

The Size of the Universe and Nihilism

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It's sometimes thought that the vast and empty universe supports metaethical nihilism, or at least counts against moral realism. Philosophers have not been kind to this cliché, but I defend it. The empty skies should indeed make us less confident that anything matters.

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1 The Cosmic Disparity

The universe is old, big, and empty. In comparison, we are *scale-insignificant*. I'm not even two metres tall, the Moon is about 1.3 light seconds away, the nearest star to the Sun is about four light years away, and the nearest galaxy (Andromeda) is about 2.5 million light years away. Time-wise, the disparity is even more striking. Cosmic history is overwhelmingly empty of humans and will go on for at least dozens of billions of years; I don't know how much longer we will live, but it is unlikely to be that long.

These vast spaces and times seem empty of other intelligent life. Industrial civilisations in much of our galaxy would be detectable with current technology. But we don't detect them, despite the billions of stars in our galaxy and the billions of years life has had to evolve. This is the Fermi Paradox.

We have a very small causal impact on the cosmos—we are causally insignificant. It's hard to see how humanity could ever alter the orbit of even a small star around the galaxy, for example. Aside from the radio waves we have emitted since the early twentieth century—fodder for the Fermi Paradox—even the local stellar neighbourhood is basically unaffected by our presence.

These facts amount to a cosmic disparity between our extent and causal influence and the wider universe. We are physically insignificant in that we inhabit a *large cosmos*, what Tim Mulgan calls 'Science World'. If the universe were substantially smaller relative to us, then we'd be in a *small cosmos* akin to Mulgan's 'human-sized' Genesis World—one consisting of our solar system only, a few thousand years old, for example—with no cosmic disparity (Mulgan 2015, 194–95).

But it's not just a matter of size. 'Genesis' talk suggests geocentrism, and science has shown us *that* theory could not be more false. We not at the centre of the universe and (except perhaps for our presence) there isn't anything distinguished or noteworthy about our location. We are location-insignificant.

Location-insignificance is perhaps the most tendentious of the three claims because it is the closest to an evaluative claim rather than a bare scientific fact. It also looks the most open to revision: it's almost unimaginable that the scientific picture of the cosmos underpinning scale- or causal-insignificance could become obsolete, but somewhat more imaginable that physicists could discover something distinctive about this time or region of space.

Even in a small cosmos we would still be insignificant in some of these ways. Earth is a tiny part of the solar system, for example. But not in all ways: we'd have been present for a good fraction of the universe's existence (and so not such a transient phenomenon) and our causal influence would extend through spacecraft to the very edges of the universe. Earth would be location-significant as one of only eight planets, the only one with liquid water, and so on.

Mediaeval philosophers were well aware that the universe is big. For example, (Lovejoy 1936, 100) quotes Maimonides as calculating the distance between the centre of the Earth and 'the summit of the sphere of Saturn' at about 125 million miles.¹ But only during the twentieth century did we learn quite how big, for example discovering galaxies beyond our Milky Way. There are about 150 billion of them. Modern science has taught us that the cosmos is much bigger than we thought even quite recently, and has imposed *in-principle* limits on our interaction with or observation of much of the universe (through a ban on anything faster than light).

So the universe is gigantic and ancient, mostly empty, and—though I haven't focused on this—seemingly almost completely inhospitable to us. I hope you can get into the mindset where the cosmic disparity makes it seem like we don't matter, or even that nothing matters.

2 Two Failed Inferences

How *could* we or anything matter in a cold and indifferent universe like this? That's a pretty common popular science cliché, but many philosophers think Nagel (1971) showed it to be utterly misguided. I'll argue that this consensus is overconfident. In any case, we should take the thought seriously or at least give it a chance: the cosmic disparity includes many of the most important discoveries of modern science and we should explore their metaethical implications.

There are two fallacious arguments from the cosmic disparity in the neighbourhood. They aren't invalid inferences, but they have false—obviously false—premises.

The first such argument is a first-order evaluative one: how can a human being, whose life is so brief, have any value compared to a star that survives billions of years? Compared to a galaxy we are physically insignificant, so how could we matter more than Andromeda? And so on. Here we infer from scale-insignificance to an evaluative claim:

Evaluative Insignificance. We have low value compared to other features of the cosmos.

The inference fails because there's no general link between scale and value. Maybe human lives would be more valuable if they were ten times longer. They would (hopefully)

¹Lecture IV ('Plenitude and the New Cosmography') is particularly informative on this issue.

contain ten times as much happiness, and so on. But this is irrelevant to the *comparison* between us and the cosmos, which I'm calling the cosmic disparity. If making our lives longer would make them more valuable, it would do so even if the empty eons and spaces between galaxies were similarly extended and so the disparity remained

Not all first-order arguments in this area are mistaken. A series of papers by Guy Kahane has revived interest in what the skies imply for ethics. Kahane argues that the empty universe implies that we are particularly significant, *contra* Evaluative Insignificance. If we are the only sentient beings in the cosmos, then we are plausibly the only things with final value. As such, we are enormously important, because anyone who wants to check up on the evaluative status of the cosmos—how are things in the universe doing, in evaluative terms?—should look to the Earth, and in particular to our short lives. Cosmic effective altruists should direct their attention to roughly this time and place, or perhaps create sentient life elsewhere, because 'what we do, and what happens to us, is what determines the overall value of the cosmos' (Kahane 2014, 754).²

The premises of Kahane's argument are subtly different to mine. His aren't really about the size and age of the cosmos, but about the apparent lack of other bearers of final value and thus competitors for significance. His argument would be sound even if the universe began three thousand years ago and extended no further than the Moon's orbit.

Another argument in this region is due to Q. Smith (2003). He claims that if every cube of spacetime has non-zero value (a premise I'd reject) and there are infinitely many such cubes, then each of our actions is morally indifferent, because the total aggregate value in the universe remains infinite, whatever we do. I have several doubts about this argument—besides the assumption about every cube of spacetime, it seems to rely on the premise that all infinities are the same size—but again it's not about the cosmic disparity. What matters is infinite divisibility, and even a small cosmos could be infinitely divisible.

The second fallacious inference is metaethical. In a classic paper, Thomas Nagel argued that our physical insignificance couldn't undermine realist metaethical views:

For suppose we lived forever; would not a life that is absurd if it lasts seventy years be infinitely absurd if it lasted through eternity? And if our lives are absurd given our present size, why would they be any less absurd if we filled the universe (either because we were larger or because the universe was smaller)? (Nagel 1971, 717)

For Nagel, absurdity involves a mismatch between what we want and how things really are (Nagel 1971, 718). If we aspire to act in accord with objective values and reasons but they don't exist, then our actions are certainly absurd in his sense. Our actions are 'not even wrong'. The argument is modal: both the existence and nonexistence of objective values are compatible with a cosmos of any size. As Nagel puts it, facts about our small size cannot be 'what *makes* life absurd, if it is absurd' (Nagel 1971, 717, my emphasis).

Kahane also rejects any attempts to draw metaethical conclusions from the cosmic disparity. In particular, he rejects any such argument that 'nothing matters'—the view I'll call Global Nihilism:

Global Nihilism. All positive moral, normative, and evaluative claims are false.

²This argument has been criticised by Benatar (2017), but for a response I think fundamentally correct, see Kahane (2021).

Global Nihilism is a more extreme cousin of moral error theory. Whereas error theory—most famously defended by Mackie (1977)—rejects positive moral claims (‘murder is wrong’) as erroneously resting on the error that there can be categorical reasons for action, Global Nihilism rejects *hypothetical* reasons too. The Global Nihilist throws out all aspirations to normativity and its evaluative cousins. Though he doesn’t use the term often, Bart Streumer’s ‘error theory about all normative judgements’ is a form of Global Nihilism (Streumer 2017).

Kahane argues that if Global Nihilism is true, then it would remain true no matter how big the cosmos is. On the other hand, if evaluative realism is true, then the size of the cosmos also has no impact on *that* truth. In short, both metaethical theories are compatible with any physical structure of the cosmos (Kahane 2014, 748).

This modal argument—what I’ll call the ‘Nagel-Kahane challenge’—shows that there can’t be any *entailment* or *necessitation* between the size or age of the universe and any meta-ethical claims. But that isn’t surprising. (Sidgwick 1907, 213) noted that ‘ethical propositions, relating as they do to matter fundamentally different from that with which physical science or psychology deals, cannot be inconsistent with any physical or psychological conclusions’. Inconsistency is a very high bar—physical claims are hardly ever outright inconsistent with anything—and not one I’ll be trying to meet.

Since then, philosophers have become cocky. (Nagel 1971, 717 and 725) writes that though ‘reflection on our minuteness and brevity appears to be intimately connected with the sense that life is meaningless’, he finds only ‘bad’ or ‘inadequate’ arguments to support the connection. (Velleman 2013, 119) has a different take, but enjoys seeing Nagel ‘turn the tables on this cliché’, but I think at this point the real cliché in philosophical circles is the *rejection* of any inference from the cosmic disparity. (Kahane 2014, 748) thinks it ‘obvious’ that ‘the size of the universe, and our tiny dimensions, have no metaethical significance’.

Besides the first-order discussion by Tim Mulgan that I discuss below, I am not aware of any sustained positive attempt to mount what Mulgan calls an ‘argument from scale’, especially at the metaethical level. Bertrand Russell claimed that ‘purposeless [...] void of meaning, is the world which Science presents for our belief’, and we see an ‘alien and inhuman [...] hostile universe’. But he doesn’t offer much by way of argument, which is why I call him only a partial exception (Russell 1985).

After noting with characteristic verve that ‘we are not in the centre of anything interesting: our location in the galaxy, just for starters, seems almost extravagantly non-committal’, Bernard Williams claims that it ‘seems hubristic or merely silly to suppose that this enterprise has any special interest in us’ and that ‘the idea of the absolute importance of human beings seems finally dead or at least on the way out’ (Williams 2006, 136.). Here ‘absolute’ is to be understood in metaethical terms, as something like ‘real’ and contrasted with the merely perspectival. But again, there’s little by way of argument, and calling something silly and hubristic is no substitute for one, no matter how patrician one’s tone.

3 The Evidential Argument

The Nagel-Kahane challenge clearly shows that our physical insignificance—the cosmic disparity—doesn’t entail Global Nihilism. But as I’ve mentioned, entailment (inconcistency) is a high bar. The disparity could still be *evidence* for a metaethical view.

Following the quote above, (Sidgwick 1907, 213) continues that we can nevertheless ‘prove that some ethical beliefs have been caused in such a way as to make it probable that they are wholly or partially erroneous’. I don’t want to strain the analogy too far, because Sidgwick is concerned with the genealogy of our ethical beliefs and I am not, or not directly. But his point illustrates the kind of argument I intend.

This is an obvious possibility considering the parallels between the cliché and arguments concerning the existence of God. Bambi dying in agony could be evidence that there’s no God even if it doesn’t entail His absence. Such an argument from evil relies on the claim that (an omnipotent, omnibenevolent, omniscient) God wouldn’t permit needless suffering without a very good reason. But what is the metaethical analogue of claims about a benevolent God’s psychology? Why think that Global Nihilism’s falsity would causally favour a small cosmos? If it would—if the cosmic disparity is more likely given Global Nihilism than given its denial—then the cosmic disparity is some evidence for Nihilism.

I’ll call this the Causal-Evidential Argument, and it could perhaps be made to work against theistic forms of moral realism (where ‘realism’ is the denial of ‘nihilism’). This could be so on both horns of the Euthyphro dilemma. The value of a small cosmos could be causally connected to the structure of the universe, whether through having a common cause (God’s preferences) or through God grasping an independent evaluative reality:

- Given voluntarism, if God prefers a small cosmos to a large cosmos, this could both make the former more valuable and make it more likely to be instantiated.
- If a small cosmos is independently more valuable than a large cosmos, then a benevolent God is (to that extent, and defeasibly) more likely to create a small cosmos than a large cosmos.

To frame things a bit more precisely and lay the groundwork for later, I’ll start putting claims in Bayesian terms, where p measures our credences or degrees of rational belief. Letting ‘CD’ be the cosmic disparity and ‘HEV’ be the claim that humans are especially valuable, the causal intuition I’m getting at is that the cosmic disparity is less likely if humans are especially valuable:³

Human Value Deprobabilifies the Cosmic Disparity. $p(CD|HEV) < p(CD|\neg HEV)$

But we want to go in the other direction. By a simple application of Bayes’s Theorem— $p(A|B) = p(B|A)p(A)/p(B)$ —we can reach the standard likelihood principle: $p(HEV|CD)/p(HEV|\neg CD)$ is proportional to $p(CD|HEV)/p(\neg CD|HEV)$. In other words, how much the cosmic disparity supports humans being extremely valuable depends on whether and how much humans being extremely valuable affects the likelihood of the cosmic disparity.

³Here’s a reference card for the alphabet soup in this paper. CD: Cosmic Disparity. HEV: Humans are Especially Valuable. IR: Instrument Readings. NM: New Matter. OM: Old Matter. RR: Robust Realism. VJ: Value Judgements.

So the likelihood principle says that together, Human Value Deprobabilifies the Cosmic Disparity and the cosmic disparity form evidence against our being especially valuable. I've argued that there is a cosmic disparity, so we are half way there.

But why believe Human Value Deprobabilifies the Cosmic Disparity? It's easy to gesture at a theistic rationale: why would a benevolent God create a cosmos like *this*? We might expect a creator God to put His most valuable creations front and centre, and so if humans are especially valuable we'd expect them to be front and centre. The cosmic disparity says that in various ways we are *not* so prominent.

But this piece of divine psychology (about what we 'might expect' God to do in certain circumstances) is quite tendentious. After an insightful discussion, (Mulgan 2015, especially chapter 7) rejects such arguments as too dependent on highly disputable claims about the link between value and the structure of the cosmos. For example, even if humans *are* especially valuable—even if they the only material thing with final value—so long as Earth's human population is sufficiently good, then God doesn't make things *worse* by adding empty aeons and galaxies to His creation. Why would God put them front and centre? It's not as if He is running a shop and wants attract customers with his most valuable wares.

I think Mulgan is correct, but the real problem for me is more fundamental: most contemporary realism is atheistic, holding that objective evaluative properties are causally inert, except perhaps through being grasped by (and motivating) rational agents—and God isn't one of them. Any inference from the cosmic disparity loses force (or at least audience) if it assumes God's involvement.

Henceforth I'll assume that the macroscopic structure of the cosmos is nobody's handiwork, and that there is no *causal* connection between objective values and the cosmic disparity.

4 Robust Realism

But if there is no causal link between objective values and the disparity, how could one be evidence for the other? Let's take a step back.

Here is my picture of metaethics. One of the main features of our lives is that we make evaluative judgements. They range from what Gilbert Harman calls 'moral observations' where a moral judgement (in his queasy example, that torturing a cat is wrong) is 'a direct result of observation', all the way through to our quieter more reflective doubt that it was really permissible to walk past that beggar without stopping (Harman 1977, 5). As (Street 2006, especially p. 117) puts it, we—and other creatures—seem to experience some things as 'calling for' certain reactions. I'll group all of these behaviours and judgements under the broad heading of our 'evaluative judgements'.

Metaethical theories are competing theories of our evaluative judgements, their phenomenology and so on. If we didn't make evaluative judgements, then there would be nothing to do metaethics about.

Global Nihilism says that such judgements don't correspond to anything objective in the world. At the opposite end of the scale is

Robust Realism. There are *sui generis* evaluative or other ethical properties.

Robust realists claim that our evaluative judgements are (sometimes veridical) observations or judgements that some objective value property applies. There really are normative reasons to be grasped, and they can serve as truthmarkers for ‘an innocent child suffering pointless pain is bad’. The robustness lies in the ontology: the truthmaker is *sui generis*.

Robust Realism carries an unapologetic ontological commitment to (for example) objective values of a wholly non-naturalistic or otherwise *sui generis* nature. Modern Robust Realism accepts the naturalistic universe but adds to its ontology these distinctive properties. Plato’s Forms and Moore’s Good are the classic examples, but prominent contemporary defenders include David Enoch and Russ Shafer-Landau (Enoch 2011; Moore 1903; Plato, Grube, and Reeve 1992; Shafer-Landau 2003). As Enoch puts it in a recent paper, ‘robust realism is committed to the thought that what ultimately explains the wrongness of genocide is some material in the non-natural part of the universe’ (Enoch 2021, 1691).

Many—most!—moral realists are not robust. They are typically instead naturalistic or quietist. The naturalistic realist, for example, says that there are truthmakers for our evaluative judgements but they aren’t fundamentally distinct from other properties. Railton (1986) makes a classic defence of this view.

So Robust Realism is just one of many competing explanations of the evidence, that evidence being our evaluative judgements. I don’t mean the *content* of those judgements. Some anti-realist arguments do appeal to the content of our evaluative judgements: famously, Street (2006) argues that their content is awfully similar so what we’d expect were an anti-realist evolutionary origin story for them true.

Instead I mean the structural features of such judgements, in particular their (apparently) intrinsic motivational and normative force and their claims to objectivity. These structural features are central to metaethical argument. Famously, M. Smith (1994) gets his ‘moral problem’ off the ground by asking how moral judgements can have the character of beliefs yet be intrinsically motivating.

Robust Realism’s answer is that evaluative judgements grasp *sui generis* properties, and those properties are capable of playing both of these roles. That’s why (Mackie 1977, 38) claims that such realists require ‘qualities or relations of a very strange sort, utterly different from anything else in the universe’. If it could be sustained, such an ontology would offer an excellent theory of these features, and need have no problem with the special features of moral judgements. If the properties in question are fundamentally distinct from naturalistic properties, then we have little reason to doubt that they could have these features. That naturalistic properties would struggle is neither here nor there. We are talking about something new.

Some don’t think that our evaluative judgements count in favour of Robust Realism *at all*. (Harman 1977, especially p. 6) claims that objective evaluative facts are ‘completely irrelevant to any reasonable explanation’ of moral observations (which, remember, are a subset of the data I’m considering). Instead, he claims that we need only appeal to psychological facts about the moral observer—we can explain moral observations equally well without adding objective evaluative properties to our ontology. He will not be the

target of the argument to follow, but note that his position fits neatly into the way I've construed metaethics, as providing the best theory of our evaluative judgements.

But Harman and his allies aside, why isn't everyone a Robust Realist? If that view best explains the data, why not hold it? Because adding *sui generis* properties to our ontology is not free, at least on many plausible parsimony principles. Ockham famously claimed that 'a plurality is not to be posited without necessity' and 'it is useless to do with more what can be done with fewer'.⁴ A weaker version of this Razor has been defended somewhat more recently by Jonathan Schaffer, whose *Laser* enjoins us

'do not multiply fundamental entities without necessity!' (Schaffer 2015, 647)

The Laser is weaker because it's restricted to fundamental entities. For Schaffer, 'derivative entities are additional commitments, but they cost nothing' beyond their underlying fundamental entities (Schaffer 2015, 648.). The Laser tells us to avoid new *kinds* (not numbers) of fundamental entity.

I'm concerned with what we might call a 'pro tanto' Laser, where new fundamental entities are a theoretical cost, but one that could nevertheless be worth paying. The Laser's 'necessity' is the kind of *rational* necessity considered by Schaffer—we are trying to maximise the 'ontological bang for the buck' (Schaffer 2015, especially p. 652).

The Laser counts against Robust Realism, which is nakedly ontologically committal in terms of new fundamental entities. Other metaethical views trade in *derivative* entities, such as naturalistic properties or mental states, and so are not in the Laser's sights.

Here then is how I understand the metaethical dialectic. Both Robust Realism and its competitors can explain the data—the special features of our evaluative judgements. We have a case of the underdetermination of theory by data. But we are engaged in Inference to the Best Explanation. The competing theories have different strengths and weaknesses: on its own terms, Robust Realism offers the best explanation of our evaluative judgements, but it pays a parsimony price. If Robust Realism *were* true then it would give an extremely satisfying account of our moral lives, but the Laser gives us reason to be a little less confident that it is true.

Some—including for example Sober (2015)—doubt that Inference to the Best Explanation and ontological parsimony principles (such as the Laser) are 'truth-conducive' in philosophy, perhaps as opposed to in natural science.

Below I will give an inductive defence of something like the Laser in metaethics, but I'll also rely on a less exciting dialectical fact: almost all sides in metaethics *do* proceed in weighing terms, and accord parsimony some weight. (Mackie 1977, 42) thinks that the parsimony cost of 'queer' entities isn't worth it and so the moral error theory is 'in the end less paradoxical', whilst Enoch talks in terms of 'plausibility points' for Robust Realism. Both are clearly using the language of weighing reasons for belief, and finding the best—most plausible, least paradoxical—explanation, where ontological cost figures in that weighing exercise.

To return to the Bayesian talk, let 'VJ' be our value judgements. To say that Robust Realism (RR) provides a better explanation of them than competing theories do in the

⁴For references to the original, see Maurer (1984).

aggregate is to say that $p(VJ|RR) > p(VJ|\neg RR)$. On its own terms, Robust Realism offers the best explanation of the data. But the assessment is *not* entirely on its own terms: we must consider the ‘prior’ likelihood $p(RR)$, which will be affected by many things including parsimony. On its own terms the theory that I was abducted by aliens is an excellent explanation of why I woke up in the night last night, but the prior likelihood of that theory is pretty low.

So that’s the metaethical dialectic as I understand it. Robust Realism gains plausibility from its explanation of our moral observations, but loses it to parsimony—queerness—considerations. The question is whether the explanatory payoff justifies the ontological cost.

5 Scale and Ontology

That, I think, should be relatively uncontroversial. But how could the size of the universe be relevant to any of it?

The Causal-Evidential Argument considered humans *qua* candidates for value. It asked, why aren’t there more and bigger of them? So does Kahane’s argument for our first-order significance: are there any competitors for such value?

The Abductive-Evidential Argument will be quite different. It will consider humans *qua* beings who make evaluative judgements. We are the only things we know of that putatively recognise and respond to reasons, values and the like in a fully-fledged reflective way. The only *valuers*.

The cosmic disparity is a set of facts about the place of valuers in the universe. For most of the universe’s existence, there have been no valuers on Earth; most of space does not include any valuers; our limited causal influence means that there are fewer areas of space and time whose behaviour is explained partly in terms of the behaviour of valuers; the lack of alien life and the inhospitability of space suggest that there are few or no nonhuman valuers, and that this situation will not change.

When we do metaethics—and metaphysics in general—we aren’t just theorising about valuers, but about the universe as a whole. We need to fit our theory of the former into our theory of the latter.

It’s clearly a theoretical virtue to provide good explanations of more *kinds* of phenomena. But I’m interested in whether it’s a theoretical virtue to well explain well a greater *proportion* of the phenomena, where that’s understood in broadly numerical terms as the scope or scale of the area in question. I think it is, and the easiest way to see this is to consider what its denial would look like.

Suppose we have a good theory of what’s going on over *here*, and another good theory of what’s going on over *there*. We want a unified theory that explains the goings-on in both places. The most deflationary methodology simply conjoins the explanations of the different regions of the evidence base, in a patchwork quilt model of explanation:

Patchwork. Let the total evidence base E be partitioned into partial evidence bases E_1, \dots, E_n . If the best explanation of each E_k is T_k , then the best explanation of E is $T_1 \& \dots \& T_n$.

Patchwork says that there are no ‘whole-domain’ explanatory principles; the best explanation T_k of some E_k is automatically part of the best explanation T of E . If some property or unobservable entity features in the best explanation of part of E , then it features in the best explanation of E , regardless of any facts concerning the other parts of E and *their* best explanations.

Patchwork is obviously false because sometimes the partial theories T_1 and T_2 are inconsistent. If the best explanation of E_1 involves a magnetic monopole, but the best explanation of E_2 involves a law which says that necessarily, there are no magnetic monopoles, then clearly, the best explanation of E won’t be $T_1 \& T_2$, because *that* theory says there are magnetic monopoles and there are necessarily no magnetic monopoles. (The ban on monopoles could be geographically restricted to E_2 , but without further explanation such a move would be enormously gerrymandered.)

So there is at least one whole-domain explanatory principle: avoid inconsistency. Perhaps that’s the only one—perhaps we are licensed (and required) to conjoin partial explanations unless they contradict each other:⁵

Consistent Patchwork. Let the total evidence base E be partitioned into partial evidence bases E_1, \dots, E_n . If the best explanation of each E_k is T_k , then the best explanation of E is $T_1 \& \dots \& T_n$, except where that conjunction is inconsistent.

But Consistent Patchwork is unmotivated. If we can depart from Patchwork to avoid inconsistency, why not also to avoid weaker calamities, such as a mere theoretical tension between the T_k ?

Suppose that a coin is tossed 10,000 times. Each E_k is the result of the k th toss of the coin, together with a physical examination of the coin before it is tossed. No signs of bias are found. The best explanation T_k of each E_k is that the coin is fair on that toss. But if the coin lands heads every time, then clearly the conjunction of the T_k —that a fair coin was tossed 10,000 times—is not (contra the patchwork principles) the best explanation of E , that the coin landed land heads 10,000 times in a row. The best explanation is that there was some trickery too subtle to detect. But as in other underdetermination cases, the ‘fair coin’ theory is *consistent* with the evidence.

Another problem for patchwork is that quilts can be constructed in different ways. Suppose I have another slightly-biased coin, and this one will turn up heads exactly six times out of ten (starting from its inaugural toss, each ‘decade’ of tossing will contain six heads). The coin is tossed 10,000 times, and sure enough there are 6,000 heads. This evidence can be partitioned in many ways, including:

1. Each E_k is the k th collection of 10 sequential tosses (the k th decade). Then given some antecedent default credibility to fairness, each T_k is that the coin is fair during that decade: coming up heads 6 times out of 10 is rather likely for a fair coin. So Consistent Patchwork says the best overall theory is that the coin is fair throughout.
2. Each E_k is the k th collection of 100 sequential tosses (the k th century). Then plausibly the best T_k for each is that the coin is biased, because 60 heads is somewhat unlikely. Then the overall theory T is, according to Patchwork, that the coin is

⁵Compare Williamson (2016), p. 267.

biased throughout. If centuries do not convince you, imagine groups of 500 sequential tosses. So depending on how the evidence is partitioned, the Patchwork principles imply different total theories. This is to say nothing of gerrymandered cases, where the E_k are collections of non-sequential tosses.

We often talk in terms of a trade-off between theoretical simplicity and strength. Granting this talk, my argument has been that the simplest and strongest explanation of E is not always, and often won't be, the conjunction of the simplest and strongest explanations of each E_k . So the Patchwork principles are false, and there are whole-domain explanatory principles beyond mere consistency.

But what are they? (Williamson 2016, 266) claims that 'apart from its relation to E , the more T has the intrinsic virtues of a good theory, the better (*ceteris paribus*). It should be elegant and unified, not arbitrary, gerrymandered, ad hoc, or messily complicated. It should be informative and general.' Though the particular virtues listed may be debatable, the general point is surely correct.

I claim that size matters. An addition to our ontology to cope with a phenomenon occupying 1% of the evidence-base may not be justified, because it might be better to take the slightly less convincing explanation of the 'local' phenomenon and preserve parsimony. But the addition becomes more justified (all else equal) if that phenomenon occupies 60% of the evidence-base.

Here's an example. We are on a distant planet, examining a new rock type, and our instrument readings (IR) are very strange indeed. There are two theories:

New Matter (NM). The rock is a fundamentally new type of matter.

Old Matter (OM). The rock is not a fundamentally new type of matter, but the strange local conditions are interfering with our measurements.

Suppose that considered in isolation, New Matter is the best explanation of our readings. But the readings don't *entail* the truth of the ontologically-bloated theory, because Old Matter can explain them via a somewhat gerrymandered and unsatisfying story involving an interaction between the geology of the planet and our instruments and even senses. The likelihood of the readings is lower given Old Matter, but not zero: $1 > p(IR|NM) > p(IR|OM) > 0$.

If we were *just* after the best theory of the planet in question, ignoring what we know about the rest of the cosmos, then we would plump for New Matter. Patchwork implies that because New Matter is the best theory of the planet in question, our total cosmic theory must include the fundamentally new matter—even if the observations that support it are seen nowhere else, and the new type of matter is explanatorily otiose everywhere else. But this is clearly not so, and we rejected the Patchwork principles.

Old Matter is more ontologically parsimonious, something that comes into play when we consider our best theory of a broader area, or even the entire universe.

Whether our total theory should include the new type of matter depends in part on whether its explanatory payoff is limited to the planet in question. If the rock type is found on many planets in different places, then admitting the new matter to the ontology is less painful. One corner of one planet can be explained as a glitch or an aberration, and a slightly inelegant explanation here—Old Matter—might make the total explanation of

the cosmos *more* elegant (because simpler), but things are different when thousands or millions of planets would be explained inelegantly. Scale matters.

It might be objected that scale is not always a pro-tanto theoretical virtue. For example, sometimes extremely rare phenomena are probative *because* they are rare. Frictionless planes are crucial tests of a physical theory, though they are nonexistent and thus even rarer than valuers. So clearly their small scale doesn't count against them. This example doesn't succeed because frictionless planes are not just rare—they don't exist. Frictionless planes are idealisations, and as such raise separate issues. They are significant because of their (impossible) simplicity. We couldn't increase their scale (if that even makes sense) without losing what is distinctively useful about them, such as their simplicity. Frictionless planes are not real phenomena to be explained—they are a device used to explain real phenomena.

But there are other examples. Black holes exist and are crucial test cases for physics, despite their scale-insignificance. This is true, but black holes are one extreme of a phenomenon—dead stars by mass—and aren't really a separate phenomenon that gets a completely separate theoretical treatment. Stellar evolution is pervasive and cosmically big in all the ways we aren't. So in constructing a theory, stellar evolution *should* be taken seriously, and we should weigh explanations of one aspect (black holes) highly. Metaethics isn't like this: human value judgements are not (plausibly) one end of the spectrum of a cosmically huge phenomenon.

But even black holes alone are much bigger, more widely-distributed, and longer-lived than humans. We should wish to have their scale and causal influence! Even absent the broader point about stellar evolution, their scale contributes to their explanatory importance. Were there just one black hole, small and short-lived as humanity is, it'd be less scientifically important. Of course we'd prefer our total astrophysical theory to account for it, but not at any cost. It would be a curiosity, (hopefully) to be handled by future theory.

6 The Abductive-Evidential Argument

I'll now turn to the Abductive-Evidential Argument from the cosmic disparity.

I assumed that Robust Realism offers a better explanation (in isolation) of evaluative judgements than competing theories do, because its *sui generis* evaluative properties are tailor-made to explain our value judgements: $p(VJ|RR) > p(VJ|\neg RR)$. Because they are bespoke, it's hard to explain what else could do a better job! I will be arguing against Robust Realism, so I'm happy to make this concession to it.

When we do metaethics, we are (amongst other things) constructing a total metaphysical theory of the cosmos—including a very general ontology. Our evidence base for this project is everything we know or think we know about the universe, ranging from mediaeval history to the structure of dark matter to mathematics. The point here is simply that whatever ontology we settle on for metaethics must fit into our total theory, if we are going for a genuine realism. So, for example, I'm here excluding the neo-Carnapian realism of Scanlon (2014). But even that must 'fit in' in a broader sense: it works given a broader metaphysical commitment to neo-Carnapianism. Since Patchwork is false, the rest of the cosmos can be relevant to our metaethical view.

So, the best explanation in isolation of value judgements is a *sui generis* addition to our ontology. And let's assume that valuers are the *only* evidence for Robust Realism. Nothing else in the cosmos would be explained by fundamentally new objective values.

In our large cosmos, valuers are a vanishingly small part of the total evidence base, so the vast bulk of our evidence leaves objective values explanatorily otiose. The explanatory import of Robust Realism's (isolatedly) excellent explanation of our evaluative judgements is restricted to that tiny part of the cosmos. In a small cosmos, on the other hand, Robust Realism would offer a good explanation of a substantial fraction of the evidence.

But the parsimony cost of Robust Realism—the addition of *sui generis* objective values—remains unchanged whether the cosmos is large or small.

So we face a parallel of the new matter case. The overall explanatory case for Robust Realism is weaker in a large cosmos: the balance of parsimony versus a compelling explanation of our evaluative judgements is shifted. Even if we should tolerate or welcome a queer addition to our ontology to explain vast tracts of the universe, it is less clear that we should do so to explain a small, short-lived corner of it. The explanatory cost of an otherwise unsatisfyingly non-robust account of our value judgements—that they are in error, projections of attitudes, or perceptions of natural properties, for example—becomes more acceptable. Like the isolated black hole, the curious moral psychology becomes a detail to be cleared up in future theory.

This way of putting the argument unifies scale-insignificance (we are a small part of the evidence base), causal-insignificance (we do not influence other parts of the evidence base), and location-insignificance (we are not in an independently-noteworthy time or place that might merit special attention). These are ways in which from the point of view of the universe we fade into the detail. As we so fade, providing a compelling account of our activities and judgements becomes less rationally necessary.

The cosmic disparity provides second-order evidence against Robust Realism: it is not independent evidence, but it attenuates the evidence from our evaluative judgements. This Abductive-Evidential Argument is *contributory*: the cosmic disparity subtracts some plausibility points from Robust Realism. But it need not tip the balance. One can accept the argument whilst thinking that Robust Realism was never plausible anyway (though it would have been more plausible in a small cosmos), or that it still wins out (in which case, the victory would have been more decisive in a small cosmos).

Strictly speaking, I also need the premise that no *other* evidence for or against Robust Realism is provided or affected by the size of the cosmos. Perhaps through some unforeseen evidential route the cosmic disparity actually supports Robust Realism? I would count this a sort of victory: *pace* the philosophical consensus I described above, the size of the universe is relevant to the true metaethical theory, albeit in an unexpected way.

The scale of the cosmos doesn't affect the quality of the explanation Robust Realism offers of our value judgements—it doesn't affect the balance between $p(VJ|RR)$ and $p(VJ|\neg RR)$ —but it does reduce the prior probability $p(RR)$ of the theory. And it does this by rendering Robust Realism inherently less 'lovely', to use the memorable term of Lipton (2004). This is how the size of the universe affects metaethical theory choice.

7 Why Care about Loveliness?

There are questions about the vindication of IBE—about how loveliness can be truth-conducive—especially in philosophy, but here I’ll sketch a defence of it that also supports the Abductive-Evidential Argument.

The cosmic disparity tells us not just that we are in a large cosmos, but also in a largely *explanatorily-unified* cosmos. As far as we can tell, everything that exists in the universe outside of here and now is explicable in physical terms. Were the universe vast but empty, with us inhabiting a solitary solar system in a cosmic void since right after the Big Bang, then the cosmic disparity would not be so metaethically striking. The actual universe shows us not a vast void, but a vast collection of things that *seem clearly explicable in physical terms*.

Physicalism—the claim that *everything* is explicable in physical terms—has an excellent track record in the actual cosmos, as far as we can tell. It’s had uninterrupted billions of years of explanatory success across billions of light-years, and this success looks set to continue for some time yet. Unless you are a skeptic about induction, this track record provides some inductive support to physicalism as a general thesis.

Compare Marc Lange’s recent defence of IBE as truth-conducive:

for different facts E, there are different characteristics where our background knowledge of other explanations gives us some reason to expect that E’s explanation will turn out to have these characteristics, and these other explanations thereby tend to confirm any hypotheses that have those characteristics and would explain E. (Lange 2022, 97)

Here, for me, ‘E’ is our value judgements, and the characteristic I have in mind is a physical explanation. If we accept Lange’s inductive claim, then we have inductive evidence that our value judgements too should be brought into the physical fold. But that would obviously be incompatible with Robust Realism. So the size of the universe provides abductive support for physicalism, and thereby reduces the prior probability $p(RR)$ of Robust Realism.

In a small cosmos (such as once again only our own solar system), physicalism’s spatial track record would still be impressive—most of the solar system and hence universe would lack valuers. But to echo the point made above, valuers would have been present for much of the universe’s lifespan, and their causal influence would extend across the entire cosmos. They would live on the only planet with liquid water, and so on. There would be less inductive evidence for physicalism, and so the evidential parallel of the Nagel-Kahane challenge fails: modally, the scale of the universe *does* affect the strength of the evidence for or against the various metaethical theories.

As the Sun rising every day so far should make us a little more doubtful that it will not rise tomorrow, so the contents of every other stellar system being explained physically should make us a little more doubtful that *this* stellar system requires the non-physical.

We can now see that Russell was right to talk in general terms about ‘the world which Science presents for our belief’, because scale is not the only issue: the scale of the physical does the work. We might have lived in an enchanted large cosmos where everywhere you look there is magic and spirits, each justifying a *sui generis* addition to

our ontology. Then the prior probability of physicalism would be much lower, and the explanatory threshold for adding Robust Realism's *sui generis* properties to the ontology commensurately lower. Intrinsically-motivating evaluative properties fit neatly in such an enchanted world. But that doesn't seem to be our world.

To restate the core idea behind the Abductive-Evidential Argument: Robust Realism might offer an excellent picture of our value judgements, but its *sui generis* properties must fit into our overall picture of the cosmos. Since the cosmos is vast and explicable in physical terms, that fit is an awkward one and so there is less rational pressure—less rational necessity—to accept them, especially given the ephemerality of valuers.

So the argument should make you lose credence in that form of realism. How that credence is re-apportioned will depend on your other commitments, including whether you take other forms of evaluative realism to face a parsimony challenge (are all forms of naturalistic realism invulnerable to the Laser, for example?) and how antecedently committed you are to the truth of some moral claims, and (conversely) your willingness to countenance moral error theory or Global Nihilism. But the cosmic disparity does have a nihilistic upshot: it should make us less confident that our cares and values are distinctively reflected in the *fundamental* structure of reality.

8 Response to Objections

I'll consider five objections to the Abductive-Evidential Argument.

The first is that even if we are not distinguished by our size, we are distinguished in other ways, and this might contribute to the importance of our activities in formulating a total metaphysical theory. For example, though we are small, we are complex. As (Parfit 2011, 626) claims, 'even a squirrel's brain is more complicated than a lifeless galaxy'. This unusual complexity could indeed be a special feature of valuers, one that would justify giving our evaluative judgements or other features extra weight in the total metaphysical picture of the world. More specifically, one might think that our complexity makes it more plausible that we are somehow in touch with objective values, in ways that a lifeless galaxy could have no hope to be.

There is clearly something to this point, but it doesn't undermine the Abductive-Evidential Argument. That argument is *ceteris paribus*: it would be better for Robust Realism if we were both the size and complexity of a galaxy!

The second objection appeals to companions in guilt. Doesn't the Abductive-Evidential Argument have implausible consequences for non-metaethical cousins of Robust Realism? Those theories also posit a fundamental new ontology to explain apparently local phenomena.

The obvious example is the mental. In particular, dualism—as opposed to physicalism—in the philosophy of mind is proudly ontologically inflationary. There too, ontological parsimony is often taken to count against dualism, and some responses appeal to its competing explanatory virtues. See for example Zanotti (2021) and the references there for parsimony in the physicalism/dualism debate. But I regard this as a companion in innocence, not in guilt: wouldn't *sui generis* mental entities be more plausible if mind were spread throughout the universe, more or less since its creation? I think obviously

so, and were I a philosopher of mind rather than an ethicist, I might have written this paper about that topic instead.

Third is another kind of companion in guilt: isn't the argument self-undermining? Possibly, if the evidential normativity and the theoretical virtues the argument relies on are also undermined by its conclusion. This is Geoffrey Sayre-McCord's general strategy against 'explanatory impotence' attacks on moral realism (Sayre-McCord 1988). There is at least a *potential* worry here: insofar as the size of the universe supports Global Nihilism, any appeal therein to reasons for belief incompatible with Nihilism looks self-undermining.

But the Abductive-Evidential Argument would be unlucky to fall victim to this worry, because the argument's target is narrowly Robust Realism. The worry gets a grip only if the argument itself relies on 'robust' epistemic normativity that's also in the sights of the Laser. And even if we become convinced that our theoretical reasoning is unsupportable, we'll have to go on forming beliefs, perhaps using some revisionary non-robust construal of epistemic normativity, and the argument might be reconstructed on that construal.

The final objection is that something *must* have gone wrong with the argument, because the cosmic disparity is contingent. A nuclear war could reduce or eliminate the population of valuers. More hopefully, there might be many more of us into the far 'long-termist' future. And so the argument takes contingent facts about valuers as evidence against a timeless metaethical theory. Granted, but notice the tiny effect size: going from a thousand to a trillion humans is a big *relative* change, but negligible from the point of view of the cosmos.

In any case, the importance of contingent facts follows from the way I construed the metaethical dialectic, as finding the best theory of our evaluative judgements. If there were no valuers (which we of course know not to be the case—we have to 'step outside ourselves' to imagine it) then there would be no evidence for Robust Realism. If there were no minds then there'd be no evidence for dualism. Much of philosophy involves appealing to temporary and contingent pieces of evidence for or against eternal (and necessary) claims. This is an interesting issue in its own right, but I don't think it undermines the Abductive-Evidential Argument in particular. And not all disparity facts are contingent: it's not contingent that we are trapped within our light cone.

9 Conclusion

The big barren universe is second-order evidence that there are no *sui generis* objective values, though it doesn't entail their absence. If we are a blip, then it's less explanatorily troublesome to see our value judgements explained in a parsimonious but slightly unsatisfying way, one befitting our diminished cosmic status.

Thus a common but unsatisfying response to queerness arguments—*so what* if moral properties are utterly unlike everything else in the universe?—rests on a false picture of explanation. Once we allow whole-domain principles, the rest of the universe is in-principle relevant to our theory of evaluative judgements, that is to metaethics, because the non-valuing part of the universe is also part of the domain of explanation.

The lack of aliens is a crucial premise in Kahane's argument for our significance (they would compete with us for final value). For my argument, they are less central: non-

human valuers would expand the scope of ‘us’, and Robust Realism would gain some plausibility insofar as it does solid explanatory work beyond Earth. But if they don’t seem to make evaluative judgements, then the inductive case against such realism is strengthened. It will depend on just how alien they are, and how physically significant they are.

I’ve argued that there’s truth to the old cliché that the size of the universe counts in favour of Nihilism—or at least against Robust Realism. But the Abductive-Evidential Argument relies on abstruse principles about explanation and the theoretical virtues of physicalism. Can they really be at work behind the cliché? I think so, because one way of putting the cliché is this: science shows that our caring about things and thinking them valuable is a local and recent phenomenon, so we shouldn’t be too hopeful that it reflects a fundamentally distinctive ‘robust’ feature of reality. My argument isn’t too far from that.

Even if the Abductive-Evidential Argument can’t sensibly be seen as a vindication of the popular cliché, we can at least see that a philosophical reconstruction of the thought survives the Nagel-Kahane challenge. *Pace* my opponents, even if inferring from our small size to Nihilism is a mistake, it’s not a trivial mistake worthy of mockery.

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