizations as an extremely coveted resource?

As hinted above, one of the key objectives of a civilization with optimized technology might be to learn, directly or indirectly, about other civilizations that it could encounter in the future. After all, if a civilization manages to both gain control of optimized technology and avoid destructive internal conflicts, the greatest threat to its apex status over time will likely be other civilizations with optimized technology. More generally, the main determinant of an optimized civilization’s success in achieving its goals — whether it can maintain an unrivaled apex status or not — could well be its ability to predict and interact gainfully with other optimized civilizations.

Thus, the most precious resource for any civilization with optimized technology might be information that can prepare this civilization for better exchanges with other optimized agents, whether those exchanges end up being cooperative, competitive, or outright aggressive. In particular, since the technology of optimized civilizations is likely to be highly convergent, the most interesting features to understand about other civilizations might be what kinds of institutions, values, decision procedures, and so on they end up adopting — the kinds of features that seem more contingent.

But again, I should stress that I mention these possibilities as speculative conjectures that seem worth exploring, not as confident predictions.

3.5 Practical implications?

In this section, I will briefly speculate on the implications of the prospect of optimized futures. Specifically, what might this prospect imply in terms of how we can best influence the future?

3.5.1 Prioritizing values and institutions rather than pushing for technological progress?

One implication is that there may be limited long-term payoffs in pushing for better technology per se, and that it might make more sense to prioritize the improvement of other factors, such as values and institutions. That is, if the future is in any case likely to be headed toward some technological optimum, and if the values and institutions (etc.) that will run this optimal technology are more contingent and “up for grabs”, then it arguably makes sense to prioritize those more contingent aspects.

To be clear, this is not to say that values and institutions will not also be subject to significant optimization pressures that push them in certain directions, but these pressures will plausibly still be weaker by comparison. After all, a wide range of values will imply a convergent incentive to create optimized technology, yet optimized technology seems compatible with a wide range of values and institutions. And it is not clear that there is a *similarly* strong pull toward some “optimized” set of values or institutions given optimized technology.

This perspective is arguably also supported by recent history. For example, we have seen technology improve greatly, with computing power heading in a clear upward direction over the past decades. Yet if we look at our values and institutions, it is much less clear whether they have moved in any particular direction over time, let alone an upward direction. Our values and institutions seem to have faced much less of a directional pressure compared to our technology.

3.5.2 More research

Perhaps one of the best things we can do to make better decisions with respect to optimized futures is to do research on such futures. The following are some broad questions that might be worth exploring:

- What are the likely features and trajectories of optimized futures?
 - Are optimized futures likely to involve conflicts between different optimized civilizations?
 - Other things being equal, is a smaller or a larger number of optimized civilizations generally better for reducing risks of large-scale conflicts?

- More broadly, is a smaller or larger number of optimized civilizations better for reducing future suffering?
- What might the likely features and trajectories of optimized futures imply in terms of how we can best influence the future?
- Are there some values or cooperation mechanisms that would be particularly beneficial to instill in optimized technology?
 - If so, what might they be, and how can we best work to ensure their (eventual) implementation?

3.6 Conclusion

The future might in some ways be more predictable than we imagine. I am not claiming to have drawn any clear or significant conclusions about how optimized futures are likely to unfold; I have mostly aired various conjectures. But I do think the question is valuable, and that it may provide a helpful lens for exploring how we can best impact the future.

4. From AI to distant probes

The aim of this essay is to present a hypothetical future scenario that challenges some of our basic assumptions and intuitions about our place in the cosmos.

4.1 Hypothetical future scenario: Earth-descendant probes

Imagine a future scenario in which AI progress continues, and where the ruling powers on Earth eventually send out advanced AI-driven probes to explore other star systems. The ultimate motives of these future Earth rulers may be mysterious and difficult to grasp from our current vantage point, yet we can nevertheless understand that their motives — in this hypothetical scenario — include the exploration of life forms that might have emerged or will emerge elsewhere in the universe. (The fact that there are already projects aimed at sending out (much less advanced) probes to other star systems is arguably some evidence of the plausibility of this future scenario.)

Such exploration may be considered important by these future Earth rulers for a number of reasons, but a prominent reason they consider it important is that it helps inform their broader strategy for the long-term future. By studying the frequency and character of nascent life elsewhere, they can build a better picture of the long-run future of life in the universe. This includes gaining a better picture of where and when these Earth descendants might eventually encounter other species — or probes — that are as advanced as themselves, and not least what these other advanced species might be like in terms of their motives and their propensities toward conflict or cooperation.

The Earth-descendant probes will take an especially strong interest in life forms that are relatively close to matching their own, functionally optimized level of technological development. Why? First of all, they wish to ensure that the ascending civilizations do not come to match their own level of technological sophistication, which the Earth-descendant probes will eventually take steps to prevent so as to not lose their power and influence over the future.

Second, they will study ascending civilizations because what takes place at that late “sub-optimized” stage may be particularly informative for estimating the nature of the fully optimized civilizations that the Earth-descendant probes might encounter in the future (at least the late sub-optimized stage of development seems more informative than do earlier stages of life where comparatively less change happens over time).

From the point of view of these distant life forms, the Earth-descendant probes are almost never visible, and when they occasionally are, they appear altogether mysterious. After all, the probes represent a highly advanced form of technology that the distant life forms do not yet understand, much less master, and the potential motives behind the study protocols of these rarely appearing probes are likewise difficult to make sense of from the outside. Thus, the distant life forms are being studied by the Earth-descendant probes without having any clear sense of their zoo-like condition.

4.2 Back to Earth

Now, what is the point of this hypothetical scenario? One point I wish to make is that this is not an absurd or unthinkable scenario. There are, I submit, no fantastical or unbelievable steps involved here, and we can hardly rule out that some version of this scenario could play out in the future. This is obviously not to say that it is the *most likely* future scenario, but merely that something like this scenario seems fairly plausible provided that technological development continues and eventually expands into space (perhaps around 1 to 10 percent likely?).

But what if we now make just one (theoretically) small change to this scenario such that Earth is no longer the origin of the advanced probes in question, but instead one of the perhaps many planets that are being visited and studied by advanced probes that originated elsewhere in the universe? Essentially, we are changing nothing in the scenario above, except for swapping which exact planet Earth happens to be.

Given the structural equivalence of these respective scenarios, we should hardly consider the swapped scenario to be much less plausible. Sure, we know for a fact that life has arisen on Earth, and hence the projection that Earth-originating life might eventually give rise to advanced probes is not entirely speculative. Yet there is a countervailing consideration that suggests that — conditional on a scenario equivalent to the one described above occurring — Earth is unlikely to be the first planet to give rise to advanced space probes, and is instead more likely to be observed by probes from elsewhere.

The reason is simply that Earth is but one planet, whereas there are many other planets from which probes could have been sent to study Earth. For example, in a scenario in which a single civilization creates advanced probes that eventually go out and explore, say, a thousand other planets with life at roughly our stage of development (observed at different points in time), we would have a 1 in 1,001 chance of being that first exploring civilization — and a 1,000 in 1,001 chance of being an observed one, under this assumed scenario.

Indeed, even if the exploring civilization in this kind of scenario only ever visits, say, two other planets with life at roughly our stage, we would still be more likely to be among the observed ones than that first observing one (2 in 3 versus 1 in 3). Thus, whatever probability we assign to the hypothetical future scenario in which Earth-descendant space probes observe other life forms at roughly our stage, we should arguably assign a greater probability to a scenario in which we are being observed by similar such probes.

Nevertheless, I think many of us will intuitively think just the opposite, namely that the scenario involving Earth-descendant probes observing others seems far more plausible than the scenario in which we are currently being observed by foreign probes. Indeed, many of us intuitively find the foreign-probes scenario to be quite ridiculous. (That is also largely the attitude that is expressed in leading scholarly books on the Fermi paradox, with scant justification.)

Yet this complete dismissal is difficult to square with the apparent plausibility — or at least the non-ridiculousness — of the “Earth-descendant probes observing others” scenario, as well as the seemingly *greater* plausibility of the foreign probe scenario compared to the “Earth-descendant probes observing others” scenario. There appears to be a breakdown of the transitivity of plausibility and ridiculousness at the level of our intuitions.

4.3 What explains this inconsistency?

I can only speculate on what explains this apparent inconsistency, but I suspect that various biases and cultural factors are part of the explanation.

For example, wishful thinking could well play a role: we may better like a scenario in which Earth’s descendants will be the most advanced species in the universe, compared to a scenario in which we are a relatively late-coming and feeble party without any unique influence over the future. This could in turn cause us to ignore or downplay any considerations that speak against our preferred beliefs. And, of course, apart from our relative feebleness, being observed by an apparently indifferent superpower that does not intervene to prevent even the most gratuitous suffering would seem like bad news as well.

Perhaps more significantly, there is the force of cultural sentiment and social stigma. Most of us have grown up in a culture that openly ridicules the idea of an extraterrestrial presence around Earth. Taking that idea seriously has effectively been just another way of saying that you are a dumb-dumb (or worse), and few of us want to be seen in that way. For the human mind, that is a pressure so strong that it can move continents, and even block mere open-mindedness.

Given the unreasonable effectiveness of such cultural forces in schooling our intuitions, many of us intuitively “just know” in our bones that the idea of an extraterrestrial presence around Earth is ridiculous, with little need to invoke actual cogent reasons.

To be clear, my point here is not that we should positively believe in such a foreign presence, but merely that we may need to revise our intuitive assessment of this possibility, or at least question whether our intuitions and our level of open-mindedness toward this possibility are truly well-grounded.

5. Silent cosmic rulers

In this essay, I wish to outline an alternative picture to the grabby aliens model proposed by Hanson et al. (2021). The grabby aliens model assumes that “grabby aliens” expand far and wide in the universe, make clearly visible changes to their colonized volumes, and immediately prevent life from emerging in those volumes.

In contrast, the picture I explore here involves what we may call “quiet expansionist aliens”. This model also involves expansion far and wide, but unlike in the grabby aliens model, the expansionist aliens in this model do not make clearly visible changes to their colonized volumes, and they do not immediately prevent life from emerging in those volumes — although they do prevent emerging civilizations from developing to the point of rivaling the quiet expansionists’ technology and power.

The reason I explore this alternative picture is that I think it is a neglected possible model for hypothetical alien expansion. I am not claiming that it is the most plausible model a priori, but I think it is too plausible for it to be altogether dismissed, as it generally seems to be.

5.1 What changes in the quiet expansionist model?

The most obvious change in this model compared to the grabby aliens model is that we would not be able to see a colonized volume from afar, and perhaps not even from up close. Likewise, the quiet expansionist model implies that there would be more instances of evolved life, including observers like us, since the expansionist aliens would not immediately prevent such observers from emerging within their colonized volumes; they could instead stay around and observe. Taken together, this means that quiet expansionist aliens could in theory be here already, and they could even have a lot of experience interacting with civilizations at our stage of development.

Note that the grabby aliens model and the quiet expansionist model need not be mutually exclusive, as they could in principle be combined. That is, one could have a model in which there are both grabby (i.e. clearly visible) and quiet expansionist aliens that each rule their respective volumes, and different versions of the model could vary the relative proportion of these different colonization styles. (The original grabby aliens model only involves clearly visible expansionist aliens, not quiet expansionist ones; that is a helpful simplifying assumption, but it is worth being clear that it may be wrong.)

5.2 Arguments against the quiet expansionist model

A reason the quiet expansionist model is rarely taken seriously is that there seem to be some compelling arguments against it. Let us therefore try to explore a couple of these arguments, to see how compelling they are and what they should lead us to conclude.

5.2.1 “Implausible motive”

One argument is that it is implausible that an expansionist civilization would not visibly change its colonized volume. In particular, it is difficult to see what kind of underlying motive could make sense of such cosmic silence. The default expectation appears to be that we should instead see overt signs of colonization.

How convincing is this as an argument against the plausibility of quiet expansionist aliens? In order to evaluate that, it seems helpful to first outline what could, speculatively, be some motives behind quiet expansion. For example, it is conceivable that quiet expansion could aid internal coordination and alignment in a civilization that spans numerous star systems and perhaps even countless galaxies. By staying minimally concentrated and diversified across its colonization volume, a civilization might minimize risks of internal drift and conflict.

Another potential reason to stay silent is to try to learn about emerging civilizations (cf. the “info gain” hypothesis explored [here](#)). This might seem like a far-fetched reason to stay quiet, yet if the value of information gained from emerging civilizations is high, it might be a sufficient or at least supporting reason.

Furthermore, there is the [dark forest hypothesis](#), or something in that ballpark, which roughly posits that aliens would stay quiet so as to avoid detection by, and resulting conflicts with, other civilizations. Note that such a motive would not require certainty about hostility from other civilizations — mere uncertainty about the motives of other potential civilizations might be enough to justify such a quiet approach. This is similar to the arguments that some have made against human attempts to send signals to alien civilizations based on the potential risks of sending such signals (see e.g. Todd & Miller, [2017](#)).

Another motive for being quiet might be that sufficiently advanced civilizations would tend to realize that quiet expansion is a stable win-win equilibrium that avoids large-scale conflict with other advanced civilizations. In that case, they may naturally decide to adhere to a quiet strategy, lest they eventually get beaten by a larger coalition. A loose analogy to the contemporary human world might be how states generally do not invade international waters, in part because they know that a larger coalition would seek to undo such invasions. (To be clear, I am not claiming that being

quiet is necessarily a win-win equilibrium for expansionist civilizations; I am merely claiming that this is yet another speculative possibility that warrants some level of consideration.)

Finally, there is a category of motives that we could call “unknown unknowns”, namely motives that we cannot readily conceive of, yet which might make sense to agents who are more advanced and better informed than we are. After all, it seems that we should not be confident that we can readily list all the plausible motives that a highly advanced intelligence might have.

Note that the motives outlined above are not mutually exclusive. That is, an expansionist civilization could potentially be quiet due to a combination of these motives — for example, to maintain internal coordination, to stay hidden from potential adversaries, and to study emerging civilizations.

In light of the potential motives outlined above, the “implausible motive” argument is hardly a decisive argument against quiet expansionist civilizations. There is a wide range of possible motives that might make sense of quiet expansion. Some of these motives appear at least somewhat plausible individually, and the broader category of such motives is more plausible still.

5.2.2 “Implausible convergence”

Another argument against a quiet expansionist model is that it would require an implausible degree of convergence, both within any single quiet expansionist civilization and across civilizations with different origins. After all, the argument goes, it would seemingly only require a single defiant faction to break the quiet policy and become a grabby civilization.

Would convergence toward being “quiet” *within* a single expansionist civilization be implausible? There are some reasons not to think so. For one, an advanced civilization could presumably be extremely capable, including when it comes to maintaining internal stability and alignment (cf. Finnveden et al., [2022](#)).

Second, there might be strong strategic reasons to remain quiet that would be compelling to any rational sub-agent within the expansionist civilization (e.g. some of the specific motives outlined above, or an “unknown unknown” motive).

Third, it seems plausible that occasional defiants could be kept permanently in check if they are greatly outnumbered and overpowered by the pro-quiet faction, similar to how a few revolutionaries are unlikely to gain independence within a large nation-state. For example, if a small defiant faction tries to escape, they might be chased by a much larger faction that would prevent the defiant faction from accomplishing much.

What about convergence toward being “quiet” *across* civilizations? First, it is worth reiterating that, as a general matter, models with quiet expansionist civilizations do not require such convergence across civilizations. In particular, the above-mentioned combined models that involve both grabby and quiet expansionist civilizations obviously entail no such convergence. However, for the sake of argument, we can list some reasons why de facto convergence toward being “quiet” might be plausible even *across* civilizations.

Some of the reasons that could apply to convergence within civilizations might also apply to convergence across civilizations. For example, perhaps there are strong strategic reasons for being quiet that will be obvious to any advanced civilization. Or maybe there is a kind of cosmic selection pressure that pushes all civilizations toward being quiet.

Or perhaps quiet expansionist civilizations will tend to be so numerous that they are able to keep all budding grabby civilizations in check. In other words, scenarios with a sufficiently low ratio of grabby-to-quiet expansionist civilizations might eventually become de facto quiet everywhere. (The same might apply in reverse: for a sufficiently high ratio of grabby-to-quiet expansionist civilizations, the universe may converge toward an overall grabby equilibrium.)

Similarly, if we restrict our focus to (large) local regions of the universe, a state of purely quiet expansion could occur if the earliest expansionist civilization within a large radius happened to be a quiet one. By virtue of its earliness, such a civilization could impose its quiet rule on a vast cosmic volume — potentially spanning a billion light years or more — even if not all civilizations converge toward being quiet on the largest scale.

In light of these considerations, the “implausible convergence” argument is hardly that convincing either. In particular, it does not seem to be a decisive argument against models that involve quiet expansionist civilizations, including models that involve de facto convergence toward quiet expansion, whether in a large local vicinity or (less probably) across the entire universe.

Lastly, in our efforts to think clearly about these matters, it is worth being aware of our tendency toward belief digitization: our tendency to round the probability of less likely possibilities down to zero (see also Gettys et al., [1973](#); Fernbach et al., [2010](#)). Thus, even if scenarios involving quiet expansionist civilizations do not seem to be the *most* likely ones — even if they only deserve, say, a 10 percent prior probability conditional on alien expansion — this should not lead us to altogether disregard this class of scenarios.

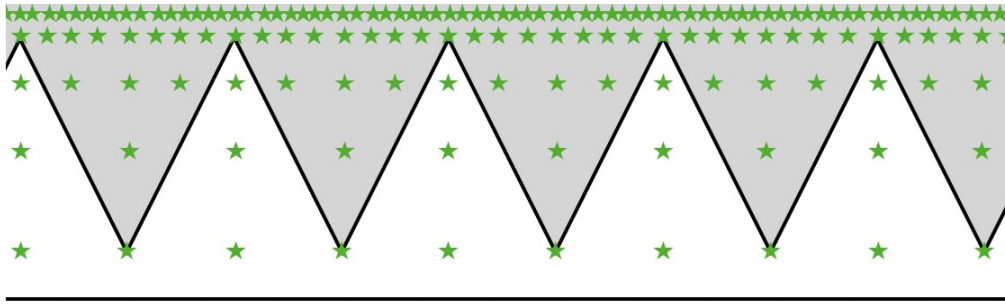
5.3 Arguments in favor of the quiet expansionist model?

Having explored two key arguments against the quiet expansionist model, it is worth asking whether there are any arguments that positively favor this model. It seems to me that there are. In particular, it seems that certain anthropic considerations — i.e. considerations relating to observation selection effects — support quiet expansionist models, at least relative to the “standard” grabby model.

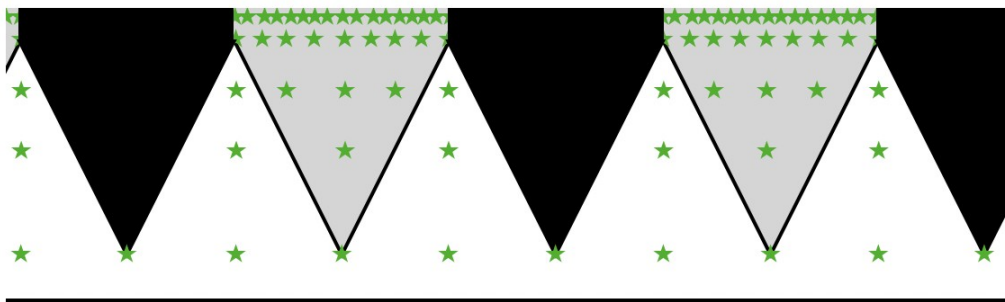
For example, if we assume a mixed model that involves both grabby and quiet expansionist civilizations, there would be more observers like us (e.g. observers living in civilizations at our current stage of development) in scenarios with a higher proportion of quiet expansionist vs. grabby civilizations. By extension, there would be far more observers like us in a pure quiet expansionist versus a pure grabby model.

This is illustrated in the three toy figures below, in which the green stars represent civilizations at roughly our stage of development. In each of the figures, time increases along the vertical axis while space extends along the horizontal axis; the grey areas represent quiet expansionist colonizations while the black areas represent grabby colonizations. The green stars become increasingly prevalent over time because we here assume the hard-steps model described by Hanson et al. (2021, pp. 3-4).

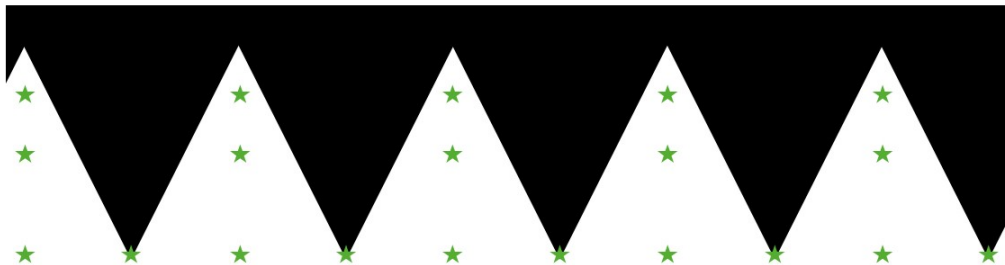
Pure quiet expansionist model



50/50 mixed model



Pure grabby model



As we can see, the further we get toward a pure quiet expansionist scenario, the more observers there are like us.

Similarly, in terms of where we should expect to find ourselves within a specific scenario that contains both grabby and quiet expansionist civilizations, there would generally be more observers like us in the parts of the universe that are ruled by quiet expansionist civilizations.

We can phrase these points in terms of the two canonical assumptions in anthropic reasoning, namely the Self-Indication Assumption (SIA: updating based on observer prevalence across different hypothetical scenarios) and the Self-Sampling Assumption (SSA: updating based on

observer prevalence within a fixed scenario). That is, SIA generally pushes us toward believing in a higher ratio of quiet expansionist to grabby civilizations, while SSA generally pushes us toward thinking that we find ourselves inside a quiet expansionist volume (at least this latter claim would hold true in a wide range of mixed scenarios that are not close to being purely grabby).

5.3.1 Qualifications to this argument

Some key qualifications are worth stressing about the anthropic argument outlined above. First, it is notoriously difficult to know what to make of anthropic arguments, which suggests that we should be cautious in drawing strong inferences from such arguments. Thus, to be clear, I present this argument as one that is worth pondering, not as a definitive argument from which we should draw any strong conclusions.

Second, the argument presented above is by no means exhaustive in terms of the possibilities it explores. The argument only compares two simple models, or rather a continuum of simple models between the two extremes of fully grabby and fully quiet expansionist models. Yet there are, of course, many other options than these. For example, another model might say that large-scale space colonization is simply impossible (such a model would have its own strengths and weaknesses).

We should thus be clear that the anthropic argument outlined above only favors (simple) quiet expansionist models *in comparison to* (simple) grabby models (e.g. it favors models with a higher prevalence of quiet expansionist *relative to* grabby civilizations). It does not necessarily say much about the plausibility of the quiet expansionist model compared to other competing colonization models, or about the plausibility of this quiet expansionist model in absolute terms.

These qualifications notwithstanding, the argument does seem to pose a challenge to the simple grabby aliens model as proposed by Hanson et al.

5.4 Objection: Fails to explain earliness

An objection to the anthropic argument outlined above is that the quiet expansionist model fails to explain our apparent earliness in cosmic history. For example, Hanson et al. argue that humanity has appeared surprisingly early in cosmic history, and they propose their grabby aliens model as a way to explain that earliness, since grabby aliens would prevent new civilizations from emerging (Hanson et al., [2021](#), sec. 2). But in the quiet expansionist model, it is not clear how this earliness is explained.

I see at least two reasons why this objection should not lead us to dismiss quiet expansionist models. First, it is unclear whether there indeed is an earliness problem. On some assumptions

about what kinds of star systems can give rise to life, our appearance date may in fact be quite typical, and thus not particularly early (see e.g. Burnetti, [2016](#); [2017](#)). If these assumptions are correct, there is no earliness problem. And since it is highly uncertain which stars can give rise to life, it seems that we should place a substantial probability on there being no earliness problem to begin with.

Second, quiet expansionist civilizations could, like grabby ones, imply a deadline on the emergence of new civilizations at some point, even if they would not do so initially. Such a deadline need not be mysterious, and it could even be a clear strategic necessity, at least within some plausible versions of the quiet expansionist model. For example, we can imagine a version of the model in which the quiet expansionists prevent any further life from emerging once they encounter other expansionist civilizations that originated elsewhere, or when they encounter *hostile* expansionists in particular. In that case, some of the motives for being quiet and not using all resources available to them might no longer apply (e.g. the motive of trying to remain hidden from potential cosmic adversaries).

In sum, the purported earliness problem does not seem to be a valid reason to dismiss quiet expansionist models, nor is it a valid reason to dismiss the anthropic argument that supports such models relative to the pure grabby aliens model.¹

5.5 Conclusion

The quiet expansionist model is a conjecture that could simultaneously:

- Answer the Fermi question: according to this model, they are most likely out there, and probably even here (cf. the illustration above).
- Account for (much of) the great filter that prevents visible colonization of the cosmos: quiet expansionist civilizations would generally impose a future filter on civilizations like ours.
- Be favored by anthropic considerations and make us typical observers (of our kind), in line with the Copernican Principle.
- Help explain the hardest (seemingly) anomalous UFOs: they might be silent cosmic rulers.

To be clear, my claim here is not that the quiet expansionist model is in fact true. But as a conjecture, I submit that it deserves more consideration than it has received so far.

¹ An objection based on observer prevalences given the possibility of ancestor simulations is discussed in the comments found [here](#).

6. Why UFOs matter

UFOs matter in various ways. My aim in this essay is to outline some of the ways in which UFOs are relevant to altruistic priorities, and thereby make a case for why it is worth taking UFOs seriously.²

6.1 Sufficient grounds for curiosity

The best witness reports and footage of UFOs are more noteworthy than one might expect if one has never looked into the subject. I have tried to collect some of the most credible reports and footage I have been able to find in “What credible UFO evidence?”. In view of such reports and footage, I submit that *there are enough (inconclusive) clues to warrant closer attention to the topic of UFOs*.

One reason the topic is worthy of closer attention is that UFOs *might* hint at a significant change in our worldview, such as when it comes to our beliefs about extraterrestrial life and technology (this is at least a possibility, and our prior should arguably not be that low). Given how consequential such a change could potentially be — including when it comes to informing and changing our long-term moral priorities — the current state of evidence seems sufficiently puzzling to warrant further attention.

(If the issue had less potential to be of massive import, the bar for “clues worthy of closer attention” would be higher; I suspect that one reason people tend to dismiss the topic of UFOs is that they do not think about it in such “expected value-adjusted” terms — along with the social stigma and the giggle factor, of course.)

² In recent times, the term “Unidentified Anomalous Phenomena” (UAP) has become increasingly common, and it is indeed a better term than “UFO” in some ways. For example, the term “UAP” is broader in that it covers more than just objects that appear to fly (e.g. it can include objects that travel under water). Another advantage is that the term “UAP” explicitly refers to objects that seem genuinely anomalous, not merely objects that are unidentified. I here stick to the term “UFO” for what could be called historical reasons, but that choice is admittedly quite debatable, and it is probably worth moving toward using the term “UAP” instead.

6.2 UFOs are a serious political and military issue

Whatever one's view of UFOs, the reality on the ground is that UFOs are starting to be taken seriously by influential political institutions. For example, UFOs were discussed in the European Parliament in March 2024, and retired US Navy pilots Ryan Graves and David Fravor gave testimony about UFOs to the US Congress in 2023.

UFO policy can indeed matter a lot more than one might naively think, regardless of what UFOs may be. To give just one example, consider the risk of UFOs being misidentified as foreign adversaries and in turn triggering an international conflict involving nuclear weapons. Having adequate policies in place regarding UFOs could be critical for avoiding such accidental catastrophes.

One might think that this example sounds too speculative to be worth taking seriously, yet the truth is that UFOs have in fact often been observed at nuclear facilities, both in the US and Iran, as well as at regular military facilities in countries like Peru and China (and many others). There are even some reports suggesting that UFOs may have been close to triggering a nuclear conflict in the past, such as in the Soviet Union in the 1980s (see also page 256 in this pdf). Relatedly, US Air Force pilot Milton Torres said that his first concern when he was ordered to shoot down a UFO in 1957 was that he was about to fire the first shot of World War III.

Other issues for which UFO policy may be relevant include aviation safety, (mis)trust in public institutions, and international coordination for better understanding UFOs. (For some additional perspectives on the political relevance of UFOs, see e.g. Alexander Wendt's presentation "Dangerous Knowledge? UAP Science and the Anthropocentric State" as well as Wendt & Duvall, 2008.)

Thus, developing adequate political and military responses (or non-responses) to UFOs could be a high priority, regardless of what UFOs in fact are. The political and military relevance of UFOs is in itself a sufficient reason to take UFOs seriously.

6.3 Potential implications of "UFOs as advanced intelligence"

In this section, I will tentatively speculate about what the implications might be *if* UFOs represent some form of advanced intelligence that is far more powerful than humanity and any human-created technology. I believe that the points and resources found in the earlier section on "sufficient grounds for curiosity" warrant such speculative and conditional exploration, at least in some measure.

A complementary motivation for this speculative exploration is that one may critically ask: So what if UFOs were some kind of advanced intelligence? What would that change in practical terms? The following is an attempt to outline some potential answers to that question, and to thereby show that there is plausibly a lot to say in response to that “so what?” question. It really is a “big if true” conjecture, also from an altruistic perspective.

But let me stress again that *I am very much speculating here*, and what I write below is to be read as a conditional exploration: *if* UFOs are some form of highly advanced intelligence, what might be the implications?

6.3.1 Changing our future expectations and priorities

“UFOs as advanced intelligence” would change our expectations and priorities for the future. In particular, it would probably mean that the long-term future of our corner of the universe is mostly not within the control of humanity or its descendants.

Instead, it seems likely that the (assumed) advanced UFOs would mostly be in control, and that they would prevent humanity from becoming as advanced as they are, since that could in effect threaten their power.

Note that this yields a falsifiable prediction: the picture just outlined would predict that the advanced UFOs should intervene to prevent humanity from developing “optimized technologies” that could compete with theirs (unless there somehow comes to be a sufficient convergence in ultimate aims).

6.3.2 Two broad shifts: Greater near-term focus and influencing them on their margin

Two broad shifts in priorities seem to follow conditional on “UFOs as advanced intelligence that will mostly control our corner of the universe”.

First, it would seem to update us toward prioritizing impact in the relatively near term. Note that this is a directional claim: the claim is not that near-term impact would necessarily become the main priority, but rather that we should likely update our priorities in that direction (under this kind of scenario). The reason, in short, is that our near-term impact seems relatively unchanged under this kind of scenario, whereas our long-term impact seems greatly reduced (compared to a scenario in which humanity mostly does control this corner of the universe).

Thus, contrary to what one might expect, updating toward “UFOs as advanced intelligence” might in some ways imply a greater focus on more near-term and more commonsensical altruistic

priorities. That being said, in light of both the scope and the neglectedness of the long-term future, the magnitude of the update toward (more of) a near-term focus may be quite modest overall.

Second, the best way to have a long-term impact would likely change under this scenario. In particular, if an advanced foreign intelligence will mostly control the long-term future, it could be that the best opportunity we have for long-term impact is to influence that advanced intelligence on its margin (i.e. a limited relative impact on its future actions that could nevertheless be large in absolute terms). At the very least, it seems that our priorities should be updated in that direction under this kind of scenario.

It is difficult to say what we could do to have a beneficial long-term influence conditional on “UFOs as advanced intelligence”, but a helpful first step would probably be to seek a better understanding of this advanced intelligence. In general, *if* there are advanced UFOs around Earth, understanding their motives and likely future actions would seem to be a top priority for us, as that would plausibly have significant implications for what kinds of political institutions, ideologies, AI systems, and so on we should ideally create and adopt. In concrete terms, this might imply having more researchers seriously exploring these kinds of issues.

6.3.3 Relevance to the ethics of extinction

The scenario explored here would also be relevant to the ethics of extinction in various ways. For example, it would imply that the extinction of humanity would be a lot less consequential (for better or worse), since humanity would not control much of the universe’s future in any case. As a result, human extinction would plausibly be less important to focus on (from an impartial perspective).

Relatedly, human extinction might not mark the end of humanity’s influence on the future, since human decisions could have a marginal impact on the long-term future even when there are no longer any humans or human descendants around (through the kind of limited relative impact alluded to above: a marginal long-term impact on the advanced foreign intelligence). Indeed, under this kind of scenario, the vast majority of humanity’s moral impact might not materialize until long after humanity and its descendants have gone extinct.

The scenario would also have significant implications when it comes to ideas about vacuum phase transitions and the like that might unleash destruction on a cosmic scale (see e.g. Bostrom [2002](#)). In particular, under this kind of scenario, we should update strongly toward thinking that such events of cosmic destruction cannot realistically be unleashed by humanity or any group of humans. After all, an ultra-powerful intelligence that has not already unleashed such an event itself is unlikely to allow any real risk of such events to be posed by others.

6.3.4 UFOs themselves might matter morally

If UFOs represent an advanced intelligence, might they be sentient? *If* they are sentient, and *if* they permeate much of the cosmos (big ifs, to be sure), they could well be the most numerous sentient beings in the universe, and their welfare might generally dominate in impartial welfare calculations.

In simple expected value calculations, the potentially vast number of sentient UFO probes could mean that their interests dominate in expectation even if we place a relatively low probability on their sentience (conditional on their existence). Indeed, they might dominate even if we place a fairly low probability on the existence of such probes in the first place (i.e. if we make no strong assumptions about their existence).

Of course, there are good reasons to take simple and speculative expected value calculations with huge grains of salt. Yet even so, it seems worth considering the mere possibility that cosmically permeating probes might be the most numerous sentient beings in the universe, and to ponder what the implications of that scenario would be. Furthermore, the state of UFO evidence observed on Earth may be relevant evidence for or against that scenario, which is an additional reason to pay closer attention to the state of that evidence.

6.3.5 What “UFOs as advanced intelligence” would not change

There is a grain of truth buried in the “so what?” question raised above: in some respects, the existence of advanced UFOs would not imply significant changes. For example, there would still be an important role to play for human agency. There would still be ongoing moral catastrophes on Earth that we can act to reduce, and there would still be future risks that we can seek to minimize, even if our assessment of the broader landscape of future risks would change. In short, our actions would still matter.

6.4 Concluding meta-notes on UFO discourse

The subject of UFOs has a lot of baggage associated with it. Thus, to motivate anyone to take it seriously, it may be useful to take a step back and make a few comments about the state of UFO discourse.

6.4.1 Two kinds of UFO discourse

Perhaps the most important point to convey is that there are, broadly speaking, two very different kinds of UFO discourse (although they occasionally have some overlap). The best way I know to describe it is with an analogy to the discourse on “quantum mechanics”.

We can broadly distinguish two rather different kinds of discourse about quantum mechanics. One mainly happens among people who have PhDs in physics — people who do experiments, publish research papers, and make cumulative progress. The other happens among people who are into quantum healing and the like — people who essentially invoke “quantum mechanics” as a way to dress up various supernatural beliefs.

Now, if someone had mostly heard about “quantum mechanics” from the latter group, it would be quite understandable for that person to dismiss *all* talk about quantum mechanics as lacking in evidence and rigor, and to be hesitant about looking deeper into it, in effect throwing the quantum baby out with the bathwater.

I believe that many people make this kind of mistake when it comes to UFOs. That is, there is a similar distinction to be drawn in UFO discourse, and many people dismiss the UFO topic at large because they associate it with exotic things like sightings of biological aliens and human-looking aliens living among us — the kinds of things that one will mostly find in the “quantum healing” part of UFO discourse.

But this overlooks the rather different, more serious discourse on UFOs. (Along with “serious”, one could aptly refer to it as the “cautious” UFO discourse.) This discourse includes the kinds of reports I have collected in “[What credible UFO evidence?](#)”. In terms of individuals and institutions, it includes:

- Academics such as [James E. McDonald](#), [J. Allen Hynek](#), [Alexander Wendt](#), and [Daniel Coumbe](#)
- Pilots such as [David Fravor](#), [Alex Dietrich](#), and [Ryan Graves](#)
- Intelligence professionals such as [Marik von Rennenkampff](#) and [John Brennan](#) (former head of the CIA)
- Nuclear missile launch officers such as [Robert Salas](#) and [Jerome Nelson](#)
- Radar operators and technicians such as [Kevin Day](#) and [Gary Voorhis](#)
- Journalists such as [Donald Keyhoe](#) and [John Greenwald Jr.](#)
- Astronauts such as [Buzz Aldrin](#), [James McDivitt](#), [Gordon Cooper](#), and [Deke Slayton](#)
- Politicians such as [Kirsten Gillibrand](#), [Marco Rubio](#), and [Francisco Guerreiro](#) (and more peripherally, [Barack Obama](#) and [Mitt Romney](#))
- The [Brazilian Air Force](#), the [Belgian Air Force](#), and the [Iranian Air Force](#)

Generally speaking, this more serious part of UFO discourse is not about biological aliens, but instead about objects that seem to display advanced capabilities beyond those of any known human technology. For example, these objects often accelerate rapidly to supersonic speeds, and they

sometimes display what appear to be intelligently controlled maneuvers (e.g. in the Nimitz case and the case of Oscar Santa Maria Huerta in Peru; see also Coumbe, 2022).

Arguably, this part of UFO discourse deserves much more attention than discourse involving biological aliens visiting Earth, based on both priors and the observed evidence.

In terms of priors, it seems likely that advanced forms of intelligence would evolve to become fully engineered and non-biological in the long run. Moreover, when considering the extraterrestrial hypothesis for the origin of UFOs, it seems far more likely that self-steering artificial craft would traverse interstellar distances than that biological creatures would. For these reasons, claims involving non-humanly created craft around Earth are considerably more plausible a priori than claims involving biological aliens visiting Earth.

Similarly, in terms of observed evidence on Earth, the evidence for the existence of advanced objects that could potentially be non-humanly created craft is generally much stronger than the evidence for biological aliens. For example, the former sometimes involves multi-sensor data with radar evidence, FLIR footage, and eye-witness accounts from professional aviators and radar operators, all in the same case (e.g. in the Nimitz case; see also this playlist and Coumbe, 2022). In contrast, no such multi-sensor evidence exists in the case of alleged biological aliens.

To be clear, these claims about priors and evidence are claims about *relative* plausibility, suggesting that the existence of non-humanly created craft around Earth is *more* plausible than biological aliens on Earth. They are not claims about the *absolute* plausibility of either of these conjectures. Still, the points outlined above underscore that we have good reasons to look at the serious UFO discourse with rather different eyes than the more exotic part of UFO discourse, and to draw a clear distinction between these divergent segments of the conversation on UFOs.³

6.4.2 Mixed discourse may contribute to neglectedness

Finally, it is worth noting how the mixed discourse on UFOs may contribute to an undue neglect of the topic, including by aspiring altruists.⁴ This can happen for at least two reasons.

First, the mixed discourse can make it unclear from the outside that there indeed is a serious and cautious discourse buried in the dunghill, since that part of the discourse can easily drown in the less cautious one. As a result, most people might never find the serious discourse, even if they

³ Similar points about relative plausibility apply to many other claims found in the broader UFO discourse. For example, when it comes to what kinds of material might be in the possession of the US government (or any other government), it seems that we can rank some of the common claims as follows: $p(\text{possession of additional non-public photographic material}) > p(\text{possession of materials from crashed craft}) > p(\text{possession of alien biological material})$.

⁴ Thanks to Pablo Stafforini and Dony Christie for suggesting this point.

casually try to look for it. Note that this state of affairs might sustain itself and even worsen over time due to a kind of adverse selection: those who are turned off by incautious claims and poor reasoning may stay away from the topic altogether (perhaps quite reasonably, based on what they have seen), while those who are less bothered by such things may happily join in and add their accordant contributions.

Second, the less cautious part of the discourse can further increase the strong social stigma that surrounds the issue, which may in turn discourage us from engaging seriously with the topic — lest other people think we have poor epistemic standards or that we belong to the “quantum healing” coalition.

In the marketplace of ideas, a strong social stigma can serve almost as a de facto ban against seriously exploring a given topic. (This is perhaps especially true in academia, where people may need to worry about things like gatekeepers and ladder-climbing.) Thus, similar to how a strict legal ban can prevent an otherwise feasible product from being brought to market, the stigma against UFOs that is fueled by the incautious discourse may likewise impede efficient understanding and updating related to the UFO topic.

In other words, incautious UFO discourse may contribute to a massive inefficiency in humanity’s exploration of UFOs due to human embarrassment and reputational concerns.

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