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Statement of Perspective. The word *zygon* means the yoking of two entities or processes that must work together. It is related to *zygote*—meaning the union of genetic heritage from sperm and egg, a union that is vital in higher species for the continuation of advancement of life. The journal *Zygon* provides a forum for exploring ways to unite what in modern times has been disconnected—values from knowledge, goodness from truth, religion from science. Traditional religions, which have transmitted wisdom about what is of essential value and ultimate meaning as a guide for human living, were expressed in terms of the best understandings of their times about human nature, society, and the world. Religious expression in our time, however, has not drawn similarly on modern science, which has superseded the ancient forms of understanding. As a result religions have lost credibility in the modern mind. Nevertheless some recent scientific studies of human evolution and development have indicated how long-standing religions have evolved well-winnowed wisdom, still essential for the best life. *Zygon*'s hypothesis is that when long-evolved religious wisdom is yoked with significant recent scientific discoveries about the world and human nature, there results credible expression of basic meaning, values, and moral convictions that provides valid and effective guidance for enhancing human life. *Zygon* also publishes manuscripts that are critical of this perspective, as long as such papers contribute to a constructive reflection on scientific knowledge, human values, and existential meaning.

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Editorial

Religion and Contemporary Crises

In this Editorial for the September 2025 issue, you will find a brief overview of the articles included in this issue, both in the general section and in two thematic sections, as well as an overview of books reviewed in the latest edition of *Reviews in Science, Religion and Theology*.

Articles

This issue contains eight general articles. Joaquin Menacho and Llorenç Puig-Puig address salvation through technology; they contrast Christian hope in God's redemption with the hope offered by transhumanism, leading to a guide for reflection on the challenges that technoscience poses. Halvor Kvandal and Gabriel Levy focus on end of the world narratives in environmental movements; they explore the biological underpinnings of Extinction Rebellion's Green Apocalypse narrative, and they argue that such a narrative can be seen as a simulation-device that lets social activists experience the end of the world virtually. David Robinson discusses niche construction theory as a corrective to accounts that neglect or diminish the agency of organisms in evolutionary process; he argues for a shift away from seeing humans as co-creators with God in order to better understand ourselves as niche co-constructors. David Nikkel reviews self-organizing systems and divine action; he qualifies attempts by scholars of science-and-religion to reconcile divine particular causation with scientific knowledge as a failure, and he explores a model for reinterpreting the divine. Ebrahim Maghsoudi and Seyed Hassan Hosseini critically assess whether a divinely guided world can include blind chance; they show major issues with three candidate models for such compatibility (the Bartholomew-Bradley model, the van Inwagen model, and the Polkinghorne model). Lawrence Cahoone draws the consequences for cosmology and the problem of evil from a "process" notion of God that rejects omnipotence and omniscience and makes God partly corporeal; he offers one possible explanation, that is, that God is subject to internal limitations that apply to the universe as well, and that such a Ground of Nature is likely not only to be partly physical but also subject to the laws of thermodynamics. Esgrid Sikahall proposes a hermeneutical approach to bridge the gap between

historiography and philosophy in science-and-religion; he shows how science-and-religion discourses can be opened up by focusing on how the temporality of things (history) and the being of things (philosophy) are hermeneutically integrated to create these discourses. Finally, Andreas Tzortzis responds to Stefano Bigliardi's critique of his book *The Divine Reality* in an earlier issue of *Zygon: Journal of Religion and Science*.

Religion and Contemporary Crises (by Emily Qureshi-Hurst)

This thematic section, entitled "Religion and Contemporary Crises," showcases the proceedings of a two-day workshop held at the University of Oxford in Spring 2024. It was hosted by me (Emily Qureshi-Hurst), Tim Middleton, Raffaella Taylor-Seymour, and Austin Stevenson. The workshop sought to bring together a diverse group of early career researchers with a broad range of research interests to reflect upon some of the most significant problems facing our modern world. We were generously funded by both the Religion and the Frontier Challenges research program at Pembroke College, University of Oxford, and the Ian Ramsey Centre for Science and Religion, University of Oxford. We thank them for their support.

As the title indicates, this thematic section focuses on contemporary crises. The term "crisis" often implies a sudden, dramatic moment in which an immediate problem must be faced and swiftly dealt with. It may seem surprising, then, that none of these articles frame their "crisis" in terms of a sudden or dramatic event. Rather, these articles are interested in endemic and persistent crises: forms of violence and suffering that are unfolding over longer periods of time. Each of the contributors to this thematic section reaches for the word crisis as a way of emphasizing both the severity and the urgency of a situation that might not otherwise be recognized as such. In other words, whilst these crises are deep, persistent, and pressing, many of them have gained momentum relatively slowly. When inhabiting these crises, we risk becoming frogs in boiling water—only realizing the true severity of the situation after it is too late. For this reason, giving our attention to these crises now is extremely important.

In recognition of the multiplicity of crises faced the world over, these articles include research on Europe, Asia, Africa, South America, and North America. Despite the varied themes and truly global perspective of the workshop, we found profound agreement in the central role that religion plays in the most pressing crises our world is facing. With the majority of the world's population (around 75% according to a 2025 study by the Pew Research Center) being religiously affiliated, it is unsurprising that the multifarious crises we face are deeply influenced by religion. Religious ideas, religious communities, and religious authority figures all have a role to play in choosing whether these crises

are exacerbated or ameliorated in the years ahead. We call upon them to take this responsibility with the utmost seriousness that it deserves.

An overarching theme that emerges from the section as a whole relates to Adam Tooze's notion of polycrisis, namely the idea that multiple crises intersect with and amplify each other, resulting in a highly complex situation that is very difficult to resolve. Just two examples that we were not able to explore are the Black Lives Matter protests that took place during the COVID-19 pandemic, and the ecocide that is resulting from the war in Ukraine. In both of these cases, multiple crisis points are reached simultaneously, magnifying the catastrophic nature of the situation and making simple solutions almost impossible. On the other hand, scholars like Janet Roitman have observed that the language of crisis saturates our epoch, "the noun-formation of contemporary historical narrative." If our understanding of history and the present is constructed through the language of crisis, these articles interrogate the role of religion therein—both in striving towards solutions, but also constructing crises in the first place.

In recognition of the complex and interrelated nature of polycrisis, we explicitly designed the workshop to facilitate cross-disciplinary collaboration. We recognized, then and now, that each crisis under consideration is too complex to be adequately tackled by a single discipline alone. A great strength of this workshop was that each contributor came from a different scholarly perspective, and many from different disciplinary backgrounds. The result is a thematic section that showcases both breadth and depth. Articles cover the climate catastrophe (Raffaella Taylor-Seymour and Anupama Ranawana), vaccine hesitancy (Austin Stevenson), anti-gender discourse (Jack Slater), conflict and peacebuilding (Eduardo Gutiérrez González), antisemitism and antizionism (Imen Neffati), ethno-religious violence (Gehan Gunatilleke), and the crisis of meaning (Mark Schunemann). What unites these articles is that each examines a pressing problem facing modern society that is shaped, intensified, and potentially also tackled by religion.

The theme of crisis feels ever more fitting in a world plagued by perennial conflict, genocide, political polarization, the so-called culture wars, and the impending climate catastrophe (to name just a few). Simply turning on the news demonstrates that we are living in turbulent and troubling times. We felt encouraged during our time together, despite the heaviness of the themes we were addressing. In a very small way, our collaborative and mutually enriching exploration of these issues represented the strengths of cross-disciplinary cooperation. One participant reflected that "our collaborative efforts lead to an atmosphere of generosity and mutual respect, in which the differences between participants—in terms of academic background, experiences, methodology—were figured as strengths to draw on, not obstacles to overcome." Despite this, a recurring motif was the danger of dehumanizing and over-intellectualizing these discourses, something we are easily at risk of in academia. Thus we came away confident that *action* must partner with reflection if these crises are to be

resolved. We hope that this ethos of coming together from a range of backgrounds to examine these issues with an open mind will also be the focus of those who have the power to make changes, be they leaders in religious, political, or cultural spheres. And we hope that readers of this thematic section issue are encouraged by the academic voices represented here, who refuse to shy away from even the most severe crisis-points and courageously tackle them head-on.

Boyle Lecture 2025

This second thematic section contains the 2025 Boyle Lecture, delivered by Antje Jackelén under the title "Science, Technology, Theology, and Spirituality: A Necessary Partnership?," as well as the response by Arthur Petersen.

Books reviewed in *Reviews in Science, Religion and Theology*

Reviews in Science, Religion and Theology is a quarterly joint publication of the European Society for the Study of Science and Theology (ESSSAT) and the International Society for Science and Religion (ISSR) and is distributed free to all members of ESSSAT and ISSR. In order to give readers of *Zygon: Journal of Religion and Science* an overview of recent publications, we include the list of books reviewed in the latest *Reviews* issue (in this case, June 2025):

- Alister McGrath, *Why We Believe: Finding Meaning in Uncertain Times*, London: Oneworld Publications, 2025.

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In Tech We Trust? On Salvation through Technology

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With its accelerated progress, technology has become the main source of hope for humanity, and so-called human enhancement technologies are the exponent of this trend. Technological progress has not just put forward therapeutic applications but proposes significant enhancements in human beings. And there is an implicit desire for technology to lead us to a kind of quasi-immortality. Transhumanism is the most explicit expression of this trend. This article contrasts Christian hope in God's redemption with the hope offered by transhumanism. The differences are articulated around three axes: the desire for immortality as the driving force of a relentless search; the contrast between a salvation that is conquered and one that is received; and the collective dimension of salvation as opposed to the transhumanist program, which, while aiming to bring its benefits to the entire population, maintains an individual salvation project. This work highlights certain reference points that can guide reflection on the challenges technoscience poses.

Introduction

Although not an entirely new idea, for a few years now, there has been persistent conversation about the possibility of applying technology not only to the environment in which we live, to produce material goods, but to the human body itself. The conversation is not solely about curing diseases but enhancing human capabilities. This discourse gains credibility from the convergence of developments in three relatively new and expanding technoscientific fields: artificial intelligence (AI), neuroscience, and genetic engineering. Some predict that these new technological possibilities will transform our perception of human beings in a more or less radical manner. The most enthusiastic proponents herald a transformation of the human beyond the species itself and into a new "transhuman" reality, akin to how biological evolution has given rise to new species.

Opinions regarding these predictions vary, both in terms of their effective and real possibility and concerning their moral quality or convenience. Even within the academic realm, there is an ongoing debate about these issues. First, there is a debate within the very disciplines mentioned about the possibilities of corresponding technologies and their appropriateness; see, for instance, Allen Porter (2017), George Louis Mendz (2021), or the overview given by Antonio Diéguez (2017). Moreover, the potential to alter the human body through genetic manipulation techniques or by connecting to artificial devices raises significant philosophical and ethical questions.

This article aims to contribute to the conversation on these issues from the perspective of Christian theology. To this end, we begin with a description of human enhancement technologies and the issues they raise. However, the aim of this article is not to address the ethical aspect of this question but rather to take a preliminary step. The ethical assessment of a specific issue is always related to a more global horizon of meaning. This meta-narrative points to a desirable end we can call "salvation." Approaching the discussion of concrete questions of human enhancement without having clarified the horizon of meaning in which they are situated can easily lead to a polarization of the discussion into irreconcilable positions. On the other hand, making the horizons of meaning explicit and distinguishing them from concrete ethical questions helps to make the discussion of the latter more constructive. For this reason, a theological, specifically soteriological, point of view has been adopted here. Therefore, the transhumanist interpretation of these technologies will be presented as a sign of the times and a call to humanity. In contrast to this interpretation, an attempt will be made to shed light on the issue from a Christian theological perspective. In this respect, this article aims to argue three main directions of divergence between the salvation offered by Christianity and the offer of transhumanism and its proposal for human enhancement: 1) the immanence of salvation in transhumanism and its transcendence in Christian theology; 2) the difference

between an individualistic approach, characteristic of transhumanism, and the collective dimension of Christian salvation, which emphasizes communion and the common good; and 3) the opposition between trust in technoscience and faith in God as the foundation of human hope.

Human Enhancement Technologies

As mentioned, three scientific and technological fields—AI, neuroscience, and genetic engineering—have propelled the debate on human enhancement. Let us briefly examine their current state and why they have sparked this discussion.

First, AI encompasses technologies primarily based on computer programming, known for over half a century, but their integration into everyday life became prominent with the advent of the internet and smartphones. The rapid miniaturization and affordability of these tools have made AI omnipresent. Today, about two-thirds of the world's population carries a smartphone, constantly interacting with AI algorithms in search engines and social networks. Beyond these visible applications, AI systems play crucial roles in finance, insurance, commerce, politics, and administration. However, these systems remain limited to "weak AI," excelling in specific tasks like facial recognition or playing chess but far from achieving general or "strong AI," which remains speculative and debated.

Second, neuroscience studies the biological basis of cognition, linking cognitive phenomena to brain structures. Recent advances reveal the brain's remarkable plasticity, enabling artificial devices to replace lost physiological functions. For instance, cochlear implants allow those born deaf to hear and develop language, while other devices, like pacemakers, integrate seamlessly into the nervous system.

Third, genetic engineering modifies an organism's DNA to produce desired changes, such as cloning DNA fragments for medical research or developing genetically modified organisms. Applications include cancer therapies, genetically modified crops, and medical research using genetically modified animals. These advances open possibilities for treating genetic diseases and reducing disease risks.

The application of these technologies to humans has sparked ethical debates, particularly regarding distinguishing therapeutic from nontherapeutic uses. Therapeutic uses aim to restore or compensate for lost functions, such as cochlear implants or AI-controlled insulin pumps for diabetes, which are extensions of traditional prosthetics. These are generally uncontroversial. However, using these technologies for enhancement—boosting normal capacities like sensory perception or mental abilities—raises ethical concerns. They are properly termed human enhancement technologies.

The line between therapeutic and nontherapeutic applications is often blurred, as the distinction between health and disease can be ambiguous. For example,

plastic surgery can address medical, psychological, or purely aesthetic concerns, complicating the therapeutic boundary. The World Health Organization's broad definition of health further underscores this ambiguity.

So-called human enhancement technologies face resistance based on several arguments: the manipulation of human nature, the exacerbation of inequalities, and an increased social competitiveness, potentially leading to a more strained society. Among the most controversial applications of human enhancement technologies is the genetic engineering of germline cells, currently prohibited due to ethical concerns and the unpredictability of outcomes. Although many scientists foresee technological advancements, ethical debates surrounding these interventions remain unresolved.

While therapeutic applications of these technologies under secure conditions are widely accepted, they raise accessibility issues. While human enhancement technologies continue to face opposition, some argue in favor of enhancement. They assert that the human experience has always involved technology, that enhancing capacities is a natural progression, and that human evolution through technology aligns with our species' trajectory.

Ultimately, this debate engages profound philosophical questions about human nature, dignity, and the interplay between the natural and the artificial. While we acknowledge these issues, our focus is primarily theological and soteriological rather than anthropological or ethical. Thus, we approach transhumanist narratives as a methodological step in the hope of clarifying the discussion about human enhancement technologies from a Christian point of view.

The Transhumanist Message

Although interpretations of transhumanism vary widely, it could be defined according to the Transhumanist Declaration of 2009 by the World Transhumanist Association:[1]

> Humanity stands to be profoundly affected by science and technology in the future. We envision the possibility of broadening human potential by overcoming aging, cognitive shortcomings, involuntary suffering, and our confinement to planet Earth.
>
> We believe that humanity's potential is still mostly unrealized. There are possible scenarios that lead to wonderful and exceedingly worthwhile enhanced human conditions.

This belief often involves a certain interpretation of the present situation as a turning point, bringing us closer to a "technological singularity" in which, due to an exponential growth of technological capacity (Sandberg 2013), a mutation will occur in which human life will substantially change,

a level of change "comparable to the rise of human life on Earth" (Vinge 2013, 365). That change will lead humanity to a new situation that could already be post-human. The process of transformation would be the transhuman situation.

The biologist Julian Huxley (1968) is often attributed as the first to use the term "transhuman," referring to the capacity of the human species to "transcend itself," not individually but collectively as humanity, creating new possibilities for its nature: "I believe in transhumanism: once there are enough people who can truly say that the human species will be on the threshold of a new kind of existence, as different from ours as ours is from that of Peking man. It will at last be consciously fulfilling its real destiny."

It is important to note first that we are dealing with an interpretation, a belief. The data on technoscientific growth are indisputable fact, but the prospective interpretation transhumanism makes based on them constitutes a belief. It is interesting to note the gradation of verbs used in the definition of transhumanism: "Humanity *stands to be* profoundly affected by science and technology . . . We *envision* the possibility of broadening human potential . . . We *believe* that humanity's potential is still mostly unrealized." On the other hand, the term they aim for is the "wonderful and exceedingly worthwhile enhanced human conditions." The belief takes the form of hope.

The content of this hope can be summarized in overcoming the limitations of human existence, including aging, cognitive decline, involuntary suffering, and the constraints of planet Earth. The objective is to eliminate the primary biological constraints on human longevity: the inevitability of death, the progression of dementia, and the inevitability of suffering. The notion of "confinement" on Earth may be interpreted as a response to the concern that an indefinite extension of life expectancy could precipitate a demographic boom. In essence, the goal is to achieve a state of prolonged, healthy life (Makanadar 2024).

Between the terms of transhumanist thought and Christian theology, a certain functional analogy can be established in the narrative about salvation. Both discourses present an announcement of universal scope (gospel) with a promise (salvation) based on trust (faith, i.e., what we trust to produce the salvation) in humanity's technological possibilities. It is a message of redemption against the subjection of current humanity to the limitations of the species—biological, psychological, and moral (and sin, in the sense of what needs to be overcome)—which must lead to blessedness in a future, post-human situation. This is an "immanent transcendence" in which humanity is transformed into post-humanity.

One of the main advocates of transhumanism in the academic world, Nick Bostrom (2005), sees distant antecedents of this type of thinking in myths of immortality, such as the one of Gilgamesh, the Promethean myth of stealing

divine fire, or the alchemist quest for eternal youth. More immediately, he considers that the philosophical roots of transhumanism should be situated in the Enlightenment and modern science starting from Francis Bacon as well as in the concern for the wellbeing of humanity typical of humanism.

One of the strategies proposed by transhumanist authors is the genetic selection of offspring. Thus, for example, Julian Savulescu and Guy Kahane (2009) speak of "procreative beneficence," by which there is a "morally significant reason" for parents to choose children who have a healthier life perspective, and Walter Veit (2018) transforms this "convenience" into a moral obligation. More generally, Mark Walker (2002) considers that there is a moral obligation to use technology to improve ourselves.

In consideration of the potential for an indefinite extension of life, the current state of biomedical science does not appear to offer substantial support for transhumanist aspirations, despite indications that some recent research on telomeres may be progressing in this direction. Therefore, in recent years, transhumanists propose the extension of life on a non-biological material support, that is, starting from the hypothesis that life reduces to information and that information could be maintained on some type of computational support, "*in silico*."

Significantly, Bostrom (2005) describes a "biopolitical" axis with two opposite poles: transhumanism and bioconservatism; the latter "opposes the use of technology to expand human capabilities or to modify aspects of our biological nature." He points out that, surprisingly, from his perspective, authors from different backgrounds can be found in the bioconservative pole, such as traditionalists, environmentalists, and anti-system leftists. It has been pointed out (Latour 2017) that transhumanism responds to the materialistic concerns of economic elites who only see physical decline as a limitation to enjoying their material wealth. Certainly, although the transhumanist project manifests itself as directed towards all humanity and defends the free access of all individuals to human enhancement technologies, in practice, it does not seem to have directed its best energies to the problems of social inequality, since it is generally concerned with the problems that may arise for the individual who already has their basic needs of security, food, and health covered (Zou 2024).

Salvation According to Christian Faith and According to Transhumanism

Immanent or Transcendent Salvation

In this section, we intend to show the difference between the idea of immanent salvation presented by transhumanism and the Christian idea of a transcendent salvation beyond death. We argue that this clear difference has consequences in at least three important aspects: a) with regard to the valuation of the body and the attitude towards biological death; b) in the idea of divinity; and c) in

the relationship between salvation and moral attitude. The transhumanist idea, we have seen, is a "promise of salvation," where such salvation would be the indefinite prolongation of personal life in this world, with the best quality of life that can be obtained by technical means.

In the New Testament, there is talk of two different lives: biological life sustained by material goods and another life "in heaven," where "neither moth nor rust consumes" (Matthew 6:20) and persons will be "like angels in heaven" (Mark 12:25) because it is like a "spring of the water of life" (Revelation 21:6) that rises from God (Revelation 22:1), an "eternal life" (John 3:16, 3:36, 4:14, 10:28, 17:3; Romans 5:21, 6:23) that is not "from this world" (John 18:36). This life occurs in discontinuity with biological life because it occurs in "a new heaven and a new earth" (Revelation 21:1) in which humans are invited to eat from the "tree of life" (Revelation 22:14), which in Genesis (3:22) represents immortality. Although belief in the resurrection of the dead already appears in the later books of the Old Testament (Radermaker and Grelot 1988), for Christianity, the primary foundation is the resurrection of Jesus Christ. This resurrection does not imply a return to the life before death but a different life. In the New Testament, the Risen One is called the "firstborn from among the dead" (Colossians 1:18), that is, the first to be born after his death (1 Corinthians 15:12–22). Christian salvation does not consist of not dying but basically of sharing in the resurrection of Jesus Christ (Romans 8:11) and inheriting divine sonship (Romans 8:15–16, 29).

The accounts of apparitions of the risen Jesus, even when they are understood as catechetical accounts, use expressions implying that the one who appeared is Jesus himself. However, his existence is no longer subject to the limitations of material space and time: he can enter and leave a closed enclosure, he may not be recognized until he "makes himself seen" (*ophthê*), etc. It is the same person but transformed, situated in conditions different from the usual conditions of life in this world (Kessler [1987] 1989). Paul explains it as a transformation from a body of flesh to a spiritual body (1 Corinthians 15).

In fact, no explanation is given in scripture as to how this transformation takes place. The Christian faith confesses the fact but does not know for certain how it occurs. Theological speculation has tried to explain how such a transformation is possible using the philosophical and anthropological concepts of the time. Such explanations must be well understood in the philosophical context of each epoch. Thus, for example, the anthropology of scholastic theology, using the concepts of Aristotelian philosophy, explained the human being as the union of two principles (soul and body). Biblical anthropology, with another cultural root, does not make such a metaphysical distinction but refers to the whole person as "flesh" or as "soul," pointing out two aspects of the human being: the fact of being linked to the Earth from which they come and to which they will return and the fact of possessing a life that comes from

God and that has in them its aspiration (Léon-Dufour 1988). For this reason, the theology of recent decades has strived to recover a more unitary anthropology (Sonnemans [2007] 2009). On the other hand, transhumanism confesses itself to be a continuation of Enlightenment modernity (Bostrom 2005), from whose scientific impulse it seeks to draw the ultimate consequences. In this way, it drags along a dualistic anthropology. Thus, when transhumanism proposes that human life can be prolonged *in silico*, it does so under the assumption that what constitutes the person is just a "cognitive system" in such a way that "if one's biological neurons were gradually replaced, for example, with synthetic parts that supported the same level of cognitive function, the same mind and personality might persist despite being 'in' a non-biological substrate" (More 2013, 7). Even when metaphysically monistic ("with few exceptions, transhumanists describe themselves as materialists, physicalists, or functionalists" (More 2013, 7)), transhumanism seems to lead to a dualistic anthropology between the cognitive system and the material substrate. Moreover, it is an asymmetrical dualism in the sense that personality consists of only one of the elements, the other being necessary but replaceable. The body is thus considered a "machinery" substitutable by any other type of "hardware" offering the same functionalities (Lorrimar 2019; Burdett and Leung 2023). In line with this, transhumanism looks with little appreciation on the human body, whose limitations it considers an obstacle to people's happiness. The project, accordingly, is to overcome that limitation, especially the decrepitude of old age and mortality. The means to achieve this consists of the gradual replacement of the body with technological devices of various kinds. In this sense, several authors (Pugh 2017; Peters 2019) have pointed out that in transhumanism, there is an echo of ancient Gnosticism, which saw the body as a prison of the soul. In fact, the whole project rests on the assumption that the person can be reduced to a cybernetic system, to an immaterial "information" structure independent of the material substrate in which it takes body. However, this assumption has been discussed by various authors from different angles. For example, Jerffrey C. Pugh (2017) and Victoria Lorrimar (2019) point out how human knowledge is rooted in sensitive perception through the body, so that language itself is sustained on analogies and symbols founded on sensory experience. From another perspective, and without having transhumanism in its aim, the celebrated essay by António Damásio ([1994] 2010) exposes the neurological connection between human reason and the perception of sensory data not only about the environment but about the state of the body itself and its organs. Without this continuous connection between the body and the brain, human reason cannot subsist.

In contrast, the apostolic creed emphatically affirms the resurrection of "the flesh." This affirmation echoes the also emphatic affirmation that the Word "became flesh" (John 1:14). It is not that the person is freed from his "flesh," but, on the contrary, it is announced that God himself assumes this human

flesh (John 1:14; 1 John 4:2), with its limitations and mortality. Christianity assumes the limitations of the person, including the materiality of his body, and expects a transformation or recreation beyond inevitable death (Moltmann [1995] 2004, chapt. 6). To put it simply, transhumanism proposes to flee from death, while Christianity announces an overcoming of death: "O death, where is your sting?" (1 Corinthians 15).

As for the content of the "new life" announced by Christianity, beyond death, divinization is announced, i.e., participation in the life of the divinity (2 Peter 1:4) through love (*agape*). Divinization is understood as participation in the trinitarian relationship, which is a relationship of love between the divine persons. This participation is realized by the indwelling of the Holy Spirit within the human being, which brings about the transformation of the person into the image of Jesus Christ, the Son, so that we become children of God.

In contrast to this, the message of transhumanism announces the overcoming of the limitations of the human condition, which is seen as an intermediate stage in the process of the evolution of nature. From this point of evolution, now by technological means, posthuman beings will be produced who will not be subject to the physical limitations of *Homo sapiens*. Posthumans will have superhuman intelligence, sensory capabilities, emotional balance, and longevity. This new being, the posthuman, with these high capacities is sometimes referred to as "godlike" (Walker 2002; Vinge 2013). The idea of divinity in Christianity and transhumanism are probably not comparable in the field of metaphysics, for, as indicated, most transhumanists consider themselves monists. However, that "godlike-ness" is a functional equivalent in the discourse, representing the ideal or horizon of meaning. Ronald Cole-Turner (2015, 21) emphasizes the overlap between transhumanism and Christianity in the idea of *theosis* (grace in its strong sense) by stating, somewhat provocatively, "Christianity gave birth to transhumanism. Today's transhumanists may not be happy with it, but their key word was invented to describe a Christian idea." However, the concept of divinity referred to in transhumanism is very different from the Christian concept. The trinitarian God is an interpersonal unity through reciprocal love, whereas the transhumanist concept of the divine is closer to the idea of divinity proper to the ancient Greek or Roman pantheon, for example. The Greek gods are characterized by their immortality and superhuman capacities: they can appear in different forms at will (such as Zeus in the form of a bull to abduct Europa), they can know the distant and hidden, they can access any place, etc. On the other hand, their divinity does not necessarily entail morally superior behavior; they are subject to the same passions as human beings. Finally, physical beauty and eternally youthful vitality appear as traits of the gods. Transhuman divinization shares these traits (youth, enhanced capacities, immortality). It could be said, caricaturizing, that the salvation announced by transhumanism would be well expressed in a pantheon formed by Marvel's superheroes.

In contrast, the Christian idea of divinity does not point to superhuman capacities (although it does not deny them) but to a community of love. The contrast is patent and accentuated by the kenotic dimension of the Christian God. Just as transhumanism seems to follow the Hellenistic path of the self-sufficient and invulnerable divinity, Christianity places its faith in a divinity made "flesh," weak and vulnerable, and in fact violated on the cross. God's action always implies a kenosis (the relinquishment of divine attributes by Jesus Christ in becoming human), for God must in a certain sense withdraw or hide himself in order to make room for the other, for the creature. The divinity of the Christian God is manifested, paradoxically, in the capacity to renounce his divine power (Philippians 2), take the place of the servant (John 13), and forgive of offenses (Luke 23:34; Matthew 5:43–44).

Another differential characteristic in the Christian idea of divinity is the fact that it has an intrinsically moral aspect, because "God is love" (1 John 4:8). Since the divinization of the human being is his participation in the trinitarian community of love, the impact on the moral realm is inevitable. And since Christian salvation consists of inclusion in a relationship of love, its seminal beginning in the life of the person before death consists of a growth of the power of love in the person as the articulating principle of personal life. This is so to the point that love of neighbor becomes the main criterion for discerning an authentic process of divinization (1 John 4).

Collective Dimension of Salvation

The promise of a better and longer life is one of the main attractions of transhumanism. It appeals to a deep human longing, addressing the limits of human existence and the finitude of life—things perceived as obstacles to overcome. Transhumanism offers the enhancement and prolongation of life, understood primarily as the life of the individual. It proposes interventions in people, aiming to improve their bodies or mental abilities without addressing the deeper aspects of their relationships or the way they engage with others.

While transhumanism occasionally includes a social dimension, it generally focuses on individual wellbeing. Some branches of transhumanism suggest that the goal is to create advancements that can be universalized, accessible to everyone, but the underlying emphasis remains on individual benefit. The human community, in this framework, is secondary and assumed to be shaped naturally once technological advancements are made.

The posthumanist perspective goes further, shifting away from an anthropocentric view of progress. It imagines a world where humanity as we know it is no longer at the center and technological entities carry forward evolution beyond the human form. This vision of surpassing the human condition is seen as necessary due to the numerous limitations humans face.

In contrast to this individualistic and often hedonistic approach, Christian theology offers a different view of progress and fulfillment. Christianity emphasizes a utopia where individual flourishing occurs within the context of the collective good. It stresses the relational nature of human beings, suggesting that the true meaning of life is not individual autonomy but communion with others. Theologically, this vision goes beyond mere personal happiness to include the creation of a society where relationships are central and people live together in mutual flourishing.

The Christian eschatological hope aligns with this collective vision. It presents a salvation that encompasses all of humanity and creation, not just individual redemption. As Jürgen Moltmann ([1995] 2004, chapt. 10n1) points out, "no one has or receives eternal life for himself alone, without communion with other people and with all creation." The resurrection, as depicted in the Old Testament, is a hope not only for the righteous but for all of humanity (cf. Isaiah. 26:19, Daniel 12:1–3). This vision of resurrection is intertwined with divine justice and mercy, transcending death and extending to all people. It is a hope that embraces the entirety of creation, emphasizing restoration, not just of individuals but of the entire cosmos. As authors like Bultmann ([1953] 1981) and Boff argue, the heart of Christian hope lies in the "fullness of communion" (Boff [1986] 2005).

In this context, the concept of the "new heaven and new earth" (Revelation 21) presents a vision of a spiritual, nonmaterial New Jerusalem where redeemed humanity exists in communion with God and one another. It symbolizes the culmination of God's restoration of all that was broken by sin. Sin, in this theological framework, is fundamentally tied to a separation, isolation, and individualism that disregards others. Thus, the Christian vision of salvation places less emphasis on individual satisfaction or competition among humans. Instead, it emphasizes a full communion with others—a communal relationship exemplified in the imagery of a great banquet, an invitation extended to everybody.

These images of communion and collective flourishing resonate with the concept of "eternal life" as seen in Christian teachings. Salvation, though deeply personal, is always framed in a collective context. It is not simply about the individual being saved but about being part of a greater whole, a single body, a shared banquet (cf. Matthew 22: 1–11). These collective images are not just metaphors—they point toward the new creation, the redeemed world that is restored and incorporated into the divine through redemption.

The Transhumanist Declaration (2009, n6) echoes a similar sentiment, recognizing the need for collective responsibility: "Politics must be guided by a responsible and inclusive moral vision that respects individual autonomy and rights, and shows solidarity with and concern for the interests and dignity of

all people." Yet, while transhumanism acknowledges the importance of social concern, it tends to approach the collective in a more extrinsic and individualistic manner. The focus on personal wellbeing remains central, even as it promotes solidarity and equality.

Thus, while transhumanism envisions technological advancements that can improve individual lives, its social vision remains underdeveloped. It does not explicitly address the common good or the need for a new societal model that fosters deep relationships and promotes collective flourishing. In contrast, Christian theology emphasizes the relational nature of human beings and proposes a communal utopia, where the individual's good is intrinsically linked to the good of others within a society that is just, fraternal, and harmonious. Here, the goal is not merely personal enhancement but a transformation of society and the entire cosmos toward a communal vision of flourishing.

Finally, the Christian idea of salvation extends to all generations of human beings, past, present, and future. The symbol of Jesus's descent into hell and his resurrection from the dead signifies this (Moltmann [1995] 2004, chapt. 20n6). In contrast, the salvation announced by the transhumanism only reaches the beings of the future and specifically not the humanity living today. Going even further in this direction, it must be said that central to the biblical idea of salvation is the idea of the restoration of justice, expressed through the symbol of "redemption." God's saving action is primarily aimed at the liberation of those oppressed by sin and its consequences: the coming of the Kingdom is expressed in signs of healing, liberation from oppression, and the proclamation of good news to the poor (Luke 4:16–21). The Christian proclamation therefore reaches those who could not enjoy a dignified life and died before their time or lived in subjugation for whatever reason. The fact of the crucifixion of the Son also has the meaning of God's solidarity with those who were crucified in the unjust human history. None of this seems to be found in the transhumanist proposal.

Salvation Achieved or Salvation Received: Prometheus versus Jesus of Nazareth

The biblical God is the God of life, the creator of Earthly life, who loves everything He has created (cf. Wisdom 11:22–26). However, His creatures enjoy a life limited in time; they are mortal. They have a life of limited duration in which to develop their entire history and life's purpose. Nevertheless, human beings have a deep desire for fulfilment and immortality, which corresponds with the hope grounded in trust in God. But confident hope means receiving a gift, not achieving a result.

The theological question is whether full life and salvation—divinization—can be seized by humans. The biblical message is clearly no; divinization must be received by grace, it is not an achievement. And if one tries to seize it,

the only thing achieved is the opposite of what is sought: dehumanization, failure as a human project. Philippe Gagnon (2012, 402) notes that, regarding what one has or seeks, the crucial point is not so much whether it has been obtained "naturally" or "artificially" but the attitude toward it, which can be either grateful or covetous. Greed is capable of turning a good into evil by disconnecting it from its Origin. The concepts of "creation" and "grace" point to an ordering of the reality of things, whose fullness consists of a gift and a corresponding gratitude; greed disrupts this ordering by short-circuiting this gift–gratitude movement.

The teaching of the Babel myth points out the same idea: the human beings, who decide to be like God and achieve the divine through their own constructions, end up making a mess. In fact, the divine life that, at the beginning of scripture, is denied to humans (Genesis 3:22–24) because it should not be seized is what in the end (Revelation 22:14) is given as grace. There is a certain irony in this: what is initially sought to be achieved, in the way of Prometheus, is denied, but God gives it in the end as grace. As explained by Gerhard von Rad ([1960] 2009) in his classic book, there is a deep interplay between human and divine action, a complex sense of history, but the overall message is that hope has specially to do with God's initiative and faithfulness.

In line with this, an idea that runs through scripture from one end to the other is that only God saves and only through trust (faith) in God can salvation be received. The list of biblical places where this idea is found would be endless; consider, for example, the prohibition of hoarding manna in the desert (Exodus 16), the legend of Gideon's 300 (Judges 6–8), or in general, the theology of the letter to the Romans (Romans 11:6).

It is important to note that this exclusivity of saving power is not extrinsic to salvation itself as a right God jealously reserves but rather an intrinsic characteristic of salvation as understood by Christianity. Salvation, eternal life, ultimately consists of participating in the trinitarian life by being incorporated into Jesus Christ as members of His body, as presented by Paul (1 Corinthians 12). This occurs through the indwelling of the Spirit, which leads to confidently giving oneself to the Father. Therefore, it makes no sense that a salvation like this could occur independently of God's action, since He is the origin, means, and end of the state of blessedness.

Thus, we clearly see how this salvation cannot be achieved in a Promethean way: its scope is greater than a mere prolongation of our lives. It is a friendship, a communal participation—that must be received and welcomed. It cannot be achieved through our success and technological prowess.

Compared to this, the trust of transhumanism in technology may approach a kind of idolatry. Salvation is expected from technoscience, not from God (La Parra 2021). Indeed, this salvation achieved by manmade artifacts is seen by transhumanists as a result of an evolution in which the human being is

only a provisional link. Human actions are just collaborating with this evolutive dynamic that goes beyond humans. Nathan Schradle (2020) has pointed out that this view has more to do with magic than with religion. According to this author, who refers to Claude Lévy-Strauss, magic naturalizes humans, making them participate in the forces of nature (the cosmic evolution, in this case), while religion tends to humanize nature by ordering it according to a transcendent purpose.

King-Ho Leung (2020) reflects on Thomas Aquinas's distinction between *gratia sanans* (healing grace), *gratia elevans* (elevating grace), and *gratia deificans* (deifying grace) to counter a possible "technologization" of the theological idea of grace. He notes that the effect of grace cannot be achieved by technological means. No matter how much technology might improve the human person, it would not reach its true end, which is supernatural and therefore beyond natural possibilities. For his part, Ted Peters (2022) highlights very different dimensions of what human improvement entails. It is not about acquiring more abilities or a longer life but about living more deeply and widely: the experience of love, a generous and self-giving love. And, as Peters (2022) says, "superintelligence could not, all by itself, generate superlove."

Going a step further, it can also be considered whether potential "improvements" of the human being through technology can enhance the disposition of the human being to embrace grace. Technological thinking is guided by control and transparency (Leung 2020), while the realm of grace involves surrender to a mystery. Hartmut Rosa (2019) refers to technology in terms of "expanding our reach and instrumentally and rationally mastering the world." The motto of the technological paradigm could be: act so as to reach and master more of the world. Against this technological reaching and mastering, Rosa (2019) opposes the "unavailability" or "uncontrollability" of the world and proposes "resonance" as a noninvasive way of accessing its mystery. In this sense, the philosopher points out that the mystery of the world, like grace, must be received passively and cannot be grasped.

When we look at the transhumanist project, we thus see profound differences with the salvific announcement of Christian hope: for transhumanism, the promised salvation is an indefinitely extended biological life achieved through trust in technoscience created by humans themselves; in the biblical case, however, it is a life beyond inevitable death, received by virtue of trust in God's vivifying love.

In fact, in the latter, the central focus lies in participating in the community of love, which is embodied by the Trinity but extends to humanity and all of creation. This focal point is inherently unattainable through one's own efforts; it is unavailable in the sense that no one can be forced to love. One cannot compel God to love, nor can God coerce a person to love Him. This highlights

a reciprocal gratuity that constitutes what we understand as salvation and the Kingdom of God.

This concept must be connected with the potential capacities that are often attributed to technological means. The act of self-giving love is fundamentally unavailable through technological advancement and, in fact, is something we struggle to clearly define. It is not related to technological capabilities or invulnerability. For example, in the person of Jesus Christ, this self-giving love is most powerfully manifested in His death, a profound act of vulnerability. In a loving relationship, each person is at the mercy of the other, and vice versa.

A last key aspect of grace in Christianity is its gratuitous nature, specifically in the sense that God comes to seek the lost and to forgive. It is the aspect of God's initiative in love—"we love because he first loved us" (1 John 4:19). Even more so, as the book of Deuteronomy (7:7–8) states, "It was not because you were more numerous than any other people that the Lord set his heart on you and chose you—for you were the fewest of all peoples. It was because the Lord loved you and kept the oath that he swore to your ancestors." And, as Paul writes, "God chose the foolish things of the world to shame the wise; God chose the weak things of the world to shame the strong. God chose the lowly things of this world and the despised things—and the things that are not—to nullify the things that are" (1 Corinthians 1:27–28). God takes the initiative not because of human power or potential but because of our vulnerability and our need for divine mercy. We are loved not because of our strength and abilities but perhaps more because of our weakness. In short, justification by grace is independent of human abilities. It does not seem, therefore, that any human enhancement of the individual's capabilities can enhance the effect of salvation.

Some Complementary Considerations

So far we have explored the main differences between transhumanist soteriology and the Christian perspective, highlighting their different approaches to salvation, transcendence, and the relationship between technology and humanity. On this basis, we would like to point out some philosophical, social, and ethical implications of transhumanism's proposals, placing them in the context of current challenges.

Infinite Life without Death?

Transhumanism proposes as its ultimate goal only material goods: the extension of life and health and the enhancement of physical and mental qualities. However, it ignores the undesirable personal and social consequences of extending life indefinitely.

On a personal level, as Pablo García Barranquero (2021) rightly points out, the fact that we do not wish to die does not mean that we desire to be

immortal. The mortal nature of human beings is a constitutive trait that forms a constellation along with other traits like vulnerability and historicity, thus marking what human beings are in a very radical way. In fact, the yearning for immortality has been expressed in different cultures and religions as a survival after death, not as an indefinite distancing from it. Other authors have warned about the negative consequences of a hypothetical life of indefinite duration (cf. Diéguez 2021, 65–66) and raised questions such as: What life project could an immortal person have? Would it end in indefinite repetition? What could be valuable for such a person? What could be valuable if everything can be done at any time?

Furthermore, facing the social point of view, the proposal of "uploading *in silico*," if such a proposal had any plausible sense, would entail an energy and material resource consumption that would only be viable for a limited number of people who could enjoy that "paradisiacal state." Moreover, the work of other people, who would not be able to enjoy that utopia, would be necessary to maintain that system.

In any case, an indefinite life would require the prevention of any increase in the human population so that others would be prevented from enjoying the good of existence. If life is extended, will it be necessary to reduce births? Will generational changes be spaced out? Will the creativity of new generations not be able to develop further? How will we make room for others to live? Is this not a selfish desire for permanence that is actually an appropriation of resources and possibilities that future generations could enjoy?

If we stick to less radical proposals than extending life indefinitely, the possible drawbacks have also been pointed out. In a world with human enhancement technologies, would not a competitive race about capabilities be unleashed? Would it not increase competition and stress among people? Juan Pedro Núñez Partido (2019, 123) mentions several of these drawbacks: probably "what the future will bring most . . . is the anguish of not wanting to be less than the rest and trying at all costs to ensure that we and our children enjoy such incredible improvements."

Second, the always-present difficulty of accepting one's own limitations and relating to oneself realistically, maturely, and with balance would not have disappeared but perhaps intensified. Third, there would be "a problem of deep dependence and at different levels" (Núñez Partido 2019, 125) regarding these technological advances, because "without these devices, we will lose social status and personal identity because we will be unable to do almost anything, and we will need them to measure up to others." More dramatically, other authors foresee a future in which the competition between humans and "enhanced humans" could have exclusionary shades against the former (Warwick 2016).

Technological Progress Is Not Always Social Progress

Some authors note that technological progress is a factor that leads to missed opportunities for the weakest, hindering their "positive freedom," as understood by Amartya Sen. The autonomy of the weakest is practically restricted. This point is shown by I Sil Yoon (2021), who, following the thought of Sen, distinguishes "negative freedom" from external restrictions and "positive freedom" to pursue valuable goals. It is a distinction between the freedom of choice and the freedom of capabilities. Desirable social conditions must guarantee both freedoms. To achieve this, public action will be necessary to strengthen the capacities of the weakest sectors of society. As an example, one can think of progress in medicine, which can increase inequality when there is no express political will to universalize access to such progress. However, transhumanism approaches the theme of freedom or autonomy by simply affirming that technological progress will solve problems, but it does not consider how the benefit to some often implies the loss and sacrifice of others, as it indeed promotes continuous competition and individualistic pursuit of profit. The results of mere technological progress, in a framework of market competition, might actually increase social inequality.

In fact, mere technological progress does not guarantee progress in the conditions of social equality or respect for human rights. European history from the first half of the twentieth century shows us how enthusiasm for technological progress can perfectly coexist with drastically totalitarian approaches. Rather, technological progress should be seen as an increase in the power of mankind or, more precisely, the part of mankind that controls such progress. Experience shows that power is always ambiguous. The reflections of twentieth century philosophers on technology attest to this ambiguity, in which a clear increase in material capabilities is not accompanied by progress in human and social skills (Esquirol 2011). Thus, for example, Hannah Arendt ([1958] 2020) points out how liberation from work more directly linked to physical subsistence has not translated into a wider availability for other activities of greater creative or spiritual content; on the contrary, it has generated a way of life centered on consumerism devoid of any human, social, or political depth. From another perspective, the account of the impact of nineteenth century colonialism (Mishra [2012] 2019) testifies to how technical progress (translated into greater economic and military power) can destroy sophisticated millennia-old cultures, forcing them to compete in a struggle for survival. This shows that it is worth questioning whether technical progress always produces positive consequences.

In fact, it has also rightly been pointed out that "the transhumanist discourse is playing an ideological role in certain cultural and political contexts, that is, it is serving to legitimize certain technological practices and to try to change reality according to certain ends, values, and principles. It thus has an unavoidably

normative character. It sets goals it considers desirable and justifies the means that in practice can already bring us closer to these goals" (Diéguez 2020, 375). It has also been said to serve as a means of legitimization and propaganda for the attitudes of the elites, who disregard the future of humanity as a whole (Harari 2016; Latour 2017). Since the collapse of the USSR and its satellites in 1989, there has been a belief in an "end of history" and that there is no alternative to the free-market system. This has led to a loss of a utopian horizon, especially since the events of the 2008 financial crisis (Fisher [2009] 2016). Faced with this lack of hope, the transhumanism discourse serves as a legitimizing narrative for the socioeconomic system itself by offering a salvation story. This narrative does not question the system; on the contrary, it legitimizes it by placing the present on the path toward a promised happy future. And not only does it legitimize the current state, but transhumanism actually exacerbates some of the negative aspects of our current culture (Levin 2024).

Can Technoscience Help Grace?

The transhumanist vision conceives the human enhancement proposal as a continuation of the evolution of the cosmos and the human being. Cole-Turner (2015, 23) correctly says: "[The central question] is not whether technology will advance evolution, but whether, when it does so, it will be making its contribution to the purposes of God."

It could be argued that human enhancement technologies might help humans receive this salvation. May these technologies be good allies of grace? For example, transhumanist literature has proposed that human enhancement technologies could contribute to a moral improvement of the human being (Persson and Savulescu 2008; 2019). However, it does not seem that this will be significantly possible, at least with the available or soon-to-be-available technologies (Buttrey et al. 2022; Molhoek 2021).

An interesting "orthogonality thesis" proposed by Bostrom (2012) states that "more or less any level of intelligence could in principle be combined with more or less any final goal," implying that intelligence and morality are two independent, uncorrelated dimensions. Note that here "intelligence" means "instrumental reasoning." Consequently, a concern arises about "the possibility of cognitive systems that fail to satisfy substantial normative criteria but which are nevertheless very powerful and able to exert strong influence on the world" (Bostrom 2012, 75).

Faith in technoscience seems to be the result of the impossibility of holding a hope capable of going beyond the biological. In this sense, although Bostrom (2005) tries to deny it, there are some authors (Bainbridge 2010; More 2010; Carollo 2022) who point to the resemblance between transhumanism and Nietzsche's proposal of an Overman moved only by the values of the "Earth" as opposed to the "transmundane" values, which for him have no meaning.

The horizon has been immanentized; there are no transcendent values or reality for the transhumanist mentality. Therefore, all technological and developmental efforts must be directed at improving this mundane life, which is the only thing one feels capable of believing in: an indefinitely extended life but without any fulfilment (Gagnon 2012) or even any rectification of injustice or suffering (Sloane 2023).

Perhaps this shortness of hope offered by transhumanism is not simply a limitation but an action that just fits the human being into a dimension, the purely individual and material one, that does not exhaust their potential and capacity for development. Human beings, as Christian theology present them, are capable of hoping for more; they know they have been "received": they are not the one who has designed or built themself. They know they have been "received" and therefore can offer themself as a good for others. Michael Sandel (2017) explains very well the dialectic of domination and gift: the one who knows that he has been "received" is able to offer generously and graciously the talents he has received graciously. We agree with Sandel that with transhumanism (as with genetic control, he considers), our capacity to recognize that we all share a common destiny would lose ground, and therefore, solidarity with the less fortunate would be profoundly diminished.

In short, the simple consideration of transhumanism as the hope for human improvement does not hold up when we take into account the importance of the social dimension and the union people have with others. For this reason, transhumanism seems insufficient as a grand narrative, as a framework of meaning. This does not, of course, prevent technology from being used in favor of the divine project of salvation. And, ruling out that it can cause the action of grace in its strong sense (*theosis*), we think the discussion remains open as to in what regard and how it can be an ally of grace.

Conclusions

In this work, we have pointed out three radical differences between transhumanist soteriology and the Christian perspective that could be summarized as follows: the immanence versus transcendence of salvation, individualism versus collectivity, and reliance on technoscience versus reliance on God.

This important divergence between transhumanism thought and Christian theology is probably projected onto anthropology. Christian theology proposes an image of the human being in which transcendence is the fulfilment of immanence, where community is an inherent part of the individual and human action is called to blend with God's self-giving.

The theological reflections presented led us to question whether transhumanist yearning is based on an adequate anthropological vision. We asked ourselves whether the transhumanist proposal can humanize and really offer greater happiness to human beings in our finite and limited reality.

Going further in the same vein, from the critical analysis conducted, we can see that the desire for human enhancement might be close to that primordial temptation the Book of Genesis (3:5) attributes to the serpent: "[I]f you eat from the tree [of knowledge], you will be like gods." The temptation invites to grasp, snatch, and conquer that fruit that seemed forbidden. Instead, scripture invites us to trust that the true fruit will appear in the end as grace, as something that must be received and accepted in due time. Furthermore, the fruit to be obtained, according to transhumanism, is something material, merely immanent. In contrast, the essence of salvation, according to Christianity, is not something to be possessed, not to be able to do this or that, not even to perform moral feats, but to love as God loves (1 Corinthians 13; John 13:34). Can technology find a way to improve us humans in terms of that love? We are skeptical about this.

In conclusion, it seems to us that transhumanism does not offer a satisfactory framework of meaning. This does not mean, however, to prejudge for or against any particular application of technology on human beings. Holding to a Christian perspective on salvation, it seems to us that the question remains open for discussion as to what extent and how technology can collaborate with God's purpose.

Note

[1] Humanity+, The Transhumanist Declaration: www.humanityplus.org/the-transhumanist-declaration (accessed January 4, 2024).

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Green Apocalypse: A Biocultural Perspective on End of the World Narratives in Environmental Movements

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Humans have produced countless narratives about world-ending calamities, whether in the form of punishing floods, Earth-destroying conflagrations, or endless winters. In this article, we show that a version of such a narrative emerges from groups engaged with climate change, such as Extinction Rebellion. We call this narrative the Green Apocalypse. Applying a biocultural perspective, we explore the biological underpinnings of this narrative in a human disposition to simulate adversity. Such simulations could be beneficial since they prepare subjects for real-world adversity. We argue that the Green Apocalypse can be seen as a simulation-device that lets social activists experience the end of the world virtually. Since simulating the end of the world threatens their sense of agency and triggers anxiety, social activists need ways to resolve the psychological tension that arises. We argue that social activists resolve some of this tension through ritualistic behavior, including the use of symbolic acts.

Introduction—A Common Structure: The World Is Coming to an End

Here is a story: the world is coming to an end. There is very little we can do to change it. Evil people are the cause. But through our personal action and changing the system, we may perhaps be able to save ourselves. As Daniel Wojcik (1996, 320n1) points out, "the pervasiveness of such end-time narratives historically and cross-culturally is revealed by the listings in the various folklore motif and tale-type indices, such as Stith Thompson's Motif-Index of Folk-Literature (Thompson 1955–1958), which includes the major apocalyptic narratives under 'World calamities and renewals' (A1000- A1099)."[1] In the past, these narratives were usually framed as "supernatural" events, but recently, many of them have been framed in terms of human technological might (Wojcik 1996, 297). Consider, for example, what Nick Bostrom (2019) refers to as a "black ball," an unexpected technological invention with the potential to destroy civilization.

In this article, we show that an end-time narrative emerges from within some branches of the environmental movement. This narrative is closely tied to the social activism that emerged from groups such as Extinction Rebellion in the wake of the perceived failure of United Nations intergovernmental negotiations to produce sufficient political results in response to climate change. We call this narrative the "Green Apocalypse." As we shall show, the Green Apocalypse portrays anthropogenic climate change as a global calamity that will lead to the downfall of humanity. Bringing narrative analysis together with findings in the cognitive, evolutionary, and social sciences, we argue that this narrative can function as a mental simulation that lets social activists experience the end of the world virtually. We broadly characterize this as a biocultural approach (cf. Høgenhaven, Bach, and Geertz 2024; Turner et al. 2018). By not allowing for hope that the world can be salvaged, this form of social activism provides outlets in which activists alleviate anxiety by obtaining a (simulated) sense of agency in the face of an uncontrollable threat. We analyze the role of emotion, especially the tension between pessimism and optimism, in this sort of simulation.[2] We conclude that the social activism at the most pessimistic end of the spectrum is a form of ritualization with anxiety-reducing potential.

In presenting this argument, we bracket the question of whether the science behind climate change is true in the same way we would bracket questions about whether a particular religion is true. We make this move not because we are science denialists but, quite to the contrary, because this methodological stepping-back provides a valuable perspective to understand the beliefs and practices of a particular religion or important cultural formation. In this case, we are interested in the narrative of a Green Apocalypse. When communicated to the public, even a scientific consensus like the one around climate change must be presented in a narrative form. Whether one takes a strict realist or constructivist position on these matters, we argue both must assume that all

narratives fictionalize in the sense that they must tell a story based on objects and events put in a particular order. Objects and events may or may not be real, but ordering them together into a coherent story always requires an element of fiction. For example, to be compelling, stories need beginnings, middles, and ends, while reality presumably does not.

Dealing with Disaster: Navigating between Optimism and Pessimism in Climate Change Movements

In this section, we contextualize the social activism from which the Green Apocalypse emerges. The next section then presents that narrative in a more formal fashion.

The greenhouse effect has been known for at least a hundred years, but it did not become a major political issue until the final part of the twentieth century. Today, many young people around the world find climate change frightening and fear for their future (Hickman et al. 2021). Since its inception in the 1980s, the Intergovernmental Panel on Climate Change (IPCC) has regularly published reports on climate change. When introducing the IPCC's 2023 final assessment report, United Nations Secretary-General Antonio Guterres stated:

> Dear friends, humanity is on thin ice—and that ice is melting fast. As today's report of the Intergovernmental Panel on Climate Change (IPCC) details, humans are responsible for virtually all global heating over the last 200 years. The rate of temperature rise in the last half century is the highest in 2,000 years. Concentrations of carbon dioxide are at their highest in at least 2 million years. The climate time-bomb is ticking. But today's IPCC report is a how-to guide to defuse the climate time-bomb. (United Nations 2023)

Notice that on the one hand, our situation is depicted as extremely serious: we are all under threat. But on the other hand, there is a way to get out of the problem, a guide to how "the bomb" can be defused. In environmentalism today, different groups focus on each of these points.

We use the term "environmentalism" for a highly heterogenous set of movements involved with our relationship with nature (Grasso and Giungi 2022). Some forms of environmentalism are conducted within institutionalized and hierarchical political structures, but other forms take place more spontaneously within loosely connected networks where people are bound together by common concerns and ideological commitments. Another important distinction is whether the group is concerned with the environment broadly or with climate change in particular (Grasso and Giugni 2022). Regarding the latter, we can further distinguish between optimistic and pessimistic groups (Cassegård and Thörn 2022). This distinction helps us navigate a messy landscape, but it does not entail a binary picture where a movement is either completely optimistic or

pessimistic. Rather, climate change environmentalism consists of a spectrum of movements where ideas, beliefs, and narratives overlap and transform in ways that are hard to anticipate, where hope and despair combine, and where some groups tend more toward pessimism while others tend toward optimism.

Movements that put an optimistic spin on the situation tend to focus on how the problem of climate change can be solved with improved technology and better cooperation within the framework of the existing global political and economic order. Hence, the central narrative that guides their form of environmentalism is about progress (Cassegård and Thörn 2022). The United Nations intergovernmental negotiations on climate change are central events in this form of environmentalism. Core non-governmental organization such as Greenpeace and the World Wide Fund for Nature appeal to the notion of progress to mobilize support for environmental action (Cassegård and Thörn 2022, 44). The website of the World Wide Fund for Nature, for example, depicts a smiling girl in a field next to an article about the transition to renewables (WWF, n.d.). The central emotion in this narrative is hope for a better future (Cassegård and Thörn 2022, 29–30). This sort of optimism relates to mainstream or institutionalized forms of environmentalism (Cassegård and Thörn 2022; Grasso and Giugni 2022). Even when using serious-sounding rhetoric and the metaphor of a "bomb," the United Nations secretary-general could still be seen as operating largely within an optimistic framework. As Carl Cassegård and Håkan Thörn (2022, 84) argue, this "apocalyptic" narrative, where the possibility of the end of the world is used strategically to mobilize support for climate action, has become incorporated into mainstream, establishment discourse. This narrative is optimistic in the sense that the global disaster, or at least the worst-case scenario, is portrayed as something we can still avoid.

But there are also much more pessimistic narratives in environmentalism today. For some environmentalists, the IPCC reports are not just warnings of a possible dangerous future if we fail to act now. Rather, humanity already faces a life-threatening global climate breakdown that existing political and economic institutions are inherently incapable of stopping. In other words, what is merely seen as possible in optimistic narratives is depicted as inevitable in the more pessimistic ones (Cassegård and Thörn 2022, 96–98; de Moor and Marquardt 2023; Stuart 2020). These narratives exploded into the public in the wake of the perceived failure of mainstream institutions to address climate change.

In 2015, the United Nations climate summit in Paris (COP21) was seen as a crucial and perhaps final opportunity for the world to steer in a direction that would divert it from global disaster. The previous COP15 summit in Copenhagen was widely deemed to have failed; therefore, activists strongly engaged in how to deal with the Paris summit in better ways (de Moor and Wahlström 2020; Cassegård and Thörn 2022). According to Joost de Moor and Mattias Wahlström (2020, 270–71, see also de Moor and Wahlström 2019),

divisions arose. On the one hand, many who mobilized believed that by learning from mistakes made during the earlier "Copenhagen failure" a better outcome was possible. Some of them argued that even though the COP structure was too weak to produce real change, the summit was still an opportunity to draw attention to the cause and, foremost, target the fossil fuel industry. On the other hand, critics within many of the same groups worried that this strategy would not work and that mobilizing around "an overly optimistic narrative would inevitably lead to disappointment" (de Moor and Wahlström 2020, 270). These tensions and debates provide social and political context for the emergence of the Green Apocalypse, which we outline in the next section. An important year in that regard is 2018.

With their declaration of a global emergency in 2018, Extinction Rebellion (n.d.) set the stage for the current wave of climate pessimism:

> THIS IS AN EMERGENCY. Life on Earth is in crisis. Our climate is changing faster than scientists predicted and the stakes are high. Biodiversity loss. Crop failure. Social and ecological collapse. Mass extinction. We are running out of time, and our governments have failed to act.

Roger Hallam (n.d.), a British activist who cofounded Extinction Rebellion, describes the global situation as leading directly to human extinction. The following statement conveys the urgency in Hallam's (2024) message:

> As I write, an article on the Atlantic Ocean Circulation nearing its tipping point is the top viewed on the Guardian website. This is what they miss out. The collapse of the Atlantic Ocean circulation (AMOC) will be the most devastating event in the last 10,000 years of human history. It will happen overnight with sudden effects. It will be irreversible and continue for 1000s of years. It will destroy human civilization because it will be impossible to grow food in northern Europe—temperatures would drop by between 3–8°C. Enough to half the amount of land where you can grow wheat. 100s of millions of Europeans will have to move or starve to death. Those that move will be subject to holocaust events created by warlords and/or fascistic regimes. Coastal cities will have to be evacuated. Monsoons in the tropics will collapse, resulting in 100s of millions more refugees. This is just the beginning—the collapse also will feed into other disastrous climate tipping points like the collapse of the Amazon rainforest. We are looking at billions of deaths and possible effective extinction this century—that now has to be the main concern (Hallam 2024).

The main theme in these and many similar statements is that the world as we know it is about to end.

Social activists engage in a lot of moral condemnation of those seen as responsible. That brings us to the rabble-rouser[3] Greta Thunberg, whose school strikes led to the formation of Fridays for Future (n.d.), self-described as a global climate change movement led by young people. Here is Thunberg in an address to the United Nations in 2019:

> This is all wrong. I shouldn't be up here. I should be back in school on the other side of the ocean. Yet you all come to us young people for hope. How dare you? You have stolen my dreams and my childhood with your empty words . . .
>
> You are failing us. But young people are starting to understand your betrayal. The eyes of all future generations are upon you. And if you choose to fail us, I say: we will never forgive you. We will not let you get away with this. Right here, right now is where we draw the line. The world is waking up. And change is coming, whether you like it or not. (United Nations 2019)

Notice the sense of betrayal directed at fossil fuel-driven industries but especially at their assumed political allies, whom Thunberg sees as responsible for business as usual (United Nations 2019). Surveys show that activists in Fridays for Future and Extinction Rebellion see governmental organizations as weak, untrustworthy, and unreliable in their capacity to react to the crisis (de Moor and Wahlström 2022, 271–73). Betrayal is even more pronounced in the blog run by Roger Hallam. In one of his posts, under the heading "billions will die," Hallam (2023, emphasis added) describes his view of mainstream political institutions and elites in the following manner:

> A friend from XR told me this week about this soul rotting trying to jump through the hoops of humiliation to get NGOs to be "partners" for "The Big One" demonstrations in April. Efforts are being made to get the liberal elites to act but the window of opportunity for them is closing fast, as the surging of the repressed rage of the young grows by the month. *The institutions of our societies are utterly moribund, in a suicidal death spiral of hypocrisy and cowardice.*

The almost complete mistrust in mainstream elites and institutions on display in Thunberg and Hallam's statements is noteworthy.

The A22 Network (2022) presents itself as an overarching network that organizes groups such as the British Just Stop Oil and the German Letzte Generation. Just Stop Oil draws attention to their cause with provocative acts directed at famous art.[4] For example, the group smashed the frame of the "Rokeby Venus" by Diego Velásquez (Nicholls and Ronald 2023) and covered the famous Stonehenge stone pillars in orange powder (Boobyer and Harcombe 2024). Les Soulèvements de la Terre (Earth Uprisings) is a similar group formed in France (Les Soulèvements de la Terre, n.d.; Meaker 2024). These groups

share not only a sense of urgency but also an acceptance of the use of civil disobedience and, in some cases, sabotage directed at facilities and structures (Meaker 2024).

In an international survey of self-identified climate activists, Jean Léon Boucher et al. (2021) found that 27% thought climate change would lead to further mass extinctions, including the end of humanity, but 49% thought humanity still had a chance to survive. It is likely that many of the groups mentioned operate within this minority space, where one believes in future mass extinctions. Doubts and tensions whereby one must navigate between feelings of despair and more hopeful thoughts are probably commonplace within these activist groups. Before we look at some examples of how activists think about this, let us observe the tension at play in a public statement, the A22 declaration (A22 Network 2022). It first focuses on the end of the world as we know it:

> The old world is dying. We are in the last hour, the darkest hour. This world is being decimated before our eyes. We are in between moments. What we do decides the fate of both this world and the next. (A22 Network 2022)

Yet, there are also positive forces at work:

> Together, in community, we are taking hold of a higher purpose. The source of what it is to be truly human. It calls to us across the ages, and with its power we will bring down those who kill to maintain their regimes of extraction. This is the old world. It cannot continue. (A22 Network 2022)

This statement is suggestive for the presence of strong emotional tensions within climate activist groups. Such tensions can also occur within each individual. Let us consider Diana Stuart's (2020) interviews with Extinction Rebellion activists about their emotions. Some respondents said they had given up hope:

> Personally, I have no hope. We have failed miserably. It is already too late. (anonymized Extinction Rebellion activist, Stuart 2020, 491)

However, the respondents did not think giving up hope meant giving up on action:

> It is a misunderstanding that you have to be hopeful to act, that you have to have hope for action. If you know how bad it is, you realize you have nothing to lose. (anonymized Extinction Rebellion activist, Stuart 2020, 494)

Stuart (2020) found that despite their pronounced pessimism, Extinction Rebellion activists did not just give up. Importantly, hope was a central

theme, but not the hope that "we can still fix things" (Stuart 2020). Members of a Swedish online network devoted to *collapsology*, an existential outlook centered around the belief that the world will end, expressed similar ideas. One interviewee, who had left the network, described how hope was referred to as *hopium*, an addictive expectation that things will eventually work out well. In this network, such optimistic tendencies were "policed" and "prohibited" (Malmqvist 2025, 560).

Remaining hopeless over time can be interpreted as an "emotional practice" (Malmqvist 2025). The term *practice* indicates that there is something routinized about one's behavior, whereby repeated actions or deliberate thoughts over time lead to alterations in one's disposition to feel and react in certain ways (Malmqvist 2025, 558). A similar concept of deliberate attempts to alter one's emotions for specific purposes has been analyzed by Ara Hochschild (2013, 25) under the label of "emotional labour," which she describes as "the work of trying to feel the appropriate feeling for a job by evoking or suppressing feelings—a task we accomplish through bodily or mental acts." The context for Hochschild's analysis is "emotion workers," often females, who provide professional care for others. An emotion worker needs to be emotionally attuned to her (or his) clients, show empathy, and manage her own emotions. The intentionality and the effort required to achieve this so that one can provide professional care indicates that one is engaged in real work (Hochschild 2013, 27). The goal toward which collapsologistic climate activists strive is of course entirely different. Their emotional practice is geared toward removing the tendency to feel hope when engaging in social activism. As Karl Malmqvist (2025, 557–59) points out, this is puzzling because hope is widely seen as an emotion that helps mobilize for collective action. Why would a social activist group deliberately target and undermine this emotion? According to Malmqvist, the practice of "non-hope" in some environmental groups is about emotional detachment from mainstream narratives, of not being invested in them anymore. Hence, it is about opposing and leaving behind the mainstream (Malmqvist 2025, 557).

If Malmqvist's interpretation is correct, then at least in some social activist groups, beliefs in progress are seen as emotional signals that one is still within the mainstream and therefore not fully committed to the cause. That explains the need to monitor not only one's behavior but one's emotional reactions. But how can one say there is a "cause" if one presupposes the disaster is inevitable? What could one be seen as fighting for? Some activists think the unavoidability of the crisis affects us in spiritual and moral ways, where "hope," if there is any, must be understood in a paradoxical sense where it is not about optimism but dignity and moral obligation. These activists believe that one should simply "do the right thing" regardless of the outcome with respect to climate change (Stuart 2020; Cassegård and Thörn 2022; de Moor and Wahlström 2022; Malmqvist 2025). For example, 70–80% of respondents to a survey

that targeted Fridays for Future activists agreed that they participated because they felt a moral obligation to do so (de Moor and Wahlström 2022, 273). More data is needed, but we suspect that among these respondents, there are probably some collapsologists who have given up on saving the world. That this is the case is further supported by Cassegård and Thörn (2022, 102–3), who summarize themes found in interviews with a group of climate activists as such: "[E]ven if the struggle to avoid the collapse is doomed to failure, it is still morally meaningful, or even a duty, to do what one can to reduce suffering, injustices, and harm to nature."

Social activism involving conflicting emotions and perceptions can lead to paradoxical language. As an example, consider statements made by the Dark Mountain collective, a network of artists and writers who focus on moral self-development as well as concrete preparation and adaptation to the new reality of unavoidable climate change (Cassegård and Thörn 2022, 91–94; Dark Mountain Project, n.d.). In their view, we need to give up hope and simply "stare into the darkness" of climate collapse. We will then obtain a state of "hopeless hopefulness" (Cassegård and Thörn 2022, 100). Such a term illustrates what we mean by paradoxical language, a language where two opposing terms, "hopeless" and "hopeful," are juxtaposed.

We now present an underlying end-time narrative that we believe guides and structures the climate change social activism we have portrayed. We then discuss this narrative in the final two sections.

Activism in the Context of Narrative: Introducing the Green Apocalypse

By "narrative," we mean a representation of a set of events such that they make up a meaningful sequence (Herman and Vervaeck 2019, 13). In the context of such a sequence, we shall treat the statements presented earlier such that they belong within a story. This story starts *in medias res* on a ruined planet. From here, the story peers back to past events that explain how we got to the current situation. The story also peers into imagined futures where most of the calamity will unfold. This story can be seen as an example of what Thompson (1955–1958) would index under "world calamities and renewals." In other words, it is an end-time story, the structure of which we presented in the introduction to this article.

In the following, the non-italicized parts represent the end-time narrative structure, and the italicized parts are based on our review of statements and views in the previous section:

> **Green Apocalypse**. The world is coming to an end *as the result of catastrophic climate change. Given that catastrophic climate change is already happening and will only get worse no matter what we do*, there is very little we can do to change it. The

> evil people *in the fossil fuel lobby* are responsible. But g*iven that we still need to come together, take hold of a higher purpose, and engage in resistance*, it is still possible that through personal action and changing the system we may perhaps be able to save ourselves, at least *in a moral or spiritual sense.*

This story is our attempt to distill a plotline from the conglomeration of statements, ideas, and attitudes of various climate activists. Notice that given the pessimism and distrust exemplified, "changing the system" should not be interpreted as referring to political changes occurring within the current civilization and political order. That order must go. In this story, the "system" that needs to change is rather something like the emotional reactions or spiritual stances the activists take towards the oncoming end. We especially find traces of this narrative in the fringes of environmentalism, in groups largely operating outside of mainstream political institutions. Activists within these groups do not necessarily convey the narrative exactly as we have outlined. As de Moor and Wahlström (2019, 426) point out, the content activists often recount to each other is "small stories" or "snippets" whereby experiences are related to a larger narrative structure that is often tacitly assumed or implied.

In the next section, we apply a biocultural perspective to the Green Apocalypse, discussing the evolutionary origin and psychological function of such a narrative for activists.

The Green Apocalypse as a Mental Simulation Device

Our biocultural approach begins with the assumption that stories about world calamity figure into a circular interplay wherein underlying cognitive processes influence the design of the narratives and where, once they have become cultural products, these stories can work back on human cognition by triggering emotional reactions (Høgenhaven, Bach, and Geertz 2024, 339). Furthermore, we assume that the storytelling tendency from which the narratives ultimately emerge helps define us as a species. In other words, we are a storytelling animal (Boyd 2009).[5] For example, stories were an important means to organize and preserve information in oral societies, but even today, when digital technologies let us organize large amounts of information, stories remain an important way to do so. That is also true regarding the enormous amount of information about how humans are affecting the climate.

Stories create meaning by putting events into a linear sequence. Storytelling therefore involves some element of fictionalization, because putting events into a linear plotline unavoidably simplifies the reality of the past, present, or future by isolating and focusing on specific events that drive the story; another storyteller could pick out other events to isolate and emphasize. A similar point has been made already in relation to climate change narratives by Alexandra Nikoleris, Johannes Stripple, and Paul Tenngart (2017), who argue that science and literary

fiction both must use narratives. They compare five scientific narratives about climate change, or "shared socioeconomic pathways, SSPs" with five works of literary fiction about climate change. They argue that the latter may have more potential to "open up our imagination" (Nikoleris, Stripple, and Tenngart 2017, 308) so that possible solutions can be "tested in a fictional environment" (Nikoleris, Stripple, and Tenngart 2017, 316). We expand on this idea that fiction is an imaginative testing out of possible realities. However, by "fiction" we do not mean only literary fiction but all storytelling, since all storytelling involves fictionalization in the sense outlined. This is true for both literary fiction dealing with climate change and other forms of storytelling about climate change more scientific in their make-up.

Among a host of interesting theories, a small consensus has emerged that our ability to tell stories is an adaptation connected to simulation (Amstrong 2019; Boyd 2009, 16; Sugiyama 2001; Oatley 1999). In other words, the ability to play out (fictive) scenarios in our heads has an adaptive purpose. It allows us to both learn from past mistakes and to plan ahead. We often create small narratives when we do this: we do not just remember isolated episodes; we place them in a narrative structure, a plotline that connects the intentions and goals the characters pursue as well as the causes of events and many other aspects of a story. Thus, information is packaged into a coherent chunk we intuitively use when we act and when we anticipate the actions of others.

Stories about the end of our species, our way of life, our cosmos, and so on are captivating and keep recurring in different versions (Wojcik 1996; Diamant 2022). Part of the evolutionary context for understanding this is that the simulations we run and have run in the past are often targeted specifically at threats and danger.[6] Much of this point comes out in research around horror and horrible things happening in popular fiction (Morin, Acerbi, and Sobchuk 2019). Based on the idea that people are more likely to die in popular fiction than in real life, Oliver Morin, Alberto Acerbi, and Oleg Sobchuk argue for the "ordeal simulation hypothesis." According to this hypothesis, simulation is a useful way to prepare for threats to an organism. Some threats are preventable because we can infer their existence. Other threats we can only react to once they are manifest. These are "reactable" threats. Some reactable threats are one-off occurrences, rare or particularly powerful, and it is these the authors refer to as ordeals. Since some catastrophic things can only happen once (our death, for example), we cannot possibly experience those events to learn from them. Thus, we must simulate them to learn from them. We learn to deal with them virtually (Morin, Acerbi, and Sobchuk 2019). Consider the Green Apocalypse: there is no greater one-off calamity than a world catastrophe where not only the individual organism dies but possibly the entire species, or all of life as we know it on Earth. Furthermore, notice that we cannot prevent this from happening but only react to it once it already is happening. Hence, the calamity

unfolding in the Green Apocalypse presents an ordeal in this technical sense as a dangerous loss of agency.

We now turn to the other side of the circular interplay described by Jesper Høgenhaven, Melissa Sayyad Bach, and Armin W. Geertz (2024), the process by which cultural products work back on our cognition by triggering emotions. What is it like to be immersed in a story that ends with the end of the world? Environmental activists immerse themselves in this narrative by listening to one another's stories and experiences and by engaging in collective action, such as marches and various forms of civil disobedience. By engaging in such behaviors and acting as if the story is real, they enter a mental simulation of the end of the world. By this we mean that activists get to experience and react to an ordeal, a catastrophic event that one cannot prevent but only react to. The plotline of the story comes alive. This resembles how immersion in literary or popular fiction makes its characters and plot feel real, but with a difference. When we consciously regard something as fiction, we stop suspending disbelief when the story ends. In contrast, the climate activists immersed in the Green Apocalypse remain in the story: their simulation is directed at current and future episodes mentally represented as real world events.[7]

The literature on simulation suggests that emotions are a crucial part of cognition (van Mulukom 2020; Zerrudo 2016). Simulations activate the specific emotions that would occur in the situation simulated. Emotions are the motor of action; without emotions, we have no ability to make decisions or act. Simulations are a way of playing out the right emotional approach to take given future possibilities. But mere information does not elicit emotions. Instead, the narrative frame in which events are placed in a storyline with characters is central to move activists on an emotional level. Except for hope, which for climate activists sometimes has a paradoxical sense (discussed earlier), many of the emotions environmental activists engage in their simulations are negative (Stuart 2020; Cassegård and Thörn 2022). Cassegård and Thörn (2022, ch. 4) argue that the emotions tied to the most pessimistic narratives of green social movements are fear, despair, anger, sadness, and anxiety. As we saw in the second section, for some activists, such emotions are considered normatively correct responses to the disaster, responses one "must" have. Furthermore, hope, if there is room for any, must be separated from the optimism of mainstream society.[8] These examples suggest that negative emotions are central to the activism that plays out the narrative of the Green Apocalypse. In this regard, the Green Apocalypse is like "end of the world narratives" in general; they tend to engage emotions such as fear and horror (Høgenhaven, Bach, and Geertz 2024, 349).

We now ask how the virtual simulation of the end of the world influences behavior, arguing that the anxiety the Green Apocalypse evokes is in turn alleviated ritualistically.

"Hope Dies, Action Begins": Fatalistic Climate Activism as Ritualization

> People are repressing all of this emotion. Taking-action is like a geyser or emotional release. A chance to do something. (anonymized Extinction Rebellion activist, Stuart 2020, 495)

Among the many people who engage in social protest because they are alarmed by climate change, a majority believe humanity has a chance to survive and that the worst-case scenarios can be avoided (Boucher et al. 2021). Some of these activists operate within the narrative framework of optimism, in the sense of a view that even though climate change is extremely dangerous, humanity has a chance to turn things around before it is too late (Cassegård and Thörn 2022). As Boucher et al. (2021) found, however, a smaller minority of climate activists believe humanity will end. In the second section of this article, we provided various sources, including from websites and interviews (Stuart 2020; Cassegård and Thörn 2022; de Moor and Marquardt 2023; Hallam, 2024) to indicate how these activists think. These are the activists whose activities we relate to the Green Apocalypse, the narrative outlined in the third section. In this section, we propose that some of their behavior is ritualized. Support for this hypothesis comes both from sociology and the cognitive science of religion.

Max Weber ([1930] 2001) already shed light on the profound effects of culturally mediated anxiety on behavior in his analysis of anxiety and fatalistic determinism in modern European cultural formations. Weber points out that Protestantism, especially the Calvinist version, emphasized a linear form of predestination. Some people are destined to be saved, others destined to be damned by God. This is preordained; there is nothing anyone can do about it. Furthermore, one cannot really know whether one is saved. The result of combining the fatalism of predestination with uncertainty about salvation was a predominant mood of anxiety where people dedicated themselves to meaningful work (vocations) to reassure themselves they were one of the predestined saved.

Martin Riesebrodt (2010, 71) more recently argues that in an environment characterized by anxiety, religious practices give people a sense of control.[9] There is something paradoxical about such practices in the context of fatalistic thought. If one believes in predestination, one has no reason to think behavior can make any difference with respect to one's destiny. Why act? We believe a similar question can be put to the climate activists at the radical end of the spectrum. Some of them see escalating global warming as simply out of control. But giving up hope is not the same as simply giving up. Consider, for example, the Extinction Rebellion slogan described by Stuart (2020, 488): "Hope dies, action begins." What sort of action is that?

The cognitive science of religion provides an answer that draws from earlier insights in anthropology (e.g., Malinowski 1948). There is a general consensus that human beings tend to ritualize more of their behavior when they lose agency under conditions of stress, uncertainty, or hazards more generally (see, for example, Xygalatas 2022, ch. 3; White 2021, ch. 10). One could argue that rituals are a way to focus control on an uncontrollable world, to act despite a loss of agency and thus regain a virtual sense of agency. We follow Pierre Liénard and Pascal Boyer (2006) in viewing ritualistic behaviors as behaviors characterized by compulsion, rigidity, and goal demotion. These are behaviors people feel must be performed in "just the right way," often involving repetition of the same sequences, and which are not governed by instrumental rationality. Rather, the actions participants perform are not causally related to specifiable goals in a physical sense. The goals are opaque and often understood symbolically. Where a sense of proximate causal agency fails, ritual can come in to fill the gap by providing a more abstract sense of agency (Liénard and Boyer 2006, 815).

The conditions of stress and anxiety to which religious practices provide a solution are sometimes first evoked by religion. Jonathan Turner et al. (2018) argue that religion plays a role in reducing anxiety and uncertainty, "even as it often increases the anxiety to be reduced by ritual appeals to the supernatural" (Turner et al. 2018, 158). Something similar is true of the most pessimistic version of climate change activism. First, anxiety is evoked through a fatalistic, apocalyptic story about a global threat we cannot avoid no matter what we do (i.e., the Green Apocalypse). But then, through social activism, anxiety is reduced.[10] In this respect, climate change activism can be interpreted as providing ritualistic outlets through which activists alleviate anxiety by obtaining a (simulated) sense of agency in the face of an uncontrollable threat.

Ritualistic climate change activism is often spearheaded by charismatic figures. What role do they play in the storyline of the Green Apocalypse? By conducting social protests, often at the risk of legal prosecution or social ridicule, some climate activists stand out as the virtuosos in the story, exemplars out on the edge. Weber also helps shed light on this. He describes religious virtuosos as charismatic figures such as monks, shamans, and prophets (Weber 2009, 287; see Riesebrodt 2010, 125). As Riesebrodt (2010, 123) states, "virtuosos show in an exaggerated form what society expects from everyone." Furthermore, even though they ultimately seek salvation, they "court misfortune" in the sense of making personally costly (and credible) sacrifices, such as abstaining from pleasure and allowing themselves to be socially ridiculed (Riesebrodt 2010, 122).

As an example of the activities of a climate change virtuoso, consider Greta Thunberg's transatlantic voyage in 2019. Thunberg's chosen vessel, the sixty-foot sailboat *Malizia II*, is described as containing sophisticated technology like solar panels, hydro-generators, and a CO^2-measurement lab (Law 2019). When we situate this act within the fatalistic logic of the Green Apocalypse, such a

costly act is ritualistic: it is about doing something in "just the right way," even if the act is not causally related to the specifiable goal of changing the outcome of the story.[11] We also suspect that the sense of agency of the most pessimistic social activists is reaffirmed vicariously through Thunberg's virtuosic ritual, sailing the Atlantic to symbolically fight the system that created the climate catastrophe simply because that is the right thing to do. With this example, we conclude our analysis of the Green Apocalypse.

Potential Weaknesses and Limitations of Our Argument

In this section, we indicate some potential weaknesses and limitations of our attempt to connect the end-time narrative structure to highly pessimistic forms of climate change activism within some parts of the larger environmental movement.

First, let us consider a limitation of the ritualistic framework in which we situate climate activism, for example, when arguing that social protests, acts of sabotage, and symbolic acts (like sailing the Atlantic) are ritualistic. This ritualistic framework is developed by Boyer and Liénard (2006). It has some limitations in its ability to explain the behavior of social movements as ritualism. For example, it does not take into consideration the lived reality of (allegedly) ritual participants (i.e., social activists). The activists might, if asked about it, not recognize as relevant or correct that their behavior counts as ritualistic. Of course, sometimes people are simply wrong about the real causes of their behavior. But in qualitative research, which our narrative analysis is an example of, one should also consider the lived experiences of the people whose behavior one is analyzing. For this reason, we also included qualitative data on the way climate activists think and (in their own words) feel about the situation.

Second, we recognize that social movements could be animated by many different behavioral logics. Although we have indicated some possible steps that link narrative and agency, it is unfortunately beyond the scope of this article to describe in detail the complex processes that animate social movements. Literature on social movement theory, for example the work of Charles Tilly (1978), would help elucidate the origins, structure, and function of environmental movements in more detail. To truly understand the complexity of a movement, it is not enough to think about the psychological function of narratives and rituals. One also needs to go into detail about the interests of various members of the community and how such interests are eventually mobilized in the form of collective action.

Third, as we pointed out, the overarching framework for our argument is a biocultural one, informed by the idea of a circular interplay between biology (cognition) and culture (see, for example, Turner et al. 2018). We understand all human phenomena to ultimately be a product of our biology. However, humans are also defined by culture—by narratives, tools, technologies, and

linguistic communities. Such an approach can easily become unbalanced in one direction or another whereby one focuses too much on either biological or cultural processes. Furthermore, attempts to ambitiously explain complex social phenomena only in terms of biocultural processes are problematic. However, that is not our goal in introducing the biocultural approach. We believe the biocultural approach, in dialogue with psychology and sociology, sheds new light on climate change activism. A more complete explanation cannot be based solely on a biocultural theory alone but would consider political processes and cultural trends as well. However, such an attempt would also be beyond the scope of this article.

Conclusion: The Human Quest to Regain Agency

With scientific advances like the carbon combustion engine or nuclear power, humanity gained control of some aspects of nature that were once beyond our control, but at the same time, we lost control of equally as much in terms of the new possibilities such technologies unleash (Bostrom 2019). Is climate change out of control? There are a lot of excellent reasons to believe humans are affecting the Earth's climate in bad, dangerous, and potentially catastrophic ways (IPCC 2023). We do not challenge the scientific consensus in that respect. We have defended an interpretation of a story that emerges from parts of the environmental movements, a story that describes in a fatalistic fashion the end of the world as the result of climate change. We think it is imperative that we better understand the stories various groups tell and the narrative frameworks that provide their overall sense and meaning. Which narratives promote human flourishing in the long term? Are they on the pessimistic or optimistic end of the spectrum? Pessimistic narratives might not be destructive but could facilitate increased resilience. It follows from what we have argued, especially in the section "The Green Apocalypse as a Mental Simulation Device," that pessimistic, anxiety-evoking stories function as simulation devices that help people prepare for real world adversity. At the same time, such narratives leave room for a sense of agency beyond hope.

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Notes

[1] Such an index is a product of the European encounter with its colonized others, so not an innocent scientific document. Nevertheless, the painstaking work of twentieth century, mostly European, folklorists and anthropologists to document and compare human stories surely tells us something about the ubiquity of such a narrative structure.

[2] One of us has worked comprehensively with emotions (see Levy 2013). In our general take on the complexity of emotion, our point of departure is the work of Klaus Scherer, former director of the Swiss Center for Affective Sciences in Geneva. In that paradigm, emotions are understood as made up of several components. Emotions have a subjective feeling associated with them. They have a motor-expressive component, a neurophysiological component, and a cognitive component that consists mainly in the normative appraisal of the other components. Perhaps most importantly for our purposes in this article, emotions also include a motivational component such that they almost always lead to actions, including political actions (see Scherer 2005).

[3] We mean this term in a literal rather than derogatory sense. As defined in the Oxford English Dictionary, a rabble-rouser is "a person who speaks with the intention of inflaming the emotions of the populace or a crowd of people, typically for political reasons; an agitator; (more generally) a troublemaker; an unruly person." We take "unruly" to apply to a person who breaks with conventional norms (that is, rules) to make their point. Such norm-breaking often makes or causes trouble for the people whose norms are broken.

[4] Critics would describe the acts as "vandalism," but the activists prefer the term "social disobedience."

[5] Narrative ability may have evolved culturally, such that the ability is not biologically innate but something we must learn to do over the course of our development (Heyes 2018). Recently, Cecilia Heyes and colleagues made this point regarding episodic memory (Mahr et al. 2023). Episodes, are, of course, the basic elements in stories.

[6] For a related discussion, see Jesper Høgenhaven, Melissa Sayyad Bach, and Armin W. Geertz (2024).

[7] As we made clear in the introduction, this interpretation does not rule out the possibility that climate change is catastrophic.

[8] Some activists also appeal to shame and guilt. We suspect that these emotions occur in the context of the moral policing of outgroup behaviors, such as frequent flying. Consider, for example, the emergence of the term "flight shame" in public discussions in Scandinavia regarding flying (Andersen 2024).

[9] By religion, Riesebrodt (2010, 75) means "a complex of practices that are based on the premise of the existence of superhuman powers, whether personal or impersonal, that are generally invisible." The "superhumannness" of such powers boils down to control over events that are usually beyond human control. In general, religious practices provide means to interact with uncontrollable powers. Religious practice, in a nutshell, gives humans a fictional sense of control or a feeling of agency. The feeling is real, but the agency is fictional in the sense that it is directed towards things beyond our control. In other words, it is a virtual agency.

[10] There is a sense in which knowing something is inevitable is less scary than being uncertain about it. Zygmunt Bauman (2000) links such considerations to the formation of religion within "liquid modernity." Bauman (2000) describes people in the postmodern world as becoming increasingly personally responsible for all their choices, including in the arena of spirituality and religion. The central option for religion in postmodernity (liquid modernity) is fundamentalism (de Groot 2008). As Kees de Groot (2008, 280) points out, "the choice of fundamentalism" paradoxically "liberates individuals from the agony of choice." This is because submission to religion (in this sense) allows an individual to "unload" from the "uncertainty of choice-making" (de Groot 2008, 280).

This concept of unloading applies to climate activism: by becoming certain that there is no hope and that optimistic narratives are wrong, uncertainty is unloaded and the agony of choice therefore avoided.

[11] As Cassegård and Thörn (2022, 72) point out, there is some fluctuation between pessimism and optimism in Thunberg's rhetoric. Some of her statements indicate she believes children have no future, but other statements indicate there is still room for hope. If we assume the latter interpretation, the act of sailing the Atlantic could be situated within an instrumental logic where Thunberg tries to inspire others to leave a smaller carbon footprint, thus contributing to saving the world from climate disaster.

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Creatures of Their Own Making: Niche Co-Construction in the Divine Sustaining

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From biology to anthropology, Niche Construction Theory (NCT) offers a corrective to accounts that neglect or diminish the agency of organisms in evolutionary process. This article engages with key features of NCT to reenvision theological accounts of human work: that ecosystems are superconstructions of several organisms, that niche construction also involves destruction, and that ecological inheritance ought to be considered alongside genetic transmission. I also address concerns over the tendency of NCT to highlight the constructive ultimacy of humans during an ecological crisis. Drawing on modern Protestant theology, I situate creatures' agency within a fuller account of God's providence, re-embedding claims about divine–human concurrence within the divine sustaining. I therefore argue for a shift away from seeing humans as co-creators with God in order to better understand ourselves as niche co-constructors, alongside our neighboring species, in a manner that ensures life can go on.

Introduction

After the field-shaping ambition of *Origin of Species*, Charles Darwin turned to a humble milieu for his final publication in 1881. He analyzed how earthworms not only adapted to soil but modified soil to suit themselves. Earthworms therefore passed an altered habitat to descendants, who could maintain elements of their freshwater physiology while making a home in the earth. Darwin chose an unassuming title—*The Formation of Vegetable Mould through the Action of Worms with Observations on Their Habits*. Nevertheless, his study continues to inform twenty-first-century debates over critical questions in evolutionary biology (see Odling-Smee 2024, 101; Laland, Odling-Smee, and Feldman 2019, 128; Wray et al. 2014).

Taking the lead from Darwin, Niche Construction Theory (NCT) identifies how organisms' modification of their environments can alter natural selection pressures on both their own and other species. Its proponents claim that it goes beyond standard evolutionary theory in that it "recognizes a role for organisms as imposing a bias on selection through systematically shaping the properties of selective environments" (Laland, Odling-Smee, and Feldman 2019, 127; Kendal, Tehrani, and Odling-Smee 2011). Such shaping can occur through organisms' artifacts, learned activities, environment-changing byproducts, and relocations (see Laland, Odling-Smee, and Feldman 2019, 129–30; Odling-Smee, Laland, and Feldman 2003, 419). In brief, the organism's niche is not only the physical environment to which it adapts but "the way it makes a living" (Fuentes 2017, 10).

NCT has generated productive controversy in the sciences, especially as it has been taken up in the proposal of an extended evolutionary synthesis. Points of contention range over empirical questions regarding epigenetic inheritance, historical depictions of the modern synthesis, and philosophical issues about evolutionary process. Given this complexity, Tim Lewens (2019, 707–21) proposes that biologists make "cross-cutting assessments" about discrete components of the extended evolutionary synthesis and turn to more ground-level research rather than programmatic statements. Other disciplines that have adopted NCT, including biological anthropology and archaeology, are making their own critical analyses of NCT nomenclature (e.g., Spengler 2021). Given the relative independence of disciplines, it is important to avoid misconceptions (see West, El Mouden, and Gardner 2011).

This article engages with scientific accounts of niche construction for the purposes of theological and ethical reflection on the question of agency—an aspect of NCT identified as central to recent debates (Laland, Odling-Smee, and Feldman 2019, 127). While there are contextual scientific concerns over explorations of creatures' agency as an aspect of evolutionary process, I agree that it is healthy to engage in dialectical exchange over alternative accounts (see Laland, Odling-Smee, and Feldman 2019, 134; cf. Levins and Lewontin 1985). As a theologian, I recognize the integrity and in-principle completeness of

scientific explanation within its own domain (Fergusson 2018, 201). That said, the domain of science, including its demarcation from religion, is historically constructed and contingent (Harrison 2015). Given the present disciplinary configuration, this essay can be seen as contributing an "interpretive layer" to scientific accounts on the basis of theological-ethical convictions (Deane-Drummond 2018, 255).

Theological and ethical engagement is important in light of the considerable power of human niche construction. In a seminal monograph in the development of NCT, human beings are deemed the "ultimate niche constructors" given our use of language and the advantages that come from cumulative culture (Odling-Smee, Laland, and Feldman 2003, 28). That sense of ultimacy is reinforced as we become increasingly aware of the effects of our large-scale modifications of the world, at once creative and destructive (Burtynsky 2018). When taken up beyond disciplined scientific description, NCT has been invoked for inflated claims about how humans create their world, obviating reference to divine agency or suggesting a kind of parity with God. Lisa Sideris (2022, 234) identifies the rise of an "Anthropocene dogma" that leads her to ask what it means for "this particular narrative of the self-aware, world-creating human to be holding sway at precisely this moment, when it seems that restraint and humility—reining-in rather than naturalizing our power—seems warranted."

While I am sympathetic with Sideris's concerns, it is worth further exploring what it means to "naturalize" human powers. Although NCT can be used to highlight humanity's exceptional status, it can also identify continuities with other organisms' habits of niche construction. It is therefore instructive for theologians who, along with scientists, recognize the importance of "collective responsibility for the custodianship of life on earth" (Odling-Smee 2024, 331). Our contribution to that endeavor involves adapting accounts of a God who is distinct from natural processes yet provides the resources to sustain mortal life (*pace* Odling-Smee 2024, 329–31).

Theological accounts of the sciences that emphasize human agency often draw on the notion that humans are "co-creators" with God (e.g., Hefner, Roberts, and Turk 2022, 50). This claim can be seen as a variation on the notion of divine–creaturely concurrence (*concursus*), to use the terms of Protestant scholasticism. While I acknowledge the compelling power of the *concursus*, I argue that it is best deployed with reference to a fuller account of divine providence. In light of the destructive effects of human niche construction, it is vital that the *concursus* be ethically conditioned with respect to the *conservatio*—the divine sustaining of creatures' lives by means of their environments. In turn, NCT offers insights into how the *conservatio* takes place, insofar as those environments are brought about through the creative behavior of organisms.

The article proceeds in two parts, the first focused on science and the second on theological ethics. In the first part, I briefly recount the development of

NCT and identify some of its salient features for my argument: that ecosystems are "superconstructions" of several organisms, that niche construction also involves destruction, and that "ecological inheritance" ought to be considered alongside genetic transmission in evolutionary accounts. I then highlight the question of agency and consider the ambivalence expressed over the ultimacy of human niche construction. As a segue to the theological and ethical material, I highlight Kevin Lala's evocative statement that human beings are "creatures of their own making."[1] I also reference an Indigenous account that illumines the significance of our neighboring creatures in building a shared world.

In the second part, I turn to theological ethics in light of the science, asking how human niche construction can proceed in more sustainable ways. That is to say, how might we conceive of our work in a given environment in order to better ensure that life—both our coming generations and those of other species—can go on? My argument is that as a penultimate endeavor, human niche construction can take part in God's sustaining orders for creaturely life. I begin by demonstrating how the concurrence between divine and creaturely agencies is integrally related to the divine sustaining, drawing on modern Lutheran and Reformed theologies. I then show how NCT can modify theological accounts that speak of how God sustains life by means of the environment. In light of this reality, I propose a theologically informed account of our co-construction, with other creatures and with future generations, of a livable world.

Making a Shared World: Scientific Accounts of Niche Construction

As creatures make themselves at home in the world, they modify the physical environment in ways that can provide fitness benefits to others. Northern flickers are seen as "keystone engineers" for their excavation of tree cavities to use as nests, cavities which then function as niches that several other species rely on for their own reproduction (Martin, Aitken, and Wiebe 2004; Wiebe et al. 2020). Yet, as ecologists recognize, any modification of a local habitat will benefit some species that are adapted to that niche at the expense of those species that are not. The built environment of beavers provides an attractive environment for woodpeckers and herons, as well as plankton and microbial life in the water. In creating this environment, beavers also cut down trees and flood land, destroying the habitats of others. Leila Philip (2022, 9, 25) refers to them as "forest shiva" who are active "putting into motion cycles of growth and regrowth, creation through destruction."

Beavers' modifications of the environment are often referenced in the literature surrounding NCT. Beavers have been called "ecosystem engineers" because of the way their dams profoundly alter the landscape and waterways (Jones et al. 1994). They are also an example of the extended phenotype—the expression of genes beyond the body of a given animal. Using the example of

beavers building dams and lodges, Richard Dawkins ([1982] 2016, 304–6, 355–56) claims that extended phenotypes can reach several miles—"the distance separating the extreme margins of a beaver lake from the genes for whose survival it is an adaptation." Yet Dawkins's view was still considered restrictive by proponents of NCT, and at this point, we can see the beginnings of a proposed extension to standard evolutionary theory. F. John Odling-Smee, Kevin N. Laland, and Marcus W. Feldman (2003, 30) argue that the change in selective environment carries implications for "the fitness of other genotypes, at other genetic loci," observing that a beaver's niche construction alters many selective pressures, which are "likely to feed back to affect the fitness of genes that are expressed in quite different traits, such as their teeth, tails, feeding behavior, susceptibility to predation, diseases, life-history strategies, and social systems."

Thinking of how environments are passed down the generations, NCT proposes "ecological inheritance" as akin to the way humans pass down land and property. Offspring "inherit two legacies from their ancestors: genes and a modified selective environment" (Laland et al. 2011, 116). Distinct from genetic transmission, which takes place once from parents to offspring, ecological inheritance can pass between generations throughout organisms' lifetimes and can even pass between neighboring species (Odling-Smee, Laland, and Feldman 2003, 13–15).

NCT has become part of a proposed extended evolutionary synthesis that considers the fuller role of ecological inheritance in evolutionary process (see Pigliucci, Müller, and Lorenz 2010). The extended evolutionary synthesis carries forward several emphases from the modern synthesis but calls for an extension insofar as organisms' development and agency tend to be "black-boxed" by a focus on genes and dismissal of "soft inheritance" (Jablonka and Lamb 2020, 76). Eva Jablonka and Marion Lamb (2020, 12) write that a more "development- and organism-centred view" would acknowledge that "[a]cquired morphological and behavioural features can be perpetuated by descendants because they are reconstructed developmentally in the environmental niche their ancestors bequeathed to them."

The question of agency is a key reason for the controversy around NCT. Laland, Odling-Smee, and Feldman (2019, 132) describe agency as a key indicator of a living organism: "Organisms are self-building, self-regulating, highly integrating, functioning, and (crucially) 'purposive' wholes, which through wholly natural processes exert a distinctive influence and a degree of control over their own activities, outputs, and local environments." By "purposive," they mean acting in ways consistent with biological function such as acquiring resources, avoiding stress, and reproducing (Laland, Odling-Smee, and Feldman 2019, 132). The claim to purposiveness relates to thermodynamics, specifically the work required of organisms who must preserve their out-of-equilibrium status by exchanging energy and matter with their surroundings (Odling-Smee

2024, 3–14). This activity cannot be random if it is to "provide organisms with a basis for sustained life" (Laland, Odling-Smee, and Feldman 2019, 143–45, 147; cf. Schrödinger 1944).

NCT proposes to cast new light on the evolutionary significance of human work, from the introduction of agriculture to the ongoing development of tools and technologies. "The defining characteristic of niche construction is not the modification of environments per se," write Jeremy Kendal, Jamshid J. Tehrani, and John Odling-Smee (2011, 785), "but rather the organism-induced changes in selection pressures in environments." Two key examples are given for how human activity leads to modified environments that in turn direct selection: 1) dairy farming has led to selection for alleles that allow lactose tolerance, 2) field-clearing agricultural practices have contributed to an increase in standing water, which means a rise in malaria-bearing mosquitoes, and so, in turn, selection for sickle-cell alleles that confer resistance to the disease (Laland 2017, 215–22).

As NCT shows, humans are not merely reactive to their environments; they proactively construct their own niche and so, in turn, "make" themselves. In Laland's (2017, 30) memorable phrasing, humans are "creatures of their own making." Read in context, Laland is drawing a contrast to the way extrinsic conditions such as climate, predation, or disease "make" species by calling forth adaptive responses. The plural pronoun is crucial here, for Laland (2017, 30) emphasizes how teaching and other forms of social transmission made for the evolution of human minds. Because humans draw on a wealth of cultural knowledge with which to manage environments and increase their carrying capacity, they are deemed "champions of niche construction" (Laland 2017, 190, 247). Laland (2017, 233) marvels at the aesthetic symmetry between human work and its environment: "Human minds and human environments have been engaged in a long-standing, intimate exchange of information, mediated by reciprocal bouts of niche construction and natural selection, leaving each beautifully fashioned in the other's image."

This symmetry comes, in part, though an unprecedented regulation of the environment humans inhabit. As Laland (2017, 234–35) observes, humans have experienced three broad eras of adaptive evolution: 1) the dominance of biological evolution, which involved adapting to the conditions of life as would any other creature; 2) the ascendancy of gene-culture coevolution, in which cultural activities drew out morphological change; and 3) the dominance of cultural evolution, which biological evolution now trails behind. This is not to say that natural selection no longer operates—the process is "relentless"—but it can be mitigated or reversed by cultural transmission (Laland 2017, 215, 228). Culture can thus reinforce itself—it becomes "autocatalytic"—while at the same time losing its attunement to biological evolution as it is experienced by other species.

The modification of habitats in the service of one species also causes them to become less suitable for a range of other species. Laland (2017, 235) admits that human niche construction is a "runaway process;" we are moving at "breakneck speed" in an "express-train transformation" to which other species cannot adapt in time and will likely thus go extinct. He also refers to "a disconcertingly long history of biodiversity destruction" in humanity's "evolutionary wake" (Laland 2017, 262–63). "When our ancestors first devised agriculture," he states, "they opened up a Pandora's box, and let loose the evil of the Anthropocene" (Laland 2017, 262–63). Laland's judgments about over humanity's distinct capacity for destruction are not always recognized by his critics (see Sideris 2022, 234).

My interest is not in making a case for, or against, human exceptionalism. The scale at which humans "make a living," and the self-consciousness with which we do it, is said to set our species apart—hence the proposal that we live in the "Anthropocene." Yet, our habits of making now threaten to undo us. I therefore ask how humans can use their formidable cognitive and cultural powers to co-construct environments that better sustain life—both our own and that of our neighboring species.

Here, I recall the insight, expressed early in NCT, that human work is part of the "superconstruction" that is a given environment, which consists of the contributions of "a multitude of constituent organisms" (Odling-Smee, Laland, and Feldman 2003, 335). The oxygenation of Earth by cyanobacteria is only one of several prehuman instances of niche construction that has made it possible for us to live (see Odling-Smee, Laland, and Feldman 2003, 54). Yet, broadly speaking, the theoretical underdevelopment of humanity's relationship to other creatures remains a barrier to more effectively addressing the reality of anthropogenic climate change (Gardiner 2011).

Indigenous knowledge has long recognized other creatures' role in making a shared habitat. Take the story of the Great Beaver (Ktsi Amiskw), as told by the Algonquin people. This beaver's stature calls to mind the *Castorioides ohioensis*, a species of beaver as large as a bear, that populated North America during the Pleistocene. Algonquin accounts tell of a Great Beaver who constructs a formidable dam, flooding a nearby valley, and affecting the agricultural land of the tree people living there. The people appeal to Obbamakwa, the shaper-creator, who confronts the Great Beaver, leading to a drawn-out struggle that shapes the cliffs and waterways of North America's eastern seaboard and Great Lakes (Philip 2022, xiii–xv, 179).

The Algonquin account acknowledges the significant role of beavers in constructing a continent. There was a time when an estimated sixty to four hundred million beavers lived in North America, which meant they would have affected the physical form and functioning of the ecosystem within every continental watershed. The story also underlines the importance of one's relations in a given environment, issuing a warning about human habits of disregard (Philip 2022, 257). Humans have often seen beavers as either a nuisance or a commodity.

By nearly driving them to extinction, we contributed to the "great drying" of wetlands and the degradation of river systems (Philip 2022, 195–96).

Water has become increasingly important in our era of drought and wildfires, of atmospheric rivers and widespread flooding. In the late eighteenth century, Thomas Malthus raised concerns about population growth given the availability of arable land; today, a central issue is the availability of fresh water. The ecosystem services provided by beavers will be increasingly vital in this new reality. Meanwhile, studying beavers' constructive activities can help us "think like a watershed," in a recent variation of a land ethic (Philip 2022, 219). In order to envision more such sustainable forms of niche construction, I turn to the work of theological ethics.

Penultimate Niche Constructors: Human Work in God's Sustaining Orders

Theologians have long set human work apart from that of other creatures. In an influential Catholic encyclical, the pope writes that "[w]ork is one of the characteristics that distinguishes man from the rest of creatures, whose activity for sustaining their lives cannot be called work" (John Paul II [1981] 2016, 380). The context for this claim is a personalist account that describes work as a means of self-fulfillment. In theology–science discourse, humans are given the distinctive category of being co-creators. Philip Hefner (1993, 27) conditions this status: humans are created co-creators in order "to be the agency, acting in freedom, to birth the future that is most wholesome for the nature that has birthed us." Nevertheless, the focus remains on human creative power, which others have taken up without so carefully situating our work within natural processes (e.g., Novak 1996, 176; 1982, 39).

Rather than beginning from the notion that humans are co-creators with God, this article works from Laland's evocative claim that humans are "creatures of their own making." As noted, this is a scientific claim about human agency vis-à-vis extrinsic conditions. Interpreting the phrase theologically, I would say that although we did not create ourselves, we take part in "making" ourselves as the creatures we always already are. Such a lexical–theological distinction is present in the Hebrew terms of Genesis 1: *bara* (to create), a term used of God alone, and *asa'* (to make), a term used of both humans and God. In Darwin's early reception, the term "making" was employed in this dual sense as theologians expressed how the understanding of the Creator's ways had expanded. "We knew of old that God was so wise that He could make all things," states Charles Kingsley (1874), "but behold, He is so much wiser than even that, that He can make all things make themselves.".

The notion that creation plays a role in making Earth increasingly habitable is intimated in Jewish and Christian scriptures. In Genesis, the Creator speaks in such a way that invites the earth and the waters to "bring forth" life (see Genesis 1:11–12, 1:20–21). This intermediary role was identified by early

Christian theologians such as Augustine (2002, 5.4.11, compare Davison 2020, 187n7), who observes that in the biblical account, "the earth brought forth the crops and trees causally, in the sense that it received the power of bringing them forth." Significantly, this observation suggests a gradation of agency in the environment itself. Approaching these texts from an evolutionary perspective, we can say that selection pressures on organisms are determined, in part, by the composition of the climate and particular habitats, including the influence of cosmic rays and even comets.

While God's speech remains the ultimate causal factor in the Genesis account, with the environment in an intermediary role, creatures are also given the agency to "bring forth" niches that accommodate life—both their own life and that of others. NCT can further our understanding of this causal role played by living organisms. Andrew Davison (2020, 187–88) marks the difference in our understanding from that of earlier theologians who proceeded from environment to organism:

> We now recognise that this also operates in the opposite direction, with the organisms bringing forth their habitation. In an important sense, plants have brought forth "land," or soil (acting in concert with fungi and bacteria, insects, snails, and worms). Creatures, likewise, first in the sea, and later also on land, produced the oxygen that would go on to allow for complex organisms: in biblical language, these creatures brought forth the "sky."

That said, it is difficult for any individual organism to conceive of how large-scale, population-level changes will come about and affect the coming generations. "Purposive" creaturely agency is limited and proximate. Such environmental modifications can also be seen to introduce greater unpredictability into evolutionary processes, which still require God's governance in order to be life-giving.

From a theological perspective, I would therefore challenge the claim that humans are the ultimate niche constructors. Of course, scientists who use this phrase are situating humanity with reference to other organisms and environmental factors. Yet, their claim is then adopted by theological treatments (e.g., Davison 2020, 182). Michael Burdett (2020, 159–60, 176) confirms this status in his case for humanity as the "functional image of God," which is to say that God has "devolved" power to humanity for the "productive transformation" of the whole Earth. He maintains this position while simultaneously acknowledging that humanity has failed not only in a "venial, ethical" sense but at the "very core of what makes us theologically human" (Burdett 2020, 160, 177). But given his account of human ultimacy, he does not undertake a more thorough reenvisioning of human work vis-à-vis the constructive activity of other creatures in the providence of God.

With reference to the Creator, I argue that human niche construction can be better described as penultimate. Niels Henrik Gregersen (2017, 579) welcomes NCT's emphasis on agency, which he employs to challenge theologies that would control "creaturely self-development" or jeopardize "the self-organizing powers of creaturely existence." He also affirms how NCT calls attention to the effects of the "wider ecospace" in which gene-transmission occurs (Gregersen 2017, 566). Nevertheless, Gregersen (2017, 584; cf. Odling-Smee, Laland, and Feldman 2003, 28) claims that human niche construction can only ever be "penultimate"—a slight but significant modification to the frequently repeated claim that humans are the ultimate niche constructors.

Employing the ultimate-penultimate distinction better distinguishes the works of God from those of creatures. In Dietrich Bonhoeffer's work ([1949] 2009, 151), penultimacy identifies human life with regard to the ultimacy of divine speech and action. For Bonhoeffer, being human is a penultimate stance, sustained in its own integrity. Humans may perform "visible, creative activity on the greatest scale," yet such action is always answerable to the Creator who acts with renewing ultimacy in the world (Bonhoeffer [1949] 2009, 161). This is the same Creator who actively sustains creation in its existence, both with respect to the nothingness out of which it was drawn and the fallenness to which it would succumb.

While human activity is only ever penultimate, it can still take part in God's sustaining work. In Bonhoeffer's ([1932] 2012) earlier writings, he identifies human governance and the economy as God's "preservation orders" [*Erhaltungsordnungen*]. These are the means through which God sustains life toward its new creation in Christ (Bonhoeffer [1932] 2012, 364). Bonhoeffer is offering an alternative to contemporaries' use of "creation orders," in part to acknowledge that humans have a constructive role in the orders, so they can break and reshape them if necessary. Yet Bonhoeffer is obviously making a point about continuity with his guiding criterion: the orders are in place for the purpose of preserving life. His own immediate frame of reference was the threat of international conflict, whereas I have deployed the notion in response to what has been called the "sixth extinction"—the widespread loss of species due in part to anthropogenic causes (Robinson 2023).

Reference to the divine sustaining brings us to the doctrine of providence, which is the wider purview with which I engage niche construction. Protestant scholasticism offers a three-fold account of providence, referring to the divine preserving (*praeservatio/conservatio*), accompanying (*concursus*), and governance (*gubernatio*) of created life. Theological engagements with the sciences on the topic of creaturely agency tend to offer a variation on the "concurrence" (*concursus*) between divine and creaturely action. This is how I would situate accounts that humans are "co-creators" with God. Yet the term "co-creators" can be deployed without due qualifications, suggesting a parity with God and the exercise of creativity without recognition for planetary boundaries. These

problems arise when our creative agency is emphasized without reference to God's purpose of sustaining life.

As niche construction also involves destruction, we need a theological-ethical account that goes beyond our creative capacities. In Protestant scholastic terms, it is time to locate and ethically condition the concurrence (*concursus*) between divine and human activity with respect to the divine sustaining (*praeservatio/conservatio*). Drawing on insights from NCT, I argue that human work can take part in God's sustaining orders for creaturely life. Insofar as humans act to make and even sustain life, their work remains "penultimate" before the creating and renewing ultimacy of divine action.

To resituate concurrence within a fuller account of divine providence, I turn to the work of Karl Barth, a model of disciplinary "independence" when it comes to the sciences (Barbour 1990, 10–11). This makes his work useful to recover theological convictions that have been lost in the drive for interdisciplinary dialogue or integration. As Barth provides a modern, post-Darwin account of God's providence, this section complements previous work that engages niche construction from Thomist theology (Davison 2020). There is some continuity between these traditions: as Barth (1960, 98) notes, Reformed and Lutheran theologies critically adopt insights from Aquinas in their accounts of providence.

A key insight I draw from Barth's theology is that the *praeservatio* is the basis for the *concursus*. For Barth (1960, 63), "the divine preserving [*das göttliche Erhalten*]" includes "the individual by his human and cosmic environment; and every creaturely thing by its environment and according to the particular order of that environment." There is a difference between creation, in which God acts directly, and preservation, in which God acts indirectly. In both cases, God acts freely, even takes a "delighting or sport" in the work, a freedom that is extended to creatures (Barth 1960, 63). In the case of preservation, God acts "in such a way that creation itself is the means by which it is preserved in being."

An account of the divine preserving, which is alert to the order of a given environment and its limits, frames Barth's articulation of divine–human concurrence. Barth (1960, 7–9, 92–93) rejects the idea of "continuous creation," yet he ventures that God "co-operates" with the creature in the world God has made. He states that with both acts of human will and "the factual contingent action of all created things," the operation of divine providence "not only does not destroy but rather confirms them in their autonomy" (Barth 1960, 96). Yet, in such autonomy, humans often act in ways that would undermine their prospects at life. "Of all creatures," Barth (1960, 86) writes, only the human being "seems to have this impossible possibility of repudiating his preservation by God as a preservation within appointed limits."

If Barth provides a fuller account of divine providence with which to engage NCT, insights from NCT can in turn enrich his account of how God sustains

creatures by means of their environment. The term "preservation" is apt given Barth's emphasis on the order of the environment, which seems fixed. As he writes, "all that the creature needs is the preservation of the context of its being and its own preservation within that context, a context which was created by God in order that the individual might have permanence and stability and continuity within the whole, and the whole within the individual" (Barth 1960, 64). Moreover, the accent is clearly on the provision for creatures *by* their environments rather than the ways creatures modify and adapt their environments.

Incorporating the work of NCT, along with evolutionary ecology more broadly, can lead to a more dynamic account of habitats, including greater recognition of creaturely agency within them. As Odling-Smee, Laland, and Feldman (2003, 18) write, there is a sense in which "niche-constructing organisms and their environments are, in effect, coevolving, because they are codetermining and codirecting changes in each other." Laland (2017, 247) observes, "Environments are not fixed as rich or poor; they are dynamic variables, able to change as a result of the activity of potent niche constructors like humans." That modification has a reciprocal effect on the shape of creaturely life in the coming generations.

To better acknowledge these scientific insights, and yet maintain the importance of the givenness of an environment, I propose an alternative to "preservation," as employed by Bonhoeffer and Barth, which suggests a continuity more in line with earlier scientific assumptions about species and their habitats, assumptions that carry on even in more recent ecotheologies (see Sideris 2003). In its place, I propose the term "sustaining" in order to convey a more dynamic and reciprocal account of creatures and their environments. As with modern conservation biology, the important thing to preserve is not the species or ecosystem in a certain "fixed" form but the processes that allow a species to keep making itself.[2]

How then can we co-construct our niche in a way that better sustains the possibilities for life across the generations? How can we work more wisely within our planetary boundaries, even as we acknowledge the greater effectiveness of creaturely agency? Rather than articulating an ethics that sees other creatures and our shared environment as a limit for human creativity, we can see them as guides to our own part in niche construction. The "biomimicry" movement calls for greater attention to the way nature functions as both a model and a measure of human creativity (Dicks 2023; Benyus 2002). A technology such as the solar cell is inspired by the leaf, and new building projects can be appraised for the "ecosystem services" they render. There is an awkwardness to speaking of human work as biomimicry, as humans are always already life, but this discussion can draw our attention to the ways we can co-construct our niche in more sustainable ways. There are several ways the sciences can show us how to situate human activity within the broader phenomenon of work in living systems (see Levin et al. 2011).

Theologians also provide good reasons for recognizing that work is not humanity's exclusive preserve. In light of NCT, early theological texts are being reread with the understanding that "living things did not inherit a fully habitable planet; they made one" (Davison 2020, 186). And in that work of making, Davison (2020, 200) argues that all creatures might be said to "bear the vestige or trace" of God. Celia Deane-Drummond (2014, 235) affirms NCT for "calling attention to the active agency of creatures." Drawing on NCT, she employs the notion that humans are the "image of God" by carrying out their role "in all humility with other life forms" (Deane-Drummond 2018, 251). Such contemporary accounts draw on a longstanding faith conviction that humans stand before the Creator in the midst of their fellow creatures. To use the words of a Reformation-era statement of faith, "I believe that God created me along with all that exists" (Luther [1529] 2000, 354).

Conclusion

Darwin spoke about the survival of the fit, which is to say, fit to place (Benyus 2023). NCT has called attention to the fact that a creature's place is, in part, its own doing. It is tempting to employ such an emphasis on agency as a further indication that humans are "co-creators" with God. Instead, I began from the description of humans as "creatures of their own making," qualifying the phrase theologically. Read in context, it highlights the creative agency of creatures in evolutionary process: insofar as they modify their environments, they can alter selective pressures on themselves and other species. I have shown how such a description can enrich theological accounts of how creatures are sustained by their environments, providing a more complex account of agency. Nevertheless, I maintain that humans remain creatures of the one Creator; in an important sense, we did not bring ourselves into being. Along with our fellow creatures, we construct habitats in ways that affect the evolution of life for good or ill.

Indeed, an underacknowledged insight of NCT is that niche construction also involves destruction—a reality that has become more pervasive through climate change (see Odling-Smee 2024, 301–8). There is therefore good reason for ambivalence about calling humans the "ultimate niche constructors"—a proximate reference to other organisms but one that can set humanity apart from other creatures while obviating reference to divine action. By way of response, I have designated human work as only ever penultimate before God. I have also drawn on modern Protestant theology to situate creatures' agency within a fuller account of God's providence, re-embedding claims about divine–human concurrence within the divine sustaining. I have argued that as a penultimate endeavor, human niche construction can take part in God's sustaining orders for creaturely life. This is an invitation to co-construct our world in a manner that better allows life, in all its ingenuity, to persist.

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Notes

[1] Kevin Laland now goes by the surname Lala to better express his ethnic heritage. I respectfully acknowledge the change, yet use his former surname when referring to his publications under Laland.

[2] I owe this way of phrasing the matter to biologist Karen Wiebe.

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Self-Organizing Systems and Divine Action

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Self-organizing systems abound in the world. These include interstellar systems, environmental systems on Earth, biological systems including sentience-bearing ones (bodies), and sociocultural systems, which include religious systems. All self-organizing systems attempt to maintain equilibrium, which in the case of sociocultural systems always involves some contestation. However, when changing conditions cause significant disequilibrium, such systems strive to regain equilibrium. While modern scientific knowledge offers some resonances with the classical world religions, it has nevertheless caused significant disequilibrium in these systems. Classical religions face substantial disequilibrium insofar as they feature supernatural or divine intentional agency that supersedes, interferes with, or manipulates natural processes to cause particular outcomes. For scientific knowledge and the worldviews strongly influenced by modern science provide no evidence for such agency or causation. This article draws upon two historical cases of classical religions facing and overcoming disequilibrium. It next covers attempts by scholars of the religion and science dialogue to reconcile divine particular causation with scientific knowledge and judges them a failure. It then details affordances offered by classical religions sans divine particular causation. Finally, it explores a model for reinterpreting the divine.

Self-organizing systems, which are complex, dynamic, and self-regulating, abound in the world. These include interstellar systems, environmental systems on earth, biological systems including sentience-bearing ones (bodies), and sociocultural systems, which include religious systems. Anthropologist of religion Roy A. Rappaport (1979, 151) recognizes that cultural systems are layered, hierarchically structured feedback loops that regulate the relationship of parts of the system to regulators as well as relations between regulators. (Note that structural hierarchy need not involve "social stratification" (Rappaport 1979, 151)). Rappaport (1979, 155–57) credits religion with performing higher order regulation for a cultural system in its provision of general and paramount values. All self-organizing systems attempt to maintain equilibrium, which in the case of sociocultural systems always involves some contestation, often involving opposing—though potentially complementary—attractors. However, when their natural-social environment changes greatly, they can undergo substantial disequilibrium. The rise of modern science has caused substantial disequilibrium for the classical world religions. Our scientific knowledge of nature provides no evidence for supernatural or animistic intentional agency that supersedes, interferes with, or manipulates natural processes to cause particular outcomes. Thus a scientifically informed religious system must engage in some significant reinterpretation of scripture and tradition to achieve equilibrium and coherently engage the world. This article draws upon the cases of medieval Confucianism (Ruism) and Judaism, both of which faced substantial disequilibrium but overcame it. I cover attempts by scholars of the religion and science dialogue to reconcile divine particular causation with scientific knowledge and judge them a failure. I then detail affordances offered by classical religions without such supernaturalism or quasi-supernaturalism. Finally, I explore a model representing one possibility for reinterpreting the divine as understood in classical religious scriptures and traditions.

Self-Organizing Systems

The trajectory of our universe has been one of increasing complexity, with self-organizing systems playing a central role. In situations far from equilibrium, given the availability of sufficient energy, less complex components can self-organize as a more complex entity, allowing a new equilibrium. Complex systems possess properties greater than the sum of the properties of the parts. This process plays out with galaxies and stars (Smolin 1997, 116–38), with the third generation of stars since the Big Bang involving heavier atomic elements that make possible the formation of planets. In turn, some planets have allowed for the emergence of biological systems, of life. (A lowball round-figure estimate of how many "Goldilocks" planets amenable to life exist in the universe is a staggering one billion.) Biological systems are autopoietic, being both self-organizing and able to reproduce themselves. Moreover, various

biologists credit to living organisms in relation to their environments *telos* or ends, goals, purpose, and functions, as with "teleodynamics" (Deacon 2012) or "teleonomy" (Corning et al. 2023). Furthermore, some biological systems have achieved the complex property of sentience, awareness, consciousness, and attendant meaning. Many, perhaps all, animals with nervous systems possess a basic or core consciousness, while most do not have self-consciousness in the sense of being able to objectify themselves (though the number found with the ability to recognize themselves in a mirror or show other signs of self-consciousness continues to grow, now including some birds as well as some mammals). Obviously, humans exhibit the most complex manifestations of self-consciousness. Excluding the possibility of life on other planets more complex than human life, the human mindbody (a term coined by religionist William Poteat (1985)) constitutes the most complex reality in the universe. Today's knowledge of self-organizing systems and growing complexity—including the affordances available for biological organisms in a joint project with their environment (Gibson 1979) and mutual adaptation of organism and environment (Varela, Thompson, and Rosch 1991, 85–194)—finds some resonances in the classical religions, insofar as they are world affirming. Theologically speaking, this trajectory of increasing complexity offers support for religious convictions that divine reason, intelligence, intentionality, or at least directionality in some way lie behind the becoming of the universe. Granted, atheists offer counter arguments that attribute increasing complexity to pure chance or brute fact.

Implicating the basic action of a sentient organism orienting itself to its environment, religions have attempted to orient humans to the largest environment they can imagine. As mentioned previously, Rappaport (1979, 155–57) credits religion with performing higher order regulation for a cultural system. A general orientation to the larger environment, cemented with pertinent rituals, accords with such regulation. Religions thus promote social bonding and cooperation. Traditionally, they have identified supernatural, divine, or extraordinary agents, forces, or realms as part of and/or the source of the larger environment. Religious cognition and ritual enable humans to make sense of and adapt to human life-worlds. Generally, they are adaptive and rational, though often inaccurate in terms of modern scientific knowledge.

Given temporal change, religious traditions, as with all sociocultural traditions, continually face situations not exactly like previous ones. So, they cannot remain unchanged through time. Reinterpretation of scripture, understood as the text(s) with the highest official authority, is then an ongoing process among the classical religions, often happening unselfconsciously. Many classical traditions have a secondary canonical or official textual component, such as the Talmud in Judaism, the hadith in Islam, or the ecumenical councils in Christianity (see Lior 2020, 97–98 for a related assessment). As suggested,

these religious traditions always involve some contestation among differing interpretations as they strive for optimal sense-making and integration. As self-organizing systems, they seek an adequate degree of equilibrium or stability, parallel to homeostasis for biological organisms, for bodies. Or, to put it negatively, religions try to avoid or overcome disequilibrium.

The Challenge of Modern Science

The advance of the natural sciences since the Enlightenment has engendered disequilibrium among the classical world religions, to put it mildly (not to mention among some Indigenous religions in cultures with some familiarity with scientific knowledge). This has led to significant self-conscious reinterpretation of scripture, whether to accommodate the consensuses of science or to harden positions in fundamentalist opposition (though fundamentalists may mistakenly claim to just maintain traditional interpretations).

Mainline Christianity generally accepts scientific evidence that goes against traditional interpretations of scripture and tradition much more than does evangelicalism, as with the origins of the universe and humans. Nevertheless, I contend that mainline, moderate, or liberal reinterpretations of scripture on the whole have not gone far enough to restore equilibrium, to achieve adequate coherence or integration, in light of the conclusions and cultural influence of modern science. Our scientific knowledge of nature provides no evidence for supernatural or animistic intentional agency or magic that supersedes, interferes with, or manipulates natural processes to cause a desired outcome. I do not claim that science disproves supernatural or quasi-supernatural causation (the latter presuming God causes particular outcomes by manipulating "natural" causation, as any given natural process allows God to choose from several possible actions and outcomes). Rather, I point to the absence of evidence for preferring it to simpler natural explanations. (Here I am not addressing supernatural causation for the existence and nature of the universe.) In the case of supernatural intervention, almost everyone agrees that, if it exists, it is the exception rather than the rule. So logically, Occam's razor bids us to prefer natural explanations, unless one can show why they are inadequate in certain cases. Occam's razor also cuts at the theory of manipulation, given its complexity and the lack of evidence for it.

I indicated that modern science has caused disequilibrium both for liberal and conservative versions of the classical religions. I will now address the extent to which mainline Christianity accepts supernatural intervention or quasi-supernatural divine causation (even as it has accommodated much of modern scientific knowledge). I want to emphasize that the significant disequilibrium caused by modern science relative to particular divine causation is not only, or even primarily, a matter of conscious or explicit cultural beliefs people could articulate, which would cause conscious cognitive dissonance if they did articulate and compare them. Rather, it has more to do with tacit or implicit

ways of life and worldviews. At this juncture in world history, most people in the West and beyond live in a disenchanted world. We generally accept what established scientific theories tell us about the physical makeup of the universe, human and animal bodies, and DNA. We generally recognize that scientific knowledge has enabled flight, space exploration, exploration of the deepest parts of oceans and ever deeper parts of the Earth, nuclear power and nuclear weapons, computers, and artificial intelligence. Stephen Bullivant (2022, 120–21) argues that the internet has increased secularization in American culture (Duncan 2024, 194), a conclusion that does not bode well for supernatural or quasi-supernatural particular causation. When it comes to climate and weather, sickness and health and medicine, or human individual or social decisions, people normally do not attribute what happens to God or some other supernatural force or being. Yes, many people will pray or otherwise invoke supernatural power when a loved one receives a diagnosis of a terminal illness. But in an overwhelming majority of such cases, the sick person dies. Some people do believe that what most would attribute to coincidence in a disenchanted world was manipulated by God or perhaps a guardian angel. And some people do hold various paranormal beliefs. Yet, these supernatural or quasi-supernatural beliefs and behaviors are idiosyncratic; they are not part of a way of life or worldview that many people share. The difference between now and prior to the scientific revolution is that earlier folks shared a supernatural worldview supported and reinforced from many cultural directions.

While secondary, explicit cognitive dissonance does play a role among different subcultural systems and the individuals who constitute the parts of those systems, Christian fundamentalist or near-fundamentalist traditions (as well as such traditions in Islam and ultra-orthodox Judaism) either refuse scientific evidence because of the absolute, unquestioned authority of scripture, as they interpret it, or accept alternative "science" that harmonizes with their interpretation. The latter approach brings disequilibrium in directly disputing scientific conclusions from expert professionals accredited with authority by the wider society. Given that conservative believers typically have some awareness of scientific consensuses concerning the origin of the universe and of humans and other species, to deny this evidence expends energy and causes some conscious cognitive dissonance. More in the tacit realm, either of these approaches causes some disequilibrium in that many uncontroversial beliefs and technologies in medicine and related fields rely upon the truth of evolution. My sense is that over the long term, due to tacit and explicit sociocultural cognitive dissonance and disequilibrium, the classical world religions will need to establish equilibrium with a scientific worldview in order to survive.

I grant that religious (and other cultural) systems can exert significant effort to maintain challenged practices and beliefs. Both Michael Polanyi and anthropologist of religion E. E. Evans-Pritchard make that case well. Polanyi cites Evans-Pritchard's research on the Azande's system of beliefs and ritual

practices using the poison *benge* to yield oracles read by witch-doctors to determine whose witchcraft caused an adverse event. While Westerners would readily credit evidence refuting the accuracy of the poison oracles, Polanyi notes that "Evans-Pritchard lists no less than eight secondary elaborations to refute such self-contradictions." Refutations include "that the wrong kind of poison had been gathered, or a breach of taboo committed, or that the owners of the forest where the poisonous creeper grows had been angered and avenged themselves by spoiling the poison" (Polanyi 1958, 287; Evans-Pritchard 1937). Polanyi (1958, 150–71) documents how problems with scientific theories can develop over time, unsolvable within a current theory, yet evoking ad hoc attempts to hold on to said theory, before a "heuristic" leap traverses a "logical gap" and initiates a successful new theory—contrary to a popular model of scientific practice as having no preconceptions and doubting everything. (Thomas Kuhn (1962) later coined the term *paradigm shift* for this phenomenon). Given religious systems' regulatory role in cultural systems per Rappaport and their invocation of values as in some sense sacred or "particularly esteemed" (Nakamura 1997, 10; cited by Lior 2020, 97), religions often resist change more than other cultural systems. Yet, the history of religions admits much change in religious systems when facing significant shifts in a society's natural and social world. (With the growth of Christianity and social and political changes, traditional Zande ritual practice is not nearly as robust as it once was.)

A Historical Parallel

Religions face particular pressures to change when the life-world they encounter becomes larger through the influx of other cultures, including other religious systems, and/or significant growth in knowledge about the natural world. Possible outcomes include the eventual death of the religion, a doubling down via a hardening of stance and attempts to lessen engagement with threatening subcultures with alternative practices, or an accommodation of new knowledge and practices. Such attempted accommodations can be relatively liberal or relatively conservative. Given that cultural systems, including religious ones, strive to return to stability when faced with disequilibrium, *if* a relatively conservative attempt can accommodate the new, it is more likely to achieve a new equilibrium. Before tackling possible accommodations of religions confronting a modern scientific worldview, I will consider two historical examples where religious systems became perturbed and destabilized, losing equilibrium in a Kuhnian or Polanyian period of crisis.

Yair Lior offers an intriguing analysis of how Confucianism and rabbinical Judaism responded to respective situations far from equilibrium. For Confucianism, the challenge came from Buddhism, while for Judaism it came from "Greek philosophy, especially Aristotelianism and Neoplatonized forms of Aristotelianism" (Lior 2020, 93). Though these traditions and their challenges were tremendously different in their details, both challengers represented a

more rationalized, universalistic, and spiritually individualistic tradition that had appeal to a rising and well-educated middle class (Lior 2020, 99–102). Interestingly for our purposes, these challenges came along with advances in science, natural philosophy, medicine, and technology (Lior 2020, 100). This instability led to intense factionalism among a variety of progressive and conservative camps, which itself was a process of self-organization and adaptation. These camps gradually coalesced around two attractors: a "progressive" one that questioned the validity of some of the Five Classics of Confucianism and parts of the Jewish Talmud, and a "conservative" one that accommodated much from the foreign traditions in interpretation of both the Classics and the Talmud and in new authoritative texts. The progressives thus show a willingness to discard parts of the canonical tradition and add new parts not relying upon earlier layers. Thereby, the new supersedes the old. On the other side, the conservatives preserve older layers and traditions and supplement them with new textual layers and ritual practices. The more conservative camps, which we know as Neo-Confucianism and Kabbalah, prevailed, Lior tells us (2020, 112–27). This is not surprising, as a conservative reorganization is less energy demanding and requires less structural change than a progressive one. In some contexts, however, a conservative reorganization may not suffice to overcome the destabilization of challenges to the system, while a more progressive reorganization might succeed—especially if the conservative attractor is more radical than the larger culture and lessens the complexity of the tradition. Lior concludes that in these two historical cases, this self-organizing process led to "a new phase of homeostasis" (2020, 127), resulting in "greater complexity" and contributing to "long-term resilience" (2020, 92; see also, 129–30). Even as complex self-organized systems first arise in situations far from equilibrium, existing systems can achieve greater complexity in such situations.[1]

Regaining Equilibrium without Divine Intervention or Manipulation

With the Enlightenment and the emergence of modern science, disequilibrium developed among more liberal European and North American Christianity and Judaism and philosophical theism influenced by those Western monotheisms concerning supernatural intentional agency. That widespread doubt eventually spread to encompass supernatural creation of the cosmos, the Earth, and species. But throughout, disequilibrium persisted regarding supernatural causation that supersedes, interferes with, or manipulates natural processes to cause a desired outcome in the world. These intentional supernatural or quasi-supernatural actions can be divided into three types:

1. miracles in the sense of violations or the superseding of natural law in the perceptual world. Even evangelicalism tended to consign miracles so defined to the Apostolic Age.

2. God "working behind the scenes," so to speak, manipulating things to bring about a favored outcome but without violations of natural law, or at least not noticeable ones. This option usually avails to explain isolated and more personal happenings. Today, some engaged in the religion and science dialogue posit that nature always involves some manipulative action—I unpack more of what I mean by this later—by God as not bound by fixed natural law.
3. God directly communicating information, or at least the divine presence, to people. With the failure of the Enlightenment quest for certainty, or at least an immediate divine connection, through rational means, the quest moved to the realm of feeling or the subconscious, or the subliminal for liberal theism, as with Romantic idealism—the strongest currents originating and spreading from Germany—and process theology.

I concede that traditionally one major motivation for performing religious rituals has been to influence particular outcomes in the world. For us embodied creatures, hope for such outcomes can be adaptive in lessening anxiety and enabling confidence. For Christianity, the relevant theological concept is "special providence." The Divine Action Project, a multi-year effort that included luminaries of the religion–science dialogue, labeled such purported causation as Special Divine Action (though leaving miracles in their own category due to their manifest violation of natural law and the overriding of General Divine Action associated with natural law) (Ritchie 2019, 7–9; Wildman 2004). For his part, William James (1902, 520–23) in *The Varieties of Religious Experience* supports "crass" or "piecemeal" theism, which supposedly allows us to experience God and lets the divine have particular effects on the world in a manner not contradictory to the processes of nature discernible by science. For James, this meant the divine could influence humans by providing renewing energies and possibly information through the subliminal. (Such a take on subliminal or subconscious processes does not seem as viable today as during James's era.)

Indeed, the desire for the supernatural or divine to directly affect particular outcomes in human life still presents a strong attraction that works against achieving equilibrium in mainline Christianity and liberal theism influenced by mainline Christianity. From my experience with mainline denominations, the curriculum, commentaries, liturgy, and preaching in mainline churches tend not to confront issues relating to particular divine causation, leaving unaddressed and uninterpreted what traditionally has been understood to entail such causation. While such nonaction may avoid increasing disequilibrium in the short term, it hinders overcoming disequilibrium in the long run. By contrast, Reform, Conservative,[2] and liberal Orthodox Jews have had different experiences with curriculum, commentaries, liturgy, and preaching in their synagogues and denominations and tend to doubt these three types of purported attempts by

the divine to influence particular events. Surely, the memory of the Holocaust looms large in this disparity.

Given the attractions of practices that invoke hope of divine particular causation, I concede that forms of the classical world religions that do not offer this may ultimately die. On the other hand, mainline and more liberal forms of the classical world religions that choose to leave unchallenged particular divine causation may well die if equilibrium relative to scientific worldviews and ways of life is not restored. In the long term, more fundamentalist versions of Christianity may die also, given 1) their blatant contradictions with respect to scientific consensuses, which takes a lot of energy and 2) the lessening or loss of the theological or religious meaning of stories and other scriptural genres, which ironically they mean to protect. That is, their hardline interpretations—disconnected from historical traditions of interpretation—emphasize the alleged historical truth of miracles and other stories and of cosmological accounts contradicted by science at the expense of the religious meaning. Such interpretation manifests the phenomenon identified by Polanyi (1966, 18; see also 1958, 56; 1969, 146) of losing the wider embodied meaning by focusing on particulars.

I note that historically, not all the classical religions have emphasized particular divine causation. From ancient times, Confucianism, or Ruism, has instead emphasized human efforts to bring individuals and society into conformity with the cosmic order of Tian and shied away from direct divine causation in the perceptual world.

Failed Attempts to Retain Particular Divine Causation

Some scholars engaged in the science and religion dialogue propound ways God might determine particular events and outcomes, supposedly without violating natural laws or regularities. I argue that these attempts to achieve equilibrium by attempting to reconcile scientific knowledge with particular causation fail. Some approaches to special divine action involve a "causal joint" in the sense that one can specify where or how God might act in underdetermined ways in the natural world (or at least underdetermined in terms of known natural laws). Nicholas Saunders (2002, see especially, 214–16) proclaims a "crisis" in the field of religion and science, with such approaches as both scientifically dubious and theologically deficient in terms of strong special providence (Ritchie 2019, 4, 11–12). I include under causal-joint theories the idea of "higher laws" of nature, whereby God acts in ways undetermined by lower laws (even though one of the scholars who employs this idea assails the causal-joint premise).

Other approaches reject the causal-joint paradigm. Sara Lane Ritchie declares a "theological turn" to "theistic naturalism" as an alternative to causal-joint theories. These alternative approaches embrace the proposition that the regularities of natural process are descriptive rather than prescriptive

and ontological (Ritchie 2019, 10–11, 25–27; 2017, 361–62, 366–68), thus there is "wiggle room" whereby God engages both in general providence to the extent that regularity or similarity pertains and in special providence to the extent that God makes the best choice among possible options. I use the term *manipulate* to describe these open choices and actions by God without the common connotation of unscrupulousness. The theological turn also endorses a corollary of compatibilism against incompatibilism. With the incompatibilism of causal-joint theories, God cannot act through fixed, determinative natural laws (other than by sustaining these laws) but rather only through indeterminacies in natural processes. Compatibilism here means that God is always fully acting in the world through fully natural processes (Ritchie 2019, 24–27). The specifics of divine action with so-called "theistic naturalisms" remain a mystery to us. Thus, such models can find theological support through faith but not scientific support. Before getting into particular models and critiques, I will issue a general caveat: given the ubiquity of particular divine causation, in contrast to limited particular power in causal-joint theories, the theological turn aggravates the problem of horrific evil—that is, terribly traumatic events that happen to individuals and occurrences of mass death, maiming, and destruction. These theistic naturalisms may posit strong providential action, but strong results are not evident in the world. Therefore, the crisis Saunders finds in the field of science and religion relative to special divine action persists.

Causal-Joint Theories

One approach utilizes quantum physics in a very "behind the scenes" way. It posits that God determines the quantum actions of particular subatomic particles either for all quantum activity (Murphy 1995, noted by Barbour 2000, 171) or in certain cases (Ellis 2009; Russell 2009; Tracy 1995), as with the energy levels of electrons and radioactive decay, and that these in turn produce macro effects resulting in specific events. As these quantum actions always adhere to overall probabilistic outcomes, God violates no natural laws. However, given that overall probabilistic quantum outcomes cannot vary, it seems likely that micro events in a system will "even out," so to speak, and rarely, if ever, influence macro events. Moreover, if God uses this method, it does not appear to be particularly effective in preventing cases of horrific evil. Given that my ontology of self-organizing systems—along with the ontologies of many other liberal scholars—advocates some indeterminacy and openness in nature and culture, rejection of the ultimately indeterminate nature of particular quantum events reduces the likelihood of indeterminacy elsewhere in the universe, including in our embodied decisions and actions. In the nature of the case, this theory of divine particular causation is transempirical, strictly a matter of faith. In itself, that may not be a problem. However, given the weaknesses I have listed, I believe it amounts to a faith in the highly improbable.

God's establishment of natural laws and processes, traditionally referred to as general providence in Christian theology or General Divine Action in the previously mentioned project, perforce does not involve violation of these natural structures. But can God's causative acts on the whole universe traditionally associated with general providence end up foreordaining particular events and thus involve some special providence or particular causation? Arthur Peacocke, as he develops his notion of divine "top-down causation" (1993) or "whole-part influence" (2014), maintains that God, in establishing boundary conditions with respect to the whole universe, not only determines general laws or patterns but causes some specific events. Given the long stretch of evolution of galaxies and life, this seems unlikely given some indeterminism in the universe, especially in terms of particular decisions and events in the realm of sentient individuals, their societies, and their interactions. Peacocke does uphold indeterminism and human free will. He also highlights information humans might derive from God's action in setting boundary conditions. However, the only way I can imagine this happening is through attempts to garner information about general providence and to imitate God in particular embodied situations. This would constitute an application of the idea of general providence and, at most, a very indirect version of special providence. Additionally, this model of special providence does not appear particularly effective at preventing cases of horrific evil.

Unlike Peacocke, John Polkinghorne (2000, 123–25, 148) champions direct action by God through "active information" given to individual human beings, supposedly without any input of energy—rather, this is "*pure* information input." This giving of pure information contrasts with our acts that "involve a mixture of energetic and informational causalities, corresponding to the embodied status of creatures" (Polkinghorne 2000, 124). Nonetheless, it seems the *reception* of information by an embodied human would involve energy. Furthermore, would not the reception of information from God involve energy different from (and from a different source) than information in the world of matter and energy? It seems that the source of the energy expended on receiving divine information would be untraceable. Therefore, I think Polkinghorne's concept involves the supersession or violation of natural laws or processes. A number of modern theologians, often influenced by Romantic idealism, claim some type of divine revelation in or to human awareness on a prereflective or affective level. Paul Tillich, the most eminent twentieth-century representative of that tradition, posits an awareness in all humans of being-itself, or the power of being, without particular information. It seems, however, that for revelation to register in our awareness, the same issues arise as with Polkinghorne: this registration would involve an unnatural energy. Also, like previously cited attempts, such revelation does not appear particularly effective in preventing cases of horrific evil.

Process theology claims a unique version of special providence. For Alfred North Whitehead's panpsychism, the basic constituents of reality are "unit occasions of experience" that synthesize past occasions of experience of oneself and others in a "concrescence." God influences every momentary occasion of experience by providing it with God's preference among the possibilities available to it, a preference termed God's "initial aim" (Whitehead [1929] 1978). For process thought, unit occasions are very brief, a fraction of a second. Thus, it appears that the specifics of each occasion must remain subconscious and inaccessible, thus transempirical, to our perceptions and reflections. The process view that time exists as discontinuous quanta creates another problem, given the lack of evidence so far against the appearance of time as continuous. Like previous models, God's provision of initial aims does not appear to be particularly effective in preventing cases of horrific evil.

Another approach to special divine providential action posits unknown laws of nature, with results that appear miraculous but actually break no laws. This approach goes back to St. Augustine (1950, 776–78), while Polkinghorne represents the most prominent contemporary proponent of an unknown regime of nature (for example, Polkinghorne 2000, 127–28). From an Eastern Orthodox perspective, Christopher C. Knight (2007, 39) labels these as "higher laws" (Ritchie 2019, 278–79). An obvious weakness of this proposition is the unknown and possibly unknowable nature of such laws. This approach asks us to accept this possibility without evidence. Ritchie (2019, 181, 183) offers petitionary or intercessory prayer followed by a dramatic healing as an example of a possible higher natural law. Actually, meta-studies provide evidence on petitionary prayer—that is, evidence against, as they conclude from experiments with strong double-blind safeguards that it has no effect (Hodge 2007; Masters et al. 2006). We might take as a "higher" test case the plausibility of Jesus's resurrection as falling under such higher laws. Living a sinless life in complete harmony with the will of God might seemingly activate a higher law. Yet, I submit the implausibility of any natural law that results in the rising of a transformed body in place of the original body that had died. Also counting against an unknown regime is the seeming inability of such laws to prevent horrific evil.

A somewhat related argument posits the changing of nature and natural laws in response to some unprecedented event, such as the death and resurrection of Jesus. Some patristic theologians write of higher laws becoming operative at particular crucial times (Knight for his part advocates relevant "fixed instructions" created eternally) (Ritchie 2019, 280–85; Knight 2007, 29, 39, 116; 2016, 581), while Polkinghorne (2000, 90–91, 94) envisions this happening only with an ultimate fulfillment constituting an "eschatological panentheism." Pentecostal theologian Amos Yong (2011, 90–102), however, asserts that this change already began with the incarnation of Jesus Christ and Pentecost and will continue to gradually progress (Ritchie 2019, 317–18). No evidence exists, though, that any laws of nature have changed in the past two thousand years.

The Theological Turn

Ritchie elaborates upon three types of theological naturalism: 1) Thomistic double agency of primary and secondary causation, 2) Knight's Eastern Orthodox "panentheistic naturalism," and 3) the respective "pneumatological naturalisms" of James K. A. Smith and Yong. Thomistic double agency maintains that two levels of causation, the divine and the natural, are both fully effective and not in contradiction. Ritchie (2019, 248) cautions that double causation could fall into deism "if too eager to affirm the integrity of secondary causes." However, I judge her warning of falling into "theological determinism" to represent the greater danger. Telling is Ritchie's (2019, 249) quotation from contemporary Thomist Ignacio Silva (2015, 280): "[T]he key feature of this doctrine is that everything the secondary cause is and does is caused by God." The clear hierarchy of primary and secondary pushes in a deterministic direction. There is disagreement about whether St. Thomas's theology is predestinarian and deterministic. Aquinas and St. Augustine agree that those who deliberately do evil will to do so, free from external compulsion (as in a modern example of someone threatening to kill you unless you help him rob a bank). But I discern here a position labeled "soft determinism" in contemporary philosophy. People exercise moral or immoral wills, yet God ultimately determines the nature of those wills by divine action—or nonaction—with respect to saving grace.

Knight's Eastern Orthodox panentheistic naturalism and Smith's and Yong's pneumatological naturalisms all insist that God always acts in natural ways that include both General Divine Action-like sustaining of regularities and more finely tuned Special Divine Action-like providential action (Ritchie 2017, 375; Smith 2010, 40; Yong 2011, 131). For Knight (2007, 116), divine action constitutes an eternal act (Ritchie, 282–87), and this creates a problem. The divine ability to determine the most providential of options throughout all time entails foreknowledge of particular situations. Some argue that free will in the sense of some indeterminate freedom to choose among options does not contradict foreknowledge. For me, however, to foresee all decisions yet to be made in time from a perspective wholly outside of time is nonsensical. Thus, like double agency, a divine eternal act warrants an interpretation of soft determinism. Smith on the other hand judges divine choices to happen in time (Ritchie, 303–04). (I also find commendable Smith's (2010, 12, 88, 96–99) honoring of embodiment and the (nonreductive) physicality of human beings against any dualism (Ritchie 2019, 301–11)). While neither Knight nor Smith want to be pinned down on the specifics of divine action, neither claims that *all* natural laws and regularities boast flexibility open to what I have called manipulation. Indeed, Knight (2007, xi, 36–39) appears to concede my point in distinguishing between "low-level" and "higher" natural laws (Ritchie 2019, 278–81). While Knight would demur from my getting more specific with types of natural laws, I do not find it plausible that, for example, laws of motion represented by algebraic or partial differential equations could be anything other

than "low-level" laws, "which are scientifically explorable" and apparently fixed (Knight 2007, 94; Ritchie 2019, 281). Self-organizing systems, which are never fully predictable, appear amenable to providential divine choices not accessible to science. Knight (2007, 36–39) focuses on the self-organizing systems that are human mindbodies in terms of human responsiveness to God (Ritchie 2019, 280–81). One could, though, look at weather as a chaotic system and wonder why so many natural disasters vastly destructive of human and animal life occur. Again, the question of horrific evil and divine particular causation raises its head. In addition, as Occam's razor sharply asks, why invoke myriad divine decisions beyond the natural unpredictability and, perhaps in cases such as sentient organisms and some of their actions, the indeterminacy of self-organizing systems?

Divine Power to Violate Natural Laws?

Finally, I will address the proposition that God or the divine has the power to violate or supersede natural laws but rarely or never uses it. I have supported the "never" version in the past. I do not challenge the contention that God should only rarely exercise such alleged power, since stable, reliable natural laws constitute a necessity for a livable world and the value of creaturely integrity and free will should ordinarily be respected. Plus, one can reasonably add that the divine should not overturn natural processes in a manner that sufficiently intelligent creatures would recognize, lest they factor the hope for divine intervention in decisions (as some people do with climate change). But could God not intervene in ways undetectable to humans and thus save tens of thousands or millions of creatures from trauma, torture, maiming, or death? For example, a fatal heart attack or brain hemorrhage for Adolf Hitler or Vladimir Putin might have accomplished such a goal. Good parents grant their children much freedom to learn, explore, and make their own decisions—but within limits that foreclose the most disastrous outcomes. If God could do so, should we not expect God to do the same? (Wesley Wildman (2007, 278) makes a similar argument). A traditional counter to my current position would be that, since we are not in the position of the divine, perhaps non-intervention was actually the best (non)action God could have taken relative to whatever situation of horrific evil one might raise. However, we can only make judgments about the divine as the embodied human beings we are. This traditional objection tends to call into question any human capability to make sense of the divine.

Affordances of Religion without Supernatural Intervention or Manipulation

In imagining a classical religion restoring equilibrium relative to a modern scientific worldview and way of life by rejecting particular divine causation, what affordances could such a religious tradition offer? Unlike with the responses of

Neo-Confucianism or Kabbalah, Christianity and Islam have a closed canon. The interpretation of narratives and other scriptural and canonical textual genres would focus on the religious or theological meaning of the text, sans the extraordinary packaging incredible to a scientific worldview. Scriptural and canonical textual interpretation more generally would fully recognize the embodiment and embeddedness of the authors and original hearers in their respective historical cultural situations. This recognition includes the fact that these folks did not possess an understanding of modern historical methodology and standards; therefore, many canonical stories are not historical. The considerations of theology or religious faith conditioned what folks believed must have happened. Again, it was the religious or theological meaning that drove the formation of scripture, hence we should attempt to apply it to the contemporary context. That does not mean, though, that all the values manifested in scripture have equal worth or are consistent with each other. The recognition of the embodiment and embeddedness of scriptural formation obliges us to make ethical judgments based on our own contexts.

Forms of classical religions without supernatural particular causation can provide orientation to the larger picture or the whole of things to the extent humans can comprehend this. In theory, one such form sets the divine outside nature insofar as it is the supernatural cause and sustainer of the world without intervening in it (though I have criticized that model if it involves unused power to intervene). Whether nature as a whole is conceived as nondivine or divine, or the divine is not identical to nature as a whole, these forms can concur on a metaphysics with directionality of increasing complexity that provides for sentient life, including very rich and intelligent life.

Rituals should play a prominent role in religion without supernatural intervention or manipulation, as they did for Neo-Confucianism and Kabbalah. They afford bonding and solidarity, which promote cooperation within the religious group and outreach beyond the group. Evolutionary psychologist Robin Dunbar (2022, 137–40; 2012, 208) notes that religious rituals increase the uptake of endorphins, which promote both this bonding and pain reduction.

Prayer has functioned as an important ritual for the Western monotheisms as well as for Hinduism, Shinto, folk Daoism, and Mahayana Buddhism in relation to bodhisattvas. Prayer without expectation of supernatural intervention can help the one who prays, as it serves spiritual self-cultivation and self-transformation and spurs one to act ethically with respect to persons and situations. In theory, I am open to the existence of unknown natural forces that could allow intercessory prayer to work directly in the world. Unfortunately for this possibility, as mentioned earlier, meta-studies reach a negative verdict (Hodge 2007; Masters et al. 2006). However, knowing that someone is praying for you or thinking about you in a caring way can have positive effects with respect to psychological and physical illness.

The creation of new contemplative and meditational techniques, which were key adaptive emphases in Neo-Confucianism and Kabbalah regaining equilibrium, also offers benefits. While the rituals of synagogue and Ruist orthopraxis for Kabbalah and Neo-Confucianism, respectively, engender bonding with fellow practitioners and larger realities, meditative/contemplative practices inspire connections to universalist dimensions. Meditation/contemplative prayer involving a diminished sense of self as distinct from others and compassion/loving kindness meditation/contemplation can yield an increased sense of connectedness with one's fellow human beings, other sentient creatures, nature as a whole, and/or a divine reality (Fox et al. 2016; Nash and Newberg 2013, 7, 8; Winkelman and Fortier 2019, 65). Another adaptive benefit of meditation or contemplative prayer involves the autonomic nervous system and relaxation, indeed two types of relaxed states. Some studies indicate a state where the parasympathetic nervous system kicks in and lowers heart and respiratory rates, blood pressure, and metabolism. Other studies suggest a more complex picture of meditative and contemplative states: heightened activity of the parasympathetic nervous system happens at the same time as heightened activity of the sympathetic nervous system, the system associated with arousal (see Newberg 2006; Winkelman and Fortier 2019, 64). Neuroscientist Andrew Newberg (2006) notes that this "fits characteristic descriptions of meditative states in which there is a sense of overwhelming calmness as well as significant alertness."

A Model of the Divine

I will conclude this article by exploring a model of the divine that avoids supernaturalism but preserves some personal dimensions of the divine. It is a version of panentheism and divine embodiment where an all-encompassing but differentiated reality begins with the Big Bang—whether this involves one inflation, a pre-inflation, post-inflations, and/or a distinct inflation for dark matter (or Roger Penrose's minority position in astrophysics of cyclic universes, each beginning with an inflation[3]). Divine intelligence (in)forms structures that involve some indeterminism in a whole that includes particular configurations of energy and matter. It is a package, so to speak. This divine reality establishes the basic structures or laws during the early inflation(s) and maintains them. While this divine intelligence is differentiated from the nondivine parts of the universe, it does not bring these into existence in ex nihilo fashion. Empirically, we cannot get "before" or behind the earliest inflation. If something existed in eternity in the sense of timelessness, it would have included the divine intelligence. This integrated whole may carry its own kind of necessity. With its causative role involving the determination of structures of the universe, the divine does not and cannot supernaturally or quasi-supernaturally determine particular outcomes of the interactions of energy and matter in the universe. The divine

has awareness of the universe in its beginning and through nonlocality retains some awareness of everything that happens in the universe, appreciating when sentient or experiencing realities fulfill their needs and desires and sensing the feelings of these realities when they experience pain or failure. This allows for a sense in which God hears our prayers. Given the ongoing reality of this divine intelligence, its knowledge may be retained through time. As embodied in the universe, God faces certain limitations, though not limitations or dependencies that we do, for God never ceases to exist and, again, has some awareness relating to everything that happens in the universe.

That the divine always wishes the best for each creature in each moment has important ramifications. We can attempt to discern the divine will for particular situations or historical moments, not based upon a direct communication from God but from our best intuitions, thinking, and compassion for sentient life driven by our faith in divine love, justice, and mercy. Belief in revelation through central figures and canonical texts can be understood not as supernatural communication, inspiration, or incarnation but rather through our best judgment that they stand as revelatory of the divine will that love and justice ought to prevail. A sense of divine forgiveness may be obtained for harmful past deeds, in that God does not wish punishment or evil upon the perpetrator but rather wishes them the best, including that the guilty party repent and not cause that harm again. Trust in the awareness of what happens in the universe by the divine intelligence, as well as its implications, is transempirical given the lack of any direct evidence; therein, it is a matter of faith. One can cite indirect evidence from the intuitive interpretation of intelligence fashioning the universe, as opposed to its nature being a matter of chance or brute fact. My modest claim is that belief in a divine intelligence (in)forming our universe lends plausibility to my model.

This model can be adaptive through embodied and enactive interpretation of scripture and tradition—and also crucially through rituals—in an age of science by encouraging imitation of divine love and offering the hope that we affect the divine, perhaps being remembered after dying, and providing a plausible picture of the origin and causes of the universe and our place in it. This can also be the case in terms of ecological concerns, where working with natural processes and encouraging helpful sacrifices may succeed where hoping for divine intervention will fail.

Notes

[1] I note though that while Lior explicitly cites only greater complexity, in one respect, these reorganized traditions became simpler. In contrast to older paradigms of lifelong immersion to try to master the Five Classics or the Talmud, Neo-Confucianism and Kabbalah made these canonical texts clearer, more "accessible," and more "user-friendly" for the growing numbers of educated people (Lior 2020, 118–20). In this vein, the Protestant Reformation is generally recognized as organizing Western European Christianity into a simpler religious system.

[2] Conservative Judaism's *Etz Hayim: Torah and Commentary* does not shy away from citing evidence that many biblical narratives are not historical, as well as acknowledging the consensuses of modern science (Lieber et al. 2001).

[3] The cyclical coming together of everything of a universe, if actual, would be part of the (in) forming by the divine intelligence, which would result in an unending series of universes rather than the cold death of our universe, which seems to be the most likely scenario at this point.

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Can a Divinely Guided World Include Blind Chance?

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Compatibilism, or accommodationism, is the view that evolutionary theory and interventionist theism are compatible. According to compatibilists, God can guide the biosphere while allowing for chance events. A key challenge for compatibilists is to explain how blind and aimless chance events together can build a guided biosphere. This article aims to address this challenge. We discuss three candidate models designed to show the compatibility of chance and being guided: the Bartholomew-Bradley model, the van Inwagen model, and the Polkinghorne model. First, we argue that the Bartholomew-Bradley model fails to demonstrate the compatibility of blind chance and being guided; it only shows that chance is compatible with statistical orders. However, it is not clear that being regulated and supervised through statistical orders is the proper articulation of the world being divinely guided. Second, the van Inwagen model demonstrates that being guided is compatible with geometrically constrained chance but not mere chance. This model only shows that chance and being guided can be compatible if some form of constraint is present. And third, although the Polkinghorne model successfully shows the compatibility of chance and being guided, it faces its own challenges; it leaves some notions unexplained and controversy over naturalism untouched. A naturalist can use the core of this model without being convinced of the role of divine guidance.

Introduction

One of the most important topics in science and theology is the challenge of evolutionary theory to interventionist theism.[1] However, this broad topic encompasses many sub-topics.[2] An important issue here is to address the question of whether the claim that events of evolutionary importance are due to chance, which is one of the main pillars of the theory of evolution, is compatible with that the process of evolution is divinely guided, which is one of the main pillars of interventionist theism.[3] Is it possible that God created and guided a biosphere[4] that is full of chance? Compatibilism, or accommodationism, is the view that evolutionary theory and interventionist theism are compatible. Compatibilists such as David J. Bartholomew (1984, 2008), John F. Haught (1995, 2006, 2008), Peter van Inwagen (1995, 2003), Robert John Russell (1998), Denis Alexander (2008, 2020), Alvin Plantinga (2011), Elliott Sober (2011, 2014), James Bradley (2012, 2016, 2018), René van Woudenberg (2013), van Woudenberg and Joëlle Rothuizen-van der Steen (2015), Brendan Sweetman (2015), Paul Weingartner (2015), Serkan Zorba (2016), Joshua M. Moritz (2018), E. V. R. Kojonen (2021), Alexander R. Pruss (2022), and Robert C. Koons (2022) believe that the existence of chance is compatible with evolutionary process being guided by God.[5] This article aims to partially evaluate compatibilism.

The question of whether chance and being guided are compatible is still a complex of questions that can be decomposed into many subquestions: 1) Are the very meanings of *chance* and *being guided* compatible? (What does the word *chance* mean? Does being *by chance* mean not being guided?)[6] 2) How is it possible for chance events that are blind and aimless to form a guided biosphere? (More on this later.) 3) How is it possible that chance events, which are contingent, i.e., might not occur, create a predesigned biosphere?[7] And so on. We do not intend to present an exhaustive list. In this article, we only address the second question.

Being by chance, at least at first sight, requires being blind and aimless. So, how is it possible that the accumulation of chance events leads to the formation of a guided whole? Compatibilists intend to show that the collection of chance events of evolutionary importance, and so the profile of the biosphere, can be guided. To show this, they need to present a model[8] of chance events that makes up a whole that can be considered guided. Here, we introduce and discuss three candidate models for this purpose that differ importantly in the way they spell out the concept of being guided: the Bartholomew-Bradley model, the van Inwagen model, and the Polkinghorne model. We argue that the Bartholomew-Bradley and van Inwagen models fail to meet compatibilists' desires, and only the Polkinghorne model successfully fulfills the requirements. However, the Polkinghorne model also faces its own challenges.

The organization of this article is as follows: in the next section, we discuss the meaning of *chance* and a widespread argument against compatibilism by

appealing to blind chance. In the subsequent section, we argue that the mentioned argument is invalid. However, to refute its result, we need to provide a compatibilist model. We then introduce and evaluate three candidate models. In the final section, we conclude.

Blind Chance

What Is Chance?

The term *chance* in its scientific sense is tied to the notion of probability.[9] Probability theory is now widely used in physical, biological, and social sciences. While there is almost no disagreement about the formulation of probability theory, its interpretation has been challenging since its birth in the seventeenth century.[10] There are three main approaches to interpreting probabilities: the subjective interpretation, the frequency interpretation, and the propensity interpretation. According to the subjective interpretation, the term *probability* refers to a person's degree of belief—or credence—quantified as a real number between 0 and 1. The degree of belief is determined by both the world and the epistemic position of the agent in the world.

According to the frequency interpretation, associated with Richard von Mises ([1928] 1957) and Hans Reichenbach (1949), probability is a theoretical term that its referent is the stable frequency in the sequence of outcomes in the long run, where stable frequency means the frequency that as the number of observations or experiments increases, fluctuations in the value of that frequency become smaller and smaller. According to the propensity interpretation, associated mostly with Karl R. Popper (1959), probability is a theoretical term that its referent is a tendency in systems of a special kind, i.e., systems capable of generating repeatable outcomes, to yield a stable frequency in the long run.[11] The frequency and propensity interpretations both belong to the category of ontological interpretations, while the subjective interpretation is restricted to the epistemological ones.

By chance, we mean ontological probabilities, or, more precisely, "whatever objective property in the world the formal concept [of probability] picks out" (Suárez 2022, 645). In this sense, chance, if it exists, is determined entirely by the world and independent of the epistemic positions of agents.[12] The existence of chance in the world means the existence of some kind of indeterminacy, arbitrariness, or degrees of freedom inherent in objects or systems.[13]

Evolutionary theory, like many scientific theories, employs probabilities to describe and explain the biological world. The probabilities used in evolutionary theory can also be considered objective.[14] For example, consider genetic mutations. Genetic mutations occur by chance, meaning that, roughly speaking, they do not occur in response to environmental threats or opportunities; "there is no physical mechanism (either inside organisms or outside of them) that

detects which mutations would be beneficial and causes those mutations to occur" (Sober 2011, 192).[15] More precisely, there is no (statistical) correlation between the usefulness of a possible mutation and the probability of its occurrence.[16] Here, probabilities are interpreted ontologically as a property of the biological systems.

It is noteworthy while natural selection is driven by environmental factors, it still involves chance. However, this chance is different from the chance in genetic mutations. Natural selection operates over small random variations that can be transmitted to the next generation. Those heritable variations are in the *fitness* of an organism or a trait, consisting of two components, viability and fertility, both are probabilistic concepts. Roughly speaking, viability is the probability of surviving to reproductive age, and fertility is the expected, i.e., the average, number of offspring, which in turn includes probabilities of having exactly i ($i = 1, 2, 3 \ldots$) offspring.[17] If these probabilities are considered objective, they represent the chance involved in the process of natural selection.

Blind Chance and the Argument against Compatibilism

We mentioned the scientific meaning of chance in the previous subsection. However, the term *chance* originally belongs to the natural language and is widely used in everyday contexts in addition to the scientific ones.[18] Sometimes an everyday meaning of chance finds its way into scientific texts.

Blind chance is a familiar phrase that can be found everywhere, for example, as the title of a movie directed by Krzysztof Kieślowski or in a letter from Charles Darwin (1958, 162) to J. D. Hooker: "My theology is a simple muddle; I cannot look at the universe as the result of blind chance, yet I can see no evidence of beneficent design, or indeed of design of any kind, in the details." Or, similarly, in Darwin's (1958, 92) autobiography, where he mentions "the extreme difficulty or rather impossibility of conceiving this immense and wonderful universe including man with his capacity of looking far backwards and far into futurity, as the result of blind chance or necessity." Blind chance is a key notion to the extent that some consider it the basis of the evolutionary process. Jacques Monod (1974, 112–13) puts it in these words:

> [C]hance *alone* is at the source of every innovation, of all creation in the biosphere. Pure chance, absolutely free but blind, at the very root of the stupendous edifice of evolution: this central concept of modern biology is no longer one among other possible or even conceivable hypotheses. It is today the *sole* conceivable hypothesis, the only one that squares with observed and tested fact.

Different everyday meanings of chance can somehow be combined with its scientific meaning if this combination does not lead to a bare inconsistency.

Blind chance does not seem incompatible with the scientific meaning of chance as ontological probability. So, chance can be considered blind, or at least we assume so for the sake of the argument, because many have done so, especially among incompatibilists (to whom compatibilists should reply).

Incompatibilists believe that evolutionary theory and interventionist theism are incompatible. They can defend their position in several ways (see the introduction of this article). One possible way is to argue that chance processes cannot be guided by God because chance processes, like genetic mutations, are blind and aimless. Such an argument is as follows:

- (Premise 1) Every event in the history of the biosphere is a chance event.[19]
- (Premise 2) Every chance event occurs blindly and aimlessly.
- (Conclusion 1) Every event in the history of the biosphere occurs blindly and aimlessly.
- (Premise 3) If every event in the history of the biosphere occurs blindly and aimlessly, then the set of events that make up the history of the biosphere is blind and aimless.
- (Conclusion 2) Therefore, the set of events that make up the history of the biosphere is blind and aimless.

Conclusion 2 can be interpreted as follows: the history of the biosphere is not guided.

The Compatibilist Models

Does the fact that every individual event in the history of the biosphere is due to chance mean that the general characteristics of the biosphere are also due to chance? Van Inwagen points out that giving an affirmative answer to this question means committing the fallacy of composition. "It would be as if one reasoned that because a cow is entirely composed of quarks and electrons, and quarks and electrons are non-living and invisible, a cow must therefore be non-living and invisible" (van Inwagen 2003, 353). Even if every event in the history of the biosphere occurs blindly and aimlessly, it does not follow that the entire biosphere evolves blindly and aimlessly. Therefore, Premise 3 is false and the argument is invalid.

However, the invalidity of an argument does not mean that its conclusion is also false. The incompatibilist may be able to make another argument for their desired conclusion. To block such a possibility, one should provide a model of chance events whose collection can be considered guided. By presenting such a model, one proves the possibility of the existence of a series of chance events that can be considered guided, that is, some general aspects of the biosphere may be guided, although each of its constitutive events is due to chance—a

result that seems desirable for compatibilists. In what follows, we will discuss a number of such models.[20]

The Bartholomew-Bradley Model

Bartholomew (1984, 2008) argues that the existence of blind chance is compatible with the world being guided by God. He illustrates this point through instances where orders are built on chance arrangements. The attractive feature of these orders is that they are very difficult to achieve by design and fairly easy to extract from chaos. Additionally, he presents instances where chance occurrences stem from order. He concludes that chance and order are interconnected in their nature.

To do this, he employs the notion of "level" and states that, while there is blind chance at the level of individuals, statistical orders emerge at the aggregate level in accordance with mathematical rules, particularly the central limit theorem. This theorem states that, under some conditions, the average of many independent samples of a random variable, regardless of the original distribution of the individual samples, will itself be a random variable with a distribution that converges to a Gaussian (also known as normal) distribution as the number of samples increases (Figure 1). The central limit theorem guarantees that as the size of the population increases, statistical patterns emerge.

Bartholomew intends to demonstrate that God has used both order and chance in creating and governing the world. He claims that divine sovereignty varies at different levels: while at the level of individuals, God uses chance; at the aggregate level, He uses order. According to Bartholomew, if God wants to produce the existing orders at the aggregate level, the best way is to use chance at the level of individuals.

Bartholomew argues that if there is such a simple and beautiful way of producing order, then God will use it and not need to bother himself with the details of individuals. It may be objected that it is not difficult at all for God, as the omniscient and omnipotent, to deal with details, and He therefore need not choose the easier way. Bartholomew (2008, 128) replies that:

> [t]he profound theological question is not so much whether God *could* handle the enormous complexity of [those] scenarios . . . but whether it is a God-like enough thing for him to be doing.

Whether we agree with Bartholomew or not does not make a difference in our discussion concerning whether blind chance can be combined with being guided. Bartholomew has tried to show that the existence of chance in the world does not contradict the world being guided by God and that chance should be considered within the divine providence, not outside of it.

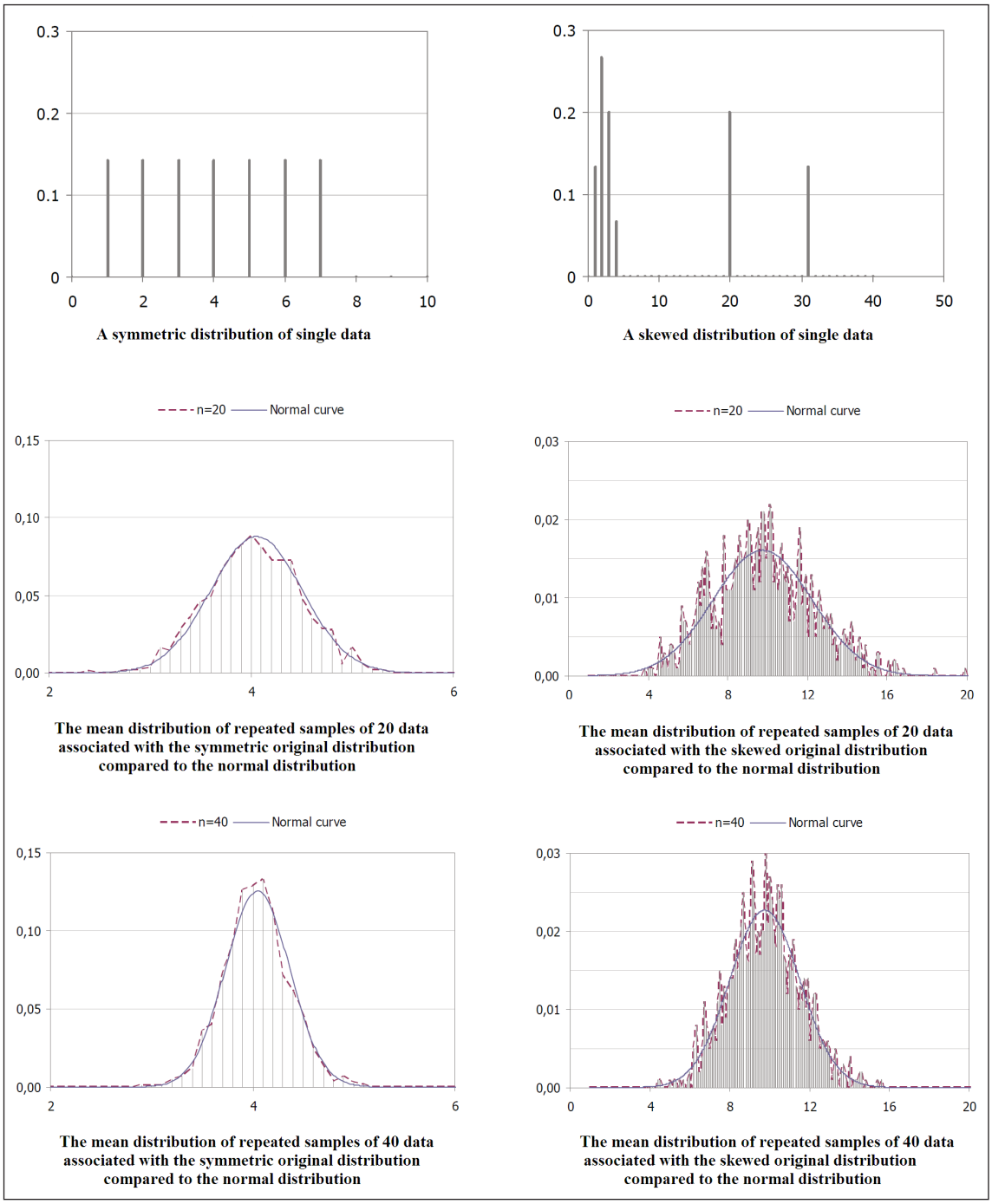

Figure 1: Whatever the initial probability distribution is, as the number of samples increases, the mean probability distribution tends to the Gaussian distribution (redrawn from Manfred Borovcnik and Ramesh Kapadia (2011, 30), with changes).

Bradley (2012)[21] takes a relatively similar approach. However, he points out that the notion of "level" is too simplistic; the real world does not consist of two levels, on one of which God acts through chance and on the other through order. Bradley's objection seems nothing more than that "level" is a vague

notion. A vague notion, roughly speaking, is a notion that "its applicability is tolerant with respect to very small changes" (Priest 2000, 72); if a vague notion is applicable once, it is still applicable despite a small change in the situation. Most of our everyday notions are vague. For instance, "being a child" is a vague notion; if Sarah is considered a child, she can be considered a child just a second later. However, being vague does not require being unreal or inapplicable. That the notion of "level" is vague does not mean that it is unreal or inapplicable, just as the notion of "being a child" being vague does not mean it is not a real or applicable. There are clear-cut cases of the level at which chance appears and the level at which orders appear. This would be enough to justify the application of this notion and the belief in its reality. So, the vagueness of the notion of "level" does not cause serious problems with Bartholomew's approach.

Bartholomew's and Bradley's position can thus be summarized as follows: God regulates and supervises chance events through statistical orders. This position implies a model that includes both chance and order. In this model, the world consists of levels, some dominated by chance and others by order, and the existence of one requires the existence of the other. We call this model the Bartholomew-Bradley model.

The Bartholomew-Bradley model demonstrates the compatibility of blind chance with statistical orders. However, it is not clear whether being regulated and supervised through statistical orders is the proper articulation of the world being guided by God. In other words, it is debatable whether "being guided" can be reduced to being regulated and supervised through statistical orders. The notion of "divine guidance" seems to imply more than simply being controlled by statistical orders. It suggests leading towards an intentional direction or goal as well as intervention and (fine-) tuning of some features of the universe, like its initial conditions or fundamental constants.

Theists and compatibilists[22] usually consider the concepts of divine sovereignty and guidance to be more than regulation and supervision through statistical orders. According to them, God should guide the universe towards a specific goal, for example, to the point where a rational being who can know and worship Him comes into existence. They consider the notion of "being guided" as having an intended direction or goal, which is more than following statistical regulations. To clarify this, consider the Gaussian distribution. The Gaussian pattern simply expresses that, in large enough populations, a certain percentage will exhibit a specific feature. This pattern does not imply any direction or purpose in the development of that feature. The Gaussian distribution is indifferent to any specific direction, making it neutral with respect to any particular goal.

Furthermore, for theists who believe God guides the world, this often means that God actively intervenes in the world's evolution, that is, it requires special divine action. Also, those theists who accept fine-tuning of some features of the universe, like its initial conditions or fundamental constants, consider it a part

of divine guidance.[23] However, intervention and (fine-) tuning are absent from the Bartholomew-Bradly model. Moreover, incompatibilists acknowledge the existence of statistical orders but find them insufficient to prove the biosphere is guided.

We do not intend to fully analyze the meaning of "being guided" since, for our purposes, it is enough to offer a partial articulation: leading towards an intentional direction or goal, intervention, and (fine-) tuning. Consequently, it shows that the Bartholomew-Bradley model is inadequate for demonstrating the compatibility of blind chance with being guided.

The van Inwagen Model

Van Inwagen (2003) defends compatibilism, arguing that the existence of chance in the world is compatible with the idea that the biosphere is guided and designed by God. While he has not explicitly provided a model of chance events that collectively form a guided whole, we believe such a model can be extracted from his work, especially when he discusses the "area-measuring device."

> There is a marvelous device for calculating the areas surrounded by irregular closed curves. It is an electronic realization of what is sometimes called the dartboard technique. To simplify somewhat: you draw the curve on a screen; then the device selects points on the screen at random, and looks at each point to see whether it falls inside or outside the curve; as the number of points chosen increases, the ratio of the chosen points that fall inside the curve to the total number of points chosen tends to the ratio of the area enclosed by the curve to the area of the screen. For a large class of curves, including all that you could draw by hand, and probably all that would be of practical interest to scientists or engineers, the convergence of ratios is quite rapid. Because of this, such devices are useful and have been built. (van Inwagen 2003, 353)

Van Inwagen points out that this device is designed based on a random process that results in selecting random points, and yet it is designed to serve a specific purpose: to measure the area of irregular shapes.

> Now the properties of each point that is chosen—its coordinates—are products of chance . . . But the whole assemblage of points chosen in the course of solving a given area problem has an important property that is not due to chance: its capacity to represent the area of a curve that had been drawn before any of the points were chosen. Indeed, since the device was built by purposive beings, there can be no objection to saying that the whole assemblage of points has the purpose of representing the area of that curve—despite the fact that the coordinates of each individual point have no purpose whatsoever. (van Inwagen 2003, 353)

He goes on to state that the coordinates of each point can be considered derivatively purposive.

> It is also true that the fact that each point has coordinates that are due to chance is not due to chance and has a purpose: its purpose is the elimination of bias, to insure that the probability of a given point's falling inside the curve depends on the proportion of the screen enclosed by the curve and on nothing else. (van Inwagen 2003, 353–54)

Let us clarify his point by giving very similar example: consider the method of approximating the value of π using a random process. Consider a circle inscribed within a square. The ratio of the circle's area to the square's area is proportional to π (Figure 2).

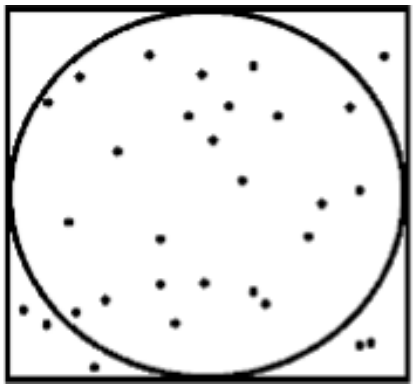

Figure 2: Approximating π with random numbers. The ratio of the number of points falling within the circle to the number of those falling within the square is approximately $\frac{\pi r^2}{(2r)^2} = \frac{\pi}{4}$, where r is the radius of the circle.

Now, consider two processes of generating random numbers, one for the x-component and the other for the y-component, constrained within the square. These processes result in selecting random points in the square. The ratio of the number of points falling within the circle to the number of those falling within the square approximates the value of π. While the coordinate of each point in this scenario is due to chance, as van Inwagen points out, the entire scenario has a purpose—to approximate the value of π—and is designed to achieve this goal. One can justifiably attribute this model to van Inwagen. Therefore, we call it the van Inwagen model.

While one might think the van Inwagen model demonstrates the compatibility of chance and being guided, it does not. This model incorporates an additional element: a geometric component that acts as a constraint on the selection of points. It enjoys an additional technique beyond merely collecting chance events. In this model, we do not simply collect chance events and accumulate them. Instead, we first embed them within a geometric space and then collect them. Therefore, the van Inwagen model demonstrates that being guided is not compatible with mere chance but with geometrically constrained chance. This suggests that chance and being guided can be compatible if some form of constraint is present.

One might object that evolutionary theory is free of such constraints, rendering models with extra constraints inappropriate within its framework. Van Inwagen (2003, 354) himself seems informed of this objection:

> How might an advocate of the thesis that Darwinism is incompatible with design respond to these points? One way might be to argue that the features of the biosphere are in a very important respect unlike the features of an assemblage of points produced by our area-measuring device. Each time we draw a curve on the screen of the area-measurer and turn the thing on, it is for all practical purposes determined, foreordained, that the assemblage of points it produces will have the property of representing the area enclosed by the curve. But, it might be argued, the properties of the biosphere are not like that.

He replies:

> But the reasoning does show that if someone wants to construct an *argument* for the conclusion that Darwinism is in any sense incompatible with the thesis that some features of the biosphere are not products of chance, he will have to employ some premise in addition to "Darwinism implies that all events of evolutionary significance are due to chance." (van Inwagen 2003, 354)

Indeed, van Inwagen believes that this claim that "the evolutionary theory is free of such constraints" goes beyond what evolutionary theory actually says and that the onus is on the opponent to demonstrate otherwise. He believes that the burden of proof lies with those who claim that evolutionary theory explicitly excludes such geometric constraints. Whether we agree with him or not, his model does not demonstrate that mere chance is compatible with being guided.

The Polkinghorne Model

Although Polkinghorne has not addressed the problem of the compatibility of chance and being guided, one can extract a compatibilist model from his works. Polkinghorne (2000b) intends to provide a metaphysics for divine action based on:[24]

- rejecting reductionism
- applying top-down causation
- the existence of ontological gaps
- the leading role of active information for physical systems
- embracing holism
- adopting dual-aspect monism
- objective becoming.

According to the Polkinghorne model, the world consists of parts knowing the interactions between them is not enough to know the world. If we examine the properties of, say, a glass of water by considering them the result of collisions

between the water molecules themselves and the water molecules and those of the glass, i.e., as the bottom-up causal relations between its parts, then we enjoy a reductionist point of view. However, to understand the world, the glass of water should be considered as a whole. Reductionism fails.[25] If so, the space opens for other kinds of causality, including top-down causation.

Top-down causation occurs when higher levels of a hierarchical structure exert causal influence over lower levels. This can be done, roughly speaking, by setting a context within which the dynamics of the lower levels have been constrained.[26] An illustration of top-down causation can be seen in the three-dimensional folding of an RNA or protein molecule. The overall limitations set by the network of interactions among its constituent parts lead the molecule to adopt a particular shape (See Auletta et al. 2008). So, many believe that top-down causation enables genuine emergence, with higher levels having genuine causal powers, and that this should be considered as the basis for true complexity, life, and human mind and agency.[27]

However, Polkinghorne (2000b, 151) points out that applying top-down causality when there is no guarantee that explanations based solely on bottom-up causality are inadequate does not truly provide an explanation because the appropriate application of top-down causality requires the use of something more "non-local," "something much more open and dynamic than simply the generation of long-range order or the propagation of boundary effects . . . [because] they are often fully explicable in terms of a bottom-up approach, generating long-range correlations between localized constituents."[28] He points out that there must be room for top-down causality to operate, i.e., a kind of indeterminacy, arbitrariness, or inherent degrees of freedom, which he calls ontological gaps.[29]

The existence of ontological gaps is a sign of a different kind of causal influence, not through energy exchange but via active information (more on this soon) transfer that can affect the whole system's behavior. So, the mechanism of this different kind of causation, namely, top-down causation, is not local at all. Rather, its effect shows itself only in a holistic picture of the world, that is, examining the world as an integrated whole (see Polkinghorne 2000b, 2009). Polkinghorne considers the transfer of active information a sign of the existence of a complementarity of the mental and material aspects of the same reality. According to his dual-aspect monism, reality has both a material and a mental aspect, just as we humans have. And, the divine agency in the world is through top-down causation, as per the human agency in our bodies (see Polkinghorne 1996, 2000a, 2000b, 2006, 2009).

Polkinghorne takes the similarity of the relationship between the mind and the body and the relationship between God and the world very seriously and thinks it clarifies why God is not just an invisible cause among and equal to

other causes. Other causes are effective through the exchange of energy, but divine action is effective through the transmission of active information (see Polkinghorne 1996).

Chance is the paradigmatic instance of Polkinghorne's ontological gaps because, as defined in the second section, chance is a kind of indeterminacy, arbitrariness, or some degrees of freedom inherent in systems. Also, since ontological gaps are direct consequences of top-down causation, the existence of chance is the outcome that directly stems from top-down causation. As mentioned earlier, Polkinghorne allows the application of top-down causality when there is a guarantee that explanations based solely on bottom-up causality are inadequate. Now, it turns out the existence of chance in the world provides such a guarantee. It also indicates some kind of openness in the future. Polkinghorne believes that a world that includes top-down causality is the world of objective becoming. In such a world, the future is open and cannot be determined by the past (see Polkinghorne 1996, 2000b).

According to Polkinghorne's model, chance exists in the world. At the same time, divine agency is also involved and guides the world, including the biosphere and the process of evolution. The connecting link between chance and being guided is top-down causality: the mechanism of divine agency in the world is top-down causality, and the appearance of chance is the direct consequence of top-down causation. So, his model employs a strong meaning of "being guided" that includes operation via top-down causation, intervention, and even (fine-) tuning. This presents a significant advantage over the Bartholomew-Bradley model because anyone contemplating the concept of "being guided" may anticipate its realization through a causal intervention. Also, the Polkinghorne model has an advantage over the van Inwagen model in that it does not include any constraint on chance events—at least not within any specific region or area.

Although the Polkinghorne model seeks to integrate chance and guidance, its reliance on concepts such as active information, dual-aspect monism, and objective becoming presents a distinct set of problems that must be addressed.[30] He points out that while using the notion of active information is promising and aligned with our everyday experience of human agency, active information is a conjectural and heuristic notion. No one knows what exactly active information is. In contrast to the passive information familiar in physics and computer sciences, active information is not a clarified notion.[31] Polkinghorne borrows this notion from the theory of Bohmian mechanics, in which active information affects the behavior of quantum entities in a way that it is as if that entity is somehow aware of its surroundings.[32] However, this notion is left unexplained even in Bohmian mechanics. Applying active information might be a good conjecture but nothing more.

The same can be said about dual-aspect monism. What exactly is meant by the mental aspect of the world? Polkinghorne appeals to an analogy with Bohr's complementarity principle, which proposes that quantum entities like electrons have several inconsistent though complementary properties, like being both a particle and a wave at the same time.[33] As uncertainties of quantum systems are hints for a complementarity of two incompatible aspects of those systems, the uncertainties in the world are similarly hints for the existence of a complementarity of two aspects of the world: mental and material. However, this analogy, though craftily designed, is too weak to be the basis of a solid argument. In fact, in answering the aforementioned question, Polkinghorne has nothing to do except resort to active information. And, as said, active information remains a poorly defined notion. So, dual-aspect monism is as clarified a notion as active information; if we do not know exactly what active information is, then we will not know what dual-aspect monism means.[34]

A more serious objection to Polkinghorne's approach, we believe, is due to the assumption that top-down causation is the mechanism of divine agency. There are fully naturalistic interpretations of top-down causation. For example, Sara Imari Walker (2014) explains the nature and origin of life using the concept of top-down causality in a completely naturalistic sense.[35] She believes that information processing distinguishes between non-living and living beings. The biosphere has a hierarchical structure in which the highest amount of information processing occurs at its upper levels. This information flows to lower levels; thereby, higher levels causally affect lower levels. This proposal aims to explain the emergence of life in a way wherein it is not necessary to consider it as the result of the action of an intelligent agent. It is the nature itself, not a supernatural entity, that is located at the top when applying top-down casaulity.[36]

What is the best interpretation of top-down causation, naturalistic or supernaturalistic? The answer is controversial and goes beyond the scope of this article. What is important here is that Polkinghorne's model presupposes a rejection of naturalism. This is because one can accept holism, the existence of top-down causality, ontological gaps and chance, active information, and objective becoming without necessarily concluding that top-down causation is a mechanism of divine action. So, his model successfully demonstrates the compatibility of chance and being guided only if the naturalistic interpretation of top-down causation is false. If naturalism accurately explains the world, then Polkinghorne's model becomes less compelling. The degree to which naturalism provides a satisfactory explanation of the universe, therefore, directly impacts the persuasiveness of Polkinghorne's model as a potential underlying metaphysics of nature.

Concluding Remarks

The incompatibilist might argue that the biosphere cannot be guided because the chance processes that shape the biosphere, such as natural selection and genetic mutations, are blind and aimless. We mentioned that such an argument is not valid due to fallacy of composition. However, the invalidity of an argument does not mean its conclusion is also false. To demonstrate that the existence of blind chance is compatible with being guided, we need to provide a model of chance events wherein their collection can be considered guided. We discussed three candidate models, which importantly differ in how they model the concept of being guided:

1. The Bartholomew-Bradley model demonstrates the compatibility of blind chance with statistical orders. However, it is not clear that being regulated and supervised through statistical orders is the proper articulation of the world being divinely guided. The notion of "divine guidance" seems to imply leading towards an intentional direction or goal, as well as intervention and the (fine-) tuning of some features of the universe, like its initial conditions or fundamental constants.
2. The van Inwagen model demonstrates that being guided is not compatible with mere chance but with (geometrically) constrained chance. It only shows that chance and being guided can be compatible if some form of constraint is present.
3. The Polkinghorne model successfully shows the compatibility of chance and being guided. However, it includes active information, dual-aspect monism, and objective becoming, each facing its own challenges. Also, it left untouched the controversy over naturalism. Questions concerning the validity and the applicability of the Polkinghorne model come down to questions concerning the validity and applicability of naturalism.

During this, we also found three unanswered questions, for both theologians and scientists, that call for more investigation:

1. What exactly does "guided" mean?
2. Does evolutionary theory only include pure chance at the level of genetic mutations? Is there some kind of constraint, geometrical or else, within this theory?
3. To what extent is the Polkinghorne model an appropriate model for describing and explaining the biosphere?

Concerning the first, we proposed some meanings of "guidance": leading towards an intentional direction or goal, intervention, and (fine-) tuning.

Theologians should clarify what they mean when they say that the world, or biosphere, is guided by God. What do they expect God to do?[37]

Concerning the second, it seems we need to know more about the mathematical structure of evolutionary theory to answer this question more confidently. Since R. A. Fisher (1922) and Sewall Wright (1931), the application of mathematical tools to describe and explain evolutionary processes has become widespread. However, the fully articulated mathematical theory of evolution is yet to be found. The standard formulation of the mathematical evolutionary theory is based on (i) a space of all possible states of the biological system under study, named *state space*; the possible (ii) genotype and (iii) phenotype of that biological system as the microstates and the macrostates of state space respectively; and (iv) genetic mutations as the stochastic process that moves the system in state space.[38] So, the standard view includes only pure chance at the level of genetic mutations (bad news for van Inwagen!). However, it still offers the necessary tools to introduce geometric constraints by implementing them on the state space, which is a geometric setup (good news for van Inwagen!). Some, like Tom C. B. McLeish (2015), have discussed some mathematical constraints on state space, but there is still much work to do.

Concerning the third, as mentioned in the previous subsection, the question is to what extent is naturalism a good fit for evolutionary theory? This question seems to lurk behind all controversies of science-and-religion significance on evolutionary theory. The Polkinghorne model successfully demonstrates the logical, or conceptual, compatibility of chance and being guided. However, it is hard to believe that the main controversy is the logical, or conceptual, compatibility of chance and being guided; the main controversy seems to be the plausibility of compatibilist models. If so, we return to the old controversy of the plausibility of naturalism. In this respect, the upshot of the previous subsection is the rediscovery of the fact mentioned by many that the tension sits between interventionist theism and a "speculative" (Pruss 2022, 365) philosophical "add-on" (Plantinga 2011, 129, 253, 308) that is not part of current science.[39] This is what Sober (2014, 41–42) calls "the Duhemian claim," according to which "evolutionary theory, properly understood, does not rule out [interventionist theism], the theory does rule this out when you add something to it. But the something else is a philosophical thesis, not a scientific theory at all" (Sober 2014, 32).

Also, as mentioned in this article's introduction, whether chance and being guided are compatible is a complex of questions that can be decomposed into many subquestions. We discussed one of them here, but other important questions remain, such as: How is it possible that chance events, which are contingent, i.e., they might not occur, create a predesigned biosphere? The chance in the formation of the biosphere, at least at first sight, requires that if we "replay the tape of life," it will take on a different face. So, how is it possible

that its current face is guided? The compatibility of contingency and divine guidance presents probably an even greater challenge. Defending the concept of convergence against neo-Darwinist interpretation could offer a solution.[40] However, this convergence-based approach is not the mainstream evolutionary biology. Furthermore, it is controversial to what extent this approach can be interpreted as evidence for theistic design. Compatibilists would find the theological interpretation of convergence particularly interesting.

It is an exciting time, we believe, for theologians and scientists to join the search for answers to these questions.

Notes

[1] ElliottSober (2014) points out that some types of theism, such as Young Earth Creationism, are clearly in conflict with evolutionary theory. On the other hand, some accounts, such as deism, are trivially and uninformatively compatible with evolutionary theory. From his point of view, the more difficult and at the same time more attractive question is whether evolutionary theory and interventionist theism are compatible. According to interventionist theism, God has created the world, determined the laws of nature and its initial conditions, and also intervened in the world since its creation.

[2] See Johan De Smedt and Helen De Cruz (2020).

[3] See Kelly James Clark and Jeffrey Koperski (2022).

[4] Biosphere, or ecosphere, is the collection of all biological systems on earth, which includes all living organisms, the relationships between them, and their interactions with the hydrosphere, lithosphere, and atmosphere.

[5] There also are those who, following Thomas Aquinas (1956), believe that chance and providence are compatible, for example, Elizabeth A. Johnson (1996), Stephen M. Barr (2009), and Valerio Scarani (2017).

[6] For more details, see van Woudenberg (2013).

[7] The chance in the formation of the biosphere, at least at first sight, requires that if we go back in time and allow the biosphere to start forming once again, i.e., if we "replay the tape of life" (Gould 1989, 45–52), it will take on a different face. So, how is it possible that its current face is guided?

[8] By "model," we mean the minimum requirement for demonstrating consistency, feasibility, or the possibility of being real. Suppose someone gives us some specifications for constructing a house. How do we know all the specifications are feasible and will result in a habitable house? One way to know this is to build a scale model, a scaled-down version of the house, following those specifications. If such a model can be built, the specifications are feasible. Similarly, if the models we examine here successfully do their job, then we can conclude that chance and being guided can be compatible. Also, *model* could be considered something similar to *semantic model*, that is, a representation of the world and the meaning of no-logical terms, in such a way that the premises of the argument at study (here, the constituent events of the biosphere are due to chance) are true and the conclusion we intend to disprove (here, the biosphere consisting of chance events is due to chance) is false. In this respect, a *model* can be considered the *defeater* of the statement that the whole biosphere consisting of chance events is also due to chance.

[9] Although there is a difference between *chance* and *randomness* (see Eagle 2021), for simplicity, we consider these terms interchangeable and use the former everywhere, even where the latter is more fitted.

[10] For a brief history, see Mauricio Suárez (2020) or Donald Gillies (2000).

[11] For more details, see Suárez (2020; 2022) and Gillies (2000).

[12] For more discussion on different meanings of *chance* and *randomness*, see George F. R. Ellis (2018), Koperski (2022), Aaron M. Griffith and Arash Naraghi (2022), and Nidhal Guessoum (2022).

[13] For a defense of the existence of chance in the world, see Suárez (2022) and Nina Emery (2022). See, also, van Inwagen (1995), Bradley (2012), Koperski (2022), and Guessoum (2022).

[14] For a defense, see Susan K. Mills and John H. Beatty (2006) and Sober (2010).

[15] See also Sober (2014, 31–44).

[16] For more details, see Beatty (1984) and Sober (2014).

[17] These definitions are not completely accurate and leave out some details. For more rigorous definitions, see Sober (2006).

[18] *Chance* is also used in philosophical contexts, especially in relation to the concepts of causality, teleology, and determinism. Something being by chance may be considered as having no cause. Grant Ramsey and Charles H. Pence believe that Darwin has this meaning of chance in mind when he writes "I have hitherto sometimes spoken as if the variations . . . had been due to chance. This, of course, is a wholly incorrect expression, but it serves to acknowledge plainly our

ignorance of the cause of each particular variation" (Darwin 1859, 131, quoted from Ramsey and Pence 2016, 1). However, this meaning is not so favored among philosophers and scientists (see, for example, Monod 1971, 112–13; van Inwagen 2003; Barr 2009; Sober 2014). They usually consider chance as coincidence. A coincidence is the intersection of (at least) two causal chains of events that occur independently. Also, being by chance may be considered as being an accident, i.e., an event without any teleological significance. If a person digging a hole to plant finds a treasure, we call this event an accident. A coincidence can be an accident or not (for more details, see Dowe 2011). See also Koperski (2022).

[19] It may be objected that this premise is trivially false because it is not the case that every event in the history of the biosphere is a chance event. However, even if this objection is true, the final conclusion remains untouched because Premise 1 could be replaced by "*some of the most important* events in the history of the biosphere are chance events" and, given the other clauses of the argument were refined accordingly, the resulting argument would end with the same conclusion. Here, for simplicity, we have considered the aforementioned version.

[20] An anonymous referee informed us that there also exists a group of proposals suggesting that experiencing natural beauty can lead to an experience (as) of the divine, and that the authors of these proposals embrace the reality of stochasticity in nature. These proposals posit the freedom of God and creation, conceiving of God as an artist who appreciates the stochasticity in creation without necessarily guiding it. For example, God might be likened to a jazz ensemble leader or an improvisational play director-participant who proposes a few themes, and then creation unfolds without further guidance or restraint (for an introduction, see Steen 2022). However, it is unclear whether interventionist theists or compatibilists would accept these proposals as demonstrating the compatibility of chance and divine guidance. This is because, in these scenarios, God does not actively guide the world but merely participates in its evolution. (This metaphor seems appropriate for open theists.) Moreover, these proposals appear to rely heavily on metaphor, and it remains unclear how they could be developed into a concrete model.

[21] See also Bradley (2016, 2018).

[22] One can be a compatibilist but not a theist, like Sober (2014) and Dowe (2011), and vice versa.

[23] It is not the case that every theist accepts the fine-tuning argument as a valid or good argument. See, for example, Hans Halvorson (2018).

[24] For criticism, see Steven D. Crain (1997) and Miroslav Karaba (2021).

[25] Roughly speaking, reductionism is the claim that a whole is nothing more than its constituent parts and that the characteristics of a whole can be expressed entirely in terms of the characteristics of its parts (see Meyer-Ortmanns 2015). Polkinghorne believes that quantum non-localities and chaotic behaviors show that reductionist explanations in physics face serious problems (see Polkinghorne 2000b, 2006, 2007).

[26] Ellis (2016, vii) points out that: "In some cases the less contentious phrase 'contextual effect' might be preferred, and that certainly often takes place. However, I will make a stronger claim that 'top-down causation' is appropriate in some cases, and specifically when the mind is involved." He also introduces five different classes of top-down causation: algorithmic top-down causation, top-down causation by non-adaptive information control, top-down causation via adaptive selection, top-down causation via adaptive information control, and intelligent top-down causation. For more details, see Ellis (2011; 2016).

[27] See, for example, Ellis (2015), Sara Imari Walker (2014), and Alicia Juarrero (2018).

[28] The well-known example is phase transition. See also Polkinghorne (2009, 115).

[29] He introduces the indeterminacies of quantum and chaotic systems as the origin of these gaps. He first argued that the indeterminacies of quantum systems are not plausible as the spot at which divine action causally connects to the natural world (see Polkinghorne 2000b, 2001, 2009). But after facing criticism (see, for example, Tracy 2000), Polkinghorne accepts that the proper model of divine action must include both (see Polkinghorne 2001). Also, some, such as Nancy Murphy (2000) and Willem B. Drees (2000), object that non-quantum chaos is deterministic and, if we have the governing laws that determine the evolution of a system in time and the initial value

with complete accuracy, then the state of the system at any time can be known. Polkinghorne (2000b, 153) replies that the deterministic description of chaos is only an approximate description, a rough "approximation to a more subtle and supple physical reality." In other words, he considers classical chaos as indeterministic as quantum chaos (see Polkinghorne 2000b, 2009).

[30] Polkinghorne (Polkinghorne 1996, 2000b) considers objective becoming to require that God is not aware of future events because they are not knowable. Many theists will find this claim very controversial, if not false.

[31] See Polkinghorne (2000a, 2000b, 2006, 2009).

[32] See, for example, Polkinghorne (1996). For more details, see Karaba (2021).

[33] For an introduction, see Jan Faye (2019).

[34] Also, an anonymous referee points out that this dual-aspect monism reeks of pantheism.

[35] See also Walker and Davies (2013), Walker (2015, 2017), and Davies (2012, 2019).

[36] Drees (2000) makes a similar point.

[37] An anonymous referee pointed out: What might God's actions/intentions look like? How does one separate the universe as it is today from a universe that God has guided toward a specific goal? It is not enough to merely assume the world is as it is due to God's actions/intentions; it has to be motivated. Also, for an analysis of the notion of "providence" and its different meanings, see Griffith and Naraghi (2022).

[38] For more details, see Harold de Vladar and Nicholas H. Barton (2011). See also Barton and J. B. Coe (2009).

[39] Also see Sober (2014, 32, 35).

[40] See, for example, Daniel W. McShea (2012, 2015, 2023).

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Cosmology and the Problem of Evil: God and the Second Law

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For decades, a discussion has raged over the explanation of the peculiarity of our universe due to its fine-tuned constants. One explanation is that ours is one of an infinite number of randomly produced universes. Another is that a beginningless ground of nature or God produced our universe. The most serious argument against the notion of a God remains the problem of evil. But the same century that produced the idea of an evolutionary universe produced a "process" notion of God, rejecting omnipotence and omniscience and making God partly corporeal. The question lying behind the discussion of fine-tuned constants is what could have caused this particular universe, a world of order, disorder, and hazard, which took ten billion years to produce the local complexities of life and mind. One explanation is a God subject to internal limitations that apply to the universe as well. Such a Ground of Nature is likely not only to be partly physical but also subject to the laws of thermodynamics.

For decades, a controversy has roiled across the boundaries of naturalism and theism. This is the fine-tuning argument. In physics, there are a number of constants, observed facts not determined by law, that play crucial roles in the fundamental laws. If these were slightly different, most of the large-scale structures of our universe would be absent, hence life as well. Physicists try to explain them. Some theists have taken them to imply a designer. Others strongly reject such claims. The result has been, one might say, a postmodern recapitulation of the medieval argument for design, at least as old as the scholasticism of Thomas Aquinas, revived by the eighteenth-century natural theology of William Paley. It began in the 1970s, not with philosophers or theologians but with physicists, and has not died down for half a century. The issue motivating this argument concerns the very narrow conditions of our universe required to produce main sequence star systems funded by heavy elements. That is what made life and biological evolution possible in our solar system—in how many more, we have no idea. The question is, given a past-finite universe with fine-tuned constants, what could have caused it, if anything?

Theism is regarded as antithetical to naturalism in principle, gods being the archetype of the supernatural. Doubtless this is often true. But there are multiple forms of naturalism and theism, muddying the waters. Avoiding metaphysics for present purposes, we could say that naturalism regards all major kinds of systems we experience and their properties, including ourselves, as part of one ensemble where no set of members is independent of causal relations to all others. That is, there is no utter causal discontinuity between mind and body, form and matter, meanings and facts, infinite and finite, transcendent and immanent. Further, any modern naturalism must accept that all such natural things and processes are at least indirectly dependent on the physical.[1]

Today, some think the second point obvious. But while there have always been physicalists or materialists, they were historically a minority. Even the science of the seventeenth century was usually combined with either mind-body dualism or theism or both. This was not due to a mere absence of secular enlightenment. A plausible empirical explanation that all reality could be based in the physical is actually quite recent. It was not until the second half of the twentieth century that anyone had robust evidence that all the natural systems we know evolved from the physical: that *Homo sapiens* evolved from other hominins; minded animals evolved from creatures without mind; life from chemical complexity on a tectonically developing Earth; Earth from a nebula constituted by heavy elements that are the results of stellar nucleosynthesis; and all part of a space-time universe that itself began with the Big Bang about 13.7 billion years ago. Only in the past five decades has science produced an account that nature is evolutionary, that humanity with its morality and culture, animal mentality, and life could have evolved from the components and processes of the physical universe.

On the theist side, the concept of god is older than anything we could call "science." The animism of foraging societies and the ancestral polytheism of ancient agrarian civilizations did not make a metaphysical distinction between the sacred and profane, and their religious narratives had a large place for natural processes, disorder, hazard, and evil. Our modern religions are virtually all versions of the philosophy and religions of the Axial Age, the first millennium before the common era, with its tendency toward one ultimate and transcendent conception of the divine, whether a principle, a process, a creator, an organizer of chaos, or the sole reality.

In the West, inheriting both the Abrahamic religions and Greek philosophy, God became a personal agent creating nature and managing human history, perfect, omnipotent, omniscient, and utterly nonphysical. In medieval Europe, such a God did not require much argument. But where philosophers did argue for God's existence, they commonly made an inference from the natural world, i.e., the cosmological and teleological arguments. These were famously criticized by David Hume in the eighteenth century. Regarding the cosmological argument that a universe of contingent, caused beings requires an uncaused First Cause, Hume (1910) argues that causality, as a relation among observed worldly facts, cannot be extended to that world as a whole. His criticism of the teleological argument of design was even more clever. He did not claim that the inference to a designer was illegitimate, only that it could not by itself demonstrate the kind of Creator that Christianity wished to defend, namely, a perfect and unlimited one. If one takes the design argument seriously, an imperfect world combining order and disorder can only justify a limited, not an omnipotent and omniscient, God. Doubtless an unlimited, perfect God, if such there were, could create an imperfect world. But the inference from the world cannot demonstrate such a God.

It so happens that contemporary thought since Darwin, while producing our new evolutionary view of nature, also produced new and heterodox conceptions of God. This began most famously with Samuel Alexander (1934) and Alfred North Whitehead (1979); the latter inspired what has become neoclassical or "process" theology. Such evolutionary notions of God made a major change in the possible relation of naturalism and theism. They rejected the idea of God as static, or changeless; "impassable," or unaffected by the created world; and "incorporeal," or devoid of physicality. Some of the process thinkers, like Charles Hartshorne (1984), rejected omnipotence and omniscience, partly to make God compatible with human free will.

These conceptions had an impact on what is probably the most serious and common argument against the Abrahamic God for theorists and others: the problem of evil. There is no proof that there is a God, but the most important claimed disproof is evil. An omnipotent and perfectly good God who created the world, for whom human history is real—not an illusion—would need to have been able to achieve all its aims while designing a universe without

disorder, hazard, and evil. But our world includes disorder, hazard, and evil. Some neoclassicists have addressed this, as we will see. But naturalism rooted in more recent physical science may allow us to go further.

This article does not aim to justify a fine-tuning argument for God but to instead put it in its proper form, one that recognizes what it can and cannot do, its inevitable combination with the argument from cause, and what kind of cause or creator it could infer. This requires keeping in mind what question lies behind the fine-tuning discussion in the first place. It is not "why is there something rather than Nothing?" That apparently profound question has a simple albeit unsatisfying answer: there cannot be Nothing.[2] Nor is it whether the universe is harmonious or beautiful or "designed for us." The fine-tuning argument need not refer to life. The question is not even "what explains the apparently fine-tuned constants?"

The significant question lying behind the discussion is rather "what could have caused this particular universe?" The nature we know is peculiar. It is past-finite, meaning it began. It arose from an initial fund of physical energies characterized by particular constants and obeying certain laws. And it exhibited a slow evolution of remarkable local structure and complexity in a global context of chance, hazard, and increasing entropy or disorder. If that question is addressed in a defensibly naturalistic fashion, and if someone tried to answer that its cause was God, a designer, then the argument must inform the kind of God being inferred. That is, Hume was right.

Such a design argument, if valid, would justify an inference to a kind of God characterized by a degree of continuity with the nature we know. Of course, naturalistic arguments informed by the robust conclusions of contemporary science are *a posteriori*. Their conclusions are hypotheses rendered probable by fallible, empirically supported claims about natural systems and processes. A naturalistic inference to a ground of nature or God shares this with the claims of the sciences. Few may want to accompany the following speculative argument to its conclusion. But in the process, some issues at the intersection of science and theology may be clarified.

A Fine-Tuned Nature

It was during the remarkable period of 1905–30 that physics veered from Newton into relativity and quantum mechanics, or modern physics. But only in the 1970s did the cosmic microwave background radiation confirm that our universe began in a Hot Big Bang, and the Standard Model was discovered, providing a gauge theory of elementary particles that places three of the forces of nature—electromagnetism and the weak and strong nuclear forces—under one roof. Even without a way to integrate the general relativity of gravity and space-time with quantum field theories of the microscopic world, this was a great advance. We live in its wake.

It was then noticed by physicists that the laws of microphysics and relativity could only have produced the universe we live in if the empirically measured constants in their equations were what they are to a great degree of precision. There are a host of constants, oddly various, that are contingent in the sense that we do not know laws that determine them. They are plugged into the equations by observation. Very slight variations would result in a universe not merely of a different scale but without main sequence stars and heavy elements, either a quickly collapsing universe or one with nothing but black holes or hydrogen gas with no stars at all. The constants are to some degree responsible for the kind of universe we have and hence bear a large burden in the theory precisely because of its deeper understanding of structure, which does not explain them. Many physicists have raised the oddity of these highly "coincidental" and "improbable" large numbers (Barrow and Tipler 1986; Carter 1974; Davies 1983; Leslie 1996; Penrose 2007; Rees 2008, Smolin 1997).

The list of such cited constants varies, but includes: the strengths and ratios of the four elementary forces; the electromagnetic and gravitational fine structure constants α and α_G; the values and ratios of the masses of the proton m_p, electron m_e, neutron m_n and the neutrino m_ν; the charges on the electron e and the proton q_p as well Planck's constant for the unit of quantization h or $\hbar$ ($h/2\pi$); the speed of light c; the efficiency of nuclear fusion of helium from hydrogen ε; and finally, the cosmological constant Λ (the vacuum space energy-density), the matter density of the universe Ω (ratio of actual density ρ to the critical density for flat space ρ_c), and the degree of variation in the density of the early universe at the time of recombination Q (when hydrogen atoms appeared and the cosmic microwave background radiation was released).

What about these constants is worthy of attention? First, several have remarkably distinct orders of magnitude. The strength of gravity G is 10^{-38} of the strong nuclear force, 10^{-36} of electromagnetism, and 10^{-32} of the weak force. Its weakness is unexpected, especially since all four forces together had to characterize or govern the same soup of particles and energy in the early universe. The cosmological constant Λ, the energy density of empty space, is nonzero but vanishingly close to zero, in Planck lengths $10^{-122}\ l_p^{-2}$. This is about 10^{-120} lower than what would be predicted by summing the zero-point energy of all known quantum fields, making the latter "probably the worst theoretical prediction in the history of physics!" (Hobson et al. 2006, 187).

Second and more crucially, the value of each of the constants occupies an extremely narrow tolerance. And had to. Very slight differences in any of them would have resulted in vast qualitative differences in the resulting universe**,** either no galaxies or stars at all or no long-lived main sequence stellar systems funded with heavy elements. Our universe evidently balances on several of these knives' edges. Steven Weinberg (2006) points out that if Λ were different by a factor of only 10^3 out of its 10^{-120}, there would have been no main sequence

stars. If the ratio of G to the strength of electromagnetism were not 10^{-36}, again there would be no stars. Brandon Carter (1974) determined that the window of variation in the relation of the gravitational fine structure constant (α_G) and the electromagnetic fine structure constant (α) that allows for the formation of main sequence stars is 10^{-39} —slightly weaker α_G and all stars would have been red dwarfs, slightly stronger α_G and they would have been blue giants, both far off the main sequence. As to the density of the universe Ω, presently .3, it must have been at one second after the Big Bang no more then 10^{-15} from the critical density yielding flatness. And there is Hoyle's predicted, later discovered resonance level of carbon-12 (7.656±0.008MeV), without which, given the chemistry of hydrogen, beryllium, helium, and oxygen, there would be virtually no carbon in the universe. Our particular universe seems to require all these numbers to be what they are to a very long series of significant figures.

Most important, there are many of them. Each constant can be regarded as an event, a fact that occurred. Taken together, these events have something in common: they are necessary for the evolution of atomic matter, stars, galaxies, main sequence stars, and main sequence stars with nebulae or planets containing lots of heavier elements. So, we have many events, each seemingly unlikely in itself, that fall into the same functional space crucial to an evolutionary universe.

Some have tried to quantify their collective improbability. Roger Penrose (2004, 730) constructed a diagram depicting the phase space of all possible universes, P_u. In it, our actual universe would have to occupy a tiny corner of the phase space, 1 in 10 to the 10^{123} power. This so-called Penrose number makes our universe unimaginably unlikely. Lee Smolin performed a related calculation that produced a still enormous, but not unwritable, figure. Starting with G, c, and h, he asked himself what the values of the proton, neutron, electron, and neutrino masses; the Planck and cosmological constant masses; and the range and strength of the four forces would have to be to make a universe in which stars can live for more than a billion years. The answer is one in 10^{229} (Smolin 1997, 401–2). These numbers are far, far larger than the number of baryons (electrons, neutrons, protons, and neutrinos) in the universe, which is 10^{80}.

At this point, we can say rightly that there are a set of fine-tuned constants. This does not by itself imply somebody or even something "tuned" them. It is just a fact that they are extremely fine-grained values not determined by currently known law, but must be what they are or the universe would be utterly unrecognizable (and contain no recognizers). The question then arises: How to explain the coincidence, the improbability, of all these contingent but necessary constants falling in such extremely narrow ranges? Or does it need explaining at all?

What Needs Explaining

Several problems concern the use of the very notion of improbability for the coincident occurrence of the fine-tuned constants.[3]

Some doubt that the "improbability" of the constants needs explanation. Incredibly unlikely events happen all the time, depending on how *e*, the event or events in question, is defined relative to *N*, the class of events from which it is "selected," e.g., the likelihood of throwing two on a die (*e*) with six numbered faces (*N*) is 1/6. The mere fact of unlikelihood need not imply that some special cause must be found. If last week Mary won the monthly state lottery with ten million entrants, she beat $1/10^7$ odds. That was extremely unlikely. But it does not demand an explanation; indeed, it happens every month to somebody! Furthermore, in the case of the origin of this universe, unlike the lottery, we are dealing with an incomparable event. There is no *N* class of events of which *e* could be a member. To ask about the probability of *e* occurring independent of any relation to a class of events *N* makes no sense. It would be like asking the probability of red, or of five (i.e., a set of five members).

Even if the collection of fine-tuned constants might require explanation, another objection reduces the improbability, for the "dials" of the constants may not turn independently of each other; that is, the interval into which any constant falls—e.g., the mass of the proton, the charge on the electron, the fine-structure constant—might constrain other constants. We do not know what physical process led to the fine-tuned constants, if any. We cannot see inside the Planck era, the first 10^{-43} seconds of the universe when energy was too high for general relativity to work. Whether some Planck-era process fixed some constants that then fixed others, we do not know. That would lower the unlikeliness of the constants as figured by Penrose, Smolin, and others.

More complex is the criticism that *N* threatens to be infinite in size, making probability meaningless. If the values of the constants could have been wildly different, which the argument seems to presume, that would presumably mean there were an infinite number of possibilities for each constant—i.e., each could have been any real number. But it is impossible to generate the probability of an event *e* out of all possible outcomes *N* when *N* is infinite (McGrew et al 2001). If each of the constants could have been different, why could it not have been any real number at all? If so, probability becomes meaningless.

These objections are well taken against some formulations of the arguments about fine-tuning, but not others. First, while Mary's winning the lottery was indeed extremely unlikely before it happened, her odds were identical to those of every other ticket purchaser, and the chance of *someone* winning (absent lost tickets) was 1/1. If, however, Mary won again the next month, we would indeed search for a cause (Schlesinger 1988). This is the claim about multiple constants all falling into line. The question is not what the likelihood of one event is. The question is the likelihood of each of the multiple events or constants having a property in common, namely, the property of falling into an interval necessary for main sequence stars funded with heavy elements to arise.

Second, as for the dials not turning independently, an expansion of background knowledge of the processes that may have led to the individual constants occupying their values could well lower their improbability. But by how much? Just how much less improbable could such considerations conceivably make our universe? Suppose knowledge of correlations among the dials or background processes reduce Smolin's 10^{229} by 10^{100}, to 10^{129}. Would that do it? How about another 10^{100}? That would make the likelihood of the observed constants one in 10^{29}. Would we cease to wonder about the unlikelihood of the fine-tuned universe if it were merely one in a hundred billion billion billion?

Third, it is true that improbability would seem to require a decision about *N*, the number of possible outcomes. But every measurement of a continuous quantity is accurate only to a finite number of significant figures, hence to an interval +/– ½ of the right-most digit. Being judged 2.0 meters tall (about 6'6") by a ruler good to 1/10 of a meter means measuring between 1.95 and 2.05 meters. If we ask about the likelihood of a constant, the possible values can only be, at the most, the set of such possible intervals, not the values of all the real numbers. These possibilities may well have relevant upper and lower constraints. Hence, one could sum those intervals over a range that might be very large but not infinite. This is exactly what Weinberg (2006) reasoned regarding the value of Λ, determining that it could differ by no more than an interval of 10^{-3}. We are not asking about the likelihood of a physical constant relative to all possible real number values (or worse, complex values). Nor the relative probability of all possible universes. All that is necessary is to say each constant, given reasonable guesses about its possible intervals and range, is one of a number whose interval exhibits a commonality with others.

Finally, some argue that the fine-tuned constants may be brute facts. "Brute fact" is not an insulting term, it just means a contingent fact not determined by law. A brute fact can be "necessary" in the sense that it is necessary for what came after, while not made necessary by law or an earlier state governed by law. That is indeed possible for the constants. The fine-tuned constants may be, or be part of, initial conditions of the universe that cannot be explained by law or anything else. That would be disappointing to those physicists who hope to explain "everything" or derive all physical phenomena from a single mathematical formula. But other physicists explicitly reject such hubris. Physics is in the position of explaining physical states in terms of other physical states with laws or rules governing the transformation from one to another, not the existence of physical states *per se* (Cahoone 2009). Marcelo Gleiser (2013, 232) writes of the constants, "There is no coincidence here . . . In *this* Universe at least they couldn't have had any other values." Meaning that the constants are brute facts that define this universe. Different constants would mean a different universe. This is entirely plausible.

But it does not derail our question. If the constants are brute fact initial conditions, it would still mean the initial state of our universe was configured such that it was sufficiently likely to produce a universe containing main sequence stellar systems with heavy elements, for the point is not only that our universe has crucial and peculiar properties. It is also that our universe is past-finite. It began. The significance of the argument over fine-tuned constants is that since the 1970s, we have understood how large and strange this past-finite universe is. The question is, what caused the very particular universe we observe?

Two options are unavailable. One is that this physical universe has always existed. All evidence suggests that our current, observable physical ensemble emerged from the Big Bang almost fourteen billion years ago. Another is that our physical universe came from "Nothing." That is the zero-energy hypothesis, the claim that the past-finite universe is a quantum fluctuation, suggested by Edward Tryon and taken up by several others. But as has been pointed out, even if the Big Bang were a quantum fluctuation, it would have to have evolved from a beginningless quantum vacuum possessing nonzero energy that obeys the laws of quantum mechanics and was capable of producing the entire universe. That is a very substantive "nothing."[4]

What then caused this universe? To regard the question as unanswerable is perfectly reasonable. There is no obligation to explain the initial physical state of our past-finite universe. It is not irrational to stop here. But neither is it to take a further step.

The Two Explanations

Indeed, many physicists do take that step. They regard both the universe's initial state and its fine-tuned constants as something to be explained.

The most common explanation is a family of models endorsing a multiverse. By "multiverse" I mean any of the theories that claim our observable universe is one of many that have different constants and/or laws. This arose initially in Hugh Everett's "many worlds" interpretation of quantum mechanics, holding that every possible mathematical state of a quantum system is actualized in some world. Later, string theory, one of the attempts to combine microphysics and gravity, generated at least (there are several versions) 10^{100} possible universes. Eternal inflation, the view that while the inflation that arose after the Big Bang ceased in our observable universe at about 10^{-32} seconds, posits a continuing process of a mega-verse generating an infinite number of "pocket" universes too far away to be in contact with our own. Yet others suggest that our Big Bang was only the most recent in an endless series of bangs in which universes expand from a point, eventually contract back into a Big Crunch, which causes another expansion, etc.[5] All these models posit a very large, or infinite, number of universes or pocket universes or universe-epochs.

Their explanation of our observed constants and laws is that only our universe, or a small number like it, generates the possibility of intelligent observers. This is the anthropic principle, which refers to a bias or selection impact on observation, i.e., we should only expect to observe phenomena that can occur in a universe structured and long-lived enough to produce observers. Physicists employ this principle not only to qualify the validity of observations but to make inferences about what values we ought to expect to observe, which is how it was first employed by Robert Dicke.

It is striking that the overall cosmological picture of this family of views remains a stochastic and pluralistic version of Aristotle. For Aristotle, the physical universe and time had no beginning. They are eternal. God is thus an Unmoved Mover, the *telos* of change and motion, but not a creator. For the multiverse, as with Aristotle's cosmos, the largest physical ensemble is past-infinite or beginningless. If there are infinite universes or natures, they are results of an eternal physical process of universe production. Even a universe that is a quantum vacuum fluctuation is a manifestation of a beginningless, law-governed physical reality.

I have nothing to say against the rationality of accepting the multiverse. Some proponents of the design argument regard the multiverse as a "reverse gambler's fallacy," an inference from an apparently unusual observed event to the occurrence of a huge number of unobserved events that would make the observed less improbable. Others apply the notion of likelihood not to the constants but to the multiverse and design hypotheses themselves.[6] But all this opens a tendentious discussion about where the burden of proof lies. My simple response is this: the multiverse is the most extravagant naturalistic hypothesis imaginable. It offers to explain our past-finite nature by posing an infinite and beginningless set or series of unobservable natures.

The alternative to the hypothesis of a multiverse is to hypothesize that our one universe was caused by something beginningless that must have had the capacity not only to generate the early universe but to structure key features of its initial state, laws, and constants. This implies some degree of teleological agency. That would be an evolutionary version of Aquinas's claim that an eternal being caused and "designed" the initial state and laws of our evolving universe.

This claim would be *a posteriori*. That a God initiated and fixed the constants is a hypothesis based on probably true empirical claims. The argument from design is only likely true. Also, it does not explain order or harmony or "how we are special" or "who made us." We may not be special at all: there may be untold solar systems with life, with complex animal life, and with complex animals capable of self-conscious morality and creativity, etc. The present argument aims neither to make that possible nor impossible.

Nor does the claim that there is some design mean complete design. On the contrary, our universe is evolutionary, partly deterministic and partly the

product of objective chance. It is both ordered and disordered, as Hume pointed out.[7] Other naturalists who were also theists have accepted such a combination of design, law, and chance. Darwin (1860) wrote, "I cannot persuade myself that a beneficent & omnipotent God would have designedly created the Ichneumonidæ [wasp] with the express intention of their feeding within the living bodies of caterpillars . . . On the other hand I cannot . . . be contented to view this wonderful universe . . . & to conclude that everything is the result of brute force. I am inclined to look at everything as resulting from designed laws, with the details, whether good or bad, left to the working out of what we may call chance." Or, as the environmental philosopher Holmes Rolston (1987, 268) countered Einstein's claim that God does not "play dice" with the universe: "There is dice throwing, but the dice are loaded."

My point is merely to frame the choice. It remains a classical one: a beginningless, unobserved physical reality of which our past-finite nature is but one instance or expression; or a beginningless, unobserved ground or creator of our past-finite nature. Which is to say, Aristotle or Aquinas.[8]

Gods

Now we begin again from the other direction: the concept of god. A vast topic, but we can make some points that will contextualize our final discussion. There is an orthodox notion of God common to the contemporary Abrahamic traditions that is so widespread as to make other notions seem fanciful. But historically and globally, it was not so homogenous or inescapable. What follows is not an argument for a heterodox concept of God but a recognition of it.

The most traditional human ways of understanding divine management of the world's cosmic structure, partial order and disorder, triumph and tragedy were the gift-exchanging, animistic shamanisms of preliterate foraging societies. These centered on the circulation of value or *mana* through natural and social processes, which were, in a foraging world, deeply intertwined. This constituted religion for at least seventy thousand years, and perhaps far more. With the rise of hierarchical agrarian states five thousand years ago came the many gods of ancestral, sacrificial polytheism, balancing all manner of honorable and dishonorable divine agencies constrained by an amoral fate, less as agency than as a balancing process. Disorder, hazard, and evil did not count against the gods but could be evidence for human failure in their sacrificial responsibilities, guided by priestly elites.

The world religions, and major traditions of philosophy, we know today are rooted in what Karl Jaspers called the Axial Age, the era of Isaiah and Jeremiah; Socrates, Plato, and Aristotle; Zoroaster; the Upanishads, Buddha, and Mahavira; Confucious and Lao-Tze.[9] Within a few centuries after the Late Bronze Age collapse in the eastern Mediterranean, the Indo-European expansion to India, the establishment of the Zhou Dynasty, and the building of Solomon's Temple,

what eventually became the world's major theological traditions were already present, waiting to be mixed and reinvented up to the modern age.

The Axial tendency toward some kind of monotheism, one ultimate and transcendent divinity, was widespread not just in southwest Asia. In south and east Asia, the tendency was still toward an ultimate divinity: a one reality that is source of all, identified with consciousness, that manifests as a variety of devas or revered spirits; a single reality or one in comparison to which all aggregative phenomena are illusions; or an ultimate way or process governing the alternation of worldly events in balance. (Neville 2013; Diller 2021) And at the same time, the Abrahamic religions, while accepting a single personal God, often preserved multiplicity: a single creator God working on preexisting material substrates; one God for *our* people to worship exclusively, however many other gods there may be; one God accompanied by good and bad angels, not to mention divine saints; and one God retaining internal multiplicity, often triune. But across Asia, there was a single ultimate, transcendent divinity—greater or deeper or more real than all immanent worldly phenomena, whether it be one agent, one principle, or one process.[10]

What made the Abrahamic views different was not just a personal agency but a God who both created all reality and was concerned and involved with a linear, salvational human history. That historicism was also true of their southwest Asian heterodox neighbors: Gnosticism, Zoroastrianism, and Manicheaism.[11] In Gnosticism, there was a perfect One that did not create the universe. The creator, borrowed from Plato's *demiurge* or craftsman, creates by ordering the preexisting space-time receptacle in accordance with the eternal forms or model. But in a very un-Platonic turn, the Gnostic creator is a limited and inferior craftsman of an imperfect world generated through a combination of accident and error among the emanating aspects of the One (Brakke 2012). In Manichaeism and Zoroastrianism, the universe is a historical battle between a good God, the source of light and order, and an equally eternal force of evil or disorder. For Manicheaism as for Gnosticism, creation is largely the doing of the evil force.[12] For Zoroastrianism, the good and eternal but not omnipotent God, *Ahura Mazda* or *Ohrmazd*, created the world but could not exclude the force of disorder and evil, *Ahriman* (Zaehner 1955).

In the orthodox Abrahamic religions, God's relation to the world is Lord, Creator, and Lawgiver. But in terms of God's character or nature, they originally understood God as possessing *pneuma* or *ruach* (breath), the most rarefied vital fluid, one might say, which became *spiritus* in Latin. God's possessing and projecting light was also crucial not only in ancient Hebrew (Genesis 1:3) but even more in ancient Zoroastrianism's use of fire, and then taken over in Islam (Qur'ān 24:35). All this physicality was eventually reinterpreted as metaphor or myth as Hellenistic religion evolved the notion of God as a pure actuality engaged in unchanging self-contemplation: "thought thinking itself." Abrahamic religion

required that such a philosophical god had to also be capable of creation, will, and love, hence serving as the God of Abraham, Isaac, and Jacob, not just Aristotle. Eventually, medieval theology and philosophy solidified a very particular kind of God characterized by singularity (the lone God); necessity (cannot fail to be); eternity or everlastingness (outside time or actual at all times); simplicity (without parts); immutability; impassability (cannot be a causal patient); pure goodness or perfection; omnipotence; omniscience; and incorporeality (Wainwright 2020). These characteristics were debated throughout the Middle Ages, and there were both religions divisions and heresies to be put down by doctrinal authorities.

It was in these traditions that combined Abrahamic religion with Greek philosophical notions that the problem of evil became most pressing. For here, God is a personal agent, perfect, immaterial, omnipotent, and omniscient, and at the same time governs a linear, teleological history that is real and matters religiously.[13] Disorder, hazard, and evil are not unreal, not illusion due to attachment or ignorance, but a drama with soteriological significance. God is perfectly good and obliged to be interested in that history, fully cognizant of and concerned with the individual and their community as part of a salvational drama. How can such an omnipotent God create and govern a process in which great and undeserved evil is inevitable and commonplace? This is the problem of theodicy.

In the seventeenth century, a new unorthodox understanding of nature inspired new unorthodox understandings of God. This began with Benedict de Spinoza. Both a monist and a panentheist, Spinoza argues that *Deus sive Natura*, God or Nature, is the one independently existing substance of which we are all "modifications."[14] This God has an infinite number of attributes; we are privy to just two: mind and matter. God is therefore partly material, and God's "mentality" is merely one of a far larger number of attributes. God cannot be merely an infinite mind, as for Descartes and Locke. Famously, Spinoza also endorsed determinism and rejected anthropomorphic notions of God. Salvation is the "intellectual love of God." This led some to interpret his views as indistinguishable from scientific atheism. But the Spinozan God would retain adherents, especially among scientists (e.g., Einstein).

A century later came Friedrich Schelling, whose thought was influenced by Georg Wilhelm Friedrich Hegel, Romanticism, and, like all Germans at the time, by the Spinoza revival of the German *Aufklärung*. As in Hegel, reality is that process by which the ultimate or absolute produces nature and humanity, all of which are re-integrable into itself. Both Hegel and Schelling inherited the Germanic heterodox tradition of Meister Eckhart and Jacob Böhme, which held that God needed the world He created "in order to be God" (Magee 2001, 9). For Schelling, what distinguishes God from all other beings is that God contains its "basis" as well as its essence, meaning the support or ground for its own nature. This is the "dark ground" (*Ungrund*), a primordial state of

indifference regarding unity and multiplicity out of which God's essence and basis arise, the latter becoming nature. His basis independent of creation may be in a state of oscillation or cyclic activity, which Schelling (1936) called the "rotary of forces."

Then, in the second half of the nineteenth century, Darwin, and after him the revolutions in physics of the early twentieth century, produced evolutionary versions of nature in the philosophies of Charles Peirce, Henri Bergson, Alexander, Conwy Lloyd Morgan, William James, John Dewey, and Whitehead. These had an impact on the concept of God. Whitehead's process notion of God is distinctive in that it is not an impassible and unchanging entity, but neither does God equal or contain all reality, as in pantheism or panentheism. God is the ultimate creative act, the principle of creativity, and in the process of becoming. Some aspects of God are eternal and unchanging (God's primordial nature), while others are both related to and affected by the world (God's consequent nature). Like all actualities, God includes mental and physical "poles." God is in a reciprocal relation with creation—like a dynamic Moved Mover—so that one can equally say of God and world that each is one and many, permanent and fluent, immanent and transcendent, etc. (Whitehead 1979, 348) The future is unsettled; God does not know whether I will actualize my possibilities. God's power regarding humans is only persuasive and cannot stop evil from occurring.

Hartshorne draws from Whitehead a rejection of the notions that God is simple, unchanging, incorporeal, and unaffected by Creation. God is the greatest of all things and is in the process of becoming greater (Hartshorne 1984; Dombrowski 1996). God is embodied in and by the physical and biological world. Omniscience is problematic; the future in general is not settled yet, so cannot be known, even by God. If it could be known, there would be no human freedom. But for Hartshorne, it is omnipotence that is the greatest mistake of Western theology. An omnipotent God could have no stake in and no care for the hazardous drama of the created world. Even if God had to permit the evil that results from human choices because of the value of "free will," that power cannot be reconciled with the natural evil of human and animal suffering, cosmic cataclysms, multiple massive extinctions, or even the immense time taken for stars, stellar nucleosynthesis, and our solar system to reach current stability. An omnipotent God would have to have been able to accomplish its purposes in creation without such trials and tribulations.

There have been other recent neoclassical arguments for God that aim to be both compatible with contemporary cosmology and avoid the problem of evil by abandoning omnipotence. For Robert Neville (1968, 2015), God is an act, not an entity. God in itself is indeterminate or lacking properties and creates the context of relatedness in which all determinate properties must occur. This is an extreme application of the idea of *creation ex nihilo*, since it claims not only

that God did not fashion nature out of a preexisting something but that God did not create nature out of itself and hence shares no properties with creation. This avoids a host of problems associated with orthodox conceptions. It is compatible with any cosmological account, e.g., the multiverse. In fact, it is compatible with any natural world whatsoever, e.g., one without minds or life, or without matter, or without hazard or evil, or with Olympian gods. But for that reason, it cannot in principle address our current question: What would a cause of *this* particular universe be like? That is, the cause of an expanding and cooling ensemble of physical energy in which material complexity, life, and mind fitfully arose locally after billions of years in a global context of ever-increasing disorder. Perhaps we cannot know. But any inference from the universe we do know to a creator must deal with that question.

A Ground of Nature

The alternative to a beginningless multiverse is a beginningless ground of nature. This is a naturalistic version of Paul Tillich's "ground of being."[15] I will refer to part of what is often referred to as "God" this way. There is nothing wrong with the term "God," but even sophisticated writers attach so many meanings to the word that it is problematic in a critical context. The context in which I am referring to God is as the Ground of Nature. So it seems appropriate to follow the rhetoric of the argument by using this term. I will be arguing for a set of minimal characteristics of that ground, those that can be speculated from this universe. At no point do I deny that the ground may be more than that.

I begin with an Ockhamite assumption. I will assume at most one ground, whether an agent, principle, or process, whatever its divine or sacred effects or emanations, if such there be. The assumption is that there is no divine agency or principle independent of the one ground. The justification for this parsimony is merely that arguing for one God is trouble enough. But note that the following will not try to account for *all* the ground is or does; it suggests only the least God inferable from a naturalistic account. No completeness is hoped for.

Negatively speaking, and following the process conception, the ground does not have to be omnipotent or omniscient; infinite, simple, or static; immutable, impassable, or imperturbable; or incorporeal. There is no reason to ascribe infinity or absence of constraint or limitation to the ground. Unimaginably powerful and least limited is enough. In particular, there is no reason to deny complexity or activity to the ground and every reason to ascribe them. Note that to claim the ground is complex is not to claim it has parts; physical fields, for example, are complex but do not have aggregative parts. Positively, the argument requires that whatever else the ground is or was, it caused the physical universe. Whatever characterizes the universe after its initial state may not be characteristic of the ground. The ground is thus likely independent of space-time and matter, both of which emerged after the Planck era. If I am arguing

from nature's evolution back to a ground, I must say the ground at least initiated the earliest universe.

The minimum characteristics of such a ground would then have to be: a) beginningless or not caused by anything outside itself; b) unimaginably powerful; c) it must have *initiated* the first physical state of the universe, *funded* it with physical energy, in whatever form that energy took in the Planck era at the least, and *determined*—whether through an act or by its own character—the most fundamental physical laws and the initial conditions, including the fine-tuned constants. That is what the ground must be and do in order to cause the universe.

Now we go further to speculate what such a ground might be like. The first hypothesis is that a ground inferred from observed nature may be: a) complex and in some respects physical; b) engaged in self-maintaining activity; and c) characterized by teleological agency.

First, the current suggestion is that the physical energy of the universe belonged to, came out of, and resulted from some physical process of the ground; it came from God's "nature." Which does not mean the ground is solely physical. The ground must create out of its own nature, which is determinate in some respects (not all). This follows Spinoza, Schelling, and Whitehead and accepts the neoclassical idea of divine "embodiment." But it does not endorse panentheism; there is no claim that all events of nature are internal to God, only that events of nature are somehow based in, and partly constituted by, the ground's projected energy. The ground must be continuous with nature in some respects and discontinuous with it in others; continuous so it may physically cause the universe and be its source but discontinuous so it may exist independent of nature. While we do not know how such a ground creates or created nature, a cautious approach would suggest that to cause a physical world, the ground must act physically.

Second, following some who think of the ground in organic terms—Schelling again, and the world-soul of some process theorists—God may be, in a sense, "living" (Dombrowski 1996). But the analogy cannot be that God is biological or composed of cells. A more plausible application would be that the ground exhibits self-maintaining activity. We are operating by inference from what we know about the nature we inhabit. The most interesting systems in nature, including mind-endowed animals, life, and the solar system, are complex and engaged in constant self-maintaining, cyclic activity. Their unity and character are not fixed or static. We do not know of anything very interesting that is simple. Most systems in nature are simultaneously ensembles of components, organized in complex structures and maintained by internal and external processes. The ground could be in some energetic process of becoming, or cyclic activity, and affected by things other than itself once they exist. The ground's physical energy may be involved in, or necessitate, this process.

Now, it is true that we do not know how to understand process taking place without or prior to the only time we understand, which is the time-like dimension of space-time. But this problem visits any process theology, indeed, any ascription of action to God. Absent space-time, the ascription of stasis to God is no clearer than ascription of change. Even in the Planck era, there must have been immense activity but apparently no continuous space-time as we understand it. So, it seems we cannot assume that nothing can happen, no process occur, in the absence of our mature universe's continuous space-time.

Third, if there is limited design in nature, the ground must have some kind of purposive agency, meaning "intentional" agency. That is why it was called the "teleological argument." Purposive agency distinguishes the present hypothetical answer to the fine-tuned constants question from others: there was design in addition to necessity and chance. This is indeed a reference to purposeful action. But the ground's purposeful action need not, presumably cannot, resemble mental or cultural agency on Earth. We do not need to ascribe thought or human mental processes to the ground.[16] Nor need we debate the metaphors of "person" or "thing," since the ground is presumably more than either. The ground is causing something that serves some function. Thereby, nature is determined to have certain properties, hence, is "designed" in some, not all, respects.[17]

So, given a universe that is partly deterministic, partly indeterminist, stochastic, and evolutionary, where the arising of complex order in rare locales has been full of hazard and taken billions of years, a partly physical, complex ground of great but limited powers is entirely plausible. Our universe appears, as Hume points out, to have design only to a degree. Today, we might say: to a degree required for chance limited by lawful regularity to evolve some number of main sequence stellar systems funded with heavy elements. So, with Darwin and Rolston, there is only enough "design" so that lawful necessity and chance are likely enough to lead to solar systems like ours.

We could stop here, with what is essentially a neoclassical notion of the ground. But a naturalistic approach incorporating contemporary cosmology tempts us further. We can ask a speculative question: Why would the ground create this kind of universe?

The most reasonable, albeit speculative, approach is that the ground has internal constraints that led to creation. If we accept that the ground is partly physical, and that its physical energy is continuous with that which composes the natural universe, it may be that the ground is internally bound by the laws of thermodynamics, in particular the first and second laws.[18] For it is plausible that the fundamental laws governing physical energy must hold for a physically energetic ground. Whether the fundamental laws of quantum theory and general relativity have application to the ground of nature, we cannot say. They may well apply only to the initial state of the physical

universe and its successors, e.g., subsequent to the Planck era. But the laws of thermodynamics are different. They hold wherever there is physical energy and govern how it can evolve, and presumably must hold for all states of the universe, including the earliest. Perhaps they hold for the cause of the universe as well. This would not mean the laws are "prior to" that cause. It would mean that the regularities they represent characterize the energy that is part of the constitution of the ground.

The first law claims that total energy in an isolated system must be conserved. Energy is transformed but neither created nor destroyed. If one accepts that the physical energy of the early universe was derivative of the ground, and that the ground is physical but not characterized by space-time, then it would not be a bizarre step to regard the first law as applying to the ground. This would just imply that the *quantity* of the energy of the universe was or is a characteristic or property of the ground and has never changed. It would mean the total energy of the universe, which by the first law has been constant from the initial physical state of the universe to now, was internal to, a property of, and part of the constitution of the ground. If the ground is partly physical, as Spinoza and Schelling hold, conservation of energy may apply to the ground. It would mean that the ground is characterized by a fund of physical energy and engaged in self-maintaining, reversible, or cyclic activity, like many other complex systems.

The second law is another matter. Conservatively put, the second law claims that an isolated system will evolve toward equilibrium, a condition of least structure or greatest entropy. In Ludwig Boltzmann's helpful terms, it moves toward that macro-state constituted by the highest number of microstates, there being more ways for a system to be disordered than ordered. Natural systems, even when maintaining constant total energy, tend to degrade in complexity toward equilibrium unless in interaction with external systems. Any evolution of increasing structure or complexity requires relation to or exchange with an outside. The implication is that, to the extent the ground is physical, while it maintains constant physical energy under the first law, the complexity of the ground's energy must decline toward equilibrium if it relates to nothing other than itself.

This is to say, while cyclically self-maintaining, the ground is nevertheless subject to an irreversible degradation of the quality or structure of its physical energy. Again, it is mysterious to us how this takes place without our notion of time, which is part of space-time. Nevertheless, it would mean there is a loss of something to which even the ground, which is beginningless and cannot cease existing, is subject.

What could motivate such an unorthodox application? First, it suggests why the world is subject to certain physical limitations, particularly the laws of thermodynamics. It has to be, because that regularity is built into the ground

itself, the limits to the ground being internal to it. It would mean a world with organized complexity, life, and human life would have to be, as some put it, "cold, dark, and lonely," old and enormous with rare pockets of complexity. This would be made inevitable if everything, including the world's Creator, is subject to the second law. In effect, nothing escapes the laws of thermodynamics, including a partly physical ground.

This is directly connected to the problem of evil. Of course, entropy is not evil. We have no reason to ascribe "evil" beyond the domain of human behavior. But the fact that any complex system is characterized by irreversible processes—that things fall apart, that complex order can only occur while entropy is vented into the surrounding environment, that life requires inevitable death, that the more complex organisms are also more fragile, that hazard is ever-present—has something to do with the second law and the manner in which complex and evolving systems must be organized to deal with it. That is, what are often called cases of "natural evil," evils not due to human misconduct, are inherent in a hazardous, stochastic, entropic biophysical universe.

This unorthodox approach can also address the question of why the ground created this universe at all. The suggestion is that the creation might be required for some aspect of God's own self-maintenance in some respect. Suppose the ground is characterized by a self-sustaining process of activity that is partly physical energy, whose maintenance operates in the face of the first and second laws. The ground may be in a struggle to maintain not its quantity of physical energy and existence but the complexity of its organization. The claim is not that the existence of the ground requires creation, that the ground could or would otherwise cease to exist, but that some characteristic or complexity of the ground requires creation. The ground may have been, and may be, threatened by a loss of potential energy, information, or possibilities—the loss of *something*. The creation of another complex system with which it can interact and exchange, whose entropy can constantly increase, may be meant to ameliorate that condition, just as within our universe the enhancement or maintenance of complexity requires the venting of entropy.[19]

The implication would then be that this evolving universe, with its unlikely combination of expansion and increasing disorder on the one hand and local evolution of remarkably complex systems on the other, may serve a purpose for the ground. Interaction with a cosmos that is caused to arise out of but is nevertheless distinct from the ground, gives something to the ground. Succinctly put, assume one ground and one resulting past-finite universe. How to explain creation? The ground could, by its very nature, be a creative act, as for Whitehead. But that cannot explain the creation of this world of complexity, mixed order and disorder, hazard, and evil. Creation could be, as some imagine, an ethical test in which the drama solely concerns the fate of individual humans on Earth. But why would such a world require the ten billion years and 10^{23}

stars of our cold, dark, lonely universe? The explanation of such a world would be that the ground had to create this kind of world out of itself because of internal limitations that subsequently applied to the universe as well.

If so, it could be that our solar system's rare evolution of a living planet, and of life capable of self-conscious creativity and moral self-determination, plays some role in the ground's purpose. By no means must it be a unique role—we do not know what is happening on planets outside our solar system. The ground needed to create the universe to maintain something about itself. A universe with complex systems, life, and human life (among other things) within a general context of increasing entropy may satisfy or potentially aid in satisfying that requirement. That purpose might or might not be adequately achieved overall, or in any particular locale, e.g., solar system. Given the limitations on both the ground and the world, its achievement may be hazardous or uncertain.

To close less abstractly, at the religious level, this could imply that natural evolution has a purpose to which human activity may be relevant. That is, such a concept of the ground and the function of creation with respect to the ground might make it plausible that human life on Earth plays a functional role, however limited. William James (1912, 62) wrote something like this.

> Once more it is a case of maybe; and once more maybes are the essence of the situation . . . God himself, in short, may draw vital strength and increase of very being from our fidelity. For my own part, I do not know what the sweat and blood and tragedy of this life mean, if they mean anything short of this. If this life be not a real fight, in which something is eternally gained for the universe by success, it is no better than a game of private theatricals . . . But it feels like a real fight, as if there were something really wild in the universe which we . . . are needed to redeem.

Such a construction need not be inconsistent with our notions of either God or nature.

Notes

[1] That all of nature is based in the physical does not mean all nature *is* physical. Roughly, we can define "physical" as the objects and processes explained by fundamental physics (Cahoone 2013).

[2] If "Nothing" capitalized is understood in the Greek sense of *ouk on* (utter absence), there is no such discriminable phenomenon. *Me on*, or a state of indeterminate being with possibilities, is another matter. We cannot experience utter absence, we cannot imagine it; a vacuum, quantum or otherwise, is not Nothing, it is a state of nonzero energy governed by laws. Even a black empty space would not be Nothing, for space is dynamic, varying with mass-energy density, and obeys laws (Cahoone 2009).

[3] There are different interpretations of probability as an objective relation of a sample to a population (frequentism) or as the increase in confidence background knowledge has on the likelihood of a hypothesis (Bayesianism). I do not explore these here. Each requires the unconditional probability of some e/N, the occurrence of an actual event divided by the number of possibilities where, by the "Principle of Indifference," the possible events are presumed independent and equally likely.

[4] The argument of Tryon, adopted in part by Stephen Hawking and Alexander Vilenkin, presumes a zero-energy universe—where negative gravitational potential energy cancels all other energy so the sum is zero—that arises out of a nonzero energy quantum vacuum governed by laws (Cahoone 2009).

[5] It may be that the eternally inflating mega-verse and also the cyclic universe are past-finite (Borde et al. 2003; Mithani and Vilenkin 2012).

[6] See, for example, Kenneth Einar Himma 2005, Robin Collins 2009, and Simon Friederich 2021.

[7] And so did Charles Peirce, whose approach has affected the present argument at several points.

[8] As Martin Rees (2008, ch. 11) put it, the alternatives are: "Coincidence, Providence—or Multiverse." For "coincidence," I read "inexplicable brute fact."

[9] "Axial" for Jaspers means 300 years before and after the midpoint of the millennium before the common era, 500 BCE. The fact that Zoroaster might be dated to 1200 BCE, the time of Moses and Hebrew henotheism, or that Christianity, Islam, Sikhism, and Protestantism later emerged from those traditions, does not gainsay his insight. A new concept of the divine and the ultimate, more doctrinal than sacrificial, and with it a philosophy of the transcendent, was birthed in that millennium in multiple cultures across Asia.

[10] I am characterizing Neville's (2013) three models of ultimacy somewhat differently than he does. For "personhood," I read a single agency with mind and will. For "consciousness," I understand a single "principle"—objectless consciousness is very hard to characterize, but both a one and a "no-thing" that are accessible to awareness, in each case rendering all plural sensory phenomena unreal, might do. And for "emergence," I read a single dynamic process out of which things unfold.

[11] An interesting but controversial addition is Yazidism, for which the distant God put the world in control of Peacock Angel *Malek Tāwūs*, an ambivalent figure responsible for the darkness as well as the good of creation, but redeemable at the end of time (Asatrian and Arakelova 2003).

[12] Augustine was famously a Manichean but later saw the Neo-Platonism of Plotinus as that form of Greek deism most compatible with Christianity. The Plotinian One creates not through an act but through emanation, leading to intellect (*nous*, Plato's craftsman), world-soul (*psyche*), and finally, matter. That formed a universe where there is no real evil but merely the unreality of matter. Plotinus (1991) still accepts that an evolutionary return to the One follows the involution of reality from the One.

[13] In the Indian and Chinese religions, not only is the ultimate divinity a principle or process—often accompanied by lesser divine agencies—but history is either illusory or cyclic.

[14] Pantheism is the view that God and the world are the same thing. Panentheism is the view that the world is contained in God, but God is more. For Spinoza (2018), the mental and material attributes of which our nature is composed are but two of God's infinite attributes.

[15] Tillich (1951, 156) wrote, "The religious word for what is called the ground of being is God."

[16] I think because I do not know and try to figure things out; do not know what to do or what I want; juggle competing perspectives; ruminate over past slights; imagine successes and failures, etc. What would a being with none of these foibles "think"?

[17] This article takes no position on the question of "divine action." But it implies that if there were such a thing, it would have to be mediated by the created processes of nature. That is, if the ground not only creates but acts, continuously or periodically, in the universe in some regulatory manner, such action would have to be mediated through the orders of self-maintaining systems and processes in nature. Which is to say, not around, but through.

[18] The zeroth and third laws seem largely irrelevant. The zeroth law holds that two systems in thermal equilibrium with a third are in equilibrium with each other; the third holds that a system at absolute zero degrees Kelvin is at constant entropy (and is at or close to zero entropy).

[19] Religiously, this notion is certainly heterodox but not unprecedented. Zurvanism was a Zoroastrian heresy that regarded the good Ahura Mazda and evil Ahriman as siblings, children of Zurvan or "Time," particularly infinite time (Zurvan-Akarana), understood as the original One. (But sometimes later as Time-Space.) Zaehner (1998) remarks, "The 'Fall' in Zurvanism does not originate with man, it results from an imperfection . . . in the very heart of God." Nothing in the present article suggests that God is Time, but 2,000 years ago, the notion of "time" would not have been a bad metaphor for irreversible, entropic process.

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Anti-Essentialism and the Integration of Philosophy and History: A Hermeneutical Approach to Science and Religion Discourses

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The historiography of science and religion has had a considerable impact in science and religion discussions, showing that there is no enduring essence to *science* or *religion*. Such suggestion is, however, fraught with philosophical issues that paradoxically prevent a foundational integration of the valuable insights from the historiographical work in science and religion discourses. This article proposes a hermeneutical approach to bridge the gap between historiography and philosophy; history and philosophy are interpretive paths that unnecessarily clash due to the philosophical import of anti-essentialist historiography. Science and religion discourses can be opened up by focusing on how the temporality of things (history) and the being of things (philosophy) are hermeneutically integrated to create these discourses.

Introduction

Historiographical work on science and religion—epitomized by John Hedley Brooke's *Science and Religion* ([1991] 2014) and Peter Harrison's *Territories of Science and Religion* (2015)—has raised important questions regarding the viability of generalizing about science and religion together. The reason is not that there is an inherent conflict—epistemic or methodological, for example—between them. Rather, the reason is that there is no such thing as *science* and there is no such thing as *religion*—because they are not analogous to natural kinds (Cantor and Kenny 2001, 771; Harrison 2015, 4–5, 176, 194)—nor is there such a thing as "*the* relationship between science and religion" (Brooke [1991] 2014, 438).

But what does "there is no such thing as science" or "there is no such thing as religion" mean? What does it mean to say there is no such thing as "the relationship" between them? The language of essentialism is useful here, and so is remembering that the scholarly context of these expressions is the historiography of science and religion. "There is no such thing as X" means that one cannot identify a transtemporal "essence" of X, always the same at any given time in history. For us to look properly at X, we need to do so in an *anti*-essentialist fashion; we need to recognize that there is no "essence," no fixed and transtemporal meaning of X. Given the issue of essentialism, the question is therefore how we can heed the historiographical warning bells of anti-essentialism in science and religion discussions without rendering ourselves speechless due to the unstable meaning of our words through time.

A recent discussion between Josh Reeves (2023) and Peter Harrison (2023a) circles precisely around this question, and this article approaches it hermeneutically (see Sikahall 2022 for an example of a hermeneutical approach). The historiography of science and religion has successfully raised the issue of the lack of "essence" to *science* and *religion*. Alongside this anti-essentialist observation, such historiography leaves a number of issues unaddressed: the stubbornly anachronistic nature of our speech; the inherently linguistic nature of the historiographical endeavor to both perform the historical task and communicate with the present context; the importance of the present historical context that gives rise to the historical inquiry in the first place; and the explicit connection of historical work with present concerns. This article proposes a hermeneutical solution to these residual problems, focusing first on the philosophical import of anti-essentialist historiography. Second, it suggests that the hermeneutical tradition is suited to deal with the challenges raised by anti-essentialism, focusing on Hans-Georg Gadamer's work. Third, the article explores what it would mean to treat science and religion discourses as spaces of interpretation, or what I am calling *hermeneutic things*. Finally, the article analyzes how philosophical and historiographical work ends up reasserting the gap between philosophy

and history, concluding with examples of work that self-consciously—with hermeneutical mindfulness—integrates historical insight, historical context and philosophical reflection.

Anti-Essentialist Philosophy? The Philosophical Import of Anti-Essentialist Historiography

To tackle the "after anti-essentialism" question, we cannot simply leave historiography enclosed in the discipline of history with only occasional and marginal support for science and religion discussions. Historiography has philosophical implications and in itself performs philosophical thinking. But what does it mean to take history seriously, especially when the historiographical work suggests something like anti-essentialism? If two of the key categories in the discussions ("science" and "religion")—not to mention the pernicious "and" between them (Cantor and Kenny 2001, 770–72)—offer misleading narratives and ways of navigating human activities and concerns in the present and, especially, in the past, how to proceed? What should we do if even using these expressions with the intention of bringing them closer together reasserts the issue of essentialism, thereby distorting their historical trajectories and introducing a reified couple of "science" and "religion" (Harrison 2015, 194–95, 197–98)?

The first step suggested here is that in order for historiography to take a defining role in science and religion discussions, historiography needs to be seen as also involved in philosophical activity (for the purposes of this article, "philosophy" also includes ethical and theological thinking). Not only that historiography has philosophical implications (as Reeves 2018 shows) but that it does philosophy by interpreting and thereby shaping both the past and the present. Historiography, although seemingly to do with what happened in the past, is in fact to do with what happened in the past in such a way that it has a direct connection to current concerns and questions. As Hans-Georg Gadamer notes: "[A]n historical fact is not, in the first place, merely something that really happened, but rather, something that really happened in such a way that it has a special signification for an historical question, an historical context" (Gadamer and Risser 1979, 76). Historiography, therefore, not only arises from current concerns and questions but affects them, since it belongs to them. And since these concerns and questions are historical and approachable as questions about reality in the present—and the present is a part of history—it is necessary to recognize historiography as performing within its approach, in the very things it brings to the fore and leaves in the background, various forms of philosophical thinking (for blurring the boundaries between history, philosophy, and theology for the sake of truth, see Milbank 2023).

Science and religion historiography is therefore neither philosophically neutral (Sikahall 2022, 170–83) nor unconcerned with contemporary discussions around science and religion. Reeves (2023, 80) even refers to Harrison's

"antiessentialist *philosophy*" (emphasis added). These discussions, despite tending to be embedded in the framework of a "dialogue" between science and religion (Reeves 2023), are a partial origin for anti-essentialist historiography and, by implication, also partially originate this philosophical anti-essentialism—even if the framework of dialogue is seen as one-sided from an anti-essentialist point of view (Harrison 2023a, 98–100).

Claims such as the lack of "essence" of words introduce not only a linguistic difficulty but also philosophical questions. One such question relevant to anti-essentialism is: What is the nature of the relationship between word and world—between concept and history—given that this relationship is a temporal one, meaning that the relationship itself exists in time as a historical reality?

In the actual historiographical work, an implicit hint of an answer is given by the rhetorical form of the work. It is implicit because the work answers the question of the relationship between word and world by the historiographical methods used and not by the actual content of the work. Take Harrison's *Territories* as an example. Harrison's genealogical approach uses the words *science* and *religion* to show the shifting territories of the moral, theological, and metaphysical assumptions underpinning the meaning of the words throughout history. Where does that leave us, present speakers, if one of its implications is that science and religion—in our contemporary understanding—are not analogous to natural kinds (Harrison 2015, 4–5) and therefore have no "essence" persisting through time? Can one trace the genealogy of *science* or *religion* for example, their ups and downs and metamorphosis throughout time, their mutations and expansions, and at the same time say there is no such thing as science or religion? What was the historian tracing then? The genealogy of what? Reeves (2023, 84–85) raises similar questions. I do think there are ways to make sense of there-is-no-such-thingness (anti-essentialism). But if one is not a historian, the rhetoric obfuscates rather than helps, even if I am interested in taking the history of science and religion seriously. Alister McGrath's (2023) recent work, for example, delves into the history of natural philosophy, fully accounting for the anti-essentialist nature of *science* and *religion*, to recover the breadth and depth of natural philosophy, which the "science and religion" frame obtains today only in a limited way. Here, he implicitly accepts a connection between the past (natural philosophy) and the present (science and religion discourses), which is what the historiographical rhetoric leaves undisclosed.

Nonetheless, the focus on rhetoric is helpful: How is the historian using discourse—or *language* more broadly—to carry out their work? In Harrison's work, what Gadamer (2008a, 64–65) calls the "self-forgetfulness of language" seems to be in operation. It is possible to forget about language, that language is being studied through itself: a particular word and associated words, as a part of language, are under study, and these words, as well as being the objects of study, are both the means of studying them and also the means of communicating

this process to the contemporary reader. Language, which includes the very words themselves, is being used to trace the history of these words, to navigate the now and the then, to identify shifts and tensions between and across different historical moments, motivated by present concerns. The emphasis here is on the word "concerns" rather than on "present"—as if an objectivized "historical" present is available to us, removed from anything that truly speaks to us now. Talking about science or religion, or "science and religion," as present *concerns* involves connecting with the experience they, explicitly or implicitly, evoke today. Furthermore, it involves accepting the priority of the regular speaker's understanding of the expressions if only to communicate with such speaker. This allows us to trace the words' individual histories and their inherent tensions, contradictions, and complexities due to the juxtaposition of a variety of concepts and practices under the (historical) hood, as it were, of the notions themselves, with the view of communicating such rich complexity to the contemporary reader.

The difficulty, especially for historians but for anybody who is aware of the temporal instability of our speech, is having to refer at points in our communication to a "stable" meaning of the words under study in order to communicate what is being discovered. The danger of anachronism lurks in the background: reference to a specific meaning of the word needs to be historically consistent—it must match the use at the historical time under study. At the same time, however, our communicative efforts need to make sense to us contemporary readers, who have a different understanding of the word. Using the word *science* or *religion*, or *scientific* or *religious*—or *natural* and *supernatural*, as in Harrison's (2024) most recent *Some New World*—becomes thus a way of traversing the distance between the then and now, but the toll to pay is a momentary but inevitable anachronism and essentialism, for the sake of communication, that privileges the contemporary meanings of the words.

Awareness of the dimension of language, therefore, subsumes essentialist concerns, since the issue is not only the fixity of meaning but the mediation—through language—of *any* meaning between any historical moments. Studying the history of science, for example, could mean that one is projecting the (fixed) contemporary meaning of science to the past, with the conviction that this meaning was indeed there and has remained stable up to the present. This is good old essentialism accompanied by anachronism. It could also mean to act as if there is "nothing"—no essence, one might say—connecting the meaning of a term today with associated terms and their meanings at different points in the past, while somehow still being able to trace these meanings through rigorous historical work. This form of anti-essentialism forgets that the connecting thread *is* language, and as the connection of these terms, it is also the very possibility to trace their blended histories. The forgetfulness of language as medium is a more encompassing danger than essentialism because it is one thing to raise a

warning and leave the warning ambiguous; it is another to raise the warning, to leave it ambiguous, and then to unintentionally conceal a possible lifeline to enact an attend to the warning.

The problem for much of science and religion historiography is that insisting on avoiding essentialism, *anti-essentialism*, is precisely a warning without a clear lifeline. The lifeline is concealed in the fact that the anti-essentialist philosophy comes in a historical garment, a garment the historian might be unwilling to dispose of (Harrison 2021, for example, clearly distinguishes his contribution *as a historian* collaborating with—not doing—science-engaged theology). Transcending "history" might be to transcend the disciplinary boundary from which the strength of the arguments is perceived to come from, hence further elaboration is left to scientists, philosophers, or theologians (Harrison and Milbank 2022; Harrison and Tyson 2022; Reeves 2019).

Regardless of the reasons to abide by disciplinary boundaries, tactical or otherwise, my suggestion in the following section arises from the fact that in the case of the historiography of science and religion, this disciplinary boundary is an artificial historico-methodological construction to keep at bay philosophical, ethical, theological, and political issues (and one could go on) that if explicitly brought to the fore from the beginning, could either compromise or deem suspect the purely "historical" nature of the scholarly pursuit.

An example of this delicate boundary-setting is the fate of the so called "conflict" or "harmony" narratives of science and religion. Since John Hedley Brooke's work, both narratives are deemed incredible in most science and religion circles. As Brooke ([1991] 2014, 68) puts it in his groundbreaking *Science and Religion*: "Much of the writing on science and religion has been structured by a preoccupation either with conflict or with harmony. It is necessary to transcend these constraints if the interaction, in all its richness and fascination, is to be appreciated." The narratives of conflict are assessed as apologetically motivated (Brooke [1991] 2014, 42–56, 57–68)—for or against some religious agenda—or historically too simplistic, ignoring the diversity of interaction (Brooke [1991] 2014, 26–42). But who is judging here? An observer within a neutral, perhaps "non-religious," space, neither for nor against "religion"? Or is it that one can judge these narratives on "purely historical" grounds regardless of one's "religious" position? But what role is the word "religious" playing in the very questioning raised here? To make an analogy: just as theological presuppositions have a variety of effects on the study of nature (Brooke [1991] 2014, 26–42), so too can be said for the theological or religious presuppositions on the study of *history*. Historiography itself, just like the study of nature, is underpinned by assumptions that affect the historiographical work. These assumptions are disclosed—they "peek out"—in a variety of ways. From judging what is reasonable, wrong, desirable, or questionable to the kind of engagement one has with the historical actors (individuals, ideas, testimonies, social dynamics,

etc.), one is informed, and perhaps *formed*, after these assumptions. For example, Noah Efron (2010, 255; see also Sikahall 2022, 57–58) notes that Brooke's *Science and Religion* has clearly a moral message. Not only that, but Efron (2010, 255–58) notes that Brooke's work clearly assumes an anthropology that allows him to treat the historical actors with ample decency, respect, and humility. Furthermore, it has a deeply spiritual import: "[H]istory done right must enlarge not just our knowledge but our spirit, so that we can enter the worlds of others, worlds we have never known ourselves" (Efron 2010, 256). Brooke's historical work, therefore, needs to be opened up beyond its putative "historical" garment—beyond its historico-methodological boundaries—into the ground of ethics, philosophy, theology, anthropology, etc., where untrained historians are located, trying to figure it all out.

An equally telling example of this historico-methodological boundary setting is Harrison's attempt to distinguish between descriptions, namely history (including "theological genealogies") and normativity (explicit theological or moral commitments). It is telling that in order to do so, Harrison (2023b) relies on a distinction—which he himself notes as problematic—between facts (assessed by the "canons of historical explanation") on the one hand and values and norms on the other (Harrison 2023b, 683–89 on non-normative critique, 689–91 on normativity, facts, and values).

Regardless of the historiographical boundaries made by historians themselves (implicitly or explicitly), the warning for us all is there. Be careful. Do not assume there is an "essence" of meaning that trans-historically remains the same. The philosophical contribution of the anti-essentialist warning is thus in the realm of the temporal relationship between form and content of concepts and narratives, and it can be explored in the manner of a question: How does one incorporate (anti-essentialist) historical insight into science and religion reflection without operating within the artificial boundaries of the historiographical work? The following section introduces philosophical hermeneutics as a way of heeding the warnings of essentialism, and the final section suggests that science and religion discourses can be considered hermeneutic things: interpretive spaces where one is interpreting an unknown entity ("science and religion"), and it is the salient aspects of these interpretive processes that open up new avenues for reflection.

The Relevance of Philosophical Hermeneutics

Philosophical hermeneutics, as exemplified by the work and ideas of Hans-Georg Gadamer, usually arising from his magnum opus *Truth and Method* (1960), introduces vocabulary and modes of thought that are aware of the problem of the temporal instability of concepts. I mentioned in the previous section the issue of the self-forgetfulness of language when one needs to acknowledge language explicitly, as in the case of science and religion historiography. A more

well-known Gadamerian notion is *wirkungsgeschichtlichen Bewußtsein*, or historically effected consciousness. The idea here is that being—the *sein* (being) in *Bewußtsein* is invisible in its translation as "consciousness" (Gadamer 2008b, 38)—is always already affected by history. Being itself is historical, which is to say it is temporal. Both of these hermeneutical insights, one about language and the other about history, recover the connection between history and philosophy.

Hermeneutics is aware of the temporal nature of being itself, where "being" is linguistically mediated. Key here is the word *mediation*. This is exactly what the historian—or anybody talking about history or historical entities—is doing. Historians are mediating, they navigate between "the now" and "back then," in the present and for the present. As Gadamer ([1960] 2006, 310) says, "historical hermeneutics too has a task of application to perform, because it too serves applicable meaning, in that it explicitly and consciously bridges the temporal distance that separates the interpreter from the text and overcomes the alienation of meaning that the text has undergone." Moreover, historians perform this mediation in language. Historians trace words, and words are worlds of experience.

Through tracing the word *science*, for example as Harrison (2015) shows, one notices that the Latin *scientia* is connected to the contemporary (English) meaning of science in complex ways, even though the meaning has shifted over time and jumped between languages. Does this process render my task of tracing the meaning of the word unachievable? It does not, although it does complicate things. Such complications might tempt me to say that *science* therefore has no intrinsic enduring meaning, since its meaning is clearly temporally unstable. In fact, it is not just the meaning but also the language conveying the shifting meaning that is unstable (as evidenced through the variety of languages like Latin and Greek through which the notion has come to be). But the temptation to suggest that there is no enduring meaning—that there is no "essence"—no transhistorical "core" of meaning for a given word is only that, a temptation. I am using the analogy of temptations since one can indulge in them, or not. One has, in other words, other paths. Here, I propose one such path: instead of focusing on the fixity, or lack thereof, of meaning throughout time, one could focus on the processes of mediation. One could focus on the in-between, on the coming to be and passing away of things.

By suggesting an alternative path, I am not negating or ignoring the insight on the dynamic and fluid nature of words in time. I am not an anti-anti-essentialist, although I do think the idea of "essence" can be extended to the trajectories or histories of things. My (hi)story—me being me through time—*is* my "essence." It is not despite change in time but in and through temporal change that I am myself. Being is time, as Gadamer recalls his teacher Heidegger's *Being and Time* (Gadamer [1960] 2006, 248; Heidegger 2001, 456). What I am rather saying is that "the process of temporal mediation between words can help us figure out

what we are talking about, with and beyond the usual words we use to talk about it." This process can also point to gaps in our understanding and to potential new ventures in science and religion discussions. Not focusing on anti-essentialism does not mean to deny it. I am rather focusing on what anti-essentialism tries inadequately to address: the challenge of the temporal and linguistic mediatory process of understanding and how this affects our integration of historiography in (philosophical) discussions on science and religion.

Science and Religion Discourses as Hermeneutic Things

Borrowing Hans-Jörg Rheinberger's (1997) idea of "epistemic things" in the realm of historical epistemology (Feest and Sturm, 2011)—which is to say in the context of approaches to the history and philosophy of science—the proposal here is to look at science and religion discourses as hermeneutic things.

Uljana Feest and Thomas Strum (2011, 288) distinguish at least three versions of historical epistemology: histories of epistemic concepts; histories of epistemic things; and dynamics of long-term scientific developments. An example of the first would be Harrison's *Territories*. By focusing on epistemic concepts—such as *science* and *religion*—*Territories* attests to the fact that "fundamental epistemic concepts and standards are subject to historical change" (Feest and Strum, 2011, 290), which is the core of histories of epistemic concepts (Feest and Strum 2011, 288–91). However, in the case of science and religion discourses, the issues are more complicated. Science and religion discourses involve many concepts, but "science and religion" is not a concept. It is, rather, a shorthand for a realm of discourse—a translation space—where the layers associated with *science* and *religion*—philosophical, theological, historical, scientific, literary, etc.—clash together, such as waves do on a beach, resulting in a coming and going that mirrors the cultural issues the conversation space contributes to.

The version of historical epistemology that can serve us to draw an analogy from is histories of epistemic things, due to the notion of epistemic things. An epistemic thing is a "[s]cientific object, that is, an entity whose unknown characteristics are the target of an experimental inquiry" (Rheinberger 1997, 238). Since the context of this notion is the history of science, Rheinberger is interested in how scientists might pursue a given object, subject to experimentation, that might not yet be clearly defined. A scientist therefore approaches this "entity" with unknown characteristics through experimentation to define the object itself. Now, science and religion discourses are not an object of experimentation. The whole context of the imagination of "epistemic things" is a laboratory where "experiments" are performed. These experiments are the repeated testing of things deemed sufficiently undifferentiated from one another so that the testing of one or the other is deemed to be repeating "the same thing." In our case, science and religion discourses are clearly no such "things," but from the earlier reflections, while they are not objects of

experimentation, they are objects of interpretation, or hermeneutical objects. Their initial delimitation as hermeneutical objects is the very phenomena the words *science* and *religion* conjure together, whatever that is. These hermeneutical objects are spaces where mediation happens, and they share with the notion of epistemic things that there are unknown or unclear characteristics involved. The very terms of our discussion are undefinable, which does not mean lacking in meaning. But there is an excess, an always "more," that can properly be called an unknown. Therefore, the suggestion is that science and religion discourses be seen, in analogy with epistemic things, as hermeneutic things: contours of translation, always moving and changing, and nonetheless serving as the meeting and mediation places for a variety of approaches. Hermeneutic things do not deal with concepts primarily but with shores of convergence that mediate difference, and the emphasis is therefore on the nature of such shores. One can understand science and religion discourses as hermeneutical shores, localities of mediation and translation, of convergence and divergence, so that one focuses on the interpretive processes happening in these unclear contours. These contours are unclear—there are no definitions of *science* and *religion* as the historians keep reminding us—but full of comings and goings from a wide variety of disciplinary directions.

Rheinberger's work is heavily and explicitly influenced by Jacques Derrida's work. Derrida (1998, 17; 1994, 111–12) has a notion of "messianicity without messianism," or more generally, "x without x" (Watkin 2017, 47–53), which is similar to how Rheinberger defines epistemic things: an entity—or "x"—whose unknown characteristics—"without x"—are the target of an experimental inquiry. Although it is not clear if Rheinberger is using this aspect of Derrida's thought directly, "x without x" is also much more like anti-essentialism: "science without science," for example, could mean that we still speak of something called "science," but since it is evacuated of any fixed content that would make it what it is, we have "science without science"—a form without any content. The difference between "x without x" and a "hermeneutic thing" is that the hermeneutical emphasis is not in form over (evacuated) content but on processes and relationships between forms and contents. Hence, I have stressed mediation and translation as the aspects relevant to the obscurity around "science and religion" rather than something in "science and religion" deeper than, although without any, "science and religion."

The hermeneutic preference for the in-between—for mediation and relations—is not innocent; it privileges the language of translation, the transdisciplinary connection, over the specificities in this or that area. My contention is that the priority of the in-between—and of mediating and translating—is particularly suitable to the kinds of things science and religion discourses tend to be, and could be, through what they are now. These discourses, even if tending towards essentialism, do mediate between science

and religion or science and theology, and there are hermeneutical approaches to this mediation (as in Reynhout 2013, using Paul Ricœur's hermeneutics); more importantly, however, if one is to consider the temporal mediation processes in and through language—which not so much transcend but dissolve the issue of essentialism—science and religion discourses constitute federations, sets of connections between various disciplines and modes of thinking. The in-between is not primarily between "science" and "religion" but between anything—historical episodes, concepts, events, practices, experiences, etc.—within the historical trajectories of the meaning of these terms. I think this federative way represents well how science and religion discourses tend to happen naturally, and it opens up ways of integrating the history and philosophy of science and religion.

This hermeneutical approach echoes Michel Serres's thinking about philosophy (and mathematics) in two ways. First, Christopher Watkin (2020, 114) contrasts Serres's thought with Derrida's "x without x" by noting that Serres focuses on transformations and relations, moving between models and disciplines, rather than on an ineffable and final form without content. Second, Serres contrasts between "umbilical thinking" (Watkin 2020, 38)—thinking that privileges one single access to truth over others—with connection and relations between a variety of aspects or accesses to truth. Watkin (2020, 73–74) calls this series of relations "federation" based on Serres's reliance on Gottfried Wilhelm Leibniz (hence my use of the word "federation").

Hermeneutic Things between the Philosophy and History of Science and Religion

So far, I have suggested that science and religion discourses can be seen as hermeneutic things, allowing science and religion discourses to be mindful of the historiography of science and religion, especially the temporal dynamicity of our concepts, without losing sight of our current historical situations and how these move, motivate, and receive the historiographical work. What is at risk is that unless we are able to properly incorporate both present concerns and historical studies into science and religion work—or, as Gadamer ([1960] 2006, 283–84) suggests, until the distinction between history and the knowledge of history is seen as only an abstraction—we will have essentialist and anti-essentialist work, largely using each other as interesting curiosities but not really affecting the substance of each other's work.

Let me give two examples to show how the anti-essentialist philosophy arising from historiographical work can undermine the philosophical relevance of said work for reflection on contemporary issues. Willem Drees (2010, 56), in the fifth of his ten commandments for science and religion discussions ("Honour your father and your mother, but treat them as history") says: "Though a thorough historical tour is fascinating, studies of particular historical cases cannot be transposed to our time since each episode is embedded in its

own wider context . . . Hence we have to move on from historical studies to reflections on contemporary science. A 'flight to history' is inadequate." Drees is aware of Brooke's and Harrison's (and other historians' work); even if *Territories* had not yet come out in 2010, the main tenets of what I have called, following Reeves, anti-essentialist philosophy predate *Territories*, as one can see in Brooke's *Science and Religion*. Drees sees limited use for historical work: it is useful for careful reflection on history but less useful for contemporary reflection on science and religion. The anti-essentialist historiographical standpoint would still characterize Drees's work as at least essentialist adjacent, since it is trying to populate what "science" and "religion" stand for today, implying that one can say this is "science" or this is "religion," and this is not "science" or this is not "religion," without direct reference to their histories. The whole point of Brooke and Harrison is that the history of science and religion illuminates the very way of thinking and speaking about science and religion in the present, hence one cannot detach contemporary reflection from this history. Therefore, the gap between the philosophical interest in the present (Drees) on the one hand and the historical interest on the past with a tenuous or mostly undisclosed relation to the present (Harrison and Brooke) on the other is largely unbridged.

Another example is Reeves's (2023) defense of science and religion against an "extreme" anti-essentialism perceived from Harrison. Again, like Drees, Reeves is knowledgeable about the history of science and religion and, furthermore, sympathetic to an anti-essentialist approach. And yet, from an anti-essentialist position (á la Harrison's historiography), similar to Drees's case, Reeves would be characterized as at least essentialist adjacent. Defending "dialogue," the anti-essentialist would say, implies that there are these two sides, "science" and "religion," that might come into a conversation, thereby reifying each other by means of dialogue (Harrison 2022, 15). In so doing, this supposed dialogue opens the possibility of an imbalance prioritizing the "scientific" side of the dialogue (Harrison 2023a, 100), becoming instead a monologue from science to religion (Harrison and Tyson 2022, 2). Also, similar to Drees, Reeves argues for the limited relevance of historiographical work, since this work about history does not have any normative reach in the present. In both examples we see that the philosopher, on the one hand, is moved to find limited use of the historical work; the rhetoric in the historiographical work—which proposes the anti-essentialist philosophy—emphasizes the foundational relevance of history in a way that preempts some important kinds of philosophical engagement, as both Drees and Reeves perform. The historian, on the other hand, by remaining in the purely "historical" domain, is moved to see as "essentialist" even attempts at dialogue between science and religion (Reeves); dialogue implies two parties, and since these two parties are not essences, they are merely reifications by means of the mere suggestion of a dialogue in the first place. The result is that the gap

between philosophy and history is, again, reasserted; it is the historiographical work that partially encourages the gap to remain.

The philosophical work this article does is to side with both philosophy and history by giving a mode of integrating the historical work in philosophical reflection through a hermeneutical approach. Historiography cannot attempt to affect the present without leaving its disciplinary boundary, and if it does, it is also doing philosophy. That this is the case—that historiography is always doing philosophy—is part of what drove the suggestion of considering science and religion discourses as hermeneutic things: history here is one of many nodes of connectivity that allows the flow of understanding reality in the present. To know what something meant is to know what it means now, in the present, otherwise one does not know either what it meant or what it means (Sikahall 2022, 186).

As indicated in the previous sections, even the historian needs to refer to the contemporary meaning of things to communicate and note if this or that was not in the past, although we have it now, thereby doing some form of anachronistic essentialist momentary move in order to speak coherently to contemporary readers. The historian's translation between the evidences of the past and the historian's—and their readers'—contemporary understanding shows that, as Gadamer suggests, the distinction between history and the knowledge of it is merely an abstraction.

Conclusion

The suggestion of science and religion discourses being hermeneutic things can help by encouraging a focus on the in-betweenness of things: mediatory things, translational modes of thought, plurivocal concepts, models, objects, practices, or any kind of possible connector between areas of discourse relevant to science and religion discussions. These mediatory things will have their complex histories and possible parallels in other areas of knowing that cannot be determined in advance. For science and religion discourses, this means transgressing the artificial "historical" disciplinary boundary to clearly address contemporary questions, mindful of the historical trajectories of things. It also means that historical work on science and religion could be more mindful about the philosophical claims it implicitly makes due to the rhetorical framing of what is good or bad practice in historical research, acknowledging furthermore that just as the trajectory of modern science is fraught with metaphysical–theological and moral assumptions that have determined and changed the meaning of what *science* refers to, so is the case for our modern understanding of *history*.

Four examples, to conclude, illustrate the possibilities of conceiving science and religion discourses as hermeneutic things, focusing on philosophical and historiographical integration. The first is the contributions that spurred the discussion between Harrison and Reeves (Harrison and Milbank 2022;

Harrison and Tyson 2022). These contributions are, some of the rhetoric notwithstanding, still part of science and religion discussions, showing very richly the new theological and historical possibilities of renewed discussions, focusing on concrete theological questions and scientific problems and doing theology mindful of science and science mindful of theology. Harrison's own work could also be considered an example, since despite objections within his historical work to forms of analysis in science and religion discussions such as "dialogue," it provides at least a fruitful starting point for further work, as the volumes alluded to show. The second and third examples are *What Did the Romans Know?: An Inquiry into Science and Worldmaking* by Daryn Lehoux (2012) and *Don't Think for Yourself: Authority and Belief in Medieval Philosophy* by Peter Adamson (2022). In their own ways, both show a conscious understanding of how historical research addresses contemporary questions directly. Lehoux focuses on the Roman world to address contemporary questions around "fact-making" and their contexts, and Adamson raises the question of making judgments when we need to trust an authority because we do not possess the expertise, especially in the aftermath of COVID-19. The final example is Bernard Lightman's (2019) edited collection *Rethinking History, Science, and Religion*. This is a historical work that self-consciously attempts to move from Brooke's suggestion about the complexity of the historical interaction between science and religion towards topics that show the intermingling of practices, technologies, theories, etc. Such developments in the historiographical literature, alongside the other examples given, show how science and religion discourses are indeed hermeneutic things—locations of interpretive connections between the undefinable *science* and *religion*, mediations between times, clearly rooted in the enduring questioning of the human spirit from our contemporary experiential vantage point.

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A Response to Stefano Bigliardi's Assessment of "Science" in Andreas Tzortzis's *The Divine Reality*

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This article responds to Stefano Bigliardi's critique of my book *The Divine Reality*. I address his concern regarding "scientific miracles" (*al-i'jāz al-'ilmī*) and his argument that my book undermines science, clarifying the distinction between critiquing science and critiquing scientism. I elaborate on how science can support theism and counter his assessment of my epistemological position on scientific conclusions by demonstrating consistency with established academic discourse. I also address his claim that I misinterpret David Hume's work and highlight his failure to engage with my discussion on the tension between rationality and evolutionary theory. Furthermore, I defend my view of instrumentalism in science, particularly in biology, responding to Bigliardi's concerns about accepting scientific theories as best working models without epistemic commitment. This article concludes that, while Bigliardi's critique is appreciated, he misrepresents *The Divine Reality*, misinterprets established views in the philosophy of science, displays a lack of analytical rigor, and inadvertently introduces confusion into the field of Islam and science.

Introduction

In 2016, my book *The Divine Reality: God, Islam, and The Mirage of Atheism* was published. In 2024, Stefano Bigliardi published his article "The Half-Baked Loaf: Examining Hamza Andreas Tzortzis's discussion of Science in *The Divine Reality*" (henceforth *The Half-Baked Loaf*) in *Zygon: Journal of Religion and Science*. Bigliardi identifies and discusses six key problems regarding my conception of science and its relationship to Islam. The present article aims to address and respond to Bigliardi's assertions.

Like many academic fields, Islamic studies is marked by long-running debates that have not yet been conclusively settled. Engaging in these debates is worthwhile; however, one critically important intellectual virtue—clarity—should never be compromised (Cooper, 1994, 465). Contemporary research on the intersection of science and Islam has moved beyond simplistic debates over science versus religion (e.g., Burney, 2023, 699–701). However, the need for clarity persists, as demonstrated by the confusion in Bigliardi's analysis of *The Divine Reality*.

The six problems Bigliardi raises will be addressed in turn in the following sections. I hope this discussion will contribute to a better understanding of *The Divine Reality*, how Islam and science should be conceived of, and how they relate.

Scientific Miracles of Qur'ān (*al-I'jāz al-'Ilmī*)

The Divine Reality discusses science. The term *scientific* is used in various contexts and formulations. However, the term *scientific miracles* is not mentioned, as the book did not aim to discuss scientific miracles. Chapter 13 exclusively addresses the miracle of the Qur'ān, focusing on its linguistic inimitability (Tzortzis 2019, 215–47). Scientific miracles, as embodied in *al-i'jāz al-'ilmī*, are not discussed.

Bigliardi points out that I did not discuss this topic in *The Divine Reality*. From this, he concludes that "Tzortzis seems to have given up on the mission" to critically deal with the subject of scientific miracles (Bigliardi 2024, 480). Bigliardi (2024, 481) speculates on my motivations for this by claiming that "Tzortzis sensed a dreadful philosophico-exegetical challenge and chose to gingerly backtrack or suspend the discussion." A more matter-of-fact reason can be found: the topic is outside the intended scope of my book.

I had already published an essay distancing myself from the "scientific miracles" position (Tzortzis 2013). Bigliardi (2024, 481) acknowledges I "accurately" discuss the matter in that essay. I have been conducting doctoral research on *al-i'jāz al-'ilmī* for over three years, a fact publicly available through the official university website and relevant online platforms. Additionally, I communicated directly with Bigliardi regarding the focus of this research approximately one year prior to the publication of his article. Nevertheless, in his 2024 publication in this journal, Bigliardi states that I have abandoned

engagement with *al-iʿjāz al-ʿilmī*—a claim that does not reflect my academic or popular profile.

Bigliardi (2024, 481) proceeds to claim that I did imply my support for the "scientific miraculousness" in my discussion of the Big Bang and the Qur'ān. My intent was otherwise. The Qur'ān deals with natural phenomena in so much as the Qur'ān can elicit awareness in its readers of metaphysical truths as mediated through their everyday experience of the natural world. The truths alluded to relate to God and are therefore timeless. Science, on the other hand, is an ever-developing field and typically employs specialized, technical language intended for scientifically literate audiences. Although scientific conclusions may inform metaphysical reflection, as a domain of knowledge, it does not usually adjudicate metaphysical truths. As such, science's relationship with natural phenomena is drastically different from the Qur'ān's. This makes clear that the Qur'ān and science cannot be collapsed into a similar category, as both espouse very different discourses on nature. None of this is to say that a Muslim must choose the Qur'ān over science, or that science must be denied for religious-based reasons. Rather, it is to maintain awareness of the distinction between the Qur'ān and science and the rationale behind this distinction: to reduce room for confusion (Tzortzis 2019, 211). This view contrasts starkly with the "scientific miracles" position, with the latter enmeshing the Qur'ānic and scientific discourses together and the former putting a distance between them. Bigliardi fails to acknowledge this and other key concepts in my book that directly address his concerns. Unreasonably, Bigliardi demands I pronounce a few sentences dismissing the issue of scientific miracles. He writes:

> I contend that the 2019 book, which is otherwise concerned with scientism, does not sufficiently emphasize that the so-called "scientific miraculousness" of the Qur'ān is irremediably flawed . . . I think it would have been helpful if Tzortzis had added a statement or two such as "but even a possible/future alignment with science should not be taken as a demonstration of the Qur'ān's divine origin but rather an example of how science and the Qur'ān sometimes seem to coincide and sometimes do not, a fact whose importance should not be overemphasized." He did not. (Bigliardi 2024, 481)

I maintain the position that *al-iʿjāz al-ʿilmī* is an important topic of academic interest that deserves a detailed and thorough analysis. Hence, my doctoral research focusing on this topic.

Downplaying Science for the Sake of God

Bigliardi's second problem takes aim at the use of science, in relation to theism, in *The Divine Reality*. Bigliardi (2024, 481) characterizes my discussion as "the

downplaying of science that permeates Tzortzis's book." This is inaccurate. Scientism, not science, is downplayed.

John Dupré (2002, 1–2) defines scientism as: "An exaggerated and often distorted conception of what science can be expected to do or explain for us. One aspect of scientism is the idea that any question can be answered by science. This, in turn, is very often combined with a quite narrow conception of what it is for an answer, or a method of investigation, to be scientific." This distinction is important to keep in mind.

Bigliardi recognizes that my book deals with critiquing scientism. He writes: "I contend that the 2019 book, which is otherwise concerned with scientism . . ." (Bigliardi 2024, 481). Yet, he proceeds to overlook this distinction by claiming I downplay science. My approach to scientism is not unconventional. In 2023, René van Woudenberg (2023, 411–27) published a paper providing an overview of five strategies commonly used by critics against scientism.

One of these strategies van Woudenberg labels the "limits of science strategy." This strategy "pinpoints cognitive limitations to science" (van Woudenberg 2023, 420). Van Woudenberg (2023, 420–1) provides a way to "concretize the strategy" via the posing of questions that science cannot answer. One of these questions is "when is a life lived well?" In summarizing *The Divine Reality*, Bigliardi (2024, 478) acknowledges that I discuss how "science cannot answer 'why' questions" and that "science cannot answer multiple metaphysical questions." The context of my discussion was the "main limitations" of science (Tzortzis 2019, 198).

van Woudenberg details what he terms "the presupposition strategy." The strategy is to show that science presupposes certain things and that those presuppositions cannot be denied on pain of incoherence. One of these presuppositions is reasoning. van Woudenberg (2023, 420) writes:

> The strategy here, then, is that this, or any other, norm for good reasonhood is a pre-supposition of science, not something that has been established by science. It is not an a- or a b- but a d-presupposition. For it is incoherent to engage in scientific research and yet deny simplicity or any other norm for good reasonhood. Science is impossible without views on good reasonhood. This strategy targets both Strong and Weak Scientism, as science figures in both of them, and science, so the strategy argues, cannot come off the ground without making certain assumptions.

I argued something similar in *The Divine Reality*. Regardless of how logic is conceived, some form of reasoning is required for science to proceed. Such reasoning cannot be equated identically to scientific results because such reasoning is used in the very formulation and evaluation of scientific results. While science as a subject matter does indeed influence how such reasoning operates, science can neither fully explain nor fully justify it. The assumption that

the material universe is partially, if not fully, open to rational inquiry provides a foundation, albeit one out of many, for the scientific enterprise to function (Tzortzis 2019, 51). To point this out is only to make obvious that science, both in theory and in practice, is not a self-enclosed enterprise hermetically sealed or siloed from other intellectual domains.

In the same way it cannot be said that van Woudenberg is "downplaying science," it cannot be said that my argument is "downplaying science." Scientism is the target. The three other strategies van Woudenberg mentions can easily be identified in *The Divine Reality*. For the sake of brevity, they will not be explicated here.

Critiquing scientism is well-traversed ground in academia. For instance, *Scientism: The New Orthodoxy* provides a collection of scholarly contributions to this area (Williams and Robinson 2015). *The Divine Reality* mirrors such criticisms and debates over scientism. Such an endeavor cannot be equated with devaluing science.

Related to this, Bigliardi suggests that science cannot be used to support theism. He writes: "[C]onsidering the downplaying of science that permeates Tzortzis's book, one is automatically led to ask why he relies on science when it seemingly supports his views" (Bigliardi 2024, 481). This confuses the distinction between scientific arguments and metaphysical arguments. A metaphysical argument can be made that includes premises or data from the sciences without the argument itself being scientific.

In Chapter 8 of my book, I advance the "fine-tuning" argument. Notwithstanding references to scientific facts, the chapter clarifies that the argument presented is metaphysical. The universe can be plausibly described as having features that are fine-tuned. This plausibility is supported by a concatenation of scientific discoveries. The best explanation for this physical description is that specific features of the universe were designed. This explanation is metaphysical because it goes beyond merely acknowledging the existence of fine-tuned aspects of the physical universe (Tzortzis 2019, 154). When Bigliardi asks "why he relies on science," the word "relies" is imprecise. My arguments are related to metaphysics, and it is commonplace to include scientific information when discussing such subjects, as many contemporary theistic philosophers do. I do not rely on science as the primary means of establishing theistic conclusions.

Bigliardi (2024, 481–82) further contends, "If one genuinely and consistently subscribes to the idea that science does not have solid answers, that it is essentially different from revealed knowledge, then it would perhaps be fairer to also abstain from any science-based defense of religious concepts." The contention here is formulated without considering the Islamic epistemology espoused in *The Divine Reality*, especially the notion of *fiṭrah* (Tzortzis 2019, 76–79), commonly referred to as innate or natural disposition. Explaining and defending this notion is beyond the scope of this article. However, it is pertinent

to remember that in order to fairly evaluate an author's stance on a particular epistemological matter, one needs to consider the author's epistemology in full before passing judgement. If Bigliardi took into consideration how Islamic epistemology was conceptualized in my book, the quandaries he identifies in my position would seem less problematic. In Islamic epistemology, different categories of evidence—philosophical, scientific, etc.—are not, practically and theo-anthropologically speaking, in themselves persuasive of theism; rather, the plethora and plentitude of evidence function by answering unresolved doubts and providing a sufficient level of intellectual arguments, thereby allowing a person's *fiṭrah* to assert itself unhindered. It is here, when a person has no obstacle between himself and his innate nature, that the conviction of theism is found (Tzortzis 2019, 77). Accordingly, the arguments presented for Islamic theism are not necessarily ends but rather means or instruments that can awaken the *fiṭrah* (Tzortzis 2019, 76–77).

In my book, I clearly qualify my use of scientific data as neither definitive nor conclusive. For instance, I acknowledge that the science cited is not yet sufficient to provide a complete picture (Tzortzis 2019, 73). This contradicts the claim that I overly rely on science; rather, I admit the science I refer to is tentative. In a footnote, Bigliardi (2024, 489n8) recognizes my acknowledgment only to dismiss it.

Furthermore, Bigliardi (2024, 482) wrote, "[T]he 'theistic' inclinations verified by the scientists Tzortzis discusses are far from lending support to a specific religious worldview or theology, let alone Islam." Bigliardi's contention would be correct if I narrowed, limited, and restricted the notion of theism to a strictly Islamic perspective when discussing the views of scientists. Contrary to this, however, I explicitly mention that the notion of theism I discuss is not particular to any religion per se; instead, "God" can be taken as the basic concept of a creator without the frills of religious garb (Tzortzis 2019, 69). I explicitly express qualifications to my discussion. Fairness requires that these qualifications be recognized as part of the view I espouse. *The Divine Reality* relates science to theism with nuance. Neglecting this nuance may lead to misunderstandings.

Scientific Change over Time

Bigliardi identifies my view on scientific theories possibly changing over time as the third problem in my discussion of Islam and science. Bigliardi (2024, 482) claims my view is "potentially misleading." He claims I characterize scientific theories as "obsolete" and say they change due to "imitation on behalf of consumers (as happens in the world of fashion)" (Bigliardi 2024, 482). He further adds that I portray them as having the qualities of "capriciousness and evanescence" (Bigliardi 2024, 483). To be clear, none of his words quoted here can be found in *The Divine Reality*.

Bigliardi grounds the third problem by referencing pages 209–10 of my book (Bigliardi 2024, 482). He does not inform his readers that on page 209 I directly

quote Samir Okasha (Tzortzis 2019, 209). Bigliardi does not demonstrate how I misrepresent Okasha's view of scientific change.

Bigliardi is troubled by my admission that history shows that scientific theories that were acceptable in one era need not be acceptable in another era (Tzortzis 2019, 209). There is nothing untoward about this. It is a fact if not a truism in the philosophy of science. For instance, Alex Rosenberg and Lee McIntyre (2020, 144) write: "What is more, the history of science teaches us that many successful scientific theories have completely failed to substantiate the scientific realist's picture of why theories succeed. Well before Kepler, and certainly since his time, scientific theories have not only been false (and improvable), but if current science is any guide, they have sometimes been radically false in their claims about what exists and what the properties of things are, even as their predictive power has persistently increased." The history of science demonstrates that scientific theories have been held as correct only to later turn out to be incorrect. My discussion of the changes scientific theories undergo is in line with accepted academic views in the philosophy of science.

Bigliardi (2024, 482) objects to my use of the innocuous phrase "the science of the day." It must be clarified that academics use this phrase when discussing the philosophy of science. For instance, Ronald N. Giere (2000, 527) writes: "Fundamentalism, in this context, amounts to generalizing the dominant science of the day to cover literally everything."

Furthermore, one need not be antithetical towards evolution, for instance, to accept that the science recognized today may not last. Richard Dawkins (2004, 81) wrote quite candidly, "Darwin may be triumphant at the end of the twentieth century, but we must acknowledge the possibility that new facts may come to light which will force our successors of the twenty-first century to abandon Darwinism or modify it beyond recognition."

There is nothing untoward about recognizing the possibility that what is scientifically accepted in the present may be superseded scientifically in the future. This is a standard view in the philosophy of science.

Humean Concerns

The fourth problem Bigliardi identifies in *The Divine Reality* concerns the discussion on David Hume. Bigliardi (2024, 483) suggests that "Tzortzis does not seem to fully take into account the challenge historically posed by Hume to theism," which is why "Tzortzis engages with Hume's *Enquiry Concerning Human Understanding* . . . rather than his *Dialogues on Natural Religion* . . . which offers a sharp criticism of theistic views."

There are three reasons Bigliardi's contention is incorrect. First, he does not mention that Hume's *Enquiry* is widely recognized as containing sharp criticism of theism. Several academics identify the work with atheism (see, for example, Flew 1986, 134; Davies and Ruse 2021, 43; Baggini 2003, 113;

Smart 2009, 48–49). Thus, it is incorrect to suggest I chose to discuss *Enquiry* to avoid Hume's critique of theism. Second, Bigliardi demonstrates his lack of analytical rigor by not quoting me in full when I mention Hume's arguments against theism:

> David Hume wrote a corpus of material on the issue of God and religion. He argued that the idea of God was incomprehensible. He also contended the idea of God's necessary existence, and attempted to expose the weakness and limitations of the argument from design . . . Hume argued that the existence of evil and suffering in the world proved to be intellectually challenging . . . Hume's attack on the religious idea of miracles had significant influence. He maintained that belief in miracles would only be rational if the probability of the eyewitnesses to be mistaken is less than the probability of them occurring. (Tzortzis 2019, 27–28)

It is clear from this quote that I did recognize Hume's challenge to theism.

Third, Bigliardi fails to mention that I responded to Humean-inspired critiques of theism in various chapters. Chapter 11 addresses the problem of evil (Tzortzis 2019, 179–92), Chapter 5 addresses Hume's view that causality is derived from our experiences (Tzortzis 2019, 88–89), and Chapter 13 analyzes Hume's rejection of miracles and his approach to the epistemology of testimony by expounding on C. A. J. Coady's critique of Hume (Tzortzis 2019, 218–19). Hume is mentioned over twenty times in *The Divine Reality*, all of which are related to criticism of theism or articulating positions that can undermine a theistic worldview.

The Divine Reality contains a section entitled "The problem of induction" (Tzortzis 2019, 208–9). Bigliardi (2024, 483) claims my discussion is a "selective interpretation" because it ignores that Hume had already solved this problem. Bigliardi (2024, 484) charges me with providing a "partial reading of Hume" that incorrectly portrays Hume's position as "hyperbolic skepticism." However, in the academic literature, the majority position disagrees with Bigliardi here.

It is not wrong to hold that Hume's view on induction is "very radical scepticism" (Law 2020, 103), or a "harsh . . . skeptical challenge" (Schurz 2019, 7), and that according to Hume "there is no sound justification for induction" (Cozic 2018, 84), or that "most philosophers have despaired of finding a satisfactory answer to Hume's arguments" (Okasha 2001, 309), and that "the present-day consensus" is that Hume's problem of induction cannot be solved (Williamson 2017, 167).

While Bigliardi may believe that Hume's position on induction was neither radically skeptical nor left unsolved by Hume, most academics hold otherwise. My presentation of Hume in *The Divine Reality* followed what is accepted by most academics.

Evolution and Rationality

Bigliardi (2024, 484–86) designates my discussion of evolution as the fifth problem. He characterizes it as "typical, for instance, of some forms of creationism" (Bigliardi 2024, 485). To justify lumping me with creationists, Bigliardi cites one instance from my book that does not deal with creationism at all. He refers to my citation of the private letters of Darwin (Bigliardi 2024, 485). The subsection this citation is taken from, and the subsequent subsection, refer not to creationism, or even to biological change, but rather to the justification of human "rational faculties" (Tzortzis 2019, 54–59). The entirety of Chapter 3, in fact, is devoted to demonstrating that a naturalistic explanation is insufficient to account for human reason (Tzortzis 2019, 66). This should be identified as falling within the ambit of an epistemological critique of materialism (cf. Koons 2010, 284, 289, 295–97) and naturalism (cf. Lemos 2002, 790–1). One need not be a creationist to recognize that evolution strains to adequately explain and justify human rationality. Hilary Putnam (1990, 285–86), for instance, famously contended:

> In fact, if rationality were measured by survival-value, then the proto-beliefs of the cockroach, who has been around for tens of millions of years longer than we, would have a far higher claim to rationality than the sum total of human knowledge. But such a measure would be cockeyed; there is no contradiction in imagining a world in which people have utterly irrational beliefs which for some reason enable them to survive, or a world in which the most rational beliefs quickly lead to extinction.

Nowhere in Chapter 3, nor in the entirety of my book, do I reject biological change in preference to, say, intelligent design. Bigliardi could not identify any section in my book that argues for intelligent design. The only mention of intelligent design in my book is in a quote I include from Michael Ruse (Tzortzis 2019, 30).

Bigliardi (2024, 490n16) writes in a footnote: "Also, evolution should be discussed on its own scientific merits rather than in reference to Darwin's statements." He is referring to my citation of Darwin (Bigliardi 2024, 485). He elides the fact that after my citation of Darwin, in the same subsection, I cite Anthony O'Hear, John Gray, Francis Crick, and Steven Pinker, all of whom have expressed qualms about how to fit rationality into an evolutionary framework (Tzortzis 2019, 54–57). In summary, O'Hear (1997, 60) elucidates that evolutionary processes can produce false rather than true beliefs, demonstrating that nonrational beliefs may nonetheless enhance survival. Gray (2014) argues that a strictly naturalistic explanation of the human mind implies a far more skeptical stance toward human knowledge than is typically recognized. Crick (1994, 262) posits that the human mind did not evolve for the purpose

of discovering truths through the scientific method. Similarly, Steven Pinker (1997, 305) contends that the human brain developed primarily for survival and reproduction, not for the acquisition of truth.

My citation of Darwin was not the central premise of my argument; rather, it was an introductory quote to a much more sustained discussion.

The Divine Reality has little to do with intelligent design (or "creationism"). Chapter 8 of my book deals with the design argument for the existence of God. Instead of focusing on design in biological organisms as popularized by William Paley, this chapter focuses on the fine-tuning of the universe. The physical laws are discussed (Tzortzis 2019, 142–44), including cosmic order (Tzortzis 2019, 144–47). The chapter concludes as follows: there are four explanations for why the physical laws of the universe are as they are. These explanations are chance, necessity, the multiverse, or design. Given how prominent cosmic order is in the universe, design is the best explanation. The other three explanations are found wanting (Tzortzis 2019, 151).

It is inaccurate to confuse the fine-tuning argument with a rejection of terrestrial biological evolution. Chapter 8 can be appreciated by comparing it to Erkki Vesa Rope Kojonen's elegant put-down of Richard Dawkins. Dawkins starts with the fact that evolution is not designed and then extends this to encompass the universe. This is hardly satisfactory, since theists could start with the fact that the universe is designed and extend it to evolution. The starting points for both choices are philosophical (Kojonen 2016, 181–82). Regarding Chapter 8, I specifically chose to bypass discussion of biological design and instead focus on cosmic design. This effectively renders the issue of evolution irrelevant to the question of God's existence.

In discussing evolution and rationality, I take aim at "evolutionary reliabilism," which claims it was more likely that natural selection selected traits that formed cognitive faculties that produced true, reliable beliefs over traits that formed cognitive faculties that produced false beliefs (Tzortzis 2019, 57–59). Bigliardi never mentioned this is his article. Those familiar with the academic debates surrounding evolution will know that Stephen P. Stich (1990, 55–74) famously argued that evolution cannot explain how rationality reaches true beliefs. In fact, Donald Hoffman (2019) recently argued that evolution provides grounds to think that most of our beliefs are false not true. Since Hoffman is an ardent evolutionist, this indicates that evolutionary reliabilism is highly contentious. The closest Bigliardi (2024, 486) comes to grappling with this issue is referring readers to what he previously said about me regarding Hume.

Bigliardi takes me to task for quoting Darwin. He attempts a close reading of Darwin to show that Darwin's "doubt" had little to do with rationality per se and more to do with "religious-sounding conviction" (Bigliardi 2024, 485). This is not the whole picture. John Hedley Brooke (2009, 210) points out that "there were prominent scientists who doubted whether the development of the

human mind could be reduced to the action of natural selection" even during Darwin's own time. These include Charles Lyell, who was both Darwin's mentor and an ardent evolutionist. Lyell regarded the uniqueness of the human mind as something evolution could not fully explain. Another is Alfred Wallace, the cofounder of the theory of natural selection. Wallace held that the human mind had attributes that "defied explanation by natural selection" (Brooke 2009, 211). Historically, Darwin's doubt was a matter of the difficulty perceived in providing a satisfactory evolutionary explanation of human cognitive faculties. Coming to our times, Greg Littmann has argued how evolution entails skepticism of our cognitive faculties. He correctly points out that Darwin himself was worried that evolution led to skepticism. Littmann (2011, 82) cites Darwin's "horrid doubt" quote just as I did. The conclusion of Littmann's (2011, 101) article is worth quoting in full:

> It seems that Charles Darwin was right, then, to fear that his theory of evolution provides grounds for skepticism. The nature of both animal and human life suggests that we should expect to have only an incomplete capacity to comprehend the universe, while the potential simplicity and sheer number of possible correlative models of the universe suggest that we should expect our phenomenal world to have no more than a relationship of correlation to the universe as it is.

I urge readers to compare this quote to Bigliardi's (2024, 485) criticism of me, where he attempts to limit Darwin's "horrid doubt" to a matter of downplaying Darwin's intuition that "may sound supportive of a religious worldview."

Bigliardi cites page 206 of my book, where I talk about how "secular academics" dispute evolution. He then cites page 212, where I accept that evolution is "the current best working model" for understanding biological change. Juxtaposing both references, Bigliardi (2024, 485) concludes that my approach is "confused and confusing." What gets lost in Bigliardi's assessment is the argument I presented. Scientific theories are neither considered nor claimed to be absolute. Scientists recognize that theories will always be in a state or condition that is not final. Theories can be improved, modified, expanded. Progress in scientific understanding may force scientists to rethink cherished theories. Despite this, scientists have found a pragmatic way to handle theories while keeping aware of their yet-to-be finalized state. By taking theories as models that approximate truth, scientists can utilize these in a bid to advance scientific knowledge. This practice is most obvious in the case of quantum mechanics and general relativity. Neither can be reconciled with the other. Regardless of this incompatibility, scientists find it useful to accept both as working models. Thus, it is not contradictory to hold that a theory should be utilized while acknowledging that it is not finalized (Tzortzis 2019, 206–7).

My approach to evolution is like the approach many scientists have to scientific theories in general. They recognize these theories as the best working models while also acknowledging that they still contain deep problems yet to be solved and weaknesses yet to be overcome. This is the opposite of sending "mixed signals" (Bigliardi 2024, 484).

Ultimately, Chapter 3 of *The Divine Reality* is about atheism more than it is about evolution. The concluding paragraph begins with this sentence: "Atheism does not—and cannot—have a monopoly on reason" (Tzortzis 2019, 66).

Faith in Science

The final problem Bigliardi identifies relates to how I view science as a working model. He refers to the following quote of mine:

> We can accept scientific conclusions practically and as working models, but if anything contradicts revelation (after attempting to reconcile the two), you do not have to accept the scientific conclusion into your belief system. This is why Muslims should not need to deny Darwinian evolution; they can accept it practically as the current best-working model, but understand that some aspects of it cannot be reconciled with orthodoxy. Remember, just because something is the current best-working model, it is not the absolute truth. It is also important to note that scientific knowledge and Divine revelation have two different sources. One is from the human limited mind, the other is from God. (Bigliardi 2024, 479; cf. Tzortzis 2019, 212)

Bigliardi (2024, 486–87) characterizes this as "accepting without believing" and claims it is an incoherent position to take regarding scientific theories.

In Bigliardi's (2024, 487) sixth problem, he imagines a fictional scenario in which a "Tzortzisian" (his term, not mine) schoolteacher is struggling to explain religious and scientific concepts. He proceeds to castigate this fictional individual (Bigliardi 2024, 486–87). To justify his scenario, Bigliardi writes (2024, 491n20), "Here, I am inspired by Ian Barbour's (1923–2013) criticism of the suggestion to treat religion and science as separate (cf. Barbour 2000, 17–22, 36–37)."

However, this fictional scenario Bigliardi describes was not mentioned in *The Divine Reality* and does not represent my approach or thinking on the topic. Bigliardi's (2024, 487) scenario involves the plight of a "Muslim science teacher." He attacks a "Tzortzisian instructor" for providing "religion-based criticism of evolution while teaching it, or teaching evolution along with creationism" (Bigliardi 2024, 487). He then claims this instructor would become confused, because "which theology will our teacher pick?" (Bigliardi 2024, 487). A "Tzortzisian biologist," he claims, would be unable to be "proficient in biology while ignoring evolution" (Bigliardi 2024, 487). He wonders how "Muslim teachers, schoolers, students, and public" can possibly accept a model

as a working model while being aware that the whole of it, or aspects of it, may be proven untrue later (Bigliardi 2024, 487). Nowhere in *The Divine Reality* do I claim that the book is a syllabus for natural sciences taught at higher education institutions. As for Bigliardi's repeated worries that I advocate for creationism to be taught in biology classrooms, he cannot point to a single instance in *The Divine Reality* where I make such a proposal.

The Divine Reality was written as a popular book. Not surprisingly, many technical terms were not included. However, anyone familiar with the philosophy of science will recognize that the position I describe in my book is not creationism or a rejection of science but rather instrumentalism. Kyle Stanford (2006, 400), the American philosopher, describes instrumentalism as follows: "Unifying all these positions is the insistence that one can and should make full pragmatic use of scientific theories either without believing the claims they seem to make about nature (or some parts of nature) or without regarding them as actually making such claims in the first place." He further explains: "[M]ore recently influential forms of instrumentalism grant both the assertoric force and the ineliminability of theoretical claims but insist that such theories should simply be used for prediction of experimental outcomes and other practical goals without a requirement of belief in the claims they in fact make about nature itself (or some parts thereof)" (Stanford 2006, 403). He adds: "As these influential formulations of the view illustrate, epistemic instrumentalism seems committed to some distinction between believing a theory to be true and accepting or using it without believing what it says" (Stanford 2006, 404).

How can someone accept a scientific theory without believing it? Or more broadly, can one accept a proposition without believing it? In his refutation of Paul Horwich, Andre Kulka provides a sturdy elucidation of this point. A distinction needs to be drawn between the "folk-psychological concept" of belief and the notion of "epistemic belief." On the former, belief is a mixture of epistemic and pragmatic grounds for evaluating a view. On the latter, belief is exclusively a matter of epistemic grounds. Acceptance and belief can only be regarded as identical, or entailing one another, in the folk-psychological view of belief. Epistemic belief, however, is distinct enough to make acceptance and belief different (Kulka 1992, 493–94).

Kulka provides a useful illustration of this. Believing and accepting can be "different mental states even if they are associated with exactly the same behavioural disposition." For instance, take two people living in the same society. One person adheres to social norms and customs, not because they believes they are true, correct, or even good but rather because of the social pressure involved. Another person adheres to these same social norms and customs while believing they are true, correct, and even good. Observationally, both people behave in a similar manner; yet, in terms of their mental states, one accepts without believing the social norms, whereas the other accepts and

believes in those social norms. Hence, acceptance and belief are not identical. The first person lacks epistemic reasons to believe yet has pragmatic reasons to accept. The second person believes due to a mixture of epistemic and pragmatic reasons (Kulka 1992, 495).

The matter is not convoluted. As Kulka (1992, 495) put it: "The instrumentalist is simply one who maintains that theories may properly be judged to have high pragmatic value, but never high epistemic value."

There are several good reasons for adopting an instrumentalist approach to scientific theories. Given the limitations of space and the aims of this response, an extended discussion of this cannot be had. However, it will not be amiss to briefly point to a recent defense of instrumentalism propounded by Darrell P. Rowbottom.

The third chapter of Rowbottom's (2019, 62–81) book is dedicated to the argument from "unconceived alternatives." When evaluating theories, we must keep aware of "unconceived observations." These are observations scientists have not even conceived of, let alone sought out. How is it possible for scientists to not conceive of observations relevant to their research? Rowbottom (2019, 65) answers: "The observations in question are theory-laden, and the theory (or set of theories) necessary to conceive of them is unconceived." That is, observations make sense within a theory, and it is possible that if scientists have not conceived of a theory, they will also not conceive of the observations related to that theory.

Models are essential for predictions in science. Rowbottom makes the neat point that there could be unconceived models, which would mean there are predictions no scientist has yet conceived of. As he puts it: "Why does this matter for confirmation? In essence, unconceived models may be responsible for unconceived predictions, and the resources of a theory may fail to be apparent—and be underestimated (or even overestimated)—as a result" (Rowbottom 2019, 68).

The explanatory power of a theory is based partly on true statements made regarding initial conditions. There have been cases where "we may simply fail to conceive of the initial conditions" (Rowbottom 2019, 72). Rowbottom sees an example of this in Newton's gravitational theory of tides, which was popular with British scientists in the eighteenth century. The superficial explanatory power this theory had was due to "the unconceived initial conditions in (and concerning) our seas and oceans, which are highly complex" (Rowbottom 2019, 72). The gravitational theory of tides failed to take into consideration that the oceans are not as simple as previously thought.

Unconceived experiments pose a challenge to how certain one can be in regarding a theory as ultimately true. Rowbottom (2019, 73) astutely observes: "Scientists' assessments of their theories depend on the evidence at their disposal . . . And the available experiments delimit the available evidence. Hence, which theories are more confirmed/corroborated, and therefore whether progress

towards truth occurs, is (sometimes) contingent on which experiments are conceived of." The judgments made on scientific theories are highly contingent. And unconceived alternatives easily affect this contingency.

Scientific theories are judged on "theoretical virtues" such as simplicity. However, it is plausible that how these virtues are understood changes across time. There can be legitimate disputes over what the virtues even mean (Rowbottom 2019, 76). The argument from "unconceived alternatives" concludes that "*agnosticism* about the truthlikeness of contemporary theories (and the future direction of science with regard to truth) is prudent" (Rowbottom 2019, 77).

To relate this to evolution, I argue as follows. Evolution is currently the best theory scientists have to explain biological change. This does not entail that evolution is true. It cannot be ruled out that other theories—as yet unconceived—may explain biological change better than Darwinian evolution. A prudent option is to remain uncommitted with regards to the truthfulness of evolution while acknowledging that current scientific practice does indeed work within an evolutionary theory.

This view is not new or unique to me; rather, it is a view endorsed by Alex Rosenberg (2012), an academic known for his staunch defense of atheism. He takes an instrumentalist view of biology. Rosenberg (2001, 745) writes:

> I have argued that biology is best construed as an instrumental science, whose explanatory strategy and comparative predictive weakness reflects limits on what we can rely on in making real-time predictions and explanations intelligible to us. I held further that this is a difference between biology and physical science largely consequent to the operations of natural selection in conferring biological systems here on earth with a complexity beyond our powers to fully assimilate.

Rosenberg defines instrumentalism as: "[T]he view that scientific theories are useful instruments, heuristic devices, tools we employ for organizing our experience, but not literal claims about the world that are either true or false" (Rosenberg and McIntyre 2020, 144). Far from being a strange view, instrumentalism was held by scientists themselves as evident from the history of the physical sciences (Rosenberg and McIntyre 2020, 145). Rosenberg proceeds to argue that Darwin's theory of natural selection is best understood via instrumentalism instead of realism (Rosenberg and McIntyre 2020, 166–67).

Furthermore, Rosenberg has been quite open in acknowledging that biology in particular is more scientifically limited than other areas of science. I include this quote of his:

> I argue that one particular science faces limits that do not confront other sciences, and that these limits reflect a combination of facts about the world and facts about the cognitive and computational limitations of the scientists whose

> business it is to advance the frontiers of this science. The science is biology, and the limitations I claim it faces are those of explanatory and predictive power. In the first part of this chapter I advance a contingent, factual argument about the process of natural selection that consigns the biology in which we humans can take an interest to a kind of explanatory and predictive weakness absent in our physical science. (Rosenberg 2000, 247)

Bigliardi's lack of analytical rigor is demonstrated when a comparison is made regarding the nuances of an instrumentalist approach to biology (and science in general) to Bigliardi's own description of this field: "In such a scenario, 'accepting without believing' may just be used as doublespeak to conceal and embellish deep-seated resistance to, and ignorance of, evolution" (Bigliardi 2024, 487). For the sake of transparency, I must point out that the phrase "accepting without believing" in this quote cannot be found in *The Divine Reality*. Bigliardi coined it.

Conclusion

In *The Half-Baked Loaf*, Bigliardi laudably points out several instances of what he considers problems in my discussion of Islam and science. His identification and articulation of these six problems sets the stage for my response and clarification in this article.

The first problem Bigliardi highlights is that *The Divine Reality* does not discuss the "scientific miracles" (*al-i'jāz al-'ilmi*). He surmises that this omission is due to me having abandoned further engagement with the topic. As I had already informed Bigliardi prior to his publication of the article, I am doing my doctoral research on the topic. The reason the "scientific miracles" are not mentioned in my book is because the book is not aimed at discussing the "scientific miracles." Notwithstanding, the necessary key concepts that address Bigliardi's concerns are mentioned in the book but not cited by him.

The second problem Bigliardi emphasizes is how science is downplayed in *The Divine Reality*. I have clarified that what is downplayed is scientism and not science, which are not identical to one another. Relatedly, Bigliardi considers it inconsistent for me to rely on science in arguments for God's existence. The notion of *relying* is ambiguous. It is common practice for metaphysical arguments to use premises that refer to scientific facts without the arguments themselves being rendered as scientific. This is what I do. I do not, however, rely on scientific arguments to justify the conclusion that God exists.

The third problem Bigliardi finds is how I describe science as changing over time. As was shown, my description of science here is in line with established academic discourse. The fourth problem he finds is my discussion of Hume. He suggests I misconstrue Hume's position. As shown, the view I set out is the majority opinion in the academic literature.

The fifth problem Bigliardi identifies is with my discussion of evolution. Unfortunately, he did not tackle the substantive issue, which was the tension I highlighted between the cognitive faculties and evolutionary theory. This tension has been recognized by several other reputed academics, some of whom are evolutionists themselves.

The sixth and final problem Bigliardi talks about is the notion of "accepting without believing" scientific theories. This phrase is not used by me. Furthermore, I clarified that my discussion is in line with standard academic discourse on instrumentalism in the philosophy of science.

When *The Divine Reality* is read fairly, the arguments it contains overlap in many instances with what is academically recognized in the field of philosophy of science. While a person has the right to disagree with such arguments, he or she should acknowledge that such views are the norm in academic discourse and should not interpret these views as outliers. To do so would be sacrificing clarity for the sake of polemics.

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Christian Vaccine Hesitancy: The Church between Science and State

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A common feature of the COVID-19 pandemic was Christian leaders using anti-vaccine misinformation to reinforce their opposition to public policy. This illustrates a broader reality: that vaccine hesitancy is not so much a deficit in scientific knowledge as a conflict of values waged through disagreements about vaccine science. Typically, "the science" is a proxy for disputes about justice and democracy. One reason for this may be the contemporary linear model of science–policy interactions, which has operationalized a naively scientistic approach to social issues and frequently circumvented the norms of democratic representation and debate. This has made it easier to position political opponents as enemies of "the science," thereby transforming essential debates about values into intractable disputes about "science." In this article, I consider how political theologies position Christians in relation to allied scientific and governmental institutions, highlighting theological resources that reframe the nature of vaccine debates.

Vaccines are one of the great success stories of modern global public health, having eradicated once ubiquitous diseases such as smallpox and saving an estimated two to three million lives each year (Vanderslott 2018; WHO 2015). While public opposition to vaccines is as old as vaccines themselves (see, e.g., Porter and Porter 1988), vaccine hesitancy has spread widely as communities that have never lived with the fear of vaccine-preventable illnesses encounter misinformation on the internet and in the media (Johnson et al. 2020, 230–33; Puri et al. 2020). In 2019, the World Health Organization listed vaccine hesitancy as one of the top ten threats to global health (WHO 2019).

This pervasive issue became a central topic of concern worldwide as vaccine-hesitant populations derailed vaccination campaigns that many had hoped would bring an end to the COVID-19 global health crisis (Machado et al. 2021). In a survey conducted in February 2021 by the Pew Research Center (2021), 45% of white evangelicals in the United States said they would not get the COVID-19 vaccine, making them the most hesitant demographic in the country. As governments and businesses introduced vaccine mandates, many pastors mobilized to help people pursue religious exemptions (Estrin 2021; cf. Vallier and Weber 2018). All of this alerted many for the first time to the long-standing connection between certain religious communities and the opposition to vaccines (Grabenstein 2013). This hesitancy is not the straightforward outworking of theological principles but the result of complex disagreements about the nature and role of modern biomedicine and public institutions in relation to personal medical, political, and religious issues (Kasstan 2021; Marti et al. 2017; Sobo 2015). Nonetheless, it is often understood, articulated, and disseminated in theological terms.

In this article, I address a few key questions raised by Christian vaccine hesitancy: What, if anything, do vaccine attitudes make visible about our current forms of social and political life that are otherwise hidden? What role do churches play at the intersection between scientific and political institutions and the public? How might theological forms of reasoning outstrip their secular counterparts as ways of framing questions of public health and stirring faith communities to action?

It is often said that vaccine hesitancy is a symptom of a war on science and the death of expertise (Fischer 2015; Nichols 2017; Foley and Arena 2017; Fischer 2019). While it is tempting to depict those who refuse vaccines as being scientifically uninformed, it is important to remember that most of those who accept vaccines are also uninformed about the intricacies of vaccine science. The fact that the latter are more trusting of political and scientific institutions does not necessarily mean they are more scientifically literate. Rather, it suggests they stand in different relationships to those institutions and the knowledge they produce. In recent literature, there has been a notable shift away from solutions focused on science literacy and information deficits

toward improving trust in institutions. This was driven in part by studies showing that providing scientific information to vaccine-hesitant parents often makes them more hesitant (Nyhan et al. 2014). Yet, it is still typically assumed that scientific and political institutions should set the agenda, and we just need to get the public to trust that agenda. Arguably, what we need is for the public to have a stake in the work of those institutions and in the broader process of policymaking. The problem of vaccine hesitancy lies not simply with hesitant publics but to a significant degree with the forms and practices of our scientific and political institutions.

To implement public health policy is to pursue certain goods and balance conflicting values using the insights and products of scientific institutions as tools towards ethical and political goals (Conis 2015). While epidemiology plays an essential advisory role, public policy is not descriptive. Rather, it is a fallible account "of the way humans ought to behave under given circumstances" (Blakely 2023). Policy can of course be more or less commensurate with prevailing scientific views, and it should be judged accordingly, but we never simply "follow the science" in our vaccination and public health policy or in our individual decision-making. Critics have pointed out that the contemporary "linear model" of science-to-policy interactions often takes a naïvely scientistic approach to social issues and thereby frequently dodges the norms of democratic representation and debate (Goldenberg 2021; Pielke 2007; Sarewitz 2004). In this way, it mischaracterizes both the nature of science and the relationship between science and policy. As Robert Pielke (2004, 409; vf. Sarewitz 2004, 385) puts it, "because resolving scientific debates is thought to resolve political conflicts, science becomes a convenient and necessary means for removing certain options from a debate without explicitly dealing with disputes over values."

Opposition to vaccines frequently takes the form of conspiracy theories, and research in the field of conspiracy thinking offers further insights here, for it suggests conspiracy theories often emerge from perceived crises of political representation (Butter 2014, 17; Fenster 2008, 88). Therefore, it may be that the more we claim to "follow the science"—ignoring the ethical and political dimensions of public health policy—the more vaccine-hesitant skeptical publics become. Further, this approach to government fits within a broader cultural fixation on the sciences, such that even in our private discussions and debates, "the science" weighs heavily in the airing of our disagreements. As Maya Goldenberg (2021, 14) puts it, "both sides of the dispute make scientistic efforts to rise above political debate when they furiously point to the science to justify their claims." In other words, "[s]cience has become the language of political victory and defeat" (Goldenberg 2021, 102). Both sides are incentivized to disagree only about the science rather than about the broader ethical-political issues regarding different values and rival perspectives about the good and

goods. Ultimately, this creates demand for alternative science and alternative experts, happily supplied by anti-vaccine activists. Here, political philosopher Jason Blakely (2023) notes the instructive parallel between recent conspiracy thinking and a reductive vision of science in which complex and bewildering phenomena "are explained by an underlying structure." In order to oppose the overreach of experts, "certain segments of the populous have created a doppelgänger of science, with its own hypotheses and theories" (Blakely 2023).

While most vaccine hesitancy is driven straightforwardly by fears about vaccine safety resulting from widespread misinformation and disinformation, I suggest that a significant amount of engagement with alternative perspectives on vaccine science is itself driven by deep disagreements about values, justice, and democracy. Certain people are primed to be misled, and are often willfully misled, because of a lack of trust in institutions, a breakdown in political representation, and a loss of venues in which their concerns and values can be articulated and heard. As Alasdair MacIntyre (1988, 2) notes, "[o]ne of the most striking facts about modern political orders is that they lack institutionalized forums within which these fundamental disagreements can be systematically explored." Anti-vaccine activists often develop disinformation for political reasons: they use fear to push people toward predetermined political ends while claiming to care only about flaws in "the science." This typically involves the push for a radically individualistic approach to public health, an attempt to discredit experts, and a desire to paint certain public figures as evil and implicate them in conspiracies, all of which matches up with certain well-known social and political movements (See, e.g., Yamey 2022; Whitehead and Perry 2020). On both a personal and a political level, we miss vital opportunities to discuss the genuine economic, social, and political concerns of our neighbors, friends, and families when we fail to recognize that the proxy wars about "vaccine science" are often just that—proxies. Therefore, we should think of vaccine hesitancy and refusal as a sign of deeper social and political problems.

An informed understanding of infectious disease reveals that individual health is to some degree bound up with the health not just of one's local or national community, but of humanity. This poses enormously complex ethical and political challenges, and that complexity makes it easy to misconstrue the nature of the issues at stake. The most common approach is to expect communities to fall in line with the biopolitical goals set by the state and blame them for being irrational or scientifically illiterate if they fail to do so. Not only does this ignore the need for communities to have some say and investment in the social and political goals of the state, but it also discloses a mistaken philosophical anthropology. As the theologian Carmody Grey (2021) has recently noted in relation to climate change, the expectation that humans can or should be "rational" in this sense is relatively recent, historically speaking. Far from the disinterested gathering of data, human learning and development is in

large part about the formation of desire. As Grey (2021) argues, this formation of desire

> takes a knowledge and skill that is at least as demanding as anything in the natural sciences, and it is what faith traditions specialize in. This anthropology of the faiths sees that human beings are not information processors but meaning makers. We do not neutrally assemble facts according to putatively objective evidence. We are not governed primarily by what we take to be true, but by what we take to be important . . . [Thus] truths that don't relate to what we love have no power for us. It is precisely this grasp of human motivation that faith traditions possess.

As Grey's perspective underlines, our values and desires determine our attention to and prioritization of facts. If the facts about the safety, efficacy, and importance of vaccines are not articulated through the framework of a religious community's values, these facts will not move them, and this is a theological task. Here, I concur with Grey that central to this task is for the web of loyalty centered in faith communities to reach beyond those communities so that solidarity with humanity is seen as a fundamental form of Christian belonging. I would like to briefly discuss two elements of how political theologies might serve this task.

Vaccination and Common Good(s)

In light of the threat posed by vaccine-preventable diseases, political theologies have an urgent obligation to develop robust theological conceptions of the kinds of communities and practices Christians need to form and pursue with their fellow citizens in order to achieve those goods that lead to human flourishing. A significant amount of Christian political rhetoric is still caught in the presumed opposition between individualism and collectivism, where the former holds out the promise of "religious freedom" while the latter is seen as a bureaucratic form of altruism. As such, any consideration of the good of the whole is framed in utilitarian terms—terms that stand at odds with core elements of Christian beliefs. Therefore, it seems to me that the recovery of robust theological frameworks for ethics and politics plays a vital role in enabling Christians to engage constructively in the secular politics of Western liberalism. Not only must our theology be political, but our politics must be theological in order to move Christian communities to action. And yet, if it is genuinely Christian, a political theology will unavoidably engage Christians in the pursuit of a secular account of the common good, because part of the theological definition of concepts such as justice and human flourishing is that they are not restricted to the purview of divine revelation. The solution to reductive fideism is not less theology, but more.

MacIntyre (1988, 115) writes that "[i]t is a presupposition of the practitioners of [modern Morality] that to act for the good of others as Morality enjoins will often be to act contrary to one's own interests and desires." When collective action is characteristically framed in terms of sacrificing one's wellbeing for the good of the majority, it is easy for publics to interpret any pursuit of the common good as a bureaucratic impingement on their rights—especially when they feel excluded from the majority public, as many religious communities do. Theological responses to vaccine hesitancy have frequently reinforced rather than challenged this perception, calling on Christians to follow Jesus's example and make sacrifices for the good of others. (Here, feminist theology offers a helpful corrective regarding the relative place of self-sacrifice in Christian discipleship more generally (Daly 1973, 77).) Largely missing in all of this is any conception of human flourishing, of the individual goods that can only be achieved in and through the pursuit of common goods, of what justice requires of members of human communities, and of the place of virtue in this pursuit of human flourishing. When Aristotle says the common good of the polis is greater than the good of any individual, he does not mean that the good of individuals should be sacrificed for the sake of the majority. He means that individuals only reach their good through the pursuit of the common good. To speak of the common good, properly understood, is not to ask people to act altruistically.

MacIntyre contends that we all recognize a distinction between the different kinds of goods to which we order our lives. Individual goods are those I can both achieve and enjoy as an individual. To enjoy a glass of whiskey or a plate of fish and chips is to appreciate this kind of good. These goods may require incidental cooperation mediated by the market, but this cooperation will be primarily transactional. Public goods are those I enjoy as an individual but only achieve through cooperation with others. Because we as individuals are not capable of providing roads, clean water, sewer systems, law and order, or national security, local and national governments intervene as a mechanism by which we cooperate (primarily through taxation) to achieve goods from which we each benefit individually. Common goods, finally, are those I both achieve and enjoy through cooperation with others — goods that only accrue to me as a member of a certain group or participant in a certain activity. A choir is an excellent example of this. The good of each singer *qua* choral singer is only realized in and through their cooperation for the good of the whole. The same goes for families and workplaces: I only flourish as a husband or as an employee through the flourishing of my family or company. Thus, it is uniquely the case for common goods that the good of the whole is greater than that of any individual, insofar as the good of each individual member *qua* member is only realized in and through the good of the whole. These different goods support one another in various ways: families and choirs rely on public goods in order

to achieve their common good, and it is in and through the pursuit of common goods that individuals achieve their individual good (note here the difference between public, common, and club goods).

When it comes to vaccination and infectious disease, there is a complex combination of goods in view. Vaccines are public goods that serve the common good of herd immunity, through which the good of individual immunity is secured. Vaccines are typically debated exclusively in the terms of individual goods, which obscures the nature of the issues at stake. Once we have identified the nature of these goods, the question then becomes: What do we owe others by way of cooperation toward promoting and achieving these goods? We must enter into prolonged practices of cooperative enquiry. As Thomas Aquinas (ST I-II.14.3) notes, the shortcomings in our own deliberation have to be corrected by the judgments of others who have a stake in the goods we hold in common. Due in part to the dangers of in-person gatherings, the few forums for such practices were quickly curtailed during the pandemic. As Blakely (2023) notes, "one of the gravest errors of governance during the pandemic was that ordinary people were not heard. Instead, they were informed of the scientifically rational policy and, if they protested, lectured into compliance." The dialogue at the heart of such practices of cooperative reasoning is the lifeblood of democracy, and it is unlikely to yield the same policy in every community. Rather, individual communities need the ability to rank order goods according to their values and demographics, making decisions informed by the relevant scientific data but not reductively determined by it. Furthermore, it is reasonable to suppose that people who have a hand in the process of decision-making will be more likely to comply with the resulting policy decisions than those who feel it was imposed on them from outside. These practices of collective reasoning must also involve a consideration of the extent of others impacted by and invested in the achievement of the goods in question. A global pandemic is similar to climate change in that the common goods in view often accrue to us not only as members of a particular family, workplace, or community but as humans. So, for example, a community taking less precautions locally may implement greater precautions for those travelling to and from other areas.

Seeing something as a common good brings a range of otherwise invisible issues to the cost-benefit analysis of typical political decision-making. Also, certain common goods are only open to certain kinds of political community, which means our pursuit of them will also challenge our own forms of social and political life in a way that the pursuit of individual and public goods does not. As MacIntyre (2017) notes, with few exceptions, modern states are not suited to a kind of political society structured according to a conception of its common good, "if only because almost all modern states are too large and heterogeneous, are oligarchies ruled by agenda-setting elites, and are bureaucratically structured so that the relationship between those who govern to the governed is too

often that of patron to client, rather than that of citizen to citizen." This does not, however, preclude the emergence of local communities with a shared understanding of their needs and resources who deliberate together as to their common good. Insofar as modern states are structured in ways that undermine our capacity to pursue common goods, they create barriers to vaccine uptake and bear some responsibility for vaccine hesitancy and refusal. The urgent need for pandemic preparedness and the growing threat of vaccine-preventable diseases will, if we are wise, be a catalyst for reflection on the nature of our political institutions.

Prudence and other Virtues

Cooperative enquiry requires and supports the development of virtues: justice between neighbors, temperateness in the expression of our individual desires, courage in the face of uncertainty, prudence in our shared decision-making. This leads us to another area where the logic of contemporary political discourse falls short compared to its theological counterpart. In his book on the cardinal virtues, Josef Pieper (1965) notes that people tend to confuse prudence (what Aristotle called *phronesis*) with utilitarianism. Here, the perfected habit of deciding rightly so that one's actions are conformed to reality is transformed into deciding in favor of the happiness of the greatest number. But prudence is not about "happiness" but about being, and it does not conform to the majority but to truth.

Pieper (1965, 10) writes that "the pre-eminence of prudence means that realization of the good presupposes knowledge of reality. He alone can do good who knows what things are like and what their situation is." One major disconnect with vaccine hesitancy is a misapprehension of the reality of the safety and efficacy of vaccines. This is a lack of prudence, but it also points to the ways the prudent rely on communal and institutional knowledge to grasp reality. This expands Aristotle's point that certain forms of political life are necessary for the development of the virtues, and that these institutions bear some responsibility for the failure of communities to exhibit prudence in these contexts.

Falling victim to misinformation and conspiracy thinking undermines the development of prudence, instead propagating epistemic vices like gullibility, dogmatism, prejudice, closed-mindedness, and negligence. These acquired intellectual character traits are disastrous for both individual and cooperative enquiry. Prudence is the mother of all the virtues, and Aquinas argues therefore that none but the prudent can be just, brave, and temperate, and that a person is only good insofar as they are prudent.

From a theological perspective, taking care not to fall victim to misinformation is not only important for how it impacts one's decision-making, but also for how it impacts one's personhood. The development of virtue is central to human flourishing, and prudence is the foremost of the virtues, which means

disinformation poses a grave danger not only to our policymaking but to our individual flourishing as rational agents. As Pieper (1965, 10) argues, "the pre-eminence of prudence means that so-called 'good intention' and so-called 'meaning well' by no means suffice." It is not rationalism that should encourage Christians to pursue an accurate grasp of the data on vaccine safety and efficacy but prudence. However just someone's goal may be, if they rely on misinformation to pursue or disseminate it, they are thereby rendered vicious. It seems to me that a central piece of any Christian political theology will be the recognition that our forms of political engagement are a primary means by which we develop virtue or vice, that the development of virtue contributes more to the flourishing of rational agents than material goods, and that therefore the mode of our politics is at least as important as its content—and again, not for the sake of moralism or altruism.

Christian Theology and Religions Exemptions

In light of this vision of political theology, I would like to suggest that Christians invested in the common good will not pursue religious exemptions from vaccination. Liberal governments have important and complex reasons for allowing religious exemption from certain policies, but that does not mean there are Christian theological grounds for making use of them. If vaccines were dangerous, then they would be bad for everyone, and Christian opposition to them would necessarily be on behalf of everyone. (It is worth noting that vaccine mandates are sometimes implemented due to political rather than functional challenges or without first attempting alternative approaches (see Atwell and Hannah 2022; Attwell, Rizzi et al. 2022; Attwell and Navin 2019).) It is perverse for those who believe vaccines to be dangerous to suggest that Christians should be uniquely shielded from bodily harm because of their personal religious beliefs.

The most common biblical passages used as justification for religious exemption are badly twisted and misinterpreted. Take, for example, 1 Corinthians 3:16, "Do you not know that you are God's temple and that God's Spirit dwells in you?" Here, Paul's exhortation to keep ourselves free from sin is twisted into a slogan of natural wellness concerned with the physical "pollution" of our bodies. But, of course, scripture never suggests that the Holy Spirit cannot dwell in bodies "contaminated" by chemicals or debilitated by physical injury. As Jesus says, "Out of the heart come evil thoughts, murder, adultery, sexual immorality, theft, false witness, slander. These are what defile a person" (Matthew 15:19–20). God's temple is defiled by sin, not adjuvants.

Christian objections to vaccines often cite the use of immortalized cell lines derived from an aborted fetus. For this reason, a broad range of religious leaders, including the Vatican's Congregation for the Doctrine of the Faith, have clearly determined that the use of such cell lines is morally acceptable from a

"pro-life" Christian perspective. Much has been written on the various aspects of this issue (see esp. Eberl 2022), but the basic logic comes from foundational theological principles. The relevant immortalized cell lines, such as PER.C6 and HEK 293, made use of tissue from a fetus forty to fifty years ago, but this use was not the reason the abortion was performed. From a pro-life perspective, to create life-saving medicines using these cell lines is to bring good from something evil without causing or approving of the evil. To take an evil action, event, or situation and bring good from it without participating in what is evil about it is how Christians understand divine providence (ST I.49.2). Christians are called to imitate and participate in this divine work (Philippians 2:13). It is also worth noting that those who object to vaccines on this basis often make use of a broad range of consumer products developed using these same cell lines. This suggests that ethical objections, like scientific ones, frequently arise as post hoc justifications for vaccine hesitancy.

Christians frequently confuse their civic and religious identities, citing "freedom" as a fundamental Christian value that justifies exemption from all government mandates. In scripture, freedom is primarily about liberation from the bondage of sin and death so that we might pursue God's vision of justice (see, e.g., 1 Corinthians 6:12 and Galatians 5). Freedom is a secondary and relative good, while justice is foundational and primary. Justice is also the proper basis for governmental uses of coercion and constraint, such as vaccine mandates (see MacIntyre 2015). Christian theology does not offer an opposition to the idea of mandates in principle, though it is of course always possible for a specific government mandate to be unjust. My point is simply that Christian opposition to such injustice, when it does arise, should not be to exempt Christians due to their private beliefs but to seek justice on behalf of the broader community, engaging together in practices of cooperative enquiry in pursuit of their common good.

Conclusion

To speak of prudence and common goods is to give just two examples of how a theological framework both connects to the values of faith communities and disrupts the typical structure of vaccine debates. From the perspective of a Christian vision of human flourishing, justice, and virtue, the pursuit of common goods has little to do with sacrificing one's own interests or rights for the happiness of the majority. Rather, it stems from a richly theological vision of the inextricably communal goods that stand at the center of the Christian vision of human flourishing. At the same time, misinformation and conspiracy thinking should not be evaluated in terms of the policies it supports but rather in terms of its impact on human flourishing through the development of virtue or vice. This is not about moralism but about a theological vision of human flourishing.

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Troubling Climate and Religion: The Climate Crisis beyond Disenchantment

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Against the backdrop of mounting ecological destruction, literature beyond the scope of religious studies has taken on sensibilities and metaphysical concerns traditionally associated with religious writing and critique. Some authors view religious ideas as being at the root of dangerous environmental attitudes, while others turn to theological idioms as potential avenues of redress. Although modernist and Western environmental attitudes have often been glossed as "disenchanted" by writers on both sides of this debate, this article suggests that the term obscures a much more fraught set of processes that crosscut discursive and material boundaries. It contends that to study climate and religion in the same frame today should be to consider how religious ideas were inscribed into landscapes, and in turn how these remade ecologies came to influence religious ideas and practices.

As news feeds deliver streams of images of lives and homes destroyed by wildfires, floods, hurricanes, and droughts, the air is heavy with calls to reimagine relationships with and responsibilities towards ecologies and landscapes, both local and planetary. Though dominant narratives stress the relative recency of this state of affairs, Indigenous peoples have experienced the theft and destruction of their lands for centuries and the concurrent environmental devastation this has wrought (Chao and Enari 2021; Whyte 2018). It is only recently that white Western populations have begun to grapple with how we might, in the words of the Potawatomi scholar Robin Wall Kimmerer (2015, 9), "take care of the land as if our lives, both material and spiritual, depended on it." Kimmerer's words gesture to the metaphysical stakes of the current crisis, a moment the theologian Rowan Williams has characterized as one in which people are searching for "language which will hold onto the interconnectedness of the agencies among which we stand" (Latour and Williams 2018, 57). Hence the endlessly slippery concept of "religion" enters the fray, a term that indexes the metaphysical questions, affective intensities, and unseen relations that make life meaningful and through which people constantly seek to make and remake the worlds they inhabit.

In the context of these debates, literature far beyond the conventional scope of religious studies has taken on the tone and urgency of religious writing and critique. This article takes up texts from an array of fields that reflect how scholars across disciplines are grappling with intersections between climate and religion and considers how we might deepen and enrich our thinking about both of these terms. I use the term *climate* to index something distinct from earlier literature on religion and the environment or religion and ecology. While the environmental humanities is by now a well-established field, prior to the emergence of critical scholarship on the environment, "nature" was generally taken as a given in Western writing—the backdrop upon which humans acted and that, more occasionally, acted upon humans (Williams 1980). This view of nature was subsequently historicized and shown to be the product of post-Enlightenment understandings of humans and nature, and scholars increasingly approached a once abstract and objectified image of "the environment" as thoroughly intertwined with humans (Deloria Jr. 1999; Latour 1993; Morton 2010). More recent interest in climate builds on this emphasis on interconnectedness yet indexes a distinct and growing concern with environmental change on a planetary scale and deeper historical timeframes (Bray et al. 2023; Chakrabarty 2021; Davis et al. 2019; Moore 2017; Wenzel 2019). I thus approach thinking about religion and climate as signaling a need to engage with religion on a variety of scales, both historical and geographic, while remaining attentive to local and lived experiences (Taylor-Seymour and Bender forthcoming). Where I engage with earlier work on religion and ecology, I investigate whether we might identify fresh readings of foundational texts based on the questions of the current moment.

I take my other central keyword, *religion*, to refer to how people imagine and make meaningful their place in the cosmos, an orientation that opens up a wide array of avenues for critical, comparative, and decolonial approaches that can expand our scope beyond the well-worn channels of the so-called "world religions." In recent decades, scholars have shown how the idea of religion emerged out of and was fundamentally intertwined with European modernist and colonial projects. The concept of religion served to demarcate and elevate elite European and Christian metaphysical and ethical concerns while denigrating those of subaltern subjects by grouping them under labels like superstition, heathenism, idolatry, and barbarism (Asad 1993; Smith 1998). Western writers generally took for granted that religion was rooted in traditions of textual argumentation and articulated as sets of beliefs, often viewing practices and traditions not expressed in these terms as beyond the bounds of religion (Lopez 1998; Olupona 2004). Following the Reformation, European writers came to imagine an ever wider cleavage between the spiritual and the material, with the former being viewed as the domain of the divine while the latter was variously characterized as debased, immoral, and the bedrock of superstition (Houtman and Meyer 2012). It was against the backdrop of these prejudices that colonial scholars and missionaries worked to construct the traditions they encountered as legible wholes, purifying and elevating certain of them to the status of world religions (Chidester 2014; Masuzawa 2005). In the process, swaths of metaphysical and ethical life fell under the banner of "traditional" or folk traditions, generally considered beyond the scope of religious inquiry. Alongside this, the secularization of the academy means the relevance of religion to social scientific and humanistic scholarship has continued to diminish, increasingly confined to divinity schools, theological seminaries, and departments of religion. In spite of this, recent work emerging from across disciplines suggests that questions about metaphysical and ontological reality have renewed purchase in the current moment, reattuning scholars to the significance of the religious and the more-than-secular.

This article picks up on these debates to contend that to study climate and religion today should be to consider how both ideas about religion *and* religious ideas were inscribed into local ecosystems and landscapes and planetary atmospheres, and how these remade landscapes in turn came to influence religious practices and ideas. This approach seeks to unsettle any easy bifurcation between idealist and materialist understandings of religion, which respectively view religion as reducible primarily to either ideas or material factors (Morgan 2021). In contrast, I suggest that ideas about religion and religious ideas both inform and are informed by engagements with landscapes and ecologies while remaining thoroughly enmeshed with shifting political, economic, and historical paradigms. This vantage point helps to complicate a common trope in literature on religion and climate change that suggests the original sin of

modern environmental attitudes is disenchantment. Here, "disenchantment" refers to the process by which nature and the world at large lost their magic and wonder and came to be understood in purely physical or biochemical terms rather than via the animating power of divine or otherworldly forces (Weber [1922] 2009). This article seeks to nuance the idea of disenchantment in relation to climate change, which I suggest homogenizes a wide array of historical shifts and obscures a much more complex and fraught set of processes that crosscut discursive and material boundaries.

This article surveys established approaches to climate and religion before turning to recent literature from a variety of fields to chart a path forward. I begin by laying out two paradigmatic poles in the literature on religion and climate, which I tentatively term the "too much" and "too little" approaches. The approaches I characterize as "too much" focus on religion, especially Christianity, in the negative, arguing that contemporary environmental attitudes have been detrimentally shaped by specific religious ideas and arguments (read: Christian, Western, and Protestant). "Too little" approaches, on the other hand, consider a key cause of the climate crisis to be the decline of or retreat from certain religious principles and cosmological assumptions, which often make implicit or explicit arguments about disenchantment. In the final section, I seek to move beyond some of the limitations of too much and too little approaches and examine how this moment might prompt us to tell more grounded stories about shifting relations between climate and religion, which have cumulatively had planetary consequences. By engaging authors from a wide array of fields in the same frame, I suggest we might find surprising collaborators across disciplines while opening up new ways of speaking both with and beyond that notoriously fraught category: religion.

"'Too Much": Thinking with and Beyond Lynn White Jr.

The approaches I term "too much" are those that posit that certain religious ideas underpin the climate crisis. Given that the climate crisis emerges out of economic and environmental changes in Western nations whose populations have been and continue to be overwhelmingly Christian, these works typically consider the environmental attitudes Christianity encourages. Works in this vein are often all-encompassing in their narratives of what religions are and the work they do in the world, often penned by writers whose expertise lies beyond the study of religion. A foundational piece in this tradition is a six-page article by the historian Lynn White Jr. (1967) published in the journal *Science* and titled "The Historic Roots of Our Ecologic Crisis." Appearing just five years after Rachel Carson's *Silent Spring* (1962), it distilled a spirit prevalent in the wider academy and ecology movement that laid the blame for a wide array of social and cultural ills at the feet of Christianity, an attitude that would seep into the groundwater of the environmentalist movement. White's

article can be read as part of a longer genealogy of writings that considered the relationship between Christianity—especially its modern American variants—and environmental damage (Taylor 2016). White was the son of a Presbyterian minister and remained a practicing Christian throughout his life. His training was as a historian of medieval technology, a period and object of study that provided an idiosyncratic take on Christian theology. This interest is evident throughout the piece and underpins the aspects of White's argument I suggest might be instructive to scholars today.

In his short essay, White sets out three important points that shaped later thinking. First, White (1967, 1205) suggests that ecological attitudes are "deeply conditioned by beliefs about our nature and destiny—that is, by religion." In this sense, White argues that the causes of climate change do not lie solely in material relations or technological change but are equally if not more significantly ideological or discursive in origin (Jenkins 2009). Second, White (1967, 1205) contends that there is something distinctive about the way that Judeo-Christian thought conceives of nature. Analyzing the narrative of creation laid out in the first chapters of the Book of Genesis, he posits that "[m]an shares, in great measure, God's transcendence over nature." For White, the Christian narrative of creation is distinctive, configuring humans as both rulers over and exiles from an objectified vision of nature. Third, White argues that following the split between the Eastern and Western churches in the eleventh century, Western Christianity developed a uniquely rapacious attitude. "In its Western form," he asserts, "Christianity is the most anthropocentric religion the world has seen" (White 1967, 1205). He concludes that "Christianity bears a huge burden of guilt" (White 1967, 1206) for mounting ecological destruction in the twentieth century. Overall, White's account of religion is preeminently idealist and textualist, positing that Christian texts are the origin point of dangerous environmental attitudes and behaviors.

White's article has elicited much criticism from those who view his "too much" approach as sweeping in both its understanding of religion in general and of Christian thought in particular. The geographer Yi-Fu Tuan (1968) cautioned against assuming that doctrinal principles translate straightforwardly into worldly action, especially when it comes to environmental attitudes. He points out that not only do we often observe "glaring contradictions between professed ideal and actual practice," but that individuals and institutions "are not always able to foresee all the consequences of their intended character and action" (Tuan 1968, 188). Theologians responded to White's analysis by pointing out that he identifies hegemonic aspects of modern American Christianity and presents them as intrinsic to Western Christianity as a whole (McGrath 2002). The theologian Anna Peterson (2000) notes that White conflates original doctrine—that is, biblical texts—with "practical religion," or how these texts are interpreted under evolving social, political, and economic conditions. Peterson

concedes that while there exists an "ethic of transcendence" in certain strains of Christian theology—for instance, Gnosticism, Manicheanism, and the writings of figures like Saint Augustine, Martin Luther, and John Calvin—she stresses that this is a particular genealogy. Other traditions—notably Catholic theology and the writings of Thomas Aquinas—present a far less radical cleavage between humans and the material world. As such, White's suggestion that the first few passages of Genesis or Western Christianity as a whole unambiguously produce an insurmountable cleavage between humans and nature neglects the breadth of Christian history and theological argument.

In recent years, a growing number of scholars have considered afresh the extent to which modern Western environmental attitudes are indebted to Christianity and examined more closely the traditions of Christian thinking out of which the most dangerous attitudes emerge, nuancing the period White focuses on. The historian Brad Gregory (2023), for instance, argues that post-Reformation theologies and colonial ideologies of extraction developed in parallel with one another. Gregory suggests that one of the distinctive features of post-Reformation Christianity—both Catholic and Protestant—was its rebranding of avarice, which had historically been considered a vice, as "self-interest," a conception of human motivation that would come to underpin capitalist and consumerist logics. Gregory contends that this change in attitude towards personal accumulation required a novel interpretation of the New Testament. As he suggests, this departure gave rise to the view that religiosity and economic practices occur in distinct spheres and in this sense helped to legitimate the economic systems responsible for the climate crisis. At the same time, Gregory suggests that an ethic of transcendence is not so much intrinsic to Christianity as specific to Protestantism, particularly its emphasis on interior spiritual experience over and above the material world. For Gregory, these post-Reformation theological shifts are more central to modern environmental attitudes than an intrinsic and unchanging essence of Christianity.

These criticisms aside, I suggest there are germs in White's argument of later approaches that are not so condemnatory or essentializing in their accounts of Christianity and think about it in relation to economic and technological change. Recent studies have identified the roots of environmental degradation in sources as varied as the colonization of the Americas, the Enlightenment, the industrial revolution, and the rise of capitalism—that is, the early modern and modern eras (Lewis and Maslin 2015; Moore 2017). Read generously, White's expertise as a medieval historian helps to illuminate that there were complex developments taking place before the early modern period that shaped the emergence of modernity and its environmental effects in complex ways. White invokes the example of the invention in the seventh century of ploughs that could be pulled by oxen, arguing that this new technology not only led to greater exploitation of land but also gave rise to the dividing up of communally

owned lands into private smallholdings. In this sense, White underlines that the emergence of modern ideologies of labor and private property have deep roots, particularly in relation to land and the commons. As literary scholar Eleanor Johnson (2023) has argued, people in the Middle Ages grappled with radical changes to their environments and developed a rich sense of "eco-systemic thought." As Johnson shows, these conceptual systems were underpinned by biblical ideas about the "wasting" or emptying out of landscapes and were central to concepts of immoral types of behavior. In this sense, White was prescient in gesturing to the deeper roots of modernity and the complex intertwining of religious thought with economic and technological change, as well as its impact on later shifts to both climate and religion.

Engaging with White's argument afresh offers both promise and caution. From one vantage point, White prefigures more nuanced arguments that locate shifts in technology and property relations—as well as the complex process of translating theological concepts into modern legal frameworks—as underway before the early modern period, perhaps as far back as the turn of the last millennium. These insights should encourage scholars to nuance the grand categories of "modernity," "Christianity," and "the West," allowing us to unpick exactly what changes were underway, when, and where, and which have had the most devastating effects. From a more critical angle, however, White's work cautions against striving to tell a single or homogenous story about either climate or religion. Traces of such narratives show up frequently, as scholars and critics often too freely condemn Christianity on account of decontextualized biblical passages or the ideologies of some contemporary Christians. The origins of the climate crisis are manifold and varied, and we ought to remain curious about how religion is folded into the layers of the present in complex ways.

"Too Little": Disenchantment and the Secular Disciplines

In recent years, there has been a profusion of texts that go against the grain of earlier literature and instead frame the decline of religion as a key cause of the climate crisis. "Too little" approaches suggest that secular and modernist epistemologies are responsible for rendering the natural world a blank slate, stripping the world of wonder, and creating the political and philosophical foundations that have made increasingly destructive environmental practices possible. This literature extends and deepens one of the foundational ideas in modern social science: that Western modernity is characterized by disenchantment (Weber [1922] 2009). Such arguments are evident in the work of theologians and scholars of religion, who consider the disenchantment of nature a distinctive feature of the West and often express hope for the revival of enchanted systems of thought (Eliade 1957; McGrath 2002; Nasr 1968; Taylor 2010). Similar arguments have been articulated by philosophers and critics who are, at least ostensibly, secular authors. Many of these figures have been

central to the emergence of new fields like post-humanism, neo-vitalism, and new materialism, which collectively signal a revival of interest in extra-human agencies (Bubandt 2018). While these perspectives offer a return to thinking about religion in largely secular disciplines, at times they risk reproducing tropes about disenchantment that obscure the nuances of the role of "religion" in forging planetary change.

The philosopher Bruno Latour (1993) has long been a critic of modernist tropes that view nature and culture as separate domains, which assume humans (subjects) impose meaning and seek to manipulate inert matter (objects). Recently, Latour (2017, 2) has examined how such perspectives shape environmental behaviors, describing the climate crisis as a problem that is "at once mythical, scientific, political, and probably religious as well." Faced with this crisis, he argues, we need to radically reappraise the tenets of Enlightenment thought, particularly its rationalism, worldliness, and secularity. Latour (2017, 152) suggests that this requires a new attentiveness to "that to which others cling," which in his view is the ultimate essence of what it means to be religious. In his words, "One of the great enigmas of Western history is not that 'there are still people naïve enough to believe in animism,' but that many people still hold the rather naïve belief in a supposedly deanimated 'material world'" (Latour 2017, 70). Responding to White's argument, Latour contends that the climate crisis is not the result of something intrinsic to Western Christianity but rather that Christian theology has reflected changes occurring in European thought more broadly. In his words, "Sometime between the thirteenth century and the eighteenth, [religion] lost its initial vocation by becoming Gnostic, before passing the torch to the superficially irreligious forms of counter-religion" (Latour 2017, 210). If Gnostics view the material world as flawed, fallen, and detached from the divine, then Latour suggests that secularism (which he glosses as "superficially irreligious forms of counter-religion") is not so much a departure from but an extension of Gnostic attitudes. More strikingly, Latour turns to the classical Greek figure of the goddess Gaia to conjure an image of the Earth not as inert but as volatile, capricious, and alive. In his words, "Gaia is *an injunction to rematerialize our belonging to the world*, by obliging us to re-examine the parasitic relations of Gnosticism to the counter-religions" (Latour 2017, 219). Put simply, Latour's recent work seeks to demonstrate as false any radical separation between humans and the Earth while beginning the work of imagining an alternative ontological scheme.

Latour is just one among a wide array of philosophers, social theorists, and environmentalists authoring similarly emphatic climate treatises in quasi-theological registers. Figures like Timothy Morton (2010), Amitav Ghosh (2016), and Dipesh Chakrabarty (2021) have suggested that disenchantment is a crucial piece for understanding the climate crisis, while the writings of Jane Bennett (2001), Donna Haraway (2016), Bronislaw Szerszynski (2017), and

Anna Tsing (2017) lay out their own visions for an enchanted metaphysics. Haraway's (2016, 9) work, for instance, is suffused with concepts drawn from Indigenous cosmologies, and she describes her idiom of the "Chthulucene" as signifying an epoch that is "neither sacred nor secular; this earthly worlding is thoroughly terran, muddled, and mortal." In a distinct vein, Morton's work seeks to render visible the interconnectedness of humans and the natural world by abolishing the idea of "nature." In the process, he conjures his own philosophical scheme that strives to describe "interconnectedness in the fullest and deepest sense" (Morton 2010, 7). These works percolate with religious idioms, dialects, and sensibilities, bringing with them lines of argument that not long ago would have been alien to secular social theory and readily disparaged as mystical or romantic.

While these figures frequently gesture to enchantment as a means of departing from strictly secular frameworks, at times they risk reproducing problematic dimensions of tropes about disenchantment, which I gather into three areas of concern. First, they risk reproducing ideas about the temporality of modernity and the people who fall inside and outside this vast category. The environmental movement has long invoked romanticized images of non-Western peoples and often framed Indigenous people in particular as closer to nature (Krech 1999). Such projects often function, in the words of Birgit Meyer (2012, 88), to "deny coevalness" by depicting non-Western peoples as "bearing resemblance to the still enchanted pre-Reformation period." In places, post-humanist, neo-vitalist, and new materialist scholars similarly draw Indigenous concepts and categories for inspiration that can present Indigenous people through a nostalgic lens that reinscribes longstanding forms of epistemic and representational violence (Todd 2016). Moreover, these kinds of perspectives not only rehash old stereotypes but often, in the words of Jessica Cattelino (2017, 133), "contribute to the longstanding and consequential problem of collapsing indigenous peoples into nature . . . [that] associates indigeneity with stasis in ways that devalue indigenous cultural change as cultural loss." The reality is that for colonized populations, climate change and environmental destruction are far from recent experiences. Neshnabé critic Kyle Whyte (2018) points out that for Indigenous people in the Americas, the climate apocalypse—with its attendant fears of dispossession, forced relocation, and human extinction—came long ago. Indigenous histories and cultures are not relics of an earlier epoch but instead underscore the deep historical roots of the climate crisis as well as Indigenous resilience in responding to its many violences.

Second, while these texts ostensibly depart from secular thinking, they often reproduce it in complex ways. The anthropologist Mayanthi Fernando (2022) has pointed out that there remains such a deeply secular bias in the academy that few disciplines are able to grapple seriously with either the God of monotheistic traditions or the gods and spirits of other faiths. Fernando

points out that when scholars in post-humanist studies are drawn to what might at first glance appear to be specters of "religion," they most frequently invoke examples from those associated with "animism." In her view, animism is an easier bedfellow for secular writers than religion, in the sense that it is more easily romanticized as Other (see Wilkinson 2017). In Fernando's (2022, 568) words, "By delimiting nonhumans to lifeforms conventionally understood as 'nature,' and by anchoring 'nature' in a materialist epistemology and ontology, much of this work also reproduces the separation between natural (coded real) and supernatural (illusory) that was equally integral to secularity." In this sense, Fernando (2022, 568) argues that much of this work ought to be read not so much as a break from the past but as "an extension of secularity."

Third, these texts gesture to a knot of problems that arise from debates about "disenchantment." In its original formulation, Weber's concept not only told a story about the decline of religion under modernity but also captured a sense of longing for a premodern past many secular moderns share. While abundant work has complicated totalizing narratives about the disenchantment of modernity (Josephson-Storm 2017), it remains a powerful trope animating much contemporary writing. Enchantment is a famously elusive concept that groups together various secular understandings of religion with ideas about magic, spirits, the unseen, and the illusory. It is in this sense that Courtney Bender (2020) describes enchantment as a "closed-loop language game" and catch-all term for secular perceptions of "excess." At the same time, narratives of disenchantment often work to produce the reality they describe, in Bender's (2020) words, replaying "a set of modern claims about epochs, moods, structures, secularities that are made real within [the same] network of ideas." While Bender's critique is not directed at climate writing per se, it underlines the complexities of a straightforward narrative of disenchantment leading to environmental destruction. Enchantment and disenchantment are concepts so elastic they often produce narratives that fail to reflect the specificities of particular times, places, and philosophies.

Figurations of religion and climate emanating from various corners of contemporary social thought illustrate that the metaphysical implications of climate change are working themselves out in a multitude of contexts, some of which lead us back to religion via unexpected routes. Taken together, these works represent important critiques of modernist thinking as it pertains to the Earth and matter, gesturing to an overdue focus on the material aspects of discursive and conceptual schema. At times, however, they risk reproducing reified stories about disenchantment that reintroduce various modernist tropes. In place of these approaches, I suggest we would be better served by a more subtle vocabulary for describing the sacred and the enchanted on the one hand and the secular and the modern on the other. One means of doing this is to historicize and interrogate what we understand religion to be and the complex

processes through which this category emerged—not only discursively but as part of the changes that worked to remake the Earth and its ecologies. At the same time, this story must be sensitive to the ways this history played out in many locales, cumulatively leading to change on a planetary scale.

Beyond Disenchantment

In recent years, various authors have sought to understand the precise mechanisms that led to the contemporary moment of climatic crisis, particularly the role of capitalist and colonial extractive practices. The most illuminating works in this vein examine the multiple and interlocking genealogies that have led to the present and interrogate how religious ideas and ideas about religion were quite literally etched into local landscapes and ecosystems, and how these new landscapes in turn shaped religious thought. This work explores how the emergence of the category of religion was articulated against ideas about nature, materiality, humans, and landscapes, a story that has always been local and specific even as it has ultimately had planetary consequences. In emphasizing the local in the context of climate studies, I take inspiration from the reparative and decolonial method laid out by Anja Kanngieser and Zoe Todd (2020), which approaches environmental histories as always situated in local contexts and argues that place, land, and knowledge are always intertwined. The works I discuss in this section demonstrate that religion has fed into and been shaped by the political and material forces that have sought to produce wealth, accumulate power, and reshape society through extractive practices. I contend that understanding how religion both shaped and was shaped by these processes helps to deepen our understanding of the metaphysical stakes of the current moment, and ultimately our understanding of contemporary religion's many genealogies.

Recent work in the environmental humanities has sought to understand histories of extraction most closely associated with the climate crisis, particularly coal and oil (Barak 2020). The philosopher Mohamed Meziane (2024) has argued that these forms of extraction are closely linked to struggles over religion and the power of religious institutions, particularly in the sites where the industrial revolution began. In Britain, much of the land that held coal deposits was owned by abbeys and monasteries prior to the English Reformation and the dissolution of the monasteries in the sixteenth century. Meziane shows that although coal extraction previously occurred on an artisanal scale, following the expropriation of these coal-rich lands by the state—which arose from the English crown's desire to undermine the church as a rival power base—governmental institutions had new incentives to make these lands financially productive by extracting, selling, and burning ever great quantities of coal. At the same time, coal extraction on a large scale was made possible by changing metaphysical understandings of the subterranean. As Michael Northcott (2013, 55) has described, the sulphureous fumes given off by coal deposits in England

had long been associated with demons, and as such, mining itself was widely considered an 'immoral' activity. The expansion of coal mining therefore required undermining these fears by characterizing them as premodern forms of superstition. Meziane (2024, 165) takes up this theme, arguing that "[t]he fossil economy implied a profane readability of the underground world, liberated from all 'superstition.'" For Northcott (2013, 80), coal extraction therefore both was made possible by and further propelled understandings that physical matter—and by extension, the Earth itself—was "dead, insensible, and lacking in consciousness or purposiveness." Reading Meziane and Northcott together, it is evident that religion both as metaphysical orientation and as a political-economic force made the expansion of coal mining possible. These changes emerged out of struggles rooted in genealogies of religion specific to the early modern period in England, the birthplace of large-scale coal mining, nuancing linear and homogenizing narratives of disenchantment. At the same time, these works demonstrate how ideas about religion were physically inscribed into early modern landscapes and raise questions about how these material and landscape practices might have subsequently informed the development of religious ideas.

These shifts in political thought and economic practice that occurred in distinct European settings had profound consequences in many colonial contexts. European empires were fueled by the extraction of raw commodities, and as they expanded globally, they engaged in projects to dispel local beliefs about the Earth and resignify matter (Ghosh 2021). The development and articulation of religion in colonial contexts was dialectically intertwined with destructive environmental practices, both facilitating and producing theologies that functioned to further strip the world in ways that were specific to different moments and contexts (Vasko 2022). As the historian Faizah Zakaria (2023) has argued, we should not think of climate change as originating out of any one set of religious ideas but rather that religions in their specific, modernist guises developed alongside rapacious commercial, political, and environmental attitudes. Writing of the context of Sumatra, Zakaria shows that before colonization, longstanding forms of "traditionalist" Islam had been accommodating to local metaphysical schemes, allowing for coexistence with philosophies that viewed the forest and landscapes as alive with agencies. In contrast, ascendant "modernist" schools of theology—both Christian and Islamic—insisted on a more radical monotheism and were closely associated with colonial economic and political interests. In her words, "Theological articles of faith in a specific religion did not affect environmental change as much as the ways in which these principles were discontinuously reconfigured when landscapes, like societies, were dislocated" (Zakaria 2023, 4). In colonial contexts like Sumatra, then, the extraction of commodities and the reforming of landscapes worked to fuel the development of ever more anthropocentric ideologies, which in turn fed into evolving theological paradigms. These ideas would come to shape how people

interacted with their ecologies and the moral stakes of doing so, ultimately working to fundamentally remake local landscapes and ecologies.

Such an approach to the localized intersections between climate and religion is helpful in understanding more recent religious and environmental changes and their planetary consequences. If coal ignited the industrial revolution in the nineteenth century, oil propelled twentieth century capitalism. The historian Darren Dochuk (2019) has revealed the complex intertwinement of American Christianity and oil exploration and discovery. Early "oil hunting" had a deeply spiritual bent, with itinerant preachers and prophets using divine inspiration to identify potential new oil fields. At the same time, the way oil came to fuel America's economic and geopolitical hegemony lent itself to the notion that the country's imperial project was God-ordained. In this sense, religious ideas were inscribed into many landscapes in the United States—with the oil rig becoming an intrinsic landscape feature in many places—while also working to forge an ideology that propelled oil expansion globally.

To this day, a close affiliation between oil interests and certain strains of American Christianity remains strong. The sociologist Robin Veldman (2019) troubles the popular trope that climate skepticism among conservative evangelicals emerges out of what she terms the "end-time apathy hypothesis"—that is, that signs of the decline of the material world are taken by many evangelicals as welcome signs of the apocalypse and the coming of a new world. Veldman nuances this analysis by showing that many evangelicals have a limited understanding of climate change or deny its existence altogether. Instead, she argues, climate skepticism is better understood as a political ideology that emerges out the evangelical "sense of embattlement with secular culture" (Veldman 2019, 8), which has been central to the tradition for over a century and key to its appeal in the early twenty-first century. This is a key fault line for political polarization in the United States, with conservative evangelicals and secular liberals polarized about the proper place of religion in political and economic life. As climate change has come to be viewed as a paradigmatically liberal concern, and evangelical identity coalesced more strongly around social and theological conservatism, climate skepticism has become one among an array of decisive issues. In a moment when climate skepticism and oil interests appear ascendant, ideas about religion—including an eschewal of secular liberalism—are leaving traces in the planet's atmosphere as well as in countless local ecologies impacted by the extraction of oil, gas, and other raw commodities. Similarly, the material interests underpinning oil feed into novel theological paradigms and justificatory regimes that underly fundamentalist evangelicalism.

These works underline that the historical processes that led to contemporary climate change were worked out and articulated in and through the ongoing violences of colonization, which etched new metaphysical orders into the Earth by designating the proper object of reverence and how ecologies ought to be

approached, always in locally specific ways. By dwelling on these intertwined histories of climate and religion, it becomes apparent that religion cannot be approached as a stable object whose contents are always already known and pregiven. Contemporary understandings of religion are therefore indebted to the extractive and destructive practices that fueled the climate crisis, and shifting understandings of the religious have literally been imprinted into landscapes around the globe.

Conclusion

For a long time, stories about the role of religion in the climate crisis have tended to invoke two contrasting specters—too much of this type of religion, too little of that. Both of these narratives produce romanticized vignettes of the right kinds of religion, which, it is hoped, might offer total redemption. Recalling the work of Lynn White Jr. reminds us that we ought to think about the relationship between religion, climate, and modernity as many faceted, with multiple genealogies that can be traced, often to unexpected origins. At the same time, while interest in religious language and tropes has risen as philosophers and critics have sought to reimagine how we might reset our relations with the planet, we must remain cautious about uncritically reproducing secular understandings and tropes about disenchantment. What we may take from the diverse strands of post-humanist, neo-vitalist, and new materialist thought, however, is a renewed attention to the ways that the ideal and the material are always intertwined with and inform one another, pushing us to complicate any easy bifurcation between idealist and materialist understandings of religion.

In any dialogue between climate studies and religion, we ought to remain attentive to the ways the construction of the category of religion itself—as well as efforts to purify it—has been central to producing the landscapes we inhabit. Modernist and colonial ideas about religion sought to purify religious life of its "primitive" components and demarcate legitimate sites and forms of religious practice, in the process severing the spiritual ties people had with particular places and materialities. In the same vein, we ought to engage critically with those categories that are dependent upon the semantics of religion for their form, meaning, and content. This includes not only secularism but also those categories emerge through their contrast with religion: superstition, paganism, animism, enchantment, science, nature, to mention a few.

I have suggested that studying climate and religion today ought to involve examining the effects of how ideas about religion and religious ideas have transformed over time, been etched into the surface of the Earth, and manifested in a wide variety of local ways. Both religious ideas and ideas about religion have worked to remake local landscapes and ecologies while cumulatively contributing to climatic change on a planetary scale. It is not any one set of fixed tenets or principles that have led to this moment then but the complex, shifting, and

mutually propulsive intertwining of religious ideas—and ideas about religion—with economic, political, and colonial interests, which in turn have created the conditions for new theologies. It is the landscapes made by colonial modernity that provide settings in which novel theological interpretations have been—and might be—articulated. In these landscapes, rigid boundaries between humanity and non-humanity have been naturalized, many parts of the landscape rendered inaccessible, and the heavy exploitation of natural resources normalized. The promise is that while these are the parameters of contemporary reality, they are also the context for and object of novel critiques too. A critical dialogue with climate studies then promises to shed new light on religion, giving us a fuller sense of both its shifting meanings and its endlessly shifting role in constructing the worlds we inhabit.

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Rage as a Point of Ecotheological Ethics in Times of Crisis

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This article explores the ethics of rage, positing how this is and needs to be a point of ecotheological ethics. In particular, it argues that understanding rage as an epistemological and ontological position for communities most affected by the climate crisis should be a point of intervention for faith-based development, particularly for international development organizations (INGOs) that wish to do more to structure their direct implementation work within a framework of justice. As an example, the article highlights one form of climate-based programming often used by INGOs—anticipatory action. The particular case discussed draws from programming completed by the faith-based INGO Christian Aid, a program in which the author was involved as a research evaluator. The article critiques such programming to stress the importance of rage as a point of justice-focused ethics, particularly for an organization that structures its interventions around justice-based theology. The article understands rage in many ways but is particularly tied to the kind of multilateralism "from below" that demands a different moral order.

Introduction

It is frequently argued that our contemporary situation is one of polycrisis, that is, it is a complex set of interactions between "problems, antagonisms, crises, uncontrollable processes, and the general crisis of the planet" (Morin and Kern 1999; see also Tooze 2023). Of these many crises, the climate crisis sits, arguably, in the very center. This ecological crisis is a calamity that rests on a multiply extracted, exploited, and disenchanted Earth. This crisis is not only of this contemporary time but has been occurring for decades due to centuries of extraction of natural resources and human labor. The crisis within our modern political economies is almost completely shaped by the fact that the extraction of raw materials forms the fundamental basis of our economics and therefore affects everything from our histories and our ideologies to labor relations and our political subjectivity (Riofrancos 2020). It is the modality through which capitalism is lived in the periphery, particularly for countries in what is defined as the Global South (Hall, Gilroy, and Gilmore 2021; Rodney and Davis 2018). As scholars working on extraction often note, the very definition of Global South is that of a "sacrificial zone," that is, a provider of raw materials to the global economy (Ó'Briain 2024; Chagnon et al. 2022). The moral basis of our economics is purposively detached from nature, viewing land and the labor from this land as equally disposable. This detachment from nature affirms a morality in ecological negligence and destruction (Nash 2000; Conradie 2020). This detachment is also interlinked with a disenchantment with nature, numbing our sense of wonder and affecting our ethical core. Enchantment, perhaps, has a moral role to play (Becker 2019).

Various responses to the climate crisis exist, and, for organizations working in humanitarian and development capacities, most forms of "everyday" response focus on mitigation, resilience, adaptation, and anticipatory action. This article uses the word *everyday* here to differentiate these responses from larger interventions at policy levels that involve a whole host of government and nongovernmental agencies. The everyday responses are those focused on managing the insecurities and precarities caused by multiple climate events. For instance, in countries like Ghana and Nigeria, community-led microfinance models are deployed as a strategy for mitigating food insecurity and building climate resilience (Pienaah and Luginaah 2024). These are important interventions but can, in and of themselves, continue to sidestep the issue that the climate crisis is more than a physical and environmental challenge, more than a "problem" that requires a "solution." Some argue that this sustains a phenomenon of ecological imperialism (Perry and Sealey-Huggins 2023).

Thinking against this backdrop, this article attempts an exploration of an ethics of rage, positing how this is and needs to be a point of ecotheological ethics. In particular, the article argues that this needs to be a key point of intervention for faith-based development, particularly in terms of international development organizations (INGOs) that wish to do more to structure their

direct implementation work within a framework of justice. To not do so, as Guillermo Kerber (2013) argues, is a conflictual theology that seems to think that care for creation conflicts with human development needs. This divide, for Kerber, should now be seen as part of a flawed theology. As an example, the article highlights one form of climate-based programming often used by INGOs: anticipatory action. The particular case discussed draws from programming completed by the faith-based INGO Christian Aid, a program in which I was involved as a research evaluator. The article critiques such programming to stress the importance of rage as a point of justice-focused ethics, particularly for an organization that structures its interventions around justice-based theology. The article understands rage in many ways but is particularly tied to the kind of multilateralism "from below" that demands a different moral order.

Multilateralism from Below

A multilateralism "from below" refers to a form of international cooperation that relies on the actors of civil society and global social movements and grassroots communities rather than on political elites alone (Giraurd 2025). It is a concept particularly central to the ecological justice vision put forward by Pope Francis and other liberation theologians focused on a justice-based framework, applying the Catholic social justice teaching on subsidiarity to the global–local relationship (Francis 2023). It envisions a process that strengthens and affirms mutual knowledge sharing amongst civil society, spontaneous cultural interchange, and paying attention to the demands of grassroots movements and the communities most affected by crisis. Indeed, Francis (2023) goes so far as to ask that "citizens control political power-national, regional and municipal." More secular political thinking would define this as a necessary step in order to lessen the hegemony of corporate interests—such as fossil fuel industries—in shaping climate responses (Ghiotto 2024). This also requires, as Marie-Claude Smouts (1999) argues from an international relations perspective, better coordination and collaboration between NGOs and major social movement groups on a wide range of intersecting issues, and thus also focusing on mitigating any contesting issues through strong coalitions (Keohane and Morse 2014). Referring to the case discussed in this article, it would then be important for large INGOs to be part of collaborations or coalitions with grassroots movements and civil society actors in order to build a global movement out of interlinked assemblages. This would also require INGOs to center the demands and knowledges of such actors rather than build large programmatic responses through a framework of humanitarian aid.

The Importance of a Justice-Based Framework

One key reason to focus on an ethics of rage is because, as liberation theologians argue, the "original sin" of the crisis is that of the logic of extraction (Nogueira-Godsey 2019). To respond to this, it is important to think not in terms of

crisis but in terms of moving towards climate justice (Mendoza and Zachariah 2022). Or, to put it another way, climate change must be understood through the multiple issues, interests, and power structures that have caused it (Salter and Wilkinson 2024). Due to this, climate adaptation and mitigation efforts by international development organizations that do not consider these intersecting interests and power structures, as well as local and cultural factors, can be damaging, unethical, and contribute to the silencing of already marginalized communities (Brissman 2023). Development interventions on the ground can sometimes feel disconnected from larger arcs of advocacy and mobilization done by the same organizations, because these interventions are not necessarily focused on the climate crisis as an ethical and sociopolitical issue but rather as something to be responded to.

Speaking in terms of justice is a key framing for activists and faith actors, as well as communities on the frontline of the crisis, particularly in the socio-environmentalist movements that have existed for decades (Ranawana 2022). Indeed, if we are thinking of this as ecological imperialism, it is perhaps more correct to frame the issue as a problem of climate injustice, acknowledging that the majority world has been facing climate disaster for several decades. The heightened and apocalyptic language that now exists in the technocratic policy spaces of the Global North can arguably render silent the injustice and inequalities that have faced the majority world for a long time. Audra Simpson (2014), for instance, argues that this is why Indigenous communities engage in a politics of refusal. Political geographers and other scholars writing on climate injustice make this point several times: technocratic responses and "frameworks" that "respond" to climate events make it possible for global Northern governments to unilaterally disavow their historical responsibility (Satgar 2018). Most responses, even those that have a focus on the "common good" and sustainability, do not stop capitalist expansion and only continue to reinscribe the state.

Case Study: Anticipatory Action as Climate Intervention

This article looks at a particular climate intervention used quite ubiquitously in the global development sector: anticipatory action. As a way of presenting a case, the article draws from the results of a study conducted by Christian Aid evaluating the effectiveness of their efforts at anticipatory action. I was one of a consortium of researchers on this study, which worked collaboratively with a variety of local partners to conduct a wide-ranging consultation regarding the reach of Christian Aid's anticipatory action interventions. In the face of climate change and manmade disasters, development and humanitarian practitioners increasingly recognize the need to anticipate and manage multiple concurrent risks. The anticipatory action terminology can vary in different contexts and

according to a specific hazard. Anticipatory action is a set of actions taken to prevent or mitigate potential disaster impacts before a shock or before acute impacts are felt (Gettliffe 2021). Anticipatory action is meant to deliver the right assistance at the right time and hinges on three key considerations: timing, activity selection, and targeting (Levine et al. 2020). It is meant to act early in the event of a climate shock so that household units are, theoretically, able to mitigate the impact of a hurricane, drought, flood, earthquake, or other such event. Anticipatory action is not a direct humanitarian response or plan for action on a longer-term timescale. As such, aside from mitigating the impact of a climate event, anticipatory action is also seen as a way to build resilience within the community. Due to this, many anticipatory action-based interventions focus on the importance of cash transfers that are used primarily to protect against income loss in the case of a flood or similar event. Anticipatory action is meant to address extraordinary shocks that do not occur on a standard basis, so that, ideally, funds can be used any moment they are most needed and can have the greatest impact.

Christian Aid's anticipation fund was implemented in four disaster-prone countries (Ethiopia, Malawi, Haiti, and Syria) to support early actions to mitigate harm and loss for communities and people most at risk of crises. Through funding from StartFund, a rapid humanitarian funding network, Christian Aid Bangladesh also implemented an anticipatory action initiative. These interventions primarily included anticipatory action on social protection, livelihood, water, sanitation, and hygiene; the pre-positioning of non-food items/shelter kits to reduce winter impact; prearranged financing dedicated to funding anticipatory action for different disasters; flexible community grants aligned with the survivor community-led response approach to organizing community disaster risk response. The research evaluation was conducted in Ethiopia, Malawi, and Haiti, with a small sample also drawn from Bangladesh. Research was not conducted in Syria due to an earthquake that triggered a large emergency response, thereby making it difficult to conduct the learning review. The evaluator research combined a mixed methods approach of survey, focus group discussions, and unstructured interviews. These last two were chosen as open-ended methods through which respondents could provide unfiltered discussions of their experience. The questions asked in the survey and the focus group discussions were created through a collaborative approach bringing together the research team, community respondents, activists, and members of the team who provided the anticipatory action aid. The household questionnaire was administered to 218 heads of households or their representatives. In addition, fifteen focus group discussions were conducted in all countries to extract valuable insights and learning from the anticipatory action projects. These focus group discussions encompassed

diverse participant groups from different locations, including all-male groups, all-female groups, and mixed groups.

The evaluation Christian Aid conducted on the effectiveness of anticipatory action in Ethiopia, Malawi, and Haiti found cash support has a significant impact on preparations for predictable disasters. Cash support enabled many community members to purchase livestock, particularly goats, and food items for during peak crisis times. This intervention provided immediate financial support to the community members and allowed them to meet their basic needs and address immediate emergencies, including access to food, clothing, and medical supplies. The cash assistance gave them the freedom and flexibility to decide how to allocate the funds based on their specific needs and priorities as well as allowed them to purchase goods and services from local markets and businesses, thereby stimulating the local economy. It also helped crisis-affected communities and individuals regain a sense of control over their own lives in the short term and rebuild their livelihoods according to their own preferences and skills.

The effectiveness of cash transfer as aid is primarily due to its fungibility and the ability for an organization to release small amounts of funds relatively quickly. However, this still raises questions regarding the quality of the assistance provided, particularly the amount of the cash given, whether it required bundling with other goods and services, and, most importantly, if it was truly effective in a protracted crisis, such as the chronic drought encountered in Haiti.

In Haiti, respondents noted that the drought they were experiencing was long term, beginning months before the arrival of the cash support, and that quicker mobilization or ongoing support would be welcomed. Cash aid minimizes anxiety in the short term but opens up questions of what is to be done in chronic situations. Most respondents noted that their ability to cope with the situation—and what are often multiple forms of long-term and short-term climate events—did not rest on the anticipatory cash alone but also included community-based mutual solidarity efforts, selling off any remaining assets they had, and other forms of material aid. Some participants in Haiti thought it would be very useful and far more sustainable to set up a solidarity fund in each communal section that throughout the year collects voluntary contributions from citizens wishing to support people in difficulty.

In two interviews in Malawi, respondents talked about a local "community committee" that handles assistance that comes into the village. Across the board, respondents referred to an existing culture of cooperation that is important for survival; however, some noted the chronic nature of the situation, such as ongoing drought and multiple climate shocks, affects such social cohesion and cooperation therefore it may not be sustainable. This puts the analysis in mind of what political geographers call the problem of "de-bounding," that is, the fact that the effects of a disaster or climate event are not exclusive to a localized

time or space and will spread in nonlinear ways and be affected by the present as well as historical power relationships (Beck 1992). How is anticipatory action expected to respond to not only how something will unfold in the first few months of an event but how it will mutate in terms of a variety of conditions? The effects and impacts of a disaster change frequently and are not static. As discussed, social cohesion matters, and power relationships come into play, as do oppressive political situations. In our study, two respondents noted that they were not served well by the community assistance due to political bias. In Ethiopia, one respondent noted that in order to receive aid, they ensured they were not "too political or . . . involved" so they would not receive trouble. There was also hesitancy to discuss who can access profit through certain interventions, or who might become powerful as a broker due to historical and current power relationships. As Anderson (2010) notes, the preparedness and precautionary nature of an anticipatory action are always affected by the contingencies of threat, opportunity, danger, and profit, or what he calls the productive/destructive relationships that characterize liberal interventionism.

Importantly, communities did not rely on one organization for support but accessed aid from multiple points. This was due in part to the fact that several households were already significantly burdened by debts and willing to take on more debts in order to manage their way out of the crisis they found themselves in. In fact, debt taking seems a chronic or usual activity and is not always coded as debt but as a source of additional income. It is important to understand that loans were not always used for business or trade needs but in some cases, like in Haiti, for consumption. This then translates into a situation where someone adds increasing amounts of debt to an already precarious situation. Combine this with the accessing of aid from multiple points and the increasing loan burden, and one can easily see the lack of sustainability in anticipatory action responses. Considering the increased frequency of climate events and the chronic nature of drought and famine, there is arguably room to wonder if interventions such as anticipatory action only serve to keep affected communities in a holding pattern, and thus, even unwittingly, attempt a "governance" of the affected, muting their agency to push for more systemic change such as reparative justice through a loss and damage fund. "Climate responsive" schemes like anticipatory action, as can be seen from the earlier empirical notes, mostly "manage" temporary and chronic situations. They are the management of a crisis rather than justice oriented. Further to this, by providing piecemeal action like anticipatory action, one could argue that development actors are muting and "defanging" any possible rage affected communities may feel towards the situation they are in. They become increasingly dependent on multiple forms of aid and, worse, are further trapped in debt cycles exacerbated by frequent climate events. So, we could argue that the intervention itself has not engaged with the knowledge of those most affected but rather provided a quick solution.

A question that could be raised is what this intervention would look if it arose out of a more grounded multilateralism or engaged with the community efforts that several of the individuals we spoke to said they had made use of? It is very clear that individuals were making use of multiple and hybrid forms of support, as their situations were often chronic or long term.

Frameworks of Rage

The case study provides a snapshot of why certain kinds of development interventions regarding the climate crisis are inadequate and require a different set of ethics. For organizations like Christian Aid that have a theological sensibility, it may be useful to center rage as a point of ecotheological ethics. Using the framework of rage, and thus asking the question *why*, such organizations may then begin to center the multiple levels of displacement, the chronic droughts, and the collective dispossession faced by these communities not only as a point of advocacy but as a means of shaping programming. Rage makes policymakers and scholars attentive to global wounds and motivates the pursual of justice. The current focus on technocratics and crisis management also allows the global development sector to not reflect on its own disproportionate historical responsibility and to control the agency of marginalized groups to unite in advocacy for long-term ecological transformations, to truly support a multilateralism from below. For global development organizations like Christian Aid that profess a faith-based character, centering a theology of rage that acknowledges and recognizes that we are within a crisis of ecological imperialism is fundamental. Rage as a point of analysis and ethics reveals practical problems, such as collective dispossession, which can then mobilize various organizations, policymakers, and communities to organize together to address injustice, rather than a scenario that seeks to "manage" or technocratically intervene in a crisis. Theologically, an ethics of rage also mitigates the tendency to depoliticize analyses, or rather, it urges scholars to center a material analysis. This is important because rage is only the starting point, it transforms the episteme. From this starting point, one moves to praxis, to transformative action (Friedrich 2025). This is a pressing issue for faith-based international development organizations like Christian Aid that have a stated mission of a "better world." The cases drawn from the evaluation of anticipatory action underline what is missing in development interventions. Faith-based INGOs can draw on liberatory theologies, particularly an ethics of rage, as a starting point for transforming their climate-focused interventions.

As discussed in the introduction to this article, this is already extant in liberation theology. Liberation theologies in particular focus on issues of international debt, the environmental impact of structural adjustment programs, the long-term impact of extractive colonialism, climate justice, and climate adaptation. This is done because of an underlying sense of rage in

these theologies, in their understanding of, as aforementioned, Christ Liberator. What is suggested here is building theologies that have planetary frameworks (Balasuriya 1980). Planetary frameworks require more than rights, justice, and an equitable sharing of resources. Rage as a point of ecotheological ethics is a direct response to Cynthia D. Moe-Lobeda's (2024) question of how one can build a moral economy.

Defining Rage

Rage is a difficult concept to build an argument around, but it is not necessarily a new concept for theology, particularly liberation theology. For instance, feminist theologians and Asian liberation theologians have long argued that the way to best understand Christ is not as a liberator in the spiritual sense but in terms of his praxis in the material world he lived in (Loades and Armstrong 1990; Balasuriya 1984). Consider even the productive rage of a manifesto like the Magnificat. There is a vein of rage that runs through the Magnificat. Here is a Palestinian Jew, living under occupation, boldly declaring that God "has cast down the mighty from their thrones." It is a cry that calls out a socioeconomic system built on injustice (Harrell 2022). It has revolutionary agency, it is political, and it envisions a people who will be free of occupation (Greer 2017). Anticolonial feminist theologians of the Global South often position their work as resistance against the "death creating" structures of capital; this displays close parallels with the vein of anger in the Magnificat (Hinga 2002; Katoppo and Fernando 1992). I have expanded upon this comparison in other work (Ranawana 2023). To read Mary as a woman with a kind of Holy Rage is a crucial way in which we can better understand the salvatory work of Christ from a liberationist approach as well as become more comfortable with concepts and emotions that may unsettle mainstream theology.

Rage is difficult, and it is disruptive. One is *allowed* to be in grief over, for example, climate injustice and climate disaster. This article agrees and argues for a position that is more strategically useful as a base for analysis and action than grief. How often is one allowed to feel rage at a situation that grows increasingly dire? Rage is noted by some as a "non-ideal" emotion (Dege 2024) and less attractive, shall we say, than grief. Carmen Lea Dege (2024) suggests that rage is a transformative emotion. It is often seen as uncomfortable where it has been tied to aggression, or rather behavior where an individual or organization may seek to forcefully assert themselves. This article is more concerned with where rage awakens and makes us attentive to injustice and thus mobilizes collective action for change. Perhaps we can argue that it is important to pay attention to rage as a point of ethical thinking, particularly where rage swells up and drives forward social movements. This form of rage is resistive and constructive. It is not rage that comes, necessarily, from resentment but rather from attention and awakening. It is rage organized around dismantling

the conditions of injustice. That is, it motivates productive action, builds resistance, and is always informed by an inclusive and liberating perspective (Cherry 2021). For Myisha Cherry (2021), an anti-racist philosopher who has made the case for rage, there is a form of rage crucial for the transformative work social movements aim to do. Similarly, in John Caputo's (2009) *Radical Hermeneutics,* one finds an affirmation of the importance of feeling outrage, particularly where religion affirms that God's response to suffering is rage and solidarity. As Katherine Sarah Moody (2018) has noted, this is where Caputo develops his work from the mystical to the ethico-political, noting there is justice calling to be realized. Years after Caputo, Vincent Lloyd (2021) writes that when rage is "recovered," it attunes us to questions of oppression and domination and pushes us to radically imagine a different world. Others speak of a prophetic rage that resists, creates alternative spaces of redemption (Hill 2013), and is a kind of revolutionized love (Urbaniak 2016).

Important here is that rage, as a reaction to suffering or as an adjustment of a view, can and does push the individual or community to take on a different stance, to ask the question *why*? Importantly, rage disrupts the "reasoned" imperial logics within which we live and which, as noted in the introduction, entrench a world in which certain communities and lands are constantly sites of extraction and sacrifice. As Audre Lorde (1997, 280) has argued, the rage expressed by those affected by injustice is often dismissed as "useless and disruptive," but when this rage is translated into action, it can become an important part of the work towards collective liberation: "Everything can be used, except what is useful. You will need to remember this, when you are accused of destruction."

Rage stands against "reason" and demands a radically different epistemology, one centered around the dismantling of power that maintains imperium. This occurs because rage, unlike grief, is arguably outward looking. As mentioned, it asks the question *why* and moves from this to the question of *how*. Experiencing rage at suffering or injustice is an experience that affects the heart and the mind and can cause an ontological change in the individual or community.

The idea of centering rage has long been a part of social justice conversations and literature. As such, this article joins a crowd of voices who have been pointing to rage as a way of thinking and structuring interventions, and resisting the suggestion of rage as only destructive and violent. Rather, rage is generative. For example, Sonali Chakravarti's 2014 work *Sing the Rage,* which looks at how rage can be an important unifying logic for structuring transitional justice processes, gives us three ways of understanding rage. In a cognitive sense, rage allows for an understanding of the needs, interests, and fears of those most affected by a phenomenon. There is also the confrontational aspect of rage, which allows those who are building responses or solutions together to understand what is possible in terms of repair and punishment—what does justice look like in each and every context? Lastly, and this is particularly important for a grassroot

multilateralism, rage infuses life and energy into long-term justice-centered work. Or, as Lorde (1997, 278) says, "my anger is a response." As many activists have noted, the emotions experienced during a climate crisis shape and create the goals of social activism and can be highly strategic. Rage in particular can be a response that helps one resist being paralyzed by climate breakdown. Indeed, Glen Albrecht (2019, 86), looking at the link between anger and climate injustice, has coined the term "terrafurie":

> Terrafurie is the extreme anger unleashed within those who can clearly see the self-destructive tendencies in the current forms of industrial-technological society but feel unable to change the direction of such tierracide and ecocide . . . The anger is also directed at challenging the status quo in both intellectual and socio-political terms. I think of it as a protective anger, not one that is aggressive.

We can certainly see this rage being articulated in the Global South movements that have been at the center of resisting the current ecological order. Whether environmental defenders in Guatemala or farmers striking in India, we see a furious opposition to capitalist domination and struggles that work intergenerationally, pointing to the historical injustices that have brought us to the present (Posani 2009; Andersson 2021). I provide here an example from an environmental and labor activist in Malawi who was interviewed by the research team as part of the assessments on anticipatory action. It articulates some of the confrontational and cognitive aspects of anger discussed earlier:

> We are invisible to the big corporations. But we will resist this, the toll is heavy; it is emotional and physical. But whatever it is we are ready. (Interview 2B)

From a separate project, I also provide the following example of rage-filled thinking from an Indigenous Christian pastor and theologian in Indonesia. It demonstrates the kinetic form of anger:

> Our ancestors understood how to walk forward in knowledge and power. The harm done to the forests and the seas, this is an attack on [the Divine]. There is power in educating and mobilizing our young people. We will walk forward in this power [sic]. (Interview St. Andrews 3)

Again, we can also see this closely in the writings of Global South theologians and the articulations of Indigenous communities the world over who struggle to understand why there is little moral or political will to attend to the root causes of the climate crisis or provide reparations to the affected communities

(Urbaniak 2017; Flowers 2015). Indigenous communities are faced with a growing environmental crisis as well as finding their voices/activists marginalized through technocratic approaches (Kikuyu 2020). While Indigenous peoples have a significant presence in international climate activism, their involvement in national legislation and global policymaking is marginal.

This is further exacerbated by the global model's correlation of power, which is unfavorable to these communities. Ethnographic studies with Indigenous communities in Cambodia and Colombia, for example, have found that collective emotional responses to continued land encroachments can shift the power of state actors by subjecting them to the embodied demonstrative strength of community demands based on both "positive" and "negative" emotions (Jakimow 2023). The power dynamics evidenced in these studies show how attention to emotions provides a deeper understanding of responses by Indigenous peoples to land exclusions (Rodríguez-Garavito and Arenas 2005). The concept of a *politics of refusal* is a strong example of thinking from an Indigenous community that holds onto a framework of rage. As articulated by Audra Simpson (2014), the politics of refusal is best understood as an immanent unsettling of the settler [imperial] present. As the global and national state mechanisms provide interventions that neutralize the present and narrate the past, for Indigenous communities living and working to push against these logics by refusing them, the narratives that do not center justice collapse (Robathan 2018). As Betasamosake Simpson (2017, 20) notes, "if we want to create a different future, we have to live in a different present, [present different epistemologies] and let them change us." This suggests a radical and resistant epistemology. This is true not only for Indigenous communities and activists but also for religious studies scholars working in and from liberationist perspectives.

However, it can be argued that while this rage exists and is articulated, as discussed earlier, much of the climate responsiveness by some civil society actors—like large INGOs—does not engage with the confrontational or cognitive sensibilities of those most climate affected. Rather, the most frequent responses are solution and alleviation focused rather than oriented towards larger justice coalitions. This is not to say that this kind of work does not exist in the development sector, but that the orientation of human resources and funding is not on justice work. Rather, development organizations do, in most cases, prioritize interventions over movement building. This also means that an intervention such as anticipatory action may not be fully consultative. For INGOs that are faith-based or tied to a theological focus, I am arguing for a need to recognize and integrate rage as part of the organization's ecotheological ethics. Looking at such interventions through the lens of rage, an ecotheological and ethical stance may help to consider if such measures are contributing to resisting the logics of imperialism and dismantling historical and wider social

causes of climate change. Linking to Chakravarti's notion of cognitive and confrontational rage, rage can be a starting point for relational mutuality where different forms of knowledge are grown together to build a coalitional solution.

In the realm of policy formulation, a crucial inquiry very rarely arises: Who bears the responsibility for the crimes associated with environmental degradation? This inquiry, framed within the context of rage, highlights the profound emotional and ethical dimensions that accompany the discourse surrounding environmental crises. The interplay between human emotion, particularly rage, and ethical decision-making is crucial in understanding the societal response to environmental degradation. An ethics of rage not only reflects a sense of urgency but also raises critical ethical questions about responsibility, justice, and the moral imperative to protect our planet. To answer the question of where rage comes in, in terms of the limited mechanisms of policy: rage provides a form of knowledge borne from lived experience. Individuals may translate their rage into action and knowledge in order to build, collaboratively, a justice-based response to the climate crisis, one then owned by a grassroots multilateralism.

To fully center an ethics of rage, there is a need to move away from the characterization of environmental degradation as a "looming crisis" that threatens to usher in an "apocalypse." This characterization facilitates a paradigm that often prioritizes immediate, technocratic responses over more reparative approaches. It simplifies the complex web of accountability, directing attention towards urgent policy measures that may overlook the deeper systemic issues at play. Examining policy decisions and political discourse regarding the climate crisis in the way described in the previous paragraph helps to further a critical examination of responsibility that not only informs the design of effective policies but also shapes the moral narrative surrounding environmental action, ultimately influencing the sustainability and equity of proposed solutions. The notion of crisis, and not justice, dilutes the imperative to critique ongoing North-led processes of militarism and imperialism that make life precarious and violent for racialized and minoritized communities in the Global South.[1]

That justice and an ethics of rage are not centered is also a problem for some scholarship. For example, consider Jem Bendell and Rupert J. Read's (2021) *Deep Adaptation*, a primarily apocalyptic concept. Communities in the global majority have experienced multiple collapses that have led to repeated displacement and the need to reconstruct their lives. They have already relinquished their ways of life. The technocratic solutions often prescribed to them are to "become" resilient, without any effort to tackle root causes. Reconciliation, which is prescribed by Bendell and Read, cannot look only at mutual mortality but must, first and foremost, acknowledge the historical imbalances of power and the crimes of environmental degradation committed by imperial governments and multinational corporations.

Justice is an agential demand, a request for a moral commitment, or what Pope Francis (2016) has called an "ecological conversion." These demands have several drivers, one of which is a deep sense of grief and loss (Ojala et al. 2021); another is rage. These drivers, we can argue, challenge the technocratic responses of mitigation, adaption, and resilience, as they inhabit a different moral order, one wed more closely to enchantment and wonder, but also shock and grief at environmental disaster and the loss of things we might hold as sacred, such as land and rivers. This different moral order insists that the time for action is now (Mihai 2024). We can briefly see this in, for example, the work of theologians working in and from the Global South. Jesse Mugambi (2016), for instance, argues that the problem is not that we are ignorant of the world's plight or that we have failed to develop a good theology of creation. The problem, for Mugambi, is one of ethics or will, and it is rooted in the very same power struggles that leave some poor and others rich.

Note

[1] In my definition of the North, I also include elite and political establishments of the Global South that profit heavily from these North-led processes.

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Tuning into Meaning and Dropping Out of Crisis—Meaning What Exactly? Psychedelics and the Meaning Crisis

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Global heating, brazen breakages of the Geneva convention, and what cognitive scientist and cultural philosopher John Vervaeke refers to as a "meaning crisis" haunt our global village. This meaning crisis is the personal-collective felt incongruence of fact and value. This article argues that psychedelic experiences and research respond to, emerge from, and provide practical solutions to the meaning crisis. While psychedelics are celebrated as addressing personal and social issues spanning from prison recidivism rates, experiences in religion, death-fear in hospices, adjuncts to therapy for treatment-resistant mental health issues, and problem solving, psychedelic experiences and research also suffer the same incongruences the meaning crisis diagnoses on these levels: self-articulation, functionalizations of religious experience, and the economics of chemical mysticism. Further, this article argues that when psychedelics are used in particular contexts with specific intentions, they can provide solutions to the meaning crisis, with three examples: "moral enhancement" and the discourse's limits, and two case studies from peacebuilding in Israel–Palestine and ecological connectedness and animism.

Introduction

In a collection of essays about the hope secularism offers, Italian philosopher of science Paul Acosta (2011, 138) argues that "we cannot help but be affected by things as if we were immersed in a sort of bubble of meaningfulness or, better, in an atmosphere of significance and import that we do not create from scratch but are absorbed by." Despite this alleged absorption, global heating, biodiversity obliteration, increasingly brazen breakages of the Geneva convention agreements, and what cognitive scientist and cultural philosopher John Vervaeke refers to as a "meaning crisis" haunt a global village suffering from personal-collective incongruences of fact and value.

Given the increasing role psychedelic experiences and media are playing in the mental health crises, in discourses on religious experience, and in the anthropology of ecstatic religions, I claim that though psychedelic research and practices also suffer from crises of meaning, both can have some role in solving the broader meaning crisis. Psychedelics and altered states of consciousness generally have been identified by influential journalists (Pollan 2018; Beiner 2023) as responding to the "meaning crisis" undergirding our coeval economic, military, resource, and ecological crises. As psychiatric penicillin, microscopes for phenomenological psychology, novel sacraments for experientially revivified religion, and neuroplastogens for a healthier mind-body, psychedelic-altered states are addressed by many as potential solutions to issues spanning from prison recidivism, death anxiety, treatment-resistant conditions, and complex scientific problem solving (Leary 1970; Doblin 1998; Luke 2019; Nemu 2016; Riley 2019; Partridge 2019; Mudge 2020; Sjöstedt-Hughes 2021). But as our peak of inflated expectations tips to a trough of disillusionment, the questions I ask are: Why now? What are the actual potentials and drawbacks of psychedelic approaches to the meaning crisis? And do psychedelics exhibit a meaning crisis of their own?

This article first identifies what "meaning crisis" means. Second, it looks at the way in which research into the psychedelic experience suffers from this same crisis. Third, it examines possible solutions to elements of this crisis. Existential philosophy has cast humankind's search for meaning as an issue that perennially galvanizes rather as than something epochal (Kierkegaard [1844] 1981; [1844] 1992, 89; Schopenhauer [1850] 2005, 17, 74, 100, 114, 118; Nietzsche [1882] 2018, 179; [1886] 2003, 62–63; Heidegger [1927] 2010, 228, 376; Cioran [1949] 2018, 4). Vervaeke's cultural diagnosis is a departure from the category of meaning as a perennial existential category: he uses a dual methodology of structural-functional and historical explanation. The unique contemporaneity of the meaning crisis operates on three levels: the intellectual, the sensorial, and the social. Implicit throughout my analysis is the question of why psychedelics have been hailed as a solution and, moreover, why now? The final section

examines three case studies to illustrate why, despite criticism, hope may still lie in this Pandora's box.

What Is the Meaning Crisis?

Vervaeke typifies the meaning crisis as a complex of felt incongruences in the contemporary human condition. Existential philosophy has looked at the way in which the human condition is characterized—the Camuian Sisphyus is happy, human beings are always "beings for whom being is the question" in the "decisive significance" of choice and the "dizzy freedom" of anxiety (Camus [1942] 2005; Kierkegaard [1844] 1982, 16; [1844] 2015, 188). Vervaeke's contribution differs from this by connecting the perennial with the particular, the biological with the cultural—what he names the "structural-functional" and the "historical" accounts of meaning. The meaning crisis is characterized positively (by the contemporary interest in mindfulness, therapy, and psychedelics) and negatively (by our mental health epidemic, suicidality, the prevalence of "bullshit everywhere," and a prevailing mood of nihilism, cynicism, and futility). Vervaeke (2019a) uses his combined method to answer three questions: 1) What is meaning? 2) Why do we hunger for it? 3) How do we cultivate the wisdom to realize it?

To understand Vervaeke's diagnosis, I describe how the human mind structures and is structured by meaning, and latterly, how this relates to our cultural moment. Vervaeke first notes that while meaning is central to our evolutionary adaptability, the cognitive tools we use to acquire and develop meaning can also backfire when we mistake salience (importance) for truth (what is the case). The cognitive software required for psychotechnological rituals both of initiation—involving emotional deregulation such as pain, fasting, and drugs—and of trusting the stranger (required by Dunbar's number[1])—requiring the habitus of language, art, and music—have been exapted into shamanic rituals for participatory knowing in healthcare and hunting (for example, knowing how the deer exists rather than simply about the deer, or to "stimulate the placebo response"). The goal of the shamanic state of mind is the "flow state," where challenge matches skill without boredom or stress (Figure 1). Vervaeke (2019b) notes that studies from multiple societies prove that the flow state is pancultural, with increased flow states correlating with higher wellbeing and meaning in life.

Moving to the historical, Vervaeke examines how the human view of the self has culturally changed in the Axial Age in a way that utilizes these cognitive skills. Implementing a Platonic trichotomy, Vervaeke uses the notion of the human condition as symbolized by Man, Monster, Lion[2] to illustrate what can become dissonant or incongruent, leading to a meaning crisis. The Man is "motivated by the truth," and so the meaning crisis operates in contemporary cognitive dissonances. The Monster is "motivated by pleasure and pain," fundamentally operating on a hedonic axis but also in the reactive axiological realm of a value

such as beauty. The Lion is "motivated by honour and shame" (Vervaeke 2019c). This operates in the axiological realm of values such as what is considered the good life and the "religare" (binding) between people, combined with an onus on the individual to succeed and create their own meaning rather than be given, for example, a role, as in traditional societies, something referred to as detraditionalization (Vervaeke 2019k; Giddens 2002).

Vervaeke's (2019c) interpretation of Plato emphasizes achieving a balance between understanding (truth), salience (relevance), and sociocultural "participatory epistemology": the Socratic "examined life" where basic needs become collective duties.

A key distinction is between truth and salience. Truth involves correspondence with reality, while salience focuses on what is important and where our attention is directed (Vervaeke 2019a). Socrates's paradox (being the wisest despite knowing he lacks wisdom) highlights the inadequacy of two other philosophical methods in his time—and ours. Sophists sacrificed truth for salience, selling arguments without regard for their truth, while natural philosophers focused on irrelevant truths (Vervaeke 2019c). Today, truth and salience often remain disconnected, as seen in advertising. Advertisements act as sophistry, leading to rewards contrary to societal thriving—read consumer holidays, monocrop fast foods, child-slavery chocolate (Vervaeke 2019c). I first flesh out the notion that advertising, religion, mental health, and politics all provide examples for the meaning crisis in this time. I then turn to psychedelics.

Walter Benjamin ([1982] 1999, 171) stated that "the advertisement is the ruse by which the dream forces itself on industry, suggesting that capitalist desires exploit dreams and make them hyper-salient." Take Joseph Campbell's idiom, "Myths are collective dreams, and dreams are individual myths." This is reflected in consumer choices, like buying sugar or chocolate not linked to slavery or the rise of "vintage" second-hand stores, and the commercialization of psychedelic wellness culture. Our friendliness with strangers and ethical considerations shape meaningful lives—but can you afford to be ethical (Vervaeke 2019b)?

Contemporary religions these days often feel like empty motions, notes Vervaeke, disconnected from wider truths. Theonarratives fail to align with experience. For instance, the Bible, which grounds the ethics of so many Jews and Christians, does not explicitly mention abortion (Wilson-Kastner and Blair 1985). Mental health becomes individualized, with one pithy coinage being the "privatisation of stress" (Fisher [2016] 2018), which combines with the increasing medicalization of the human condition (Laing [1960] 2010; Foucault 1994; Szasz 2003; Conrad 2007).

Mainstream science, concerned with truth, continues to struggle to account for a meaningful life. The description of consciousness and the brain as juggling molecules may attempt to account for truth but lacks relevance for our quotidian and existential choices. Philosophers from Theodor

Adorno and Max Horkheimer to Alfred North Whitehead have argued that the Cartesian cogito mystified the realm of the soul to a point, post-Enlightenment, where it became normal to speak of consciousness as either unreal or an insubstantial function (Dennett 1991; Seth 2021), rendering us ghosted machines (Whitehead [1925] 2011; Adorno and Horkheimer [1947] 1972).[3] In the existential psychiatrist R. D. Laing's ([1960] 2010, 12) formulation, "who says that men are machines may be a great scientist . . . who says he is a machine is 'depersonalized' in psychiatr[y]." Adorno ([1947] 1972) anticipated this move: "Animism spiritualized the object, whereas industrialism objectifies the spirits." Psychedelics inflected the drab workaday iron cages of postwar metropolitan life, giving the disenchanted and secular elite experiences that made congruent "intellectual attempts to understand the world and our existential attempts to dwell within it" (Vervaeke 2019c) in a way scientific articulation of the brain organ had not.

In politics, the meaning crisis is evident in alliances with nations that have questionable human rights records, such as Britain's ties with Saudi Arabia. These relationships, often justified by economic benefits, clash with democratic values, causing a disconnect between ideals and actions. This incongruence leads to a psychological imbalance where truth and pleasure become interchangeable. Such crises demand catharsis and resolution, as suggested by the phrase "nothing is true, everything is permitted," which points to the need for a meaningful life to be grounded in both true knowledge and ethical action (Bartol [1938] 2007; Jay 2023, 282).

These are crises because they require catharses; tensions require resolutions. All pullulate into what can be specifically termed a meaning crisis because such a crisis operates in the individual and collective psyches, which ask "why?" without a satisfactory answer. Meaning therefore means being "in touch with reality" (Vervaeke 2019a). The introduction of psychedelics into contemporary metropolitan culture is therefore finding its niche in the field of meaning (Vervaeke 2019h). I ask whether the peg is the shape of the hole: Are psychedelics immune from the problems the meaning crisis poses?

How Does This Relate to Psychedelics?

So far I have described Vervaeke's theoretical account of the meaning crisis based on cognitive science and the history of human and cultural self-understanding. But Vervaeke's own empirical research has also shown that altered states of consciousness, as "psychotechnologies," can bring about "quantum changes" in the "radical transformation of experience" and that entering the flow channel (Figure 1) increases one's propensity to find "meaning in life," "insight," and "wellbeing." The cognitive mechanics of an insightful altered state operate, Vervaeke found, on two axes (Figure 2). On the first axis is a "transparency to opacity shift" or the reverse: this is defined as the shift between focal or

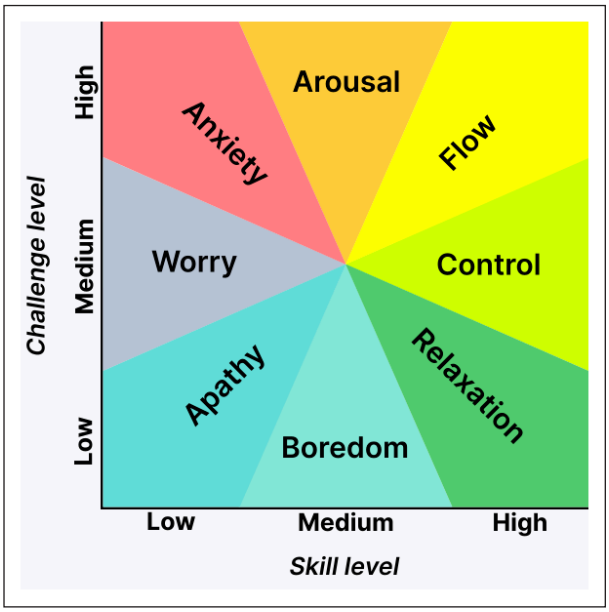

Figure 1: Mental state in terms of challenge level and skill level, according to Csikszentmihalyi's (2008) flow model (Vervaeke 2019b).

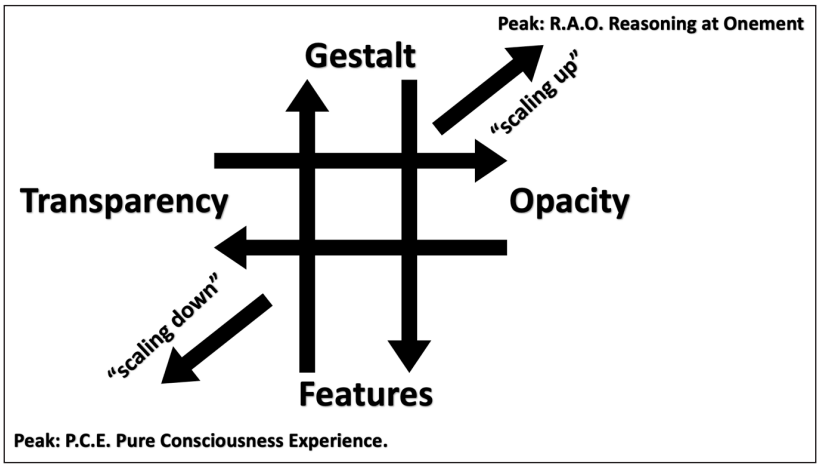

Figure 2: The axes of operation for cognitive mechanics (drawn and adapted by author from Vervaeke (2019h)).

explicit awareness of the content of the observation and the subsidiary or implicit awareness of how one is looking; it is analogized as looking through glasses versus looking at glasses. It is a heuristic to hermeneutical shift, from the problem being solved to the how the solving solves. The other axis moves between the gestalt—the whole—and the features—the parts. This is studied neurobiologically by the neuroscientist and English professor Ian McGilchrist (2009), noting that the physiological asymmetry of brain hemispheres affords each type of awareness. Recent research shows greater "functional connectivity" between brain regions during psychedelic experience, including possibly between hemispheres (Tagliazucchi et al. 2016; Levin 2024).

According to Vervaeke, it is possible to "scale up" to the gestalt and the opaque filter of perception or "scale down" to the transparent features. The former allows for knowledge of self, the latter for knowledge of world. At the peak experience of the scaling up is the "pure consciousness experience," at the peak of the scaling down is the "resonant at-one-ment." Insightful altered states allow the individual to move between both peak experiences "fluently." Vervaeke then asks what this twin axis grants access to in terms of meaning specifically. He says it makes one aware of "causes" that make things happen and two types of "constraints"—"enabling" and "selective"—that make actions more or less possible (Vervaeke 2019f). Our worldview has become meaningless because our accounts of the world no longer correspond to how it is we know the world. Here, Vervaeke uses Erich Fromm's ([1976] 2013; emphasis added) noted confusion regarding capitalist society: in our situation, "to have *is* to be." To have "meaning" there must be "nomological order": a congruence "between our intellectual attempts to understand the world and our existential attempts to dwell within it" (Vervaeke 2019c). But if psychedelics and the flow state have always been with humanity, why is the interest in psychedelics undergoing a resurgence at this time? To answer this requires an assessment of recent cultural history.

The narrative of the introduction of psychedelics into the quasi-religious countercultural movement in the 1950s and 1960s is complex with contrasting stories (Roszak 1968; Marcuse 1971, 78; Ohler 2024; Dickins 2024) Psychedelics were available to occidentals yet considered aberrant and useless for four hundred years before mainstreamization (Breen 2022). Key scientific figures include the chemists Albert Hofmann (the discoverer of LSD) and Alexander Shulgin (the discoverer of MDMA's pharmacological properties as well as the developer of many contemporary psychedelic party drugs). Key popularizers and philosophers include Aldous Huxley (and his *The Doors of Perception*) and the 1990s mushroom prophet Terrence McKenna. Such canon, however, ignores the fact that women played a key role in the development of psychedelic therapy (Eisner 1997; Papaspyrou, Baldini, and Luke 2019) and the troubling appropriation and epistemicide of Indigenous colonised peoples' worldviews (Shulgin and Shulgin 1990,1997; Partridge 2006, 2018; Labate and Cavnar 2021; Hauskeller et al. 2022) There are also stories about the entheogenization of Christianity/Christianisation of entheogens (D'Azevedo 1985; Smith and Snake 1995; Schunemann 2020; de Assis 2022).

Though a comprehensive historiography is beyond the scope of this article, this plurality is acknowledged. Psychedelics gave a hyper-rationalized, bureaucratized, and disenchanted secular elite experiences of divinity that seemed to respond to the existential dimension of the meaning crisis, reviving a "sense and taste for the infinite" (Schleiermacher [1893] 2006, 39). On Vervaeke's first level, psychedelics enabled new political and theological realities. On the second level, they made pleasure morally discussible in a postwar austerity atmosphere.

On the third level, they motivated individuals to fight for what they believed was right, fostering group therapy, ecological activism, civil rights, and the New Left. They blurred the sacred and the profane, bringing religious experience to the forefront of human experience. Though social justice improvements in the 1960s and 1970s occurred in part due to economic growth, psychedelics also played key a role (Partridge 2006; Riley 2019; Davis 2019).

Even Timothy Leary, the Harvard psychologist turned LSD advocate, however, later reflected on the lack of comforting routines during this cultural upheaval (Partridge 2018). Joan Didion's ([1968] 2017) *Slouching Towards Bethlehem* captures the chaos and disarray of the counterculture, exemplified by a child on acid in a scene of familial neglect. These literate prophets and cultured despisers are not mere idealizations or demonizations of what was happening on the ground. Such postmortem reflections and journalistic descriptions of the counterculture correspond directly to a meaning crisis because they expose three aspects of the human psyche in disbalance. The quest for an altered state of mind and a society that would allow for a truth to be glimpsed (by the Man) and pleasure to be felt (by the Monster) is sought at the expense of social bonds such as parenting or traditional agreements (coveted by the Lion). The truth sought through psychedelic mystical questing drowns the salience of what is to be enacted afterward.

In an empirical example of this, an ethnography conducted in the 1970s (Tipton 1982) found that many people who left communes entered either ethically or ritually stringent evangelical churches, Buddhist lodges, or human potential training organizations. Why? Simply, "to make moral sense of their lives" (Tipton 1982, xii, 232). What moral nonsense did this moral sense preclude? Flower children saw their parents' generation as ethically inconsistent, following styles of ethical evaluation emphasizing obedience and biblical rule following inside the home and utilitarian cost–benefit hedonic calculi outside the home (Tipton 1982, 26–27). The countercultural solution was an "expressivist" ethic whose "cardinal virtue was authenticity" (Tipton 1982, 18). The trouble with this new ethic was that acting it out in the communes led to a hyper-individual asociality wherein one's own pleasure (the monster) made the quest for peak experience more salient than the truth to which that experience claimed to point. In Vervaeke's Platonic conception of the meaning crisis, the monster overtook the man. The peak experience was not met by the kind of world it was worth coming down into. I now turn to how the psychedelic experience and psychedelic science itself have been impacted by the meaning crisis.

Psychedelics Impacted by the Meaning Crisis

The field of psychedelic studies faces its own crisis of meaning on three levels.

1. The psychedelic sciences rely on mapped descriptions and physicalist reduction. Leading neurophysiology researcher Robin Cahart-Harris (2007) uses "neuro-psychoanalysis" to map the brain's physical basis of

the "ego structure" in the "default mode network" (Cahart-Harris et al. 2008; Gatusso et al. 2023). While this may help us verify the notion that depression and the ego are linked, can it help people *with* their ego? Like Vervaeke's interpretation of Socrates's response to natural philosophers, truth becomes disconnected from individual transformation and daily life—truth is sacrificed for salience.

2. Medical mysticism requires functionalizing spiritual experience, which is usually considered an end in itself. This creates a paradox where madness heals madness (Hauskeller 2022, 124). The medical framework becomes self-contradictory, and by treating psychedelics as mere therapeutic tools rather than sources of enjoyment, pleasure is *pari passu* de-emphasized, frustrating the Monster.
3. The era of monopoly pharmacy and profit-driven medical systems creates inherent paradoxes. Reducing psychedelic experience to safety, efficacy, and pathology transforms care into economic transactions, denying access to the disenfranchised[4] and making a business of symptom cessation, frustrating the honor of the Lion.

For psychedelics, a key question emerges: Do they blur sacred–profane distinctions or help rediscover the sacred in a disenchanted world? This question reveals deeper aspects of the meaning crisis. The sacred–profane distinction constantly evolves, viewed both sociologically and phenomenologically.

Sociologically, Emile Durkheim ([1915] 1964, chapt. II) defines the sacred as "set apart and forbidden," noting that sacred and profane categories were "wholly different." Sacred things transcend "day-to-day facts" through social elevation (Durkheim ([1915] 1964, chapt. III). Durkheim's view, in Vervaekean terms, suggests the sacred gains special salience through social highlighting.

Phenomenologically, Rudolf Otto ([1923] 1952, chapt. 4) describes the sacred as "mysterium tremendum et fascens"—the frightening, fascinating mystery—characterized by radical otherness and complete dependence. Unlike pleasure or moral exaltation, this holy experience emerges spontaneously from the uncontrollable other. LSD psychiatrist Stanislav Grof (2009) applied Otto's summary concept of the "numinous" to psychedelic experiences. The holy confronts individuals as undeniable truth. It does not appear phenomenologically as a social highlight but as an experience central to existence.

Contemporary psychedelic research places religious experience under scientific scrutiny. Some philosophers argue that reducing religious experience to molecular and neuronal activity oversimplifies through *a reductio ad absurdum* fetishization of consensus and agreement (Hauskeller and Sjösdedt-Hughes 2022, 4). Furthermore, despite attempted explanations for the psychedelic experience, research shows the actual experience of psychedelics often shifts metaphysical views toward panpsychism or animism and can lead to solipsism or ontological shock (Timmermann et al. 2021; Sjöstedt-Hughes 2023; Argyri 2024).

Psychedelic research objectifies not only subjective experience but also the subject herself (Foucault 1994; Noorani 2020). As Christine Hauskeller (2022, 124) notes, this creates a paradox where "the specialism that defines madness induces a psychological state that is defined as mad . . . to induce sanity." This reflects Vervaeke's (2019g, 37:15) description of the meaning crisis as a "nomonoligical disorder" between understanding and experiencing the world, between "our intellectual attempts to understand the world and our existential attempts to dwell within it . . . people say their existence is absurd."

Scholars have invoked the sacred to bridge these epistemic gaps (Vayne 2017; Davis 2019; van der Brak 2023). But it is clear the sacred and profane are woven fine. Erik Davis introduced "the weird" to explain the sacred–profane intersection in psychedelic discourse. The weird represents active mind–culture looping through "cultural gnosis" (Davis 2019, 5). It creates new forms neither fully transcendent nor culturally determined, functioning as both experience mode and cultural constructor. Even for those with expectations, psychedelics communicate beyond preconceptions (Davis 2019, 85), contributing to Western re-enchantment, counter to Weberian rationalization (Partridge 2005, 2006).

"The weird" represents a dynamic interplay between mind and cultural reality in psychedelic experience—a "creative and reflexive engagement" with culture through "visionary skepticism" (Davis 2019, 5). Davis frames it as a loop where experience and cultural interpretation continuously reshape each other, comparing Lacan's symbolic to Berger's "consensus reality." The weird transcends pure aesthetics, functioning as a mode of experience that both shapes and is shaped by culture: "[U]nder conditions of high weirdness, the causal relationship between cultural codes and 'experience itself' gets twisted into a loop" (Davis 2019, 6).

This phenomenon aligns with Andres van der Braak's (2023) interpretation of Latour's "true constructions"—a collapsing of the artificial/authentic dichotomy—suggesting that psychedelic experiences are simultaneously made and real—not merely subjective interpretations but genuine encounters with true realities always already shaped by cultural and linguistic frameworks (Latour and Woolgar 1992). It also resonates with Otto's concept of the holy, contributing to what Partridge (2005, 2006) terms the "re-enchantment of the West"—a cultural shift where rationalistic materialism gives way to new forms of spirituality and meaning-making, particularly through experiences that bridge scientific and mystical worldviews.

Davis (2019, 27, 20) writes: "The world is full of constructions, but it is full of encounters too, and the vibrant margins wherein we meet these Others shape and sometimes shatter those languages, concepts, and identities that, equally inevitably, map and manufacture the frameworks within which we make do." This perspective, aligned with Vervaeke's approach, simultaneously scales up to the gestalt while examining granular details, at-one-ing the plural world in a strange loop.

The economic realities of the psychedelic renaissance present their own challenges. While most molecules remain in the public domain, private investment has followed philanthropic funding. Recent controversies, such as Wonderland Miami's ban of Psymposia critical theorists—accused as witch-hunters despite the reality of sexual abuse among researchers—along with Compass Pathways's patenting attempts—exposing a psychedelic research company as an attempted monopoly, highlight how psychedelics can operate within, rather than disrupt, systems that generate meaning crises (Noorani 2020; Pace and Devenot 2021; Andrews and Wright 2022; Hausfeld 2023). In light of these problematics, what can be said of practical ways in which psychedelic experience and research can aid the meaning crisis? I turn to three examples: the moral psychology of psychedelics, the politics of peacebuilding, and ecodelia and animism.

Psychedelic Solutions to the Meaning Crisis: Moral Enhancement and Two Case Studies

Much of the appeal behind the contemporary use of psychedelics falls into the bracket of "wellness culture." They are substances touted, with evidence, as good for the brain organ and the body as a whole. They can contribute to "cognitive enhancement." This has given birth to a limited discourse surrounding "moral enhancement" and what this might mean. The first subsection here makes the argument that because moral enhancement is social, the socially plastic nature of psychedelics must be taken into account, and for this there are two contemporary pragmatic examples in peacebuilding and the perception of nature as personal or ensouled. Psychedelics allow for a congruence between the inner and the outer, the individual and the social, or the perception and the act, via a "fidelity to the event" (Rosemanl and Karkabi 2021; Badiou [1998] 2006), but this is not an inevitable affordance. The first two of these applications—moral enhancement and peacebuilding—build on previous arguments I have made in the fields of ritual theory and mysticism. The argument here is similar but applied to the meaning crisis instead of ritual theory (Schunemann 2024, 2025).

Moral Enhancement

Thomas Douglas (2008, 233, 228) defines "moral enhancement" as a process or action—including bio-physical changes like chemically induced altered states—that results in improved individual motives. The challenge of determining what constitutes good motives is beyond the scope of this article. The essential point is that mitigating impulses toward violent aggression or developing a strong aversion to certain racial types (Douglas 2008, 230) would contribute to a "morally better future" (Douglas 2008, 228) at the level of individual actions. Becoming aware of intention is a form of metacognition and an example of what Vervaeke refers to as "scaling down" to the perceptual filter.

Brian Earp (2018, 422) contrastingly describes "agential moral enhancement" as not only an improvement in motives but an enhanced willpower to act on those motives. This is achieved through fostering self-awareness and understanding one's inner workings (Earp 2018, 436), such as reducing irrational fear responses to perceived emotional threats (Earp 2018, 433). Earp suggests that psychedelics serve a facilitative role rather than a determinative one (Earp 2018, 425). MDMA could be used as an adjunct to moral development in combination with deep engagement in intentional moral learning (Earp 2018, 435).

These views on moral enhancement can be integrated with David King's (2015) notion that psychedelics act as "epilogens" helping us form and select choices. Optimal enhancement includes both better motivations and willpower. These theories have limitations, however. While Douglas's approach is other orientated, it remains confined to individual decision-making. Similarly, although Earp (2018, 435) acknowledges "the drug should not be doing all the work," he emphasizes that the remaining effort should be the individual's self-education.

Regarding ways in which psychedelic experience can render people more ethical, academic discourse appears centered on the individual, focusing on improving "motives" and "willpower," even though morals are defined and upheld within social contexts. An individual's motivations are shaped by "scenius" (collective inspiration) as much as "genius" (individual inspiration) (Eno 1996).

Erik Davis (2021, 93) warns against contributing to the self-improvement ideology that increasingly supports capitalist subjectivity, which has shown a "capacity to absorb, defang, and redirect transformative practices." Jules Evans (2023) cautions that doing so also risks promoting narcissistic spiritual evolutionism. Since psychedelics enhance context, the environment is internalized into mindset—e.g., MDMA influences not just musical preferences but can significantly alter one's perception of the good life, depending on ritual context. Reactions to goodness and beauty are not purely individual choices; they are socially instilled through intentions or rituals and ceremonies (Greer and Tolbert 1998; Pini 2001; Earp 2018; Nuwer 2023; Schunemann 2024).

Moral enhancement—psychedelic or otherwise—cannot be definitionally limited to individual responses. Truly challenging ethical decisions often arise from involuntary moral–somatic reactions and unconscious habits based on culturally learned transcendents. Ethical decisions in a crisis world require imagination regarding collective creation of enabling and inhibiting constraints (Vervaeke 2019f), in this case especially around relationality. In the meaning crisis, Plato's honor-fueled Lion is always taming the Monster, who is always teaching the Man, who is always training the Lion. Moving from thinking about what is right to doing what is right, I turn now to relationality between humans and with the wider environment.

Peacebuilding

The University of Haifa's Nadeem Karkabi and University of Exeter's Leor Roseman have conducted ethnographic studies on Palestinians and Israelis participating in ayahuasca ceremonies within rabbinical contexts, naturalistically observed, and then in a later programatized ritual. Karkabi is Palestinian, while Roseman is Israeli. This modern conflict zone contrasts sharply with the luxuries of 1970s middle-class hippie culture found in Tipton's ethnography. But comparing them is not as apples and orange as it first may seem. Both studies demonstrate how psychedelics intensify ritualistic and as well as non-ritualistic environments and change the perception of salience and truth (Schunemann 2024).

Using Alain Badiou's set theory from *Being and Event* as a heuristic and interpretive tool, Roseman and Karkabi found that ayahuasca can act both as a catalyst to sustain the political status quo by preventing the revelation of excluded elements and, conversely, as a motivating agent for social change by bringing unconscious aspects of the situation to awareness. Specifically, this happens by making participants in the ritual conscious of what risks being overlooked in the current cultural state—Nachba, Holocaust, the trauma of sharing land and resources when living in competing communities. Thus, rituals can serve as an opiate—enhancing individual wellbeing at the price of ignoring social truths—but also as a space where, reflecting the ideas of both Badiou and Walter Benjamin, "a truth from the void can occasionally break through" (Roseman and Karkabi 2021).

In the naturalistically observed ethnography, the rituals emphasized what was included in the set—Arabs' and Jews' shared religious heritage as "Abrahamic"—but had a blindness to what was not shared, such as privilege, traumatic conflict history, and territorial claims. In a later, programatized instance, the rituals invited Palestinians and Israelis to address the militarized trauma of their history and encouraged confessions around the challenges of sharing land and resources. The elements included in the set resulted in significantly different outcomes for individuals.

In the former scenario, where communality was highlighted and the conflict was considered taboo, the habitus of the invader remained unchanged. Social cohesion followed the easier but temporary path: "We share a God, a patriarch, and a religious heritage, so we should get along for the sake of this ritual." In the latter scenario, where the Israeli–Palestinian conflict was explicitly addressed, changes in habitus emerged. Members connected through questions like "who gave you your name?" and "what does living on the land mean to you?" Hebrew and Arabic were interwoven in the music. As a result, individuals changed their actions, rejecting both Israeli settler expansion and Palestinian business sectarianism (Roseman 2019; Roseman and Karkabi 2021).

"Spiritual bypassing" in rituals has tangible consequences on how psychedelics can or cannot alter individuals' worldviews and ethos, thus influencing their ethical motivations and perceptions of what is possible. As Jewish mystic Abraham Joshua Heschel ([1955] 2021) wrote, "it is not the things that add significance to moments, but the moments that add significance to things." In Vervaekean terms, the ritualized experiences of individuals were scaled to the political gestalt level and the colonial and subjugated gaze was deconstructed (opacity, as in Figure 2), allowing and creating a possible congruence between how participants lived their lives and how they saw their lives—an examined life where collective needs become personal duties (Vervaeke 2019c)—motivating at a grassroots level the creation of enabling constraints (2019f) of acting towards a vision of peaceful coexistence between otherwise mutually resentful communities (Roseman 2019).

Ecodelia and Animism

Although a broad church of contextology in the form of the cultural study of preparation (before dosing), set (mindset), setting (historical and spatial environment), and integration (the understanding and application of the experience in life) typifies the study of psychedelics in the humanities, one context-free aspect of the psychedelic experience is touted to be an increased sense of "nature connectedness." Nature or ecological connectedness is defined by Hannes Kettner et al. (2019) as an increased pleasure associated with nature environments such as parks and forests, as well as an increased sense of the complexity and aliveness of nature. Feelings of connectedness have been touted by some historians, ecologists, and psychologists of psychedelic discourse as possibly context-independent and essential to psychedelic experience, even though (natural) contexts enhance such connectedness (Kettner et al. 2019; Hartogsohn 2020, 12–13; Gandy 2020).

The notion that nature connectedness is a context-free effect of psychedelic experience forgoes the Western construction of the category of nature and its paradigmatic opposition to culture. That there is a raw thing, location, or substance that is natural precludes the always-already both encultured and biological mind that considers the thing, process, or location to be natural. As the contemporary philosopher of nature David Abram (2011) caustically states: "[F]or we walk about such entities only behind their backs, as though they were not participant in our lives." This communicative reification of nature has been problematized by philosophers of biology (Jarwar, Dumontet, and Pasquale 2024) who maintain that "Western thought is not ready to put forward a new paradigm aimed at harmonizing the human–nature interplay by taking advantage of the wisdom of Indigenous thought and experience." Perhaps there is actually one culture and a "multinaturalism" between species (de Castro 1998). Cultural preservation and

sensitivity, however, need not obscure a globally shared issue of the atmospheric conditions of our environment, however this issue is articulated.

Our shared ecology reaches deeper and higher than the substratum of money or the superstructure of language. So, philosophical reservation notwithstanding, our era's economic model—infinite growth—and ecological crisis—finite resources—demand perceptual change. Ecodelic advocates welcome increased perception of nature's aliveness as a sensorial shift (Doyle 2011; Kettner et al. 2019).

Vervaeke discusses how shifting between gestalt-specifics and thing-filter axes grants new perspectives. Renewed environmental awareness connects to something many Indigenous people report is a basic aspect of the human sensorium: animism. "Animism" extends personhood beyond humans to other species, things, and locations. After Edward B. Tylor's (1871, 260) theoretical frameworks, Hallowell (1981) introduced "other-than-human persons" to ethnographic record. Philippe Descola (2006, 141, 147) describes the "animic" view as recognizing nonhuman others' "similar interiority" through "self-reflexive inwardness" and "language, self consciousness, or theory of mind." Viveiros de Castro (1998) developed "perspectivism," where beings see themselves as persons in their own context.

Luis Eduardo Luna (2016) defines animism as "ubiquitous subjectivity." Abram emphasizes its communicative aspect, noting "nature itself is articulate" in oral cultures. Literary scholarship by Natalia Schwein (2022) reveals animistic semantics in historical gardening texts, while Andy Letcher (2007, 2024) and William Rowlandson (2015) observe similar patterns in modern nature paganism. Christianity's encounters with entheogenic cultures often result in ecological syncretism (Schunemann 2020; de Assis 2021).

If psychedelics produce perceptions that resonate with animism regardless of context, this contributes to the meaning crisis by both highlighting our "constraints"—in that the ecology of the world we live in is unable to support current human economics—and our possibly changing motives, our "causes" for acting during ecological crisis (Vervaeke 2019e).

Conclusion

The meaning crisis is a disjunct between salience and truth that undergirds a polycrisis in human thought and action. Psychedelics have helped highlight much regarding human flourishing in political sectarian conflict and ecological motivation. Whether psychedelic revelations inevitably resolve into action, however, seems unlikely. The political programmatization of ritual may engender fidelity to events in the interest of political ends such as peace, but the question of what is worth emphasizing—and who has the power to guide these—also presents problems. Despite this, the study of psychedelic states of consciousness, and especially psychedelics' impact on the perception of

fact and value, deserves rigorous context articulation and can have positive consequences for the meaning crisis when the relationality between humans and environment is emphasized.

While psychedelics are not immune to the problems the meaning crisis poses—being part and parcel of a perceived set of felt incongruences in the contemporary condition, especially around physicalist articulation, growth ideologies, and monopoly capitalism—the still small hope psychedelics bring many is one of the being-possibles of a better world. They can galvanize the bringing about of a world where, for example, military and ecological crises meet actual solutions. If the affordances psychedelics can provide are to be realized, though, this necessitates psychedelics being placed in particular enabling conditions with particular causal intentions.

The psychedelic psychiatric pioneer Stanislav Grof (2009, 29-30) describes psychedelics as "unspecific amplifiers that increase the cathexis (energetic charge) associated with the deep unconscious contents of the psyche and make them available for conscious processing," referring to their impact on the individual psyche. Though this term has been used to describe the way psychedelics intensify what is already present in the mind set and wider setting of the individual, it is clear that psychedelics also make the crisis of meaning louder. If the use and study of psychedelics is to help the meaning crisis in any way without falling prey to the same issues that undergird it, then the words of Emile Cioran's friend prove sage: "I'm tired of people telling me life is meaningless—life isn't *even* meaningless" (Doyle 2021).

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Notes

[1] The British anthropologist Robin Dunbar (1993, 691, 687) found a correlation between neocortex size and group size in primates: "[T]here is," therefore, "a cognitive limit to the number of individuals with whom any one person can maintain stable relationships" and that "150" individuals "may be a functional limit on interacting groups."

[2] These, he notes, have later analogues in Sigmund Freud's theory of the ego, id, and superego and in Paul MacLean's distinction between the mammalian, reptilian, and prefrontal brain (Vervaeke 2019d). In *Republic Book IV*, Plato says it is the duty of the "rational part" to rule, "being wise and exercising forethought in behalf of the entire soul," and it is combined with the "high spirit" (the Lion) through shared rationales such as "music and gymnastics" because these are both logical and agreed upon—both "preside over the appetitive part which is the mass2 of the soul in each of us and the most insatiate by nature" (Vervaeke 2019d , 4.441e, 4.442a).

[3] In *Science and the Modern World*, Whitehead ([1925] 2011, 206–7) states that "t]he effect of physiology was to put mind back into nature. The neurologist traces first the effect of stimuli along the bodily nerves, then integration at nerve centres, and finally the rise of a projective reference beyond the body with a resulting motor efficacy in renewed nervous excitement. In biochemistry, the delicate adjustment of the chemical composition of the parts to the preservation of the whole organism is detected. Thus the mental cognition is seen as the reflective experience of a totality, reporting for itself what it is in itself as one unit occurrence." Furthermore, "the mind involved in the materialist theory dissolves into a function of organism" (Whitehead ([1925] 2011, 271). In his *Dialectic of Enlightenment*, Adorno ([1947] 1972, 15, 57) notices that "[i]t is not the soul which is transposed to nature, as psychologism would have it; mana, the moving spirit, is no projection, but the echo of the real supremacy of nature" and there for "'thought' has been turned into a 'thing'." With reference to nature, then, "the subjective spirit which cancels the animation of nature can master a despiritualized nature only by imitating its rigidity and despiritualising it in turn."

[4] Since the medical legalization of cannabis in the United Kingdom in 2018, the nearly one hundred thousand private prescriptions can be compared to five prescriptions on the NHS by January 2023 (Sinclair 2023).

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"Anti-Gender" Discourse in the Twenty-First Century Polycrisis: Queer Theological Responses

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The past few years have seen the proliferation of an "anti-gender discourse" unfold as a deeply concerning crisis for LGBT+ people. In this article, I explore the salient details of this crisis in the core Anglosphere countries of the United Kingdom and the United States. I outline how this discourse is a concern not only for LGBT+ people and their allies but, through its place within the twenty-first century "polycrisis," a concern for everybody. Because this discourse has its roots in Christian theological frameworks, I argue that responses from within Christian theology are likely to be particularly effective in countering the harmful knowledge it produces. Thus, I explore two directions of queer theological work that offer responses to this crisis: direct contestations of the claims made by this discourse about non-normative gender identities and expressions, and theologically driven reconfigurations of relationality for all people in which new approaches to gender can emerge.

Keir Starmer says "99.9pc of women don't have a penis."
Tony Diver, *The Telegraph*, April 1, 2023

Church of England hits back at Putin over "gender-neutral God."
Kaya Burgess, *The Sunday Times*, February 21, 2023

Joe Rogan admits schools don't have litter boxes for kids who "identify" as furries.
Alaina Demopoulos, *The Guardian*, November 4, 2022

In recent years, it has become increasingly common for debates over the meaning of gender to appear in public conversation. To those unfamiliar with the cultural and political flashpoints that drive these conversations, these appearances might seem bizarre. Why is the leader of the Labour Party in the United Kingdom trying to quantify the proportion of women with penises? Why is the president of the Russian Federation defending the invasion of Ukraine with reference to proposals for gender-neutral language for God in the Church of England? Why is one of the most popular podcasters in the world spreading false claims about the toilet habits of young children?

These developments are undoubtedly bizarre, but they also reflect a developing crisis that is of particular concern to LGBT+[1] people and their allies: the emergence of an "anti-gender" movement and an attendant discourse that figures non-normative gender identities and expressions as variously defective, destructive, or otherwise undesirable. This discourse has a global reach, but as Judith Butler (2024, 37–72) incisively argues, the dynamics that drive it vary substantially across different socio-spatial locations. In this article, I focus on how this discourse manifests within the core Anglosphere countries of the United States and especially the United Kingdom because of the unusual extent to which these contexts have seen theological arguments deployed both in support of, and against, this developing anti-gender discourse.

Although sometimes dismissed as part of a superficial "culture war," the proliferation of anti-gender discourse should be understood as a crisis for LGBT+ people for multiple reasons. It has made public discussions of any issue related to gender identity and expression fraught, which hinders serious consideration of some of the complexities that attend to these issues. It also seems likely that the atmosphere of hostility created by this discourse is connected to the dramatic increases in recorded violence towards LGBT+ people. Moreover, it is also a crisis interwoven into the "polycrisis" (explored later) that has come to define the early twenty-first century. Thus, the advance of anti-gender discourse should be properly understood as a crisis with consequences for everyone, not just solely LGBT+ people and their allies.

Historically, Christian theologies have been central participants in homophobic discourses. As Butler (2024, 73–92) identifies, anti-gender

discourse is similarly rooted in Christian modes of thought. However, the emergence of gay, lesbian, and queer theologies in the late twentieth and early twenty-first centuries highlighted the capacity of different theologies to counter homophobic discourses, and it is my contention that these theologies have a role to play in unwinding the damage caused by anti-gender discourse. If anti-gender discourse is, as Butler demonstrates, rooted in a broad Christian theological framework, then I argue that contestation of this discourse will be particularly efficacious if it emerges from this same framework. To use the ideas and rhetoric of Christian theology to challenge anti-gender discourse is to critically undermine it. As such, queer theological responses to anti-gender discourse should be relevant to anyone with an interest in seeing this discourse contested, regardless of any particular confessional commitment or position on the veracity of the theological claims that undergird these theologies.

In this article, I first establish the salient details of the rise of anti-gender discourse in the Anglosphere. I explore how the emergence of the anti-gender movement is inextricable from the history of the discourse on gender and how this history confers upon anti-gender discourse some of its specific features. I then explore how this crisis is threaded through some of the key dimensions of the polycrisis and the implications this has for understanding the importance of anti-gender discourse for more than just LGBT+ people and their allies.

Because of the aforementioned efficacy of queer theologies in contesting anti-gender discourse, I then explore how Christian theologians can respond to this crisis and work to unwind the damage caused by this discourse. The emergence of anti-gender discourse from Christian theological frameworks does not impute a special responsibility to Christian theologians to contest this discourse, but it does suggest they may be especially well placed to do so. I first develop an account of the ongoing work to practically embed LGBT+ inclusion within Christian spaces as a queer contestation of the knowledge of gender produced by anti-gender discourse. Then, in a more explicitly constructive theological mode, I turn to Elizabeth Freeman's conception of baptism as indicative of an expansive form of queer sociality to contend that existing Christian practices and theologies can be redeployed to develop practices of a more expansive relationality in which LGBT+ people can flourish.

What Is Anti-Gender Discourse?

The emergence of the anti-gender movement is closely bound up with the history of the discourse on gender itself. While sustained deployment of gender as a concept for understanding the body reaches back to the middle of the twentieth century (Repo 2016), it was the publication of Judith Butler's *Gender Trouble* (1991) that brought gender into the discursive foreground. Butler's (1991, 11) contention was that the commonplace understanding of the sex/gender distinction as broadly mapping onto a nature/culture distinction is untenable.

Sexed bodies only become intelligible as such through a cultural matrix that is already gendered; thus, there is no sex that exists outside of gender: the "production of sex as the prediscursive ought to be understood as the effect of the apparatus of cultural construction designated by gender." Butler's contention is that we cannot distinguish between sex and gender because sex is always already gendered.

The consequence of the enormous influence of Butler's intervention is that the twenty-first century has seen the development of a prominent thread of thinking around questions of sexuality/gender (sometimes, perhaps unhelpfully, described as "4th wave feminism" (Cameron 2019, 5–6)) in which gender provides the central conceptual architecture. As such, even though there have been people opposed to non-normative gender identities and expressions since antiquity, it would be incorrect to label them as belonging to the anti-gender movement as the discourse on gender against which the movement came into being is a relatively recent phenomenon (Graff and Korolczuck 2021).

This history explains the make-up of the anti-gender movement as a coalition of actors with diverse political commitments. Within the anti-gender movement, we find actors who hold a broadly conservative position across a wide range of social issues but also feminists, lesbians, and gay people who are opposed to the conceptual orientation towards gender ushered in by Butler. Opposition to discourses of gender functions as a "symbolic glue" that works across lines of political divergence (Kováts and Põim 2015). Alongside the more active participants in the anti-gender movement are doubtless many people who may feel alienated or confused by the challenges posed to "common sense" accounts of sex/gender by contemporary gender discourses. Thus, far from a unified cadre of committed ideologues, the anti-gender movement is a heterogeneous grouping. It is worth emphasizing that this heterogeneity does not fully align with other political cleavages. For example, although the Labour government elected in the United Kingdom in 2024 marks a clear ideological break with the previous Conservative government in many ways, some within the Labour Party (notably, the Secretary of State for Health and Social Care Health Wes Streeting) have signaled a continuity with their predecessors in terms of some of the political manifestations of anti-gender discourse.

This heterogeneity does not, however, mean that anti-gender discourse is incoherent. Or rather, as queer theorists have noted with respect to sexual and gender norms more broadly, the incoherence of anti-gender discourse does not imply its weakness (Wiegman and Wison 2015, 11). To understand this, it is helpful to consider the social operation of discourse.

For Michel Foucault (1972, 49), discourses are historically and socially contingent assemblages of actors, systems, and ideas that make knowledge possible. These discourses are not simply reflections of the world but actually bring their subjects into being: they are "practices that systematically form the

objects of which they speak." It is, for example, the repetition of the discourse of sexuality that brings sexuality itself (as a particular way of understanding the subject, their desire, and their relationality) into being (Foucault 1978, 11).

Thus, anti-gender discourse is not just a way of speaking about gender. Rather, it is an attempt to produce a new way of knowing gender and bring a particular social form of gender into being in which non-normative forms of gender identity and expression are to be averred. The stakes of countering anti-gender discourse are not merely speaking more kindly and productively about gender but concern the very possibility of knowing non-normative gender identities and expressions as anything other than undesirable.

Importantly, the social functioning of discourse is not tied to the specifics of the claims it contains. In his exploration of homophobia, the queer historian and theorist David Halperin (1995, 33) contends that "homophobic discourses contain no fixed propositional content." This is not to say that these discourses are void of all meaning. Rather, it is a contention that the power relations that make these discourses socially legible are not bound to the specifics of the propositions they advance. The relative unimportance of the propositional content of these discourses means that different homophobic discourses can exist alongside one other (Halperin 1995, 55). Anti-gender discourse functions similarly, and it is for this reason that the discourse can incorporate voices as diverse as conservative traditionalists, lesbian feminists, and adherents to "common sense" on questions of gender.

Two further important features of contemporary anti-gender discourse are important to understanding the details of this crisis. The first is that this discourse operates within an uneven socio-spatial landscape for LGBT+ people, with recent years having seen substantial positive developments for LGBT+ people in some parts of the world. While more radical queer thinkers are correct that the significance of these developments should not be overstated (Tonstad 2015, 258–59), it is also true that these legal developments have had a significant positive impact on public perception of LGBT+ people (Flores and Barclay 2015). This heterogeneity is particularly apparent in the United States, wherein state-level legislative divergence has resulted in marked regional differences in the legal and social equality of LGBT+ people (Movement Advancement Project 2024). Anti-gender discourse operates across this heterogeneity and is thus simultaneously a dominant discourse within certain socio-spatial locations and marginal within others.

Connected to this, leading proponents of anti-gender discourse often frame themselves as insurgents. Political populism frequently exhibits a strong orientation towards anti-LGBT rhetoric, and thus it is unsurprising that we can identify alliances between contemporary populist movements and key participants in the anti-gender discourse (Corrales and Kiryk 2022). As such, although there is little evidence of a "democratic backlash" against LGBT+

acceptance (Bishin et al. 2016), key figures within the anti-gender discourse often figure themselves as insurgents expressing a repressed popular opinion. This figuration as an insurgent is often at odds with the actual social and political positions of many of these actors. In the United Kingdom, members of parliament, leading broadcast journalists, and even cabinet members of the previous government have sought to position themselves as marginalized voices speaking out against a "totalitarian woke culture" that somehow holds the reins of power (Cammaerts 2022).

Why Is Anti-Gender Discourse a Crisis for LGBT+ People?

The proliferation of anti-gender discourse is a crisis for LGBT+ people for many reasons. Perhaps most obviously, this discourse has made public conversation around issues of gender identity and expression extremely fraught. As a consequence, the measured and nuanced deliberation often required in considering these issues becomes impossible. This is especially true in the cause of the use of synthetic androgens. The use of these hormones concatenates a wide range of different systems and structures: medical and regulatory infrastructures, biopolitical systems of bodily control, and discourses of bodily autonomy (Preciado 2013, 33–34). It is not unreasonable, therefore, that the use of synthetic androgens in gender transition raises complex questions (although the existence of these questions should not preclude their use by trans people).

However, these complex questions are often lost in public conversation as a result of the tensions produced by anti-gender discourse. In the United Kingdom, 2024 saw the publication of the Cass Review into the gender identity services provided by the National Health Services (NHS). The report covers a wide range of topics and makes multiple recommendations. On the topic of synthetic hormones, it notes that there is a relative paucity of data on the outcomes of use of these hormones by young people and recommends more data is sought (Cass et al. 2024, 182–97). In itself, this is a sensible position. Yet, the publication of the report catalyzed a fractious public debate in which many of its important details were obscured. It seems unlikely that the 130 members of parliament, peers, and doctors who publicly wrote to the then prime minister as a result of the report calling for an investigation into "transgender ideology" in the NHS are interested in developing a robust clinical basis for recommending the use of hormone therapy (Turner 2024).

More concerningly, it is likely that the climate of hostility towards LGBT+ people produced by anti-gender discourse has contributed to the precipitous increase in violent acts these marginalized communities face. The United Kingdom's Home Office (2023) reports that hate crimes against people on the basis of their perceived gender identity increased 110% between the years 2018/19 and 2022/23. Similar increases have been recorded across the Anglosphere. Of course, such figures should be approached with great caution.

They may well reflect, in part, changes in reporting methodology or an increase in LGBT+ people feeling comfortable reporting violence to law enforcement (Herek 2017). Regardless, it is clear that very many LGBT+ people are victims of violence and aggression on the basis of their perceived gender identity or expression, and it would be hard to argue that this is disconnected from the proliferation of a discourse that grants social legibility to knowledge of non-normative gender identities and expressions as detestable. It is important that we continually remember that the crisis of anti-gender discourse is not an object of purely disinterested academic concern but is felt as disaster in the lives of LGBT+ people.

The Crisis of Anti-Gender Discourse within the Polycrisis

Beyond its disastrous implications for LGBT+ people, anti-gender discourse should be concerning for everyone. To properly understand this, it is important to situate this discourse within the developing conditions of the polycrisis. Polycrisis is a somewhat complex concept. At base, it is a contention that the world of the early twenty-first century is composed of interlocking crises that overwhelm our ability to respond effectively (Tooze 2022). While there is nothing novel about different crises dominating public life, what is distinctive about the polycrisis is the extent to which individual crises—each of them notionally manageable—aggregate into an overwhelming profusion. Moreover, these crises are interconnected such that they form a tangled web, and it is, the theory holds, impossible to fully understand and appropriately respond to any one of the constituent crises that together constitute the polycrisis without taking account of these interconnections (Zeitlin, Nicoli, and Laffan 2019).

Importantly, the interconnections of the polycrisis do not only connect similar crises. Rather, the polycrisis is a "coming together at a single moment of things which, on the face of it, don't have anything to do with each other" (Markovitz 2023). In the case of anti-gender discourse, this is perhaps most immediately apparent in the case of the Russo-Ukrainian War, in which gendered discourses have become tightly connected to the seemingly distant issues of geopolitics and military affairs (Kratochvíl and O'Sullivan 2023).

However, this interrelation of anti-gender discourse and seemingly disconnected crises is just as evident in the core Anglosphere if one is attuned to it. In the United Kingdom, early 2023 saw anti-gender discourse focus on the issue of transgender inmates in Scottish prisons. In this, questions of gender transition and expression became folded in with both the ongoing crises of prison funding and the overall structural challenges of the carceral system, as well as the ongoing political crisis around the devolution of power between the constituent nations of the UK (Torrance and Pyper 2023). At the same time, the aforementioned entanglement of the invasion of Ukraine and anti-gender discourse has, in the United States, concatenated the crisis

of anti-gender discourse with crises surrounding political polarization, social media disinformation, and geopolitical tension.

This does not, of course, mean that these other crises are really about gender. Nor can we only understand either these other crises or the polycrisis by engaging with anti-gender discourse. Rather, I contend that we should not think of the crisis of the proliferation of anti-gender discourse as a "niche issue" only relevant to LGBT+ people and their allies. If anti-gender discourse is threaded through the polycrisis, and the polycrisis is the defining condition of the early twenty-first century, then anti-gender discourse is relevant to everyone. Not only is this discourse actively working to define a social script in which we all participate, but it is connected in complex ways with crises that bear on us all regardless of our involvement with the dramas of contestation over non-normative gender identity and expression.

What Responses Do Queer Theologies Offer to the Crisis of Anti-Gender Discourse?

As noted, if Butler (2024, 73) is correct in her identification of anti-gender discourse as emerging from both conservative Evangelicalism and official Catholic doctrine, then responses to the crisis of anti-gender discourse that emerge from Christian theology will be particularly efficacious. Thus, even if one has no real interest in Christian theological perspectives, if they have an interest in contesting anti-gender discourse and ameliorating some of the damage it causes, they ought to be interested in how Christian theology can respond to this crisis.

To my reading, there are two responses to anti-gender discourse from the pluriform approaches of queer theology that stand out as especially deserving of further consideration. The first is direct contestation of knowledge of non-normative gender identities and expressions as undesirable. More than the specific content of these alternative knowledge, their very existence reframes questions of sexuality and gender as sites of specifically theological contest and thus imputes a queering force to these conversations.

The second queer theological response to anti-gender discourse operates in a more constructive mode. The late queer theorist Elizabeth Freeman argues that queerness ought to be understood as inaugurating a more expansive vision of sociality for all people, and she develops this through a queer reading of baptismal and Eucharistic theology. My contention is that Christian theology can, when queerly enriched, further expand our vision of sociality to imagine ways of "doing" gender that are wholly orthogonal to the invidious claims of anti-gender discourse. Thus, queer readings of Christian thought and practice offer a response to this crisis that moves beyond its contours and offers to remake the kinds of bonds and ties all people experience.

Directly Contesting Knowledge of Non-Normative Gender Identities and Expressions as Undesirable

For those outside the subdiscipline, it is common to assume that queer theology is composed of theological arguments oriented solely to the affirmation of LGBT+ people (Tonstad 2018, 3). This is not an unreasonable assumption, but it is important to recognize that the subdiscipline is far more variegated and contains a profusion of theological trajectories that do not align with this description. That notwithstanding, it is also true that much of the subdiscipline, especially as it extends beyond the confines of academic theological argument, *is* principally concerned with furthering the inclusion of LGBT+ people within Christian communities. This has been termed an "inclusivist" cluster within queer theology (Slater and Cornwall 2022) and is a dominant component of the different directions that constitute the subdiscipline.

The specific details of the theological argumentation advanced within this cluster vary, but there is a shared articulation of a broad compatibility between Christianity and LGBT+ identities, orientations, and practices. Some theologies within this cluster argue that the center of Christ's message is a radical inclusivity that encompasses all human variation (Robinson-Brown 2020, 15–21). Others contend that there is an often-obscured queerness within the Christian tradition itself (Buechel 2015, 13–16). Still others posit that the Biblical tradition is replete with characters whose relationships could readily be read as queer in multiple dimensions (West 2006; Presser 2017). Moreover, this cluster also contains a wealth of more practical considerations about the facilitation of LGBT+ inclusion. These vary from the development of ancillary liturgical resources for "queer rites of passage" (Storey 2002) to more transformative revisions of approaches to marriage.

These inclusivist theological arguments should be understood as themselves components of a discourse—an assemblage of actors, systems, and ideas—that produces knowledge of gender that contradicts that produced by anti-gender discourse. These theologians contend that we can, and should, know gender differently and are providing material through which that knowledge can be constructed. It is an approach to non-normative gender identities and expressions that does not cast these as illicit.

It is important not to think of the inclusivist cluster of queer theology as an argument for assimilation. Queer theology is well resourced with arguments highlighting the deeply problematic nature of seeking the approval of the theological mainstream (Althaus-Reid and Isherwood 2007, 304). If queerness is, to some extent, a descriptor of that which resists normalization and categorization (Halperin 1995, 62; Edelman 2004, 17) then there would be something profoundly theoretically muddled about queer efforts at assimilation. Inclusive queer theologians are well aware of this. Those operating within this cluster argue that such inclusion would only be possible through the

transformation of Christian communities and structures as they relate to issues of sexuality/gender. Indeed, the transformations that would be necessary for the full inclusion of LGBT+ people would, these theologians argue, catalyze broader transformations across Christian doctrine and practice (Shore-Goss and Goh 2021).

Understood thusly, the inclusivist cluster of queer theologies is more transformative than it might appear. By generating knowledge of gender that runs counter to that advanced by anti-gender discourse, these theologies disrupt the efforts of this discourse to stabilize a socially legible understanding of non-normative gender identity and expression as undesirable. In doing so, they reconfigure gender as a site of ongoing contestation, and it is in this contestation that the queerness of these theologies is most manifest. Thus, the queerness of these theologies does not so much inhere to the specific knowledge of queerness as compatible with Christianity these theologies advance but the fact that this knowledge disrupts, undermines, and contests that produced by anti-gender discourse.

Theologically Expanding Queer Relationality

Contesting the knowledge of queerness produced by anti-gender discourse is undoubtedly important. However, there is a risk that these efforts are constrained by the discursive landscape anti-gender discourse produces. Queer theologians have argued that problematic approaches to sexuality/gender can so thoroughly precondition the terms in which LGBT+ orientations and practices are discussed that an entirely distinct approach to these issues is needed. In the context of the doctrine of sin, it is not enough to simply refute that LGBT+ orientations and practices are sinful, because the entire language of sin is so mired in anti-LGBT+ sentiment that it can be hard to imagine how LGBT+ people can flourish within this discourse (Robinson-Brown 2020, 21). My concern is that this might also hold true for anti-gender discourse: it is not enough to simply produce new knowledge of gender that contests that produced by this discourse. Rather, an entirely new approach to gender is needed. Here, recent developments at the intersection of queer theology and queer theory have proven especially generative.

Within queer theory more broadly, a central debate concerns what has been termed the "antisocial thesis" (Caserio et al. 2006). The details of this debate are beyond the scope of this article, but in the simplest terms, there is a divide between thinkers who understand a queer politics as opposed to investment in existing social forms (Edelman 2004, 2–5, 27) and those who think queerness has a more ambiguous relation with sociality (Muñoz 2009, 11–14; Berlant 2011, 1–22).

For theologians, one of the most interesting responses to the antisocial thesis is provided by Freeman (2019). Freeman contends that the antisocial thesis

needs to be turned on its head: queerness is not about disinvestment from social relations but instead about an abundant overinvestment in our relations with others. She terms this vision of queer relationality "hypersociality," drawing on the different registers of "hyper-" as abundant (hypermassive), improper (hyperactive), and nonlinear (hyperlink) (Freeman 2019, 14). Taken together, this is a vision of queerness as an expanded relationality between different subjects that runs backwards and forwards in time and pays little heed to what constitutes "proper" forms of relationality.

In envisioning queerness thusly, Freeman contends that it is through recognizing this expansive relationality and working to manifest it in our embodied relations with others that LGBT+ people can most fully flourish. Moreover, this is a vision of relationality not delimited solely to LGBT+ people: it is not the case that LGBT+ people should luxuriate in the expansive relationality queerness enacts but straight and cisgender people ought to continue unaffected. Rather, this is a queer reconfiguration that points towards a reimagining of relationality itself.

For Christian theologians, perhaps the most interesting part of Freeman's analysis is her contention that we can identify forms of this expansive relationality within existing Christian practices. Central to her argument are sacramental practices, which, she argues, act as intersections between broader social and theological formation and quotidian, bodily reality. In particular, she draws on the queer presentation of baptism within Djuna Barnes's 1936 novel *Nightwood* to contend that there is something akin to a nascent hypersociality within this foundational Christian practice and the theology that undergirds it. As presented by Barnes, baptism satisfies the three features of this relationality as captured by the "hyper-" prefix. Clearly, baptism brings the baptized into an abundant and expansive web of relations between vast numbers of people in very varied social and geographical contexts. Moreover, these relationships do not, at least in theory, follow lines of propriety: baptism unites people across distinctions of race, gender, and class (Freeman 2019, 169–76). Finally, as queer theologians have previously noted (Jordan 2006, 331), the relationships established by baptism exhibit a peculiar temporality that connects the present and those baptized in the distant past as well as those to be baptized in the future.

It is important to be clear that Freeman is not arguing that, left unreconstructed, dominant configurations of the Christian practice and theology of baptism exhibit the expansive relationality she is advocating for. There is clearly a marked divergence between the image of baptism as presented in *Nightwood* and that proffered by conventional sacramental theologies, and it is for this reason Freeman (2019, 197) argues the novel is best read as presenting a "countertheology of Catholicism." Rather, her proposition is that within the practice and theology of baptism, we can find productive material for imagining an expansive, improper, and nonlinear relationality.

This is, I think, crucial for the development of a constructive response to anti-gender discourse from within Christian theology. If anti-gender discourse has the potential to produce a discursive landscape tilted against the flourishing of LGBT+ people and the reimagining of relationality more broadly, then there is a need for an approach to knowing gender that is wholly distinct from this discourse. Freeman's vision of an expanded relationality provides this, and if Christian practices and theologies are generative for better understanding and envisioning this relationality, it seems clear that this is a generative avenue through which queer theologians can address the damaging effects of the crisis of anti-gender discourse. An expansive queer relationality provides knowledge of non-normative gender identity and expression that moves orthogonally to anti-gender discourse and is therefore able to move the constraints such a discourse throws up for imagining the possible configurations of relationality for all people.

Rendered differently, this is a constructive theological response to the crisis of anti-gender discourse that does not directly contest the knowledge of gender such a discourse produces. Instead, this knowledge is circumvented through references to existing concepts and frameworks within Christian theology. While Freeman (2019, 180–86) draws most extensively on baptism for articulating hypersociality, her sacramental focus also includes the Eucharist as another cluster of Christian thought and practice that is generative for imagining an expansive queer relationality. I think it very unlikely that these two will exhaust the potential of Christian theology here: there are doubtless many other areas of Christian theology that could be deployed to this end. As a purely illustrative example, queer theologians have elsewhere argued that the rhetoric and conceptual frameworks of "sinful incurvature" (Jenson 2007) can be deployed to produce an account of an expansive relationality with pluriform others (Slater 2023). The broad reach of the Christian tradition is replete with examples of sacramental practice that could be productively deployed in reworking queer relationality, and it is a task of queer theologians and their allies to identify and explore these.

Anti-gender discourse works to solidify one invidious approach to knowing non-normative gender identities and expressions. Through theological expansions of queer relationality, Christian theologians can advance alternative knowledge that can point to entirely new ways of knowing and doing this strange phenomenon of gender.

Conclusion

It is quite difficult to predict with any certainty the future of the unfolding crisis of anti-gender discourse. While its prominence is growing in digital spaces, the experiences of the 2022 midterm elections in the United States and the 2024 general election in the United Kingdom suggest the discourse might not

have the political salience its proponents have hoped. Regardless of its ultimate trajectory, anti-gender discourse, and its disastrous consequences for LGBT+ people and their allies, is not going away. With its roots in Christian theology, this should be of particular concern to all those with an interest in or commitment to Christian thought and practice. We are not responsible for theologies that harm LGBT+ people, but we are particularly well posed to counter them.

In this article, I presented two approaches from within queer theology that provide generative responses to the crisis of anti-gender discourse. Through one approach, queer theologies can directly contest the knowledge of gender produced by this discourse. Through the other, Christian theology can be deployed in pursuit of an expansive envisioning of relationality that undercuts and sidelines the imaginary of gender produced by anti-gender discourse. Alone, neither will wholly unwind the damage caused by anti-gender discourse. But my hope is that they can be important parts of building a world beyond this discourse and the harm it brings.

Note

[1] In this article, I use the term "LGBT+" to refer to embodied practices, orientations, and relationships that do not align with cisgender heterosexuality. The terminology of "queer" will be used for modes of thought and practice that develop these practices and orientations along trajectories that are disruptive to normativity. For more on the distinction between the two, and their deployment in a Christian theological context, see Jack Slater and Susannah Cornwall (2022).

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Anti-Zionism Ergo Antisemitism, an Intellectual Inquisition or a Semantic Crisis? The Case of France

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This article explores different readings of antisemitism in French political discourses since 1967 and in light of the ongoing war in Gaza. Drawing on literature that explores modern manifestations and evolving definitions of antisemitism, it explores arguments made for and reservations against the putative equivalence between antisemitism and anti-Zionism. First, while also exploring shifts in French Jewish identity, especially in its relation to the state of Israel, the article critically engages with the recentering of 1967 and the Six-Day War in the recent historiography of antisemitism in France and brings forward questions of audience and historical responsibility. The second section questions the "new antisemitism" and its roots in French Jewish identity. The final section challenges definitions of anti-Zionism, highlights the danger of alienating French Muslims in the name of protecting French Jews, and explores the promise of a "principled" anti-Zionism.

On May 30, 2024, the prime minister of Israel Benjamin Netanyahu addressed the French public through an exclusive interview broadcast on the public television channels TF1 and LCI. He stated, "Our victory is the victory of Israel against antisemitism, it's the victory of the Judeo-Christian civilization against barbarism, it's the victory of France" (Lussato 2024). The interview was broadcast a few days after the Israeli Occupation Forces attacked what was considered a safe zone refugee camp in Rafah, Gaza (Al Khatib 2024). This occurred amid what has been characterized as the ethnic cleansing, genocide, and systemic starvation of Palestinians in Gaza (Verdeja 2025).

Why did Netanyahu address France—out of all Europe—when Israeli journalists were growing frustrated that their prime minister had refused to grant them any interviews for months (Schneider 2023)? Why address the French public when just two decades ago, one Israeli minister described France as the most antisemitic Western country (Farrell 2002)? The prime minister of Israel addressing the French public on French national television, amid a global backlash against the Israeli government (Dutta 2023), coincides with what scholars have labeled a crisis of democracy in France. The public believes France is sick, that their elected representatives are disconnected from reality, and one in two find that their president Emmanuel Macron has authoritarian tendencies (Legrand 2023).[1] Although France here is merely a case study for the rise of antisemitic violence, the tensions around what constitutes antisemitism and what is a legitimate criticism of the Israeli government have become a global issue. I argue that the self-proclaimed Jewish state of Israel's attempt at linking the fate and the fight of Israel with the fate of France and its fight against the "Muslim threat" is the logical, even if striking, conclusion of decades—I focus on 1967 as the catalyst of new antisemitism in France while acknowledging the historiography that traces it to the early twentieth century—of the redefining of antisemitism, which Jewish diaspora historians (more on this in the last section) have contributed to and French historians continue to consolidate.

"Le Pen Would Be Great for Israel"

During the strained political environment of June 2024, and antisemitism rising dramatically all over Europe, the far-right party National Rally (NR, previously known as Le Front National)—whose anti-immigrant position lies at the core of its fast-growing popularity—won 31% of votes, first place, in the European Parliament elections, a historical first for a far-right party in France. But the NR was not the only far-right party to do well in European elections. In Italy, Hungary, and Austria, the far right came first, while in the Netherlands, Bulgaria, and Estonia, far-right parties did better than ever before. In France, Macron responded by dissolving the National Assembly and announcing snap legislative elections. These had the highest turnout since 1981, with the far right wining 29%—nine million votes—in the first round. In the second round,

the NR were barely defeated by the newly formed coalition of center-to-left candidates: the Nouveau Front Populaire.

Immediately after the results were announced, Mathilde Panot—elected member of the far-left party France Unbowed—vowed to see France "recognize the Palestinian state in the next two weeks" (Marianne 2024).[2] One *Al Jazeera* journalist wondered on X (formerly Twitter) if Palestine had just saved France (@Dima_Khatib, "La Palestine aurait-elle sauvé la France?", X, July 7, 202,). Were the elections in France an instance where support for Palestine helped rather than harmed electoral success? During the election campaign, *The Times of Israel* (2024) reported that Diaspora Affairs Minister Amichai Chikli said NR party leader Marine Le Pen would be "excellent for Israel." In November 2023, Le Pen and president of the NR Jordan Bardella participated in the march against antisemitism, what the interior minister, Gérald Darmanin, called a "great civic march" attended by over 100,000 people in Paris alone. Meanwhile, Jean-Luc Mélenchon, head of France Unbowed, tweeted that his party would not be attending because the march was a "rendez-vous for unconditional supporters of the massacre [of Gazans]" (Schofield 2023). The march was in response to an alarming rise in antisemitic acts in France.

On November 15, 2023, 1,518 antisemitic acts were reported in France since October 7 compared to 436 acts in 2022 (Seckel 2023). The rate of antisemitic violence continued to rise in France throughout 2024, culminating in the arson attack on the Grande-Motte synagogue in August 2024. But even years before, antisemitism had been in the rise in France, including among the far right. During the COVID-19 pandemic, old antisemitic tropes reemerged among antivaxxers, and there has been a dramatic rise in antisemitism on major social media platforms (Frenkel and Conger 2022). There is a documented convergence between anti-science trends and rising antisemitism, where the Jewish population globally has been blamed for the COVID-19 virus and accused of vaccine profiteering. "Blaming the Jews for illnesses or other calamities" occurred in Europe during the black death in the fourteenth century and well before (Hotez 2023). In 2021, NR candidate and teacher Cassandre Fristot participated in a protest against the mandatory COVID-19 health pass, brandishing a sign that said "But Who?" and "Traitors" alongside the names of mostly Jewish politics, business, and media personalities.[3] "But who?" is an elliptical question and hashtag used by conspiracy theorists to perpetuate the antisemitic trope that Jews control the media. Fristot received a six-month suspended sentence for inciting racial hatred.

How had the NR, a party founded in 1972 on xenophobia and antisemitism by former Nazi collaborators and neo-Nazis, come to be seen as the Jewish state's ally in France? Why has the NR come to be pro-Israel when historically it has been grounded in antisemitism, and what are the dynamics that came into play behind this seemingly surprising shift? Whether Palestine truly saved

France from the threat of rule by a far-right fascist party or not, France's relationship with both its Jews and Muslims has been strained for a long time. It is worth pointing out the far-right rapprochement to Israel, as well the French Jews rapprochement to the far right in France, which directly impacted definitions of antisemitism depending on the groups deemed responsible for committing acts of antisemitism. The rejection—and rightfully so—of any form of political or cultural antisemitism is striking when compared to the widespread complacency with Islamophobia in both media and political discourse. The next section details the context of antisemitism becoming widely portrayed as a phenomenon intrinsically tied to Muslims, making it easier for the already polarized French public to pinpoint a culprit (Neffati 2021). Thus, the burden of antisemitism is displaced solely on a convenient and already marginalized Other.

Scholars have substantially covered antisemitism's history in France, analyzing the Christian roots of anti-Judaism in the Middle Ages, the rehabilitation of some of its tropes in the Nazi propaganda of Vichy France in the first half of the twentieth century, and the more recent crises post-Vichy and up to the present day. This work helps us understand how definitions, manifestations, and reactions to antisemitism have changed and the repercussions of these changes on French politics (Winock 2004; Laqueur 2010; Sanos 2012; Bande, Biscarat, and Lalieu 2021; Peace 2009; Arkin 2018; Birnbaum 1992). Reza Zia-Ebrahimi dissected the deep entanglement and intertwined history of antisemitism and Islamophobia that has been forgotten in the contemporary era. Yet, until the twentieth century, antisemitism and Islamophobia were a Western story. Jews and Muslims were jointly targeted, especially in fifteenth-century Spain through early forms of biological racism, and later in nineteenth-century Europe where they were racialized as part of the "Semitic race" and seen as existential threats to Western civilization (Zia-Ebrahimi 2021, 195).

Most recently, in the midst of the Israeli war on Gaza that started on October 7, 2023, a collective of intellectuals in France released an edited volume on the political history of antisemitism in France from 1967 to the present (Bande, Biscarat, and Reichstadt 2024). The authors tried to determine, among other questions, if anti-Zionism is an expression of a new antisemitism and reconsidered the equation of anti-Zionism and antisemitism—more on this point later. In this volume, Alexandre Bande argues that indeed anti-Zionism is sometimes the expression of the questioning of the existence of the state of Israel, which can lead to rendering every Jew responsible for Israel's policies: it is in this context that anti-Zionism could be considered a form of antisemitism. Bande adds that from 1967, the critique of colonialism morphed into a demonization of Israel and Jews.

Post-1967 Antisemitism?

The Six-Day War in 1967 was chosen by Bande, Pierre-Jérôme Biscarat, and Olivier Reichstadt (2024) as the starting point of their book because it marks a fundamental turning point. Opposed by the Egyptian, Syrian, and Jordanian armies, the Israel Defense Forces took control of the Golan Heights, Sinai, the Gaza Strip, the West Bank, and East Jerusalem, an occupation condemned by the United Nations (Resolution 242). Avner Cohen (2017) describes 1967 as a war that "transformed Israel from a nation that perceived itself as fighting for survival into an occupier and regional powerhouse." The Six-Day War explicitly marked the Arab states' refusal to recognize the existence of Israel, and an anti-Israeli rhetoric intensified within the Soviet bloc, accompanied by a surge of antisemitic acts. As a symbol of this repression, 13,000 Jews left Poland permanently in 1968. This rhetoric also spread to democracies: in 1967, General de Gaulle famously referred to Jews as "a self-assured and domineering elite people" (Aron 2002). While acknowledging that antisemitism in its modern form dates to the turn of the century, with the creation of the state of Israel as the point where antisemitism took another actionable proportion, Bande, Biscarat, and Lalieu (2021) insists 1967 is decisive. The authors highlight a series of events such as the attacks against Israel in 1972 (Lod Airport in Tel Aviv and the Munich Olympics), global support for the Palestinians, and the Non-Aligned Movement conference in 1979, which stated that Zionism is a crime against humanity and facilitated the intertwining of anti-colonialism and the demonization of Zionism. Notably, the United Nations took a stance against Israel in several resolutions, including Resolution 3379 (subsequently repealed in 1991), which declared that "Zionism is a form of racism and racial discrimination" (Manor 2010). Following widespread outrage over the desecration of the Carpentras cemetery, the Gayssot Law criminalizing revisionism and negationism (denial of the Holocaust as defined by the Nuremberg trials) was adopted in 1990, marking the start of a shift in the antisemitism/anti-Zionism debate.

Emanuel Debono, editor in chief of *DDV* (*Le Droit de Vivre*, in circulation since 1932), the official journal of the LICRA (International League against Racism and Antisemitism), adds that shortly after shows of solidarity with Palestinians in 1967, antisemitism in France took a serious turn, and the number of antisemitic acts exploded (Bande, Biscarat, and Reichstadt 2024). This historical exercise of redefining antisemitism through a process of revisiting its start date leads to the question of whether linking antisemitism to external factors—the "Arab–Israeli conflict"—helps France cope with its own history, whereby antisemitism is no longer a national Franco-French or European problem but a problem that heavily involves French immigrants, specifically North Africans. This way, France need not evoke, nor be reminded of, its Vichy past.

For most of the debates about and commemorations of the Holocaust in France, the aim has always been for France to learn how to not repeat the past and how to move forward in a way that ensures the rhetoric that nurtured antisemitic propaganda in early twentieth century does not prevail again. This is not to say that France does not remember its pivotal role in the most horrific event of twentieth century Europe but rather to say that France does so in a way that says to the world that the nation has learned the lessons of the past and that the contemporary manifestations of an old problem have new and external actors. After all, France struggled to remember and write about its recent past for decades after Vichy (Rousso 1994), and it was not until 1972 that a sense of realization of the full scale of the Vichy regime's active participation and collaboration with the German Nazi rule took place with the publication of *Vichy France* by Robert Paxton. It is hard to tell if historians in France are redefining antisemitism, reflecting on trends, or reinforcing them. After all, the authority of these historical accounts comes from their power to persuade as much as their power from being written. For Ludmilla Jordanova (2000), the authority of historical narratives largely hinges on their rhetorical and persuasive efficacy because historical knowledge—whether in academic or public spheres—is principally disseminated and received through writing and its oral adaptations, including scholarly publications, informal manuscripts, and media output. Consequently, interpretative processes such as Bande, Biscarat, and Reichstadt's (2024) intervention reinforcing 1967 deserve as much critical attention as the source material itself—that is, the exact number or nature of antisemitic acts in and since 1967. The practice of history in this case ought to be understood not solely in relation to the archive but also in relation to the written outputs of historical inquiry and the audiences they engage. The practice, among historians such Band et al., of reinforcing the narrative that tightly links antisemitism in France with the Arab–Israeli conflict, and the recentering of 1967 in that regard, determines how the French public chooses to react to what is indeed happening outside France's borders—in this case, the genocide of Palestinians in Gaza since October 8, 2023. The frame has been established, the media adopted it, the public consumed it, and we are now at a moment where advocation for Palestinian rights needs to be expressed and navigated in the context of a post-1967 timeline—the burden of responsibility to react to atrocities committed on Palestinians shifted, or rather, lost its motive. That there was a surge of antisemitic acts in 1967 and the following years is not for debate (at least not in this article), but the issue is the way sources are turned into historical narratives about the causality of antisemitism and external factors.

Before we look deeper into the significance of the 1967 date in recent accounts of historical antisemitism, it is equally important to understand the diverse social and political fabric of French Jews. At the start of the twentieth century, the French Jewish population was boosted by a wave of immigration of Jews from

Eastern Europe.[4] After the second world war, France also welcomed large-scale migration of Sephardim from North Africa: between 1944 and 1979, around 240,000 Jewish immigrants arrived in France, with over half coming from Algeria and the remainder from Morocco and Tunisia. Indeed, France is home to the largest Jewish and Muslim communities coexisting side by side outside of Israel, with estimates of 4,000,000 to 6,000,000 Muslims and 500,000 to 600,000 Jews a decade ago (Noiriel 2014, 543). But this postcolonial demographic reality meant that the Jews and Muslims of France grew apart socioeconomically, for French colonization policies "encouraged the Frenchification and upward mobility of many—although certainly not all—North African Jews" (Arkin 2018, 81) and offered them "greater opportunities to acculturate to European social and cultural norms than the Muslim populations amidst which they lived, and this contributed to the formation of new social hierarchies" (Mandel 2014, 4).

This recentering of 1967, though convenient for some, is far from incidental. 1967 changed the Jews of France and their experience of their sense of belonging to the French nation. Joan B. Wolf (2003, 17) underscores the importance of 1967 as "the seminal event in the development of public discourse on the Holocaust" in post-Vichy France and notes that the Jewish community in France, threatened by the Six-Day War and disillusioned with de Gaulle's non-committed foreign policy, raised concerns in the late 1960s and early 1970s about the potential resurgence of widespread antisemitic violence. In response to perceived threats to Israel's future, French Jews expressed their concerns as a collective, invoking the Holocaust in the media to convey the gravity of the situation (Wolf 2003). Jews grew to have a voice and be heard by French officials. In fact, Mandel (2014, 4) does specify that "French Jewish spokesmen had a far more developed apparatus with which to articulate a group politics and greater access to national and local officials for promoting the causes important to them." This advantage was the result of deeper and longer distinct experiences of immigrations between French Jews and French Muslims. Immigrant Jews in the 1960s

> joined a long-rooted French Jewish community, which although deeply undermined by Vichy legislation during World War II, had been engaged by the mid-1950s in a decade-long rebuilding process that had given rise to a highly developed communal infrastructure. While encounters between incoming Jews and those already settled in France were never smooth, Jewish migrants to France benefited from institutional structures geared to facilitating their integration and a communal leadership determined to defend Jewish interests, particularly when Jewish lives were understood to be endangered. Arriving Muslims not only had no equivalent infrastructure in place, but also the organizations that sought to speak for them were profoundly distrusted by French authorities as sources of political instability. (Mandel 2004, 4)

Post-1967, only several thousand French Jews a year made *aliyah*—the basic tenet of Zionism, which is the immigration of Jews from the diaspora to Israel, though "even those who were too firmly rooted in France to ever consider *aliyah* were forced, by the existence of the State of Israel, to rethink the terms of their own citizenship and admit that there were indeed specific ties, both objective and symbolic, with Israel" (Schnapper and Johnstone 1995, 41). This shift was caused by the trauma of the Holocaust following a century where French Jews had been emancipated for nearly 150 years and "were the most effectively assimilated . . . and shared with fervor in the cult of nationhood founded on the values and the myths of the Revolution" (Schnapper and Johnstone 1995, 40).

No wonder that by the 1980s, French Jews acquired a new sense of identity, illustrated in their feeling of belonging and solidarity with Israel. These strong tie with Israel further complicate the anti-Zionist question, as negative expressions towards Israel became personal negative expressions against Jews themselves, including those living in Europe. David N. Myers (2006) argues that "Zionism has become an important pillar of faith for many modern Jews . . . Israel and its representative institutions have become central foci of identity for many Jews." According to a report published by the Institute for Jewish Policy Research in 2019 on the perspectives of young Jewish Europeans (aged 16–34) living in twelve European Union member states, Israel features strongly in their lives: 89% of those surveyed have visited the country, and 76% have family or relatives living there, while 73% regard "supporting Israel" as important to their sense of Jewish identity.

What Exactly Is New Antisemitism?

In the aforementioned report, 31% of young Jewish Europeans surveyed experienced antisemitic harassment, and 59% of those victims of antisemitic violence described the perpetrators as "someone with a Muslim extremist view." Lower, but nonetheless significant, proportions also pointed to "someone with a left-wing political view" and, to a lesser extent, "someone with a right-wing political view" (Institute for Jewish Policy Research 2019, 21). In November 2014, two opinion polls were conducted by Ifop (The French Institute of Public Opinion): the first, carried out online, involved a sample of 1,005 people representative of the French population aged 16 and over; the second, carried out face-to-face, involved a sample of 575 people who declared being born into a Muslim family, whether French or not, were living in France, and were aged 16 and over. The aim of the second survey (575 Muslims) was to test the hypothesis of a new form of antisemitism proliferating among Muslims and determine whether Muslims living in France are more or less likely than the national average to hold prejudices against Jews or even to develop an antisemitic perspective. For instance, while 19% of all respondents agreed with the statement that "Jews have too much power in politics," the rate rose to 51%

among Muslims. In 2024 however, one in three French people, irrespective of their ethnic background, believed Israel was "committing genocide against the Palestinians in Gaza" (YouGov 2024), and a recent poll shows that 74% of the French support Macron, not on his domestic policy but on his position critical of, and plan to impose sanctions on, Israel (Clavier 2025). It remains to be seen if the interviewees in the last two surveys are considered antisemites. The surveys have certainly not been discussed by any of the mainstream media outlets. If you come to consider antisemitism a problem quasi-exclusively linked to an already antagonized minority within the nation, then any legitimate expressions by that minority against what they consider an injustice committed by Israel against Palestinians will be considered antisemitic, or at best ill-faithed. This is usually done in the name of protecting French Jews. But seeing the strong ties of French Jews and Israeli Jews, this protection extends to the latter and gives the French state an exemption from any form of action.

Antisemitism as an offense increasingly associated with Muslims thus came to be known as the "new antisemitism"—first popularized by the publication of *La Nouvelle Judeophobie* by Pierre Andre Taguieff in 2002, which achieved a certain notoriety in intellectual circles but has become the text of reference on this subject for many in French Jewish groups (Arkin 2018, 81). Two years prior in 2000, concurrently with the start of the second intifada, France witnessed an explosion of antisemitism unprecedented since the Second World War. In that year alone, a total of 744 antisemitic incidents were recorded (520 in the month of October alone) compared to only eighty-two the previous year. This wave of antisemitic acts continued throughout the years that followed and peaked in 2002 and 2004, with 936 and 974 incidents, respectively. In 2002, the Israeli Deputy Minister of Foreign Affairs, Rabbi Michael Melchior, described France as the most antisemitic Western country (Vidal 2002), while the American Jewish Congress called on Hollywood stars and producers to consider boycotting the 2002 Cannes Film Festival in protest (Fouché 2002). In July 2004, then Israeli prime minister Ariel Sharon urged French Jews to move to Israel to escape the growing threat of antisemitism (*The Guardian* 2004). French media and voices in Israel both helped reinforce the idea that antisemitism is an "old and global story of Muslim hatred for Jews" (Arkin 2018, 81) and further reinforced the "institutionalisation of the anti-Zionism-equals-antisemitism claim" (Zia-Ebrahimi 2023, 259).

New antisemitism, described by Taguieff (2002) as the "ideological metamorphosis of antisemitism from an explicit to an implicit anti-Jewish racism," has two additional features. First, it is meant to designate equally a group of people who, and an idea whereby, the state of Israel has replaced "the Jew" as the object of antipathy in the eyes of antisemites. In this new dynamic, Jews are targeted not as individuals but as a people and/or nation. In other words, Israel has become, in the words of Brian Klug (2003), the "collective

Jew." In fact, while Klug (2013, 470) aptly demonstrates what makes a text antisemitic, he also explains the many ways "hostility to Zionism (or to the State of Israel as the expression or fulfilment of Zionism)" can be construed as not antisemitic. That many critics of Israel's policies in Gaza or the West Bank view Israel as "a state whose policies and conduct disturb the peace of the region . . . in and of itself, is not anti-Semitic" (Klug 2013, 476). And in the case where "the State of Israel is disliked purely because it is seen as something imposed on the Arab world by outside forces," such "*hostility directed at the state* is not anti-Semitic" (Klug 2013, 477). On the other hand, the dominant media narrative maintains that anti-Zionism is the "detestation and criminalization of Israel, not as a government/state like many others, but as a symbol of something whose very right to exist is even questioned" (Attal 2004). This narrative insists that the internal nature of antisemitism has changed because "the Jew" has been redefined. Antisemitism is thus tightly linked to Zionism, or rather, as per Taguieff's reading, the hatred of Israel coalesces around a representation of Zionism as the incarnation of absolute evil and the belief that every Jew is a "Zionist." This dangerous and erroneous representation of antisemitism helps criminalize pro-Palestinianism.

Another consequence of the "recentering" of the Six-Day War and the second feature that designates antisemitism as new is its association with the left, which distinguishes it from supposedly older forms. The "classic" version of antisemitism refers to that which generally derived from the extreme right, motivated by ethnocentric/biological racism, nationalist chauvinism, or religious bigotry. The left, originally sympathetic to Israel, shifted its stance after the occupation of the territories captured during the Six-Day War. Israel equals a colonialist power with imperialist ambitions, and anti-Zionism became ingrained within the discourse of the left, particularly the so-called New Left. The mainstream left in France, embodied by the Socialist Party, has always been split on the issue of Zionism and the Israeli–Palestinian conflict; its leadership, however, has generally supported the Israeli Labor Party and the two-state solution. Therefore, the "new antisemitism" of the left has been uniquely associated by some commentators with the extreme left, mainly France Unbowed and causes such as antiracism, anti-imperialism, human rights, solidarity with Palestinians, and opposition to Islamophobia. According to this theory, new antisemitism acquires a paradoxical quality, because it is supposedly perpetrated in the name of just causes. However, rather than those on the left being directly associated with acts of antisemitism, they are accused of promoting "antisemitism by proxy" through their anti-Zionist discourse and pro-Palestine stance. Debono (2023) describes pro-Palestinianism since the second intifada as a "convergence between the extreme right, extreme left, and the Islamists."

The question of equating anti-Zionism and antisemitism is old and new. In France, as early as 1962, the Holocaust denier Paul Rassinier compared Israel

to Nazi Germany, condemning its racism towards the indigenous Palestinian population while asserting that the Holocaust is a myth intended to serve the interests of the Jews and the state of Israel. In *Le Monde* in 1965, the philosopher Vladimir Jankélévitch (1965) summarized the close ties between anti-Zionism and antisemitism as follows:

> Antizionism is an incredible boon, for it gives us the permission—and even the right, and even the duty—to be antisemitic in the name of democracy! Antizionism is justified antisemitism, finally made accessible to everyone. It is the permission to be democratically antisemitic. And if the Jews themselves were Nazis? That would be wonderful.

The "nazification of Israel," an example of Holocaust inversion whereby Israeli policy towards Palestinians is compared with Nazi policy regarding Jews, is a stance some anti-Zionists take and are criticized for, more so recently considering the growing consensus that Israel is committing genocide in Gaza (Farrell 2024). In February 2024, Dara Horn, who served on Harvard President Claudine Gay's antisemitism advisor, commented on American university campuses protests, summarizing antisemitism as follows:

> The through line of anti-Semitism for thousands of years has been the denial of truth and the promotion of lies. These lies range in scope from conspiracy theories to Holocaust denial to the blood libel to the currently popular claims that Zionism is racism, that Jews are settler colonialists, and that Jewish civilization isn't indigenous to the land of Israel. These lies are all part of the foundational big lie: that anti-Semitism itself is a righteous act of resistance against evil, because Jews are collectively evil and have no right to exist. Today, the big lie is winning. (Horn 2024)

A few more offenses have been added to the growing list of things critics of Israel are not allowed to do or say, including using the slogan "from the river to the sea," boycotting Israel, and more broadly and continuously showing solidarity to Palestinians, including among orthodox diaspora Jews.

Anti-Zionists, though not all, are tuned to the decolonial movements, including the Palestinian struggle for liberation. But not every anti-Zionist wants a liberation of Palestine from the river to the sea through the eradication of Israel. A free Palestine can also mean 1) the right of Palestinians to move freely inside the borders; 2) the removal of the wall that by all legal definitions constitutes an apartheid; and 3) an inclusive solution that is not built on ethnic exclusion and segregation. Many anti-Zionists would agree that "it is not bigoted to try to turn a state based on ethnic nationalism into one based on civic nationalism" (Beinart 2019). But the issue with the critics of anti-Zionism,

whether by Zionists or not, is that their arguments misrepresent, overgeneralize, and for the most part are anti-anti-Zionism absolutist.[5] No amount of criticism of Israel is unoffensive. American campuses protests (were) echoed (by) similar ones in Europe and France, and even though they faced similar censorship, French campuses remained in the most part peaceful (Marchais 2024).

Anti-Zionism Is a Jewish Tradition

Yet, might there be an unseen benefit in keeping Israel and antisemitism entangled? It is true that the framing of antisemitism in relation to critiques of Israel ignores diaspora Jewish identities and the reality that not every Jew in the world aspires to be part of Israel and the Zionist project. Equating anti-Zionism and antisemitism assumes critics of Israel are not able to discern that not every Jew is or wants to be part of Israel and that not every critic of Israel is unsympathetic to the idea of a "Jewish refuge from persecution" (Klug 2013, 481). In other words, a person could be "hostile to the ideology of Jewish nationalism but sympathetic to a different version of Zionism" (Klug 2013, 481). Far more common than being anti-Zionist and antisemitoc is being a Zionist and antisemitic (Zia-Ebrahimi 2023). It is in fact harder to find an alt-right, far-right, white supremacist group with an antisemitic history that is not pro-Zionist, both in Europe and the United States (Zia-Ebrahimi 2023). Yet, keeping anti-Zionism strictly connected to Israel is what guarantees we do not cross the line to the realm of hostility to Jews. A similar question was asked by David N. Myers (2006) in his search for a "principled antizionism." In his exploration of Jewish anti-Zionism, Myers offered two criteria that could help in filtering out the antisemites from Israel's critics: exclusion and group stigmatization. The first criterion of exclusion presupposes that criticism of Israel becomes an exclusive—or obsessive—exercise that focuses on Israel's breaches and transgressions while ignoring other state-sponsored violence of a similar or greater scale elsewhere. Many proclaimed anti-Zionists, including in the Arab world, do voice equally strong criticism towards countries that commit human rights violations, even their own governments. Though, for the sake of argument, there is no requirement for some sort of intersectionality or transnationalism in the fight against authoritarianism, and there is nothing morally reprehensible about picking one cause to defend. In fact, a fixation on Israel's apartheid policies in the West Bank and its unjust treatment of Palestinians could be justified among people in the region and neighboring Arab countries as symptomatic of racialized policies that have for a very long time tainted West–Global South relations. Adopting an antiracist lens for one's criticism of Israel should be an expected outcome.

Group stigmatization, the second criterion advanced by Myers (2006), posits that when criticism of Israel moves from focusing on the actions of its political leaders to attacking the character of Jews, whether in Israel or in

the diaspora, a boundary has been crossed. Timothy Peace (2009) clarifies: "[I]t should be conceivable that someone could oppose the existence of Israel and not bear any prejudice against Jews, just as one could hate Jews but still (paradoxically) be a fervent supporter of the Zionist cause." Certain elements of the French extreme right could be considered antisemitic Zionists because they would rather see Jews in Israel than in France. The majority of those on the left in France are, given that they support a two-state solution at best and a one-state solution for Israeli–Palestinian coexistence at the minimum, not even anti-Zionists, let alone antisemitic. The possible criticism that could be levelled against members of the left is that their stance in opposition to Israel might inadvertently encourage antisemitism by proxy, something that of course can be neither proven nor measured. The extreme right still poses more of a threat to Jews than the extreme left (Peace 2009).

Myers highlights Jewish anti-Zionism that has internally focused on the question of *aliyah* at the turn of the (twentieth) century. But Zia-Ibrahimi has revisited a history of Jewish anti-Zionism that tackles the question of new antisemitism head on. Prior to the emergence of the Palestinian question, one of the dominant currents in Jewish historiography exalted the historical coexistence between Jews and Muslims, a response to the failed promises of Jewish emancipation in modern Europe that idealized the prosperity Jews had known under Muslim rulers (Zia-Ibrahimi 2021). Notable to this historiography, which conglomerated in the school of the *Wissenschaft des Judentums* (the Science of Judaism), was a narrative of harmonious coexistence that effaced periods of subjugation (Zia-Ibrahimi 2021). This approach was abandoned by the dominant trends in Jewish thought in the twentieth century, both in Israel and in the diaspora, and the rich and complex diasporic histories of Oriental Jews were retroactively reinterpreted as nothing more than a prolonged "antisemitic prelude" to Zionism (Zia-Ibrahimi 2021). The Palestinian question compelled many Jewish intellectuals to rethink Jewish–Muslim coexistence, which played an ideological role in facilitating the colonization of Palestine and the marginalization of its indigenous inhabitants. At the moment the dispossession of native Palestinians was unfolding, it became unfavorable to depict their presumed ancestors as architects of inclusive societies that had treated Jews relatively well. Doing so risked casting the Zionist project in a negative light (Zia-Ibrahimi 2021).

Anti-Zionism Is the Anti-France

Vicki Caron (2005) highlights the uniqueness of French antisemitism in producing yet another trope at the end of the nineteenth century: a link between antisemitism and anti-republicanism, which emerged as a result of the Third Republic's new political reality, illustrated in the coalition of Jews, Protestants, and Freemasons. This coalition prompted opponents of the republic to focus

their attention on these groups. Consequently, the Dreyfus Affair was more than just the wrongful accusation of a Jewish individual. Because Alfred Dreyfus, a Jew, had reached the upper ranks of the state—specifically the army's general staff—the attacks directed at him quickly intensified into a comprehensive assault on the republic itself. This situation caused the "Jewish question" to embody the core principles championed by the republic: secular governance, equal rights for all citizens under the law regardless of religious or ethnic origins, and the opportunity for individuals to advance based on merit. Many resented these ideals, for they helped the social mobility of "the wrong groups," and the resentment led Jews to be viewed as the ultimate representation of the despised state (Caron 2005). For one of the leading racist and royalist theorists in the beginning of the twentieth century, Charles Maurras, "anti-France" referred to "the four confederates": the Protestants, the Jews, the immigrants, and the Freemasons. For the antisemite Léon Daudet, "anti-France" meant the "Jewish–German espionage" and the supporters of Dreyfus. Under the Vichy regime, Philippe Pétain used the term "anti-France" to refer to Jews, communists, and Freemasons. A Pétainist leaflet from 1944 notably states that "the conspiracy of anti-France is the global dream of Jewish sadism" (Réseau International 2024). The concept had concrete consequences: roundups, torture, and deportations for groups deemed to be anti-France. "Anti-France" is essentially a far right concept to identify an internal enemy; if in the past it targeted Jews, today it is the left and Muslims. Its use in 2024 is extremely serious. Macronists have just rehabilitated it. Pisca Thevenot, Macron's government spokesperson, responded to Ersilia Soudais from France Unbowed, who expressed concerns about Islamophobia in France, saying: "I think there is a gold medal that we forgot to give, that of the indecency and of the anti-France, for the France Unbowed party" (Le Point 2024). The night before, Maud Brégeon, another deputy from Macron's Renaissance party tweeted directly to Ersilia Soudais: "[Y]our communist and anti-France communitarian propaganda does not take a break?" Is it any surprise that the tropes used to vilify Jews in the past are today used to vilify the left and, by proxy, Muslims?

A few issues were raised in this short article. First, untangling antisemitism and Islam must go hand in hand with the untangling of antisemitism and anti-Zionism. In their attempt to protect Jews, the French establishment is victimizing Palestinians and stigmatizing pro-Palestinians. The way antisemitism is debated and contextualized in France has become intrinsically bound to Muslims, while the RN is no longer considered an antisemitic party but rather a party of antisemites (a few bad apples rather than a real systemic problem). Marine Le Pen has been recently described by left-wing politicians as a figure of tolerance and peace towards French Jews. This, coupled with a generalized complacency and mainstreaming of Islamophobia, risks harming legitimate efforts to counter antisemitism. The fortunate timing of Bande, Biscarat, and Reichstadt's (2024)

collection at the start of the atrocious and unprecedented war in Gaza, and the ensuing crisis in Europe, further legitimized the "new antisemitism" thesis, offering an intellectual cachet. The 1967 recentering illustrates the dangers of extra-academic consumption of the past. This stems from the prevalent inclination among non-specialist history enthusiasts and the public in general to place trust in the opinions of experts—especially highly articulate and intellectually esteemed academic historians. This is further problematized when such perspectives and historical narratives are conveyed through professionally produced media, such as prime-time television programs, especially in times of crises such as the current one. By virtue of the unaccounted-for motivated reasoning among audiences and consumers of both historical texts and their media adaptations, the need for responsibility and reflexivity among historians becomes more vital. The profound, even if unintended, consequences of these "scholarly" interventions on memory and public debate must be accounted for.

Notes

[1] Under Macron's rule, France witnessed a wave of social protests, including, among others, two national strikes—the Gilets Jaunes and the pension reform protests—where Article 49.3 of the Fifth Republic's constitution to bypass normal parliamentary vote was used thirteen times, including to pass a controversial immigration law (Franque 2023).

[2] Panot and several of colleagues submitted a proposal in February 2024 calling on France to recognize the State of Palestine and calling for the recognition of the State of Palestine within the United Nations. See Proposition de résolution n°2196 – 16e législature – Assemblée nationale (assemblee-nationale.fr) https://www.assemblee-nationale.fr/dyn/16/textes/l16b2196_proposition-resolution.

[3] During the summer of 2021, French authorities implemented a health pass, or *passe sanitaire*, requiring everyone aged twelve and older to present proof of vaccination or a negative test for SARS-CoV-2 to access a wide array of public spaces, including bars, libraries, and hospitals.

[4] During the first decade of the twentieth century, there was a moderate decline in antisemitic tensions—except in Russia, where serious pogroms occurred in 1903 and 1905 and where the Russian secret police published the infamous forgery *Protocols of the Learned Elders of Zion*, which manufactured a Jewish plot to achieve world domination and furnished propaganda for subsequent generations of antisemites. There also were anti-Jewish purges from Poland in 1956–57 and 1968, many of whom immigrated to France.

[5] In France, France Unbowed eurodeputy Rima Hassan, born in a refugee camp in Syria to Palestinian parents, is portrayed in *Le Monde* (Ayad and Mestre 2025) as a hysterical antisemite despite having repeatedly explained that she does not advocate for the erasure of Israel but rather for the elimination of apartheid and the secularization of the state of Isreal and Israeli society. The argument that both Palestinians and Israelis can coexist in peace as equal citizens is, she explains, at the essence of the "from the river to the sea" slogan: Israel cannot be both a democracy and an ethno-state.

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Do Faith-Based Conflict Resolution Mechanisms Prevent and Mitigate Ethnoreligious Conflict in Sri Lanka?

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Faith often underlies intercommunal tensions and violence in present-day Sri Lanka. But it also has the potential to influence conflict resolution—it can be both part of the problem and the potential solution. This article critically examines Sri Lanka's faith-based conflict resolution mechanisms and asks whether such mechanisms succeed in preventing and mitigating violent conflict. Although this article focuses on Sri Lanka and is primarily based on consultations with faith-based actors and secular civil society groups there, it aims to offer insights for faith-based mechanisms in other jurisdictions as well. The article is presented in four sections. The first discusses key concepts and research methods. The second delves into the context in which violent ethnoreligious conflict emerges in Sri Lanka. The third presents a theoretical framework within which faith-based conflict resolution mechanisms operate. This framework may be applicable to other contexts as well and aims to offer a basis for future comparative work. The final section analyzes the work of faith-based mechanisms in Sri Lanka and evaluates their comparative strengths and weaknesses in preventing and mitigating conflict.

Concepts and Methods

This article focuses on violent forms of conflict between ethnoreligious groups. "Conflict," simply put, represents "perceived differences in interests, views, or goals" (Deutsch 1973). "Violence," on the other hand, may be classified in terms of its nature: physical, nonphysical, or structural. These first two types of violence are included in conventional definitions, such as the definition offered by the World Health Organisation (2015, 2): "[T]he intentional use of physical force or power, threatened or actual, against oneself, or against a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation." Johan Galtung (1969; Tanner 2007) observes that social structures or social institutions that prevent individuals from meeting their basic needs inflict "structural violence." Thus, certain intensely discriminatory practices may amount to structural forms of violence, although they do not necessarily fall within the scope of physical or nonphysical violence. This article adopts a broad definition of violence that includes the physical, the nonphysical, and the structural. Such a broad definition is important to conceptualizing violent ethnoreligious conflict in Sri Lanka.

Identity politics play a pivotal role in the persistence of violent conflict in Sri Lanka. Sri Lankans identify themselves mainly along ethnic and religious lines, and official statistics on the population are presented separately on ethnic and religious bases. According to the most recent census carried out in Sri Lanka in 2012, in terms of ethnic identity, Sinhalese make up 74.9 percent of the population. Tamils constitute 15.2 percent (including Hill Country Tamils, who constitute 4 percent), and Moors constitute 9.2 percent. In terms of religious identity, over 70 percent of the population is Buddhist. Hindus, Muslims, and Christians respectively constitute 12.6 percent, 9.7 percent and 7.4 percent of the population (Department of Census and Statistics 2012).

Some scholars use the term "ethnoreligious" to describe certain identity groups to emphasize the intersectional nature of their identity (Yang and Ebaugh 2001). Others observe that the line between ethnicity and religion is often blurred because ethnicity and religion closely overlap in places such as Sri Lanka (Stewart 2009; Smock 2008). Given the existence of intersecting and overlapping identity strands, a notion of ethnoreligious identities has emerged in Sri Lanka. The identities "Sinhala-Buddhist," "Muslim," "Tamil-Hindu" can be understood as ethnoreligious identities. Such identities form a discrete category, i.e., "ethnoreligious" rather than merely a combination of the two identity categories "ethnic" and "religious." Importantly, the majority community in Sri Lanka—Sinhala-Buddhists—must be understood as a discrete identity group rather than a group that has two separate identity markers. By contrast, Christians in Sri Lanka are not a single community, as they belong to separate ethnic groups (Sinhalese, Tamil, or Burgher) and identify as part of different Christian denominations (Roman Catholic, Protestant, Pentecostal, etc.). These demographic intricacies underscore the complexity of intercommunal violent

conflict in Sri Lanka. While some scholars have contested using the term "ethnoreligious" as a legal category (Pérez-León-Acevedo and Pinto 2021), it remains useful to understand certain aspects of such conflict. The nature of such conflict may be better understood when it is conceptualized as "ethnoreligious" rather than merely "ethnic" or "religious." Compromise in ethnoreligious conflict can be elusive, as the combined complexities of the ethnic and the religious make such conflict particularly difficult to resolve (Kaplan 2015, 422).

The methodological approach undertaken in this article includes two components: a review of secondary literature on ethnoreligious violence in Sri Lanka; and primary, qualitative research on how faith-based actors engage in ethnoreligious conflict resolution. The qualitative research included thirty key informant interviews and four focus group discussions with civil society actors, including religious leaders and members of faith-based organizations, lawyers, journalists, and academics.

Typically, a faith-based mechanism is a conflict resolution mechanism that uses faith as a frame of reference. A subset of these mechanisms would be interfaith initiatives, which bring actors of different faiths to the same forum to resolve conflicts. As a point of comparison, civil society actors, including women's rights activists, who do not rely on faith as a frame of reference in their work, were also interviewed. Field visits were conducted in October and November 2022 in Colombo and several locations in the Eastern Province of Sri Lanka, including Batticaloa Town, Kallady, Kattankudy, Kalmunai, Sainthamaruthu, and Samanthurai. The overall sample of research participants reflected a mix of ethnicity, religious affiliation, gender, age, and disability.

The Eastern Province in Sri Lanka was selected as a case study to assess the effectiveness of faith-based mechanisms in preventing and mitigating violent conflict. The province was selected for two reasons. First, it features the major ethnoreligious groups in Sri Lanka and is one of the notable theatres of violent conflict in the country. The province is historically linked to the armed conflict between the state and Tamil militants and between Tamil militants and Muslims. It has also been the primary region from which radical Islamist groups have allegedly emerged. For instance, the National Thowheed Jamaat, a group alleged to have been responsible for the 2019 Easter Sunday Attacks (Bradsher and Garcia 2019), allegedly emerged out of the Batticaloa District. Second, the province has featured a significant number of faith-based conflict resolution mechanisms.

The Context of Ethnoreligious Conflict

Since the end of the armed conflict between the state and Tamil separatists in 2009, Sri Lanka has witnessed a rapid rise in violence of a distinctly ethnoreligious nature. Such violence coincides with the emergence of Sinhala-Buddhist militant groups such as Bodu Bala Sena, whose principal targets have been ethnoreligious minorities.

During this post-war period, violence against religious minorities—particularly Muslims and Christians—has increased. For example, widespread anti-Muslim mob violence took place in the Southern Province in 2014 and 2017, in the Central Province in 2018, in the Eastern Province in 2018, and in the Western Province and North-Western Province in 2019. In most of these episodes, common altercations such as traffic disputes or arguments at restaurants triggered widespread mob violence. The 2019 Easter Sunday Attacks meanwhile featured coordinated suicide bombings of three Christian places of worship and three hotels by an Islamist group. The attacks claimed the lives of over 250 people.

The emergence of post-war ethnoreligious conflict is particularly evident in the Eastern Province, as tensions there have heightened between Hindus and Muslims and between Hindus and Christians. Tamil-Hindu nationalist groups have emerged in this context and contributed to heightened tensions. For example, groups such as Siva Senai emerged in the post-war context and remain instigators of ethnoreligious conflict between Tamil-Hindus and other groups (Fuller 2018). Additionally, Ampara, a district in the Eastern Province, has become an area in which Sinhala-Buddhist militant groups have launched propaganda campaigns against Muslims. Such campaigns have underscored anti-Muslim violence in Ampara. For example, in February 2018, anti-Muslim mob violence broke out following an incident at a Muslim-owned restaurant where a Sinhalese customer accused the restaurant of mixing "sterilization pills" in his food (Wettimuny 2018). Militant groups thereafter posted propaganda on social media platforms claiming these "pills" were part of a Muslim conspiracy to reduce the population of Sinhala-Buddhists in the country.

The overarching context of ethnoreligious conflict in Sri Lanka reflects the complex and cyclical nature of violence. The cyclical relationship between majoritarian violence on the one hand and violent radicalization within minority communities on the other is illustrated in the sequence leading up to the Easter Sunday Attacks and their aftermath. Years of anti-Muslim violence and discrimination are likely to have prompted disenchanted members of the Muslim community to gravitate towards radical forms of Islamism (Gunatilleke 2023, 126). In turn, Sinhala-Buddhist militant groups point to such radicalism to justify further hostility and violence towards Muslims. Thus, the sustainable resolution of violent ethnoreligious conflict in Sri Lanka requires a deeper analysis of the underlying drivers of such conflict.

Certain long-term—and often entrenched—phenomena observable within communities can explain to some extent how and why such conflict has persisted in Sri Lanka. These phenomena may be described as drivers of ethnoreligious conflict. Any mechanism that sets out to engage in meaningful conflict resolution in Sri Lanka must invariably confront these underlying drivers. This section outlines two such drivers of conflict in Sri Lanka: entitlement complexes and existential fears.

The culmination of generations of political and ideological discourses, and socialization through school curricula, has produced a distinct entitlement complex among some segments of the Sinhala-Buddhist majority community. This complex is founded on the belief that Sri Lanka is a Buddhist country and "belongs" to the Sinhala-Buddhists, who are the original inhabitants of the island (DeVotta 2007, 5). This same complex held by some members of the Sinhala-Buddhist community may manifest similarly in the case of regional or local majorities. Hindus, Muslims, and mainline Christians have similar entitlement complexes when they enjoy majority status in specific regional or local contexts.

Existential fears often accompany entitlement complexes. Some Sinhala-Buddhists, for instance, feel deep existential fears that their dominant status at the national level may be eroded by the activities of Tamils, Muslims, and Christians. Similarly, certain members of the Hindu, Muslim, and mainline Christian communities possess existential fears connected to their regional entitlement complexes. Certain specific phenomena tend to trigger these national- and regional-level existential fears. First, there are fears that Muslim population growth and perceived Muslim dominance over trade threaten the numerical majority and economic prosperity of other communities. Moreover, competition between certain Islamic groups has led to overt assertions of Muslim identity and piety, thereby increasing the overall visibility of Muslim religious practices (Klem 2011). Typical examples of such external manifestations may include women wearing *hijāb* (various forms of head coverings) and *niqāb* (a cloth that covers the face of a woman wearing *hijāb*). Although the precise reasons for assertions of Muslim identity can be complex and multifaceted (Haniffa 2008), such assertions can underscore ethnoreligious conflict (McGilvray 2011; Faslan and Vanniasinkam 2015, 22). Second, Christian proselytization is perceived as a threat to the numerical and cultural dominance of other communities. This threat has historical roots, as the propagation of Christianity is associated with the colonial missionary projects through which many Buddhists and Hindus converted to Christianity (Schonthal 2016, 224). It also evokes historical memories of physical, nonphysical, and structural violence by colonial administrations against Buddhists and Hindus (De Silva 2005, 128).

Apart from the drivers of violent conflict, local dynamics between ethnoreligious groups often contain economic, political, and sociocultural tensions. These "fault lines" of ethnoreligious conflict may, either by themselves or in combination with more deeply rooted drivers of conflict, produce the conditions for violent ethnoreligious conflict.

Economic fault lines often underlie violent conflict. Scholars have argued that competition over scarce resources, such as land, capital, and business opportunities, creates the conditions for violent intercommunal conflict (Silva et al 2020, 49). Apart from general competition over trade and economic space,

certain specific economic issues underlie ethnoreligious conflict in the Eastern Province. For example, disputes over land remain a constant source of tension. Several key informants based in Batticaloa Town and Kattankudy intimated that one of the primary fault lines between Tamils and Muslims in the area boils down to the scarcity of land and competition for resources.

Political fault lines, such as disputes over power-sharing arrangements, underlie political tensions between Sinhalese, Tamils, and Muslims. The Eastern Province in particular features some of these tensions. According to key informants, these tensions are evident in areas such as Kalmunai in Ampara. There is greater Muslim political representation in the Kalmunai Municipal Council than Tamil. This fact has engendered claims of Tamil marginalization and discrimination in terms of accessing state services. Muslims in Kattankudy similarly claim marginalization due to Tamil dominance in the Batticaloa district.

Certain sociocultural fault lines also underlie ethnoreligious conflict in Sri Lanka. For instance, disputes over burial rites can form the backdrop for ethnoreligious conflict (NCEASL 2018). In many of these incidents, the minority community is compelled to either conduct burial rites according to the majority religion of the area or relocate to another cemetery. The question of Christian proselytization is often at the heart of such conflict. According to some key informants, resistance to Christian burials is motivated by antipathy towards proselytization. Therefore, taking custody of corpses and forcibly holding funeral rites according to the majority religion of an area symbolically serve to undo the conversion to Christianity.

Conflict Resolution Framework

There are several valuable theoretical frameworks on conflict resolution to draw from, the most significant of which is perhaps Johan Galtung's (1969) theory of "positive" and "negative" peace. John Burton and Abraham Harold Maslow have meanwhile presented theories of conflict resolution based on addressing human needs, such as security and recognition (Burton 1990) and basic needs and self-actualization (Maslow 1987). For the purpose of this study, however, I have adopted a programmatic approach to conflict resolution that relies on a theory of specific objectives, activities, and approaches relating to ethnoreligious conflict resolution. While this framework is drawn from the Sri Lankan experience, it is hoped that it has relevance and applicability to any conflict resolution context.

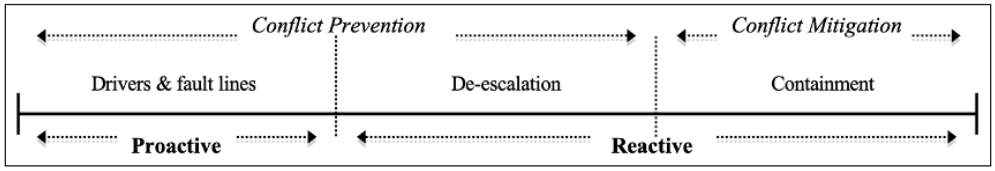

Figure 1: Conflict resolution framework.

This conflict resolution framework (Figure 1) contains three distinct activities. First, addressing the drivers and fault lines of conflict is crucial to conflict resolution. Addressing these fundamental drivers in many ways corresponds to achieving positive peace by meeting the fundamental human needs that underlie conflict. Second, the prevention of escalation (from tensions to violence) is required when complex drivers of conflict produce tensions that cannot be avoided easily. The third activity is the containment of violence, which is pragmatically necessary when initiatives that aim to prevent violent conflict are unsuccessful. The manner and extent of such containment become crucial to avoiding cycles of violence.

As depicted in Figure 1, these three activities correspond to the two objectives embedded in the conflict resolution framework. The first two activities relate to the objective of conflict prevention, as they essentially seek to prevent ethnoreligious violence from occurring. The third activity relates to conflict mitigation, as it seeks to contain violence once it occurs. The conflict resolution framework also considers two distinct approaches to conflict resolution. First, a "proactive" approach is required to prevent violent conflict. Second, a "reactive" approach is required to prevent escalation and mitigate violent conflict when it occurs.

The effectiveness of faith-based conflict resolution mechanisms may be assessed in relation to the objectives, activities, and approaches contemplated in this theoretical framework.

Assessing Faith-Based Mechanisms

There is a rich literature on the role faith can play in intercommunal conflict resolution. As observed by Abdul Aziz Said and Nathan Funk, "[i]n promulgating the ideals and values held in the highest esteem by groups and individuals, religion profoundly influences goal-seeking behavior in conflict situations, by establishing the criteria or frames of reference for determining the rightness and wrongness of events" (Said and Funk 2001). Accordingly, faith actors have had a long history of intervening to resolve conflict. Their interventions are often grounded in their respective faith doctrines. For instance, Christians are taught that [b]lessed are the peacemakers, for they shall be called the children of God" (Matthew 5:9 NIV). The Holy Qur'ān teaches Muslims to take the initiative for peace, reconciliation, and dialogue (Shippee 2003, 245). While Buddhism focuses on introspection in seeking answers to human suffering (Ghosananda, 1992), there are well-established Buddhist theories of conflict transformation that focus on relationships between conflicting parties (Galtung 1988; Arai 2015).

Prior to assessing the effectiveness of faith-based mechanisms, it is important to locate such mechanisms within the broader conflict resolution landscape. Conflict resolution mechanisms can be placed across a spectrum

of informal to formal mechanisms. Negotiation, which involves a process of conversation between conflicting parties to arrive at a settlement, is perhaps at one end of the spectrum as the most informal mechanism. Mediation, which involves a third-party facilitator, may be described as informal or semiformal if carried out by some officially recognized entity. Negotiation and mediation are essentially cooperative and integrative forms of conflict resolution (Sanson and Bretherton 2001) and do not rely on legal rules as such. Arbitration and litigation may be placed at the other end of the spectrum and can be viewed as more formal adjudicative means of conflict resolution. These latter two mechanisms are essentially "rights-based" forms of conflict resolution, as they rely on legal rules (Sanson and Bretherton 2001). Faith-based mechanisms may ordinarily be located at the informal end of the spectrum and mostly involve negotiation and mediation. Such mechanisms may also occasionally take on a semiformal character, such as, for example, mediation by Muslim *qadis*.

Faith-based mechanisms in Sri Lanka function alongside several formal, semiformal, and informal mechanisms designed to resolve ethnoreligious conflict there. At the formal and the semiformal levels, several mechanisms warrant mention. Courts at various levels are available for parties to litigate their disputes and seek judicial remedies. Mediation boards have also been set up to resolve disputes, including those that take place at the community level. While ethnoreligious conflict is not necessarily the focus of such courts and boards, they do on occasion deal with conflicts that have an ethnoreligious dimension. For example, they may deal with land and commercial disputes between individuals from two different ethnoreligious groups. Next, community policing committees have been set up in several locations, including Trincomalee and Ampara in the Eastern Province. These committees comprise police, state officials, and community leaders, including members of the clergy, and provide a forum for community-level disputes to be resolved. These committees frequently deal with disputes of an ethnoreligious nature. Finally, District Reconciliation Committees, established by the former Ministry of National Integration and Reconciliation, have a mandate to inquire into community-level conflicts and mediate solutions. These committees, comprising community representatives, religious leaders, and law enforcement officials, are convened by the district secretary and have a mandate to serve as early warning mechanisms to detect tensions before they escalate to violence.

Apart from these formal and semiformal mechanisms, the nongovernmental sector offers a number of informal mechanisms designed to prevent and mitigate ethnoreligious conflict. These mechanisms are typically funded by international donors such as the European Union, the British government, and USAID. District Inter-Religious Committees (DIRCs) are the most prominent and widespread of such mechanisms. DIRCs are in fact the quintessential faith-based conflict resolution mechanism in Sri Lanka. Apart from DIRCs, more

than thirty informal mechanisms exist in Sri Lanka and at least a dozen such mechanisms operate in the Eastern Province. In fact, many such mechanisms have overlapping mandates and often duplicate activities.

I begin the assessment of faith-based mechanisms by examining how they engage in the first activity within the conflict resolution framework: addressing drivers and fault lines of conflict.

Very few faith-based actors interviewed acknowledged communal entitlement complexes as drivers of ethnoreligious conflict. In fact, many appeared to subscribe to such complexes themselves. For example, a Buddhist monk, who was a reasonably active promoter of intercommunal coexistence in the Eastern Province, suggested that the dominant culture of the country should govern the practices of all communities. The dominant culture he referred to was unmistakably Buddhist culture. For many actors working on intercommunal coexistence, the fundamental parameters of coexistence were determined by which community was entitled to act as the "host" in the area and which was the "guest." This "host–guest" relationship had a national dimension—where Sinhala-Buddhists were the "hosts" and all other communities were "guests." It also had a subnational dimension—where a particular community could be the regional "host" and other communities the regional "guests." The terms of coexistence were thus bound by preexisting entitlement complexes.

This tendency of faith-based mechanisms to legitimize faith actors with problematic views had a negative impact in other spheres. Some key informants, including women's rights activists, added that faith-based mechanisms occasionally exacerbate the underlying sociocultural fault lines that drive conflict. For example, they observed that conservative faith actors, including Buddhist monks and Muslim clerics, resisted emancipatory initiatives that advanced women's rights while still participating in interfaith conflict resolution mechanisms. They argued that such actors on the one hand enabled structural violence against women—such as, for example, forced marriage and impositions of conservative attire—while promoting intercommunal harmony on the other.

Faith-based mechanisms were thus generally disinclined to engage in strategies and interventions that confronted entitlement complexes. These mechanisms tended to focus on similarities between communities and had grown accustomed to a particular vocabulary of "sameness." In many instances, a typical "workshop" or "meeting" between actors of different faiths avoided uncomfortable discussions on entitlement complexes and focused more on areas of consensus or manifest tensions. This careful avoidance reflects a general lack of appetite among faith-based mechanisms to confront deep-rooted drivers of conflict, such as majoritarian notions of identity.

While it is true that existing faith-based mechanisms lack the will to engage on such issues, their actual capacity to transform society, even if they had the

will to do so, is somewhat limited. Drivers of conflict are deeply entrenched within the political, social, and cultural fabric of Sri Lankan society (Gunatilleke 2018). Strategies for transformation must necessarily be long term—even intergenerational. Faith-based mechanisms encounter two practical challenges in this regard. First, faith-based activities are often limited in their scope and reach only a handful of actors. For instance, school "exposure visits," where children from one community visit children from other communities, can be carried out only in a limited number of schools in the district, and only on a limited number of occasions. Thus, even when activities to address conflict drivers are carried out, they can often fail to reach a critical mass of actors needed to be "transformative." Second, the nature of the membership of faith-based organizations, i.e., their tendency to attract persons aged thirty years and older, and particularly over fifty years, results in faith-based mechanisms not reaching youth outside the school system. Faith-based mechanisms thus lack the programmatic bandwidth and membership profile to sustainably contribute towards transformative projects. By contrast, organizations that work on education reform, including history curricula reform, are often better placed to transform the aspects of socialization that perpetuate entitlement complexes.

Key informants working within faith-based mechanisms did, however, identify existential fears among communities as a possible driver of conflict. For example, a Buddhist monk who is a member of the Trincomalee DIRC expressed concern that Buddhist temples were losing their appeal among youth and that fewer people were attending sermons. He explained that these changes contributed towards resentment and anxiety among the Buddhist clergy that their influence in society was diminishing. Meanwhile, several Hindu members of the Trincomalee DIRC explained the context in which a dispute arose in a Hindu-majority school over Muslim teachers wearing the *abhaya*. It was intimated that Hindu parents feared that Muslim teachers were promoting "Islamic culture" in a predominantly Hindu school and that overtly Muslim attire diluted Hindu culture within the school. Meanwhile, Muslim DIRC members in Ampara pointed to a deterioration in the security of the Muslim community and described a general ethos of fear among the community. These members explained that such fears drove intercommunal suspicion, antagonism, and tensions.

In contrast to their reluctance to confront entitlement complexes, faith-based mechanisms do confront existential fears through interventions designed to increase intercommunal interaction. They also pay attention to the local contexts in which intercommunal conflicts, such as competition for resources and services, political disagreements, and sociocultural disputes, emerge. For instance, each DIRC maintains a "register of issues" in which intercommunal conflicts in the area (as reported by DIRC members) are logged. The issues are then discussed during DIRC meetings, and the members strategize about how to address them in order to prevent communal tensions and violence from emerging.

I now turn to the second activity in the conflict resolution framework: de-escalation. This activity is reactive—as opposed to proactive—because it essentially involves responding to conflict as and when it arises.

Community influencers are actors who are positioned to influence behavior and attitudes within a community. Such actors include religious leaders, civil society leaders, business leaders, and political actors. Local Buddhist monks are perhaps the most influential in this regard. The role of community influencers—particularly religious leaders—in preventing violence is well documented. In fact, some studies, such as a study by Pradeep Peiris (2018), argue that strong relationships between religious leaders within a particular community can often be more important to advancing ethnoreligious coexistence than the effective functioning of law enforcement authorities. When a tense situation arises, these actors are often invaluable to arresting such a situation and preventing escalation. A Buddhist monk who is a member of the Trincomalee DIRC recalled an incident in which a Bo tree—a sacred and protected Buddhist symbol—had begun to grow on the property of a Hindu *kovil* (temple). The initiative to cut the tree down gave rise to major tensions in the area. However, this monk, together with several other religious and community leaders, was able to mediate the situation and prevent escalation.

Actors operating within faith-based mechanisms seem to understand the crucial role community influencers can play in de-escalation. They prioritize the participation of influencers, including clergy, community leaders, business leaders, mediation board members, government servants, and politicians in their dialogues. However, the dialogues themselves are not always effective in terms of achieving tangible and sustainable outcomes. For example, discussions on the drivers of conflict at times lack depth. Yet, these activities serve an important purpose in terms of ensuring community influencers build mutual trust, respect, and familiarity, which enable them to coordinate better and work together when ethnoreligious conflict arises within the community. But this relative strength of faith-based mechanisms is limited to de-escalating offline tensions and does not extend to countering online hate speech and incitement that can eventually lead to offline violence. The inability of faith-based mechanisms to attract young persons to join and participate within their membership contributes to this weakness.

Next, faith-based mechanisms may be assessed in terms of the third activity in the conflict resolution framework: containment. Where measures to prevent the escalation of intercommunal tensions are unsuccessful, actual physical violence can break out. In such contexts, the capacity of actors working within faith-based mechanisms to mitigate the spread of violence and bring violence to an end is limited. Containing violence essentially requires the intervention of law enforcement authorities. The question then arises as to what faith-based actors in informal mechanisms such as DIRCs can do to motivate the intervention of such authorities.

Two types of activities are relevant in this regard. First, faith-based mechanisms could directly engage law enforcement authorities by appealing for interventions when violence takes place. This type of engagement is possible particularly where sound relationships and networks have been built with law enforcement authorities. At times, simultaneously serving on semiformal conflict resolution mechanisms, such as mediation boards or DRCs, may help particular faith actors access law enforcement authorities who also participate in such semiformal mechanisms. Meanwhile, the inclusion of influential religious leaders among the membership of faith-based mechanisms can be advantageous in this regard, as law enforcement authorities are particularly responsive to appeals by religious leaders (Spencer et al. 2015). For example, some key informants observed that many within their membership, including Buddhist monks, Muslim clerics, and Catholic priests, engage and animate local police when localized violence erupts. They share information with the police and encourage interventions to mitigate the violence and bring the situation under control.

Second, members of faith-based mechanisms have the potential to animate law enforcement authorities to intervene by raising public awareness of violence and prompting political authorities to issue necessary instructions. Where there is state inaction, faith-based actors can indirectly animate the intervention of law enforcement authorities by appealing to forces that incentivize such intervention. The alternative media is crucial in this regard, particularly in a context where the mainstream media is reticent about reporting on intercommunal violence. For example, the mainstream media severely downplayed anti-Muslim mob violence in the Southern Province in 2014 and in the Central Province in 2018 (Haniffa et al 2018). In this context, many civil society actors used their own channels via social media platforms to disseminate information about the violence and call for the intervention of law enforcement authorities. It is public outrage—generated through alternative channels—that often animates law enforcement authorities to act. However, many faith-based mechanisms lack the capacity to use alternative media, including social media platforms, effectively. Once again, a major impediment to gaining such capacity is the relatively low participation of youth in faith-based mechanisms. Therefore, while the potential exists for faith-based mechanisms to make positive contributions towards the mitigation of violent conflict through animating the intervention of law enforcement authorities, this potential is not always fulfilled.

Conclusion

This article set out to assess the effectiveness of faith-based mechanisms in preventing and mitigating violent ethnoreligious conflict in Sri Lanka. What emerges from the study of these mechanisms is that they do have relative

strengths. Yet, they also suffer from serious weaknesses. This concluding section summarizes the main strengths and weaknesses of faith-based mechanisms. While these insights are specific to Sri Lanka, they also tell us about the kinds of challenges faith-based mechanisms encounter more generally. Therefore, it is hoped that this concluding discussion aids scholarly work with respect to faith-based mechanisms operating in comparable contexts elsewhere.

First, in terms of addressing entitlement complexes that drive conflict, faith-based mechanisms are weak in their knowledge and understanding of such complexes. They are generally reluctant to generate meaningful conversations about such complexes both at the national and regional levels. Such mechanisms also, to some extent, legitimize ethnoreligious entitlement by reinforcing the prominence and exceptionalism of faith actors who themselves subscribe to narratives of entitlement.

Second, faith-based mechanisms are generally sound in their knowledge and understanding of existential fears and their willingness to discuss such fears at the national and regional levels. These mechanisms are also effective in terms of their willingness to understand and discuss economic, political, and sociocultural fault lines within communities. Faith-based mechanisms thus provide useful fora for discussing real and imagined intercommunal grievances and finding sensible solutions to avoid conflict.

Third, in terms of de-escalating tensions, the special societal credibility of faith actors enables faith-based mechanisms to effectively engage conflicting parties to de-escalate tensions. However, this strength tends to be limited to offline discourse. By contrast, faith-based mechanisms are weak in terms of their ability to de-escalate tensions that emerge online, primarily due to low levels of youth participation in such mechanisms.

Finally, in terms of containing violence, the special legitimacy faith actors have among state institutions enables faith-based mechanisms to effectively animate state law enforcement authorities to intervene to contain violent episodes. However, these mechanisms are not always effective in generating public awareness and outrage with respect to violent episodes, as they are unable to effectively utilize alternative media channels. Low levels of youth participation in faith-based mechanisms account for this lack of capacity.

Sri Lanka's conflict resolution landscape comprising formal, semiformal, and informal mechanisms, including faith-based mechanisms, may be viewed as an ecosystem. On the one hand, such an ecosystem can contain a fair amount of competition—both healthy and unhealthy—as many of the mechanisms within the system compete for operational space. There is certainly duplication and overlap, where various mechanisms have identical mandates, and the same actors participate in several mechanisms. On the other hand, the mechanisms within the ecosystem can cumulatively offer effective means of preventing and mitigating violent ethnoreligious conflict. This potential is, however, contingent

on the relative strengths of conflict resolution mechanisms, including faith-based mechanisms, being effectively leveraged. For instance, the relatively high levels of authority among formal mechanisms such as community policing ought to be leveraged alongside the relatively high levels of community engagement capacity seen among informal mechanisms.

Faith-based mechanisms have an important role to play within this ecosystem. The unique credibility faith actors possess can be leveraged to resolve localized disputes, de-escalate tensions, and animate law enforcement authorities to contain violence. Yet, faith-based organizations have serious limitations, and chief among them is their tendency to legitimize the very actors—faith leaders—who often propagate notions of entitlement, which can then perpetuate ethnoreligious conflict. Hence, it is crucial that faith-based mechanisms are viewed through a critical lens and acknowledged as being valuable in some respects but harmful in others. Ultimately, the effective prevention and mitigation of violent ethnoreligious conflict in Sri Lanka depends on avoiding overreliance on faith-based mechanisms and utilizing faith actors only for the specific strengths they offer within a conflict resolution ecosystem.

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Faces of the Peaceable God: Religious Imaginaries and the Challenge of Peace in Colombia

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After more than fifty years of civil conflict and nearly a quarter million casualties, Colombia finally signed a peace agreement in 2016. Subsequently, a Truth Commission was tasked with producing a report to provide a new political narrative to address the conflict, suggest ways to warrant non-repetition of atrocities, and foster peaceful coexistence. The report frequently refers to "social imaginaries" as key and hints at communities of faith as having an important peacebuilding role; however, it leaves multiple questions open. How are these imaginaries structured? How are they formed and transformed? How can religious imaginaries actively contribute to peace? This article seeks to (a) highlight important aspects of Colombia's current political landscape and its intellectual opportunities, (b) outline a cross-disciplinary approach to develop a theory on the [trans]formation of imaginaries, and (c) illustrate how this theory can shed light on the role of religious imaginaries in Colombia, enhancing their contribution to the cultural transformations necessary for lasting peace.

Introduction

This article was developed in the field of science and religion, with strong philosophical content, and very much in dialogue with the social sciences: it argues that human imagination plays a vital role in belief [trans]formation, and that understanding said role opens a space for religious imaginaries to promote human consilience in communities riven by conflict in my home country of Colombia.

At its core, the argument is framed as an opportunity to develop novel conceptual resources to help others. It is fundamentally understood as a means to serve, first, on a wider and more philosophical level, by offering an innovative bridge between the field of science and religion and the world of the human and social sciences,[1] as it expands recent avenues being explored between them—especially regarding the relevance of common transdisciplinary resources and the significant role of human imagination in belief formation and transformation; second, as a more politically situated initiative, it also means to contribute to ongoing peacebuilding efforts in Latin America and, more specifically, to the pending task of disseminating, discussing, complementing, and implementing the findings and recommendations of the report published by the Colombian Truth Commission (CEV) in 2022.

The main body of this article follows the STAR method (Situation-Task-Action-Result)[2] to structure four key elements: the situation-context for the stories of war and peace taking place in the political scene of contemporary Colombia; the task-challenge of clarifying how the CEV's report appears in said context, how it understands what social imaginaries are, and, in particular, how it suggests religious imaginaries can contribute to peace in the country; the action taken in order to engage with the challenge, that is, the investigation of the human imagination and our imaginaries; and lastly, the result of the whole endeavor includes a brief description of a theory concerning the transformation of imaginaries and its application to the religious imaginaries in the CEV's report.

Before turning to this fourfold account, however, I would like to open with two reflections that seem worth mentioning, given the peacebuilding background of the discussion: one on the ethical importance of asking about those who suffer as victims of a political crisis and another on the urgency of revising warring imaginaries.

A First Reflection: On the Importance of Asking about Victims

Between October 2018 and October 2023, an exhibition of artistic photographs titled *The Witness [El Testigo]* was open to the public in Bogota, Colombia. It comprised more than 500 black-and-white pictures of the Colombian conflict, all taken between 1992 and 2018, showcasing depictions of displacement, forced disappearance, violence against civilians, and peace demonstrations,

among others (Trujillo 2023). On March 15, 2019, I visited *El Testigo* as part of a delegation of peacebuilding scholars from Universidad Javeriana, and we had the privilege of having the artist responsible for the photographs, Jesús Abad Colorado, tour us around the multiple windows he had opened for us to glimpse the conflict's lights and shadows. Two things are worth noting here.

First, among the many pictures, there was a particular photograph that caught my attention (Figure 1). It portrayed a young girl looking back at the camera through the cracked window of her house. The artist told us that the fissure had been opened by a bullet and that the picture had been taken in the Comuna 13, one of the most intensely war-struck neighborhoods of the city of Medellin in north-western Colombia. The photograph captures a stark contrast between the fragile and almost playful innocence with which she peeks out into the world through equally fragile glass and the brutal harshness of the bullet, the crack, and the war that produced it all.

Figure 1: Photograph of Angi Marín by Jesús Abad Colorado.

Second, as I walked through the exhibition's four large rooms, I could not help but notice that several photographs incorporated religious contents or references. One picture showed a child and an old lady in front of a recently unearthed corpse, covered in a dark sheet except for one of her hands. We were told the child recognized the body belonged to her mother because of the rosary clutched in her hand: a gift from the grandmother—the old lady next to her. Another picture showed two nuns courageously wading a river and carrying above their heads provisions for a group of victims on the other shore. Close by, a portrait showed the interior of a bomb-destroyed chapel and in the foreground, a broken crucifix; the famous Christ of Bojayá, witness to the 2002 massacre where more than seventy innocent people died while imploring for godly refuge (Durán 2017).

A Second Reflection: On the Urgency of Revising Our Imaginaries

Years later, I realized that among the many things that motivated me to initiate my research was discovering that, just like the little girl in Jesús Abad's picture, most Colombians have grown up in a warring country, looking out into the world through an existential window that has been dramatically wounded by violence. In different ways and with various degrees of brutality, our views of the world have been scarred and fractured by war; in that sense, the cracked window in the photograph can be interpreted as a powerful symbol representing the violent and conflict-laden lens through which many Colombians have viewed and experienced the world. In that sense, any action towards peace needs to not only acknowledge those ruptures but make every possible effort to heal them.

Although there are multiple ways to describe and understand these worldviews and approaches, recent scholarship in various fields has focused on "imaginaries" as a useful category.[3] Briefly put, imaginaries are the means through which the imagination allows us to conceive different ways to unify the manifold. Be it the sensory manifold (Lennon 2015, 24) or the conceptual manifold, imaginaries are ultimately the mental devices that allow us to explore new ways of articulating different elements into a story, or even different stories into a broader meta-narrative. That challenge, once again, was part of the Colombian Truth Commission's mandate,[4] which charged the commissioners with the task of clarifying the complex and broad range of elements surrounding the Colombian conflict (art. 11, §1-13), listening to the many voices of the conflict by creating dialogical spaces at the international, national, regional, and territorial levels (art. 13, §2), and finally, elaborating a report that might offer a new, broader, and more encompassing story that could reflect all of the above (art. 13, §5).

The cracked window in Colorado's picture, once again, is a graphic invitation to such a revision of imaginaries and an eloquent reminder of its relevance today.

Situation: War and Peace in Colombia

After decades of war and years of negotiations, a historical accord was signed in 2016 between the guerrilla members of the Revolutionary Armed Forces of Colombia and the Colombian government. As a result, a Comprehensive System of Truth, Justice, Reparation, and Non-Repetition was established: a government-based apparatus designed as Colombia's fundamental architectural scaffolding for transitional justice[5] and tasked with guaranteeing "the rights of conflict victims, ensuring accountability and recognition of responsibility, as well as comprehensive reparation measures and guarantees of non-repetition" (CEV 2022, II, 12).

In order to serve its purpose, the Comprehensive System was mainly comprised of three organisms: the CEV, the Special Jurisdiction for Peace (Justicia Especial para la Paz (JEP) in Spanish), and the Unit for the Search for Persons Presumed Disappeared in the context and by reason of the armed conflict (JEP 2022, 2). The JEP is a still-active autonomous judicial entity obligated to investigate and adjudicate cases. As a complementary nonjudicial arm within the system, the CEV's mandate assigned it three main objectives: (1) to contribute to clarifying the complex causes and consequences of the armed conflict in the country; (2) to promote and contribute to the recognition of victims and the voluntary recognition of individual and collective responsibilities; and (3) to promote a more peaceful and democratic coexistence in the territories (Presidencia de la República de Colombia 2017, I, Art. 2).

The CEV (2017, III, Art. 13, n. 5) was asked to prepare, publicly present, and widely socialize a final report that considered "the different contexts, reflect the investigations around all the components of the mandate, and contain the conclusions and recommendations of its work, including guarantees of non-repetition." The report is a complex text meant to seek "the truth of what happened in the context of the internal armed conflict, to shed light on the violations committed therein, and to offer society a broad explanation of its complexity and an account that includes all voices" (JEP 2022, 4).

Rendering a rigorous account of the report´s eleven massive volumes surpasses the scope of this article. It is worth noting, however, that the volume entitled *Hallazgos y Recomendaciones* plays a vital role as a global approach to the CEV's work; it provides an overview of the whole report, synthesizing both the main findings and the recommendations that the mandate required the report to cover.

While looking for thematizing passages on imaginaries in general, an interesting feature of *Hallazgos y Recomendaciones* is its unambiguous treatment and exposition of what cultural transformation is and how it should be seen as a vital component of the CEV's suggestions to both understand how the country's past has led to its present and strengthen present efforts towards a more enduring peace in the future. Furthermore, it is precisely in

this section of *Hallazgos y Recomendaciones* that the concept of "imaginaries" makes its most frequent thematizing appearance in the text. *Hallazgos y Recomendaciones* uses the word sixteen times, ten of which appear in Finding No. 10—an analysis of the relationship between culture and armed conflict in Colombia—and Recommendation No. 8—the counsels the CEV puts forth as a means for the country to live in a more peaceable culture (CEV 2022, II, 657–712).

For the CEV, the pursuit of peace in Colombia is not only a challenge necessitating the reform of social institutions but, more importantly, a transformative process demanding a shift in the mindsets and worldviews—*imaginaries*—that originally shaped these institutions and practices. Along those lines, *Hallazgos y Recomendaciones* describes the relationship between culture and conflict as a constant feedback and co-affectation. However, the text also strongly accentuates the role of culture as a causally preceding phenomenon: although our conflict has had an influence on our culture, our efforts towards peacebuilding require us to broaden our view and also consider those aspects of our cultural imaginaries that have been relevant in originating and perpetuating the conflict:

> Culture shapes the context in which life in common develops. Therefore, culture lies at the root and the starting point of the internal armed conflict, and thus, may lead to understanding how the conflict developed. . . . Focusing on the cultural issues in which the armed conflict has been installed and rooted in Colombia is essential, since the real changes are made there. Adjustments in legislation or institutions are not enough if our behaviors, values, and relationships with others are not transformed as well. As Pablo de Grieff told the CEV: "institutional engineering is not the only solution on which the future peace of the country depends. It also needs interventions at a more normative and cultural level." (CEV 2022, II, 539)

The text introduces the concept of "devices of cultural re-edition" and describes them as those key elements "through which culture is shaped and reshaped as a framework of meanings, significantly impacting the development of individuals and communities on a daily basis" (CEV 2022, II, 575). When illustrating these devices of cultural re-edition, *Hallazgos y Recomendaciones* refers to key institutional or sectorial actors that have a wide presence and influence on culture and thus a powerful impact in the way imaginaries—whether structurally violent imaginaries or imaginaries as persistence factors—form and transform. Four in particular are highlighted: the formal educational system; the people installed in power; media and social networks; and, most notable for the present text, churches and communities of faith.

Task: Unveiling the Faces of the Peaceable God

Having briefly sketched aspects of the peace agreement's rendering of the Truth Commission and its report, I focused on how *Hallazgos y Recomendaciones* includes an important reference to cultural transformation as a fundamental element of its peacebuilding efforts. Said cultural transformation is (a) strongly phrased in terms of the imaginaries it seeks to transform, and (b) includes religious imaginaries as part of the country´s most powerful devices of cultural re-edition.

In light of this, an important task the report leaves open for future engagements can be summarized in the following two questions, both of which seek to better understand the many faces through which the god of peace has played a role in the Colombian landscape. First, what are those imaginaries that the report mentions and, more importantly, how are they formed and transformed? Second, how could such an understanding contribute to ongoing peacebuilding efforts in Colombia, especially in dialogue with the communities of faith and the imaginaries that structure their experience of war and peace?

Action: Exploring the Imagination and Our Imaginaries

As a prerequisite to successfully engaging with these two questions— that is, to develop a clearer idea of what imaginaries are in general and how religious imaginaries can contribute to a more peaceable culture in Colombia according to the CEV's report— I turn to other disciplines and make a digression to engage with Kathleen Lennon's philosophical work on imagination and the imaginaries.

Lennon describes imaginaries as the "affectively laden patterns/images/forms, by means of which we experience the world, other people and ourselves" (Lennon 2015, 1; 2004, 113). Imaginaries are the lenses through which we perceive the world, or the maps that orient us to our surroundings, providing a sense of place and directionality (Gutiérrez González 2023, 125–26). In that sense, there are a few key features to point out from Lennon's description of an imaginary:

1. Imaginaries are primarily thought patterns: they refer to the conceptual structures that configure our way of understanding ourselves and the world around us.
2. Imaginaries are affectively laden: they are not exclusively composed by theories and ideas; they also include our affects and our emotional life.
3. We experience the world by means of our imaginaries: they configure our experience of existence in general, but also ground our view of our own bodies, our individual and social identities, and our cultural practices.

In addition to these more structural descriptions, Lennon's ideas provide a basis for a less static, more dynamical engagement, i.e., an approach that considers not only the individual elements that comprise our imaginaries but also the processes through which they form and adapt. Although she does not fully develop this idea, Lennon (2004, 117) explicitly addresses the issue of how "many of the social imaginaries we encounter are damaging," that is, how they enable or inhibit certain kinds of agency in an undesirable manner.[6] In that sense, I imitated her method and "distilled" her own description of the imaginaries to identify three fundamental concepts in her texts: visualizing imaginaries, assessing imaginaries, and adapting imaginaries.

Visualizing entails a growing awareness of imaginaries—allowing ourselves to transition from looking through our imaginaries to looking at our imaginaries—and their provisional—and thus, adaptable—nature. Assessing involves recognizing an ecosystem of imaginary forms: the interwoven configuration of the many imaginaries that structure a person's or community's beliefs. Much like in a tree, some portions of the ecosystem will be more grounding than others, thus requiring diverse evaluation methods—endosystemic or exosystemic. And finally, adapting imaginaries requires the pursuit of an environment that provides a transformative awareness of alternative imaginaries and communities, mostly through the stories and narratives we tell each other, the narratives told by those with different experiences and thoughts, and those we tell ourselves.

In a sense, finding ways to respond to the threefold challenge of imaginary transformation requires not only taking up Lennon's valuable insights but also seeking to complement them by exploring ways in which imaginaries have formed and transformed in different scenarios; in other words, looking not just at theorizations concerning imaginaries but at actual experiential cases of imaginary transformation that might shed light on the subject. A considerable advantage is the alleged universality of Lennon's claim: if she is right in believing imaginaries are the key structures through which we experience the world and map our existence in it, almost any stance of the human experience has the potential of being revised to examine how our imagination is used there, thus rendering insights and clues as to how we might engage the threefold challenge.

Although the present text does not allow a detailed account of such an exploration, I will say that looking at various authors' views on how imagination contributes either to the elaboration of their own worldviews or to conversations taking place between various worldviews is immensely useful to envisage the imagination's world-building role as a form of map-making instrument, to echo Mary Midgley's (2011, 37–40; 2002, 10–11) metaphor. By looking at disciplines as divergent as fantastic literature, theoretical physics, science and religion,[7] and even peacebuilding, one can preserve the important differences between these fields while also noticing parallel works of the imagination in each of them. Thus, the possibility of a wider account of the imagination—an interdisciplinary

approach to the cosmopoietic imagination—is unlocked: an understanding of our imagination as the means through which we articulate disjointed data (a territory) into a meaningful configuration (a map) in the context of a particular setting (a field) and with a particular purpose (desire).

The result of the action I describe in this section is twofold. On the one hand, we arrive at a theory that approaches our imaginaries as maps of meaning for the world and clarifies how they can be visualized, assessed, and adapted—a theory of cosmopoietic imaginaries. On the other hand, there's an exploration of how said theory can be applied to analyze the peaceable role suggested for religious imaginaries by the CEV's report—a peaceable itinerary for communities of faith. Both components are explored in what follows.

First Result: A Theory of Cosmopoietic Imaginaries

A theory of cosmopoietic imaginaries seeks to explain the formative and transformative processes of our imaginaries by understanding them as worldbuilding (*cosmopoietic*) devices. By bringing together the more structural elements described by Lennon and complementing them with the parallel elements described in the interdisciplinary mapping approach to the imagination, a theory of cosmopoietic imaginaries seeks to respond to each of the aforementioned aspects of the threefold challenge of imaginary transformation.

How can we **visualize** our imaginaries? Cosmopoietic visualization of imaginaries involves two key aspects, i.e., a double exposure: on the one hand, an exposure to the cosmopoietic structure of imaginaries, and on the other, an exposure to multiple and diverse imaginaries. This double exposure allows us to visualize damaging imaginaries *qua* imaginaries; to visualize other imaginaries—their existence, their cosmopoietic elements, the cognitive and affective sense they provide, etc.; and to visualize their contingent character.

How can we **assess** our imaginaries? A theory of cosmopoietic imaginaries resorts to human consilience[8] as a potential criterion for assessment across the various levels of the ecosystem of imaginary forms. Which of our imaginaries are grounding—more affectively laden, more significant in terms of the overall role they occupy in our lives—and which are less grounding? A theory of cosmopoietic imaginaries distinguishes between these various levels and suggests the way they provide human consilience (or not) is key, be it with regards to other imaginaries we have or other ecosystems entirely.

How can we **adapt** our imaginaries? If the cosmopoietic key to the first challenge is double exposure and the key to the second is a consilient assessment, the key to answering the third and final challenge is enabling a particular form of imaginary game. The latter is a safe form of exploration and experimentation where other imaginaries are explored and two fundamental tasks are performed: first, a new imaginary is experienced in a safe way, and its degree of consilience is verified; and second, the new imaginary is also explored in terms of how it

is lived by a community, thus opening the possibility of tangible new imaginary configurations for oneself.

These configurations a theory of cosmopoietic imaginaries aims to open are called *platforms of coincidence*: they can be understood as a unique type of space that enables the transformation of imaginaries to take place by allowing double exposure (answering the challenge of visualization), consilient assessment (in response to the challenge of assessment), and imaginary game (thus satisfying the requirements for adaptation). They are characterized by the coincidence they offer. That is, they provide an opportunity to share a common ground with other individuals or communities and their imaginaries, to contrast one's experience and imaginaries with them, and to gauge the ways in which those imaginaries and their intrinsic and/or extrinsic elements can be reappropriated into new pathways.

A suitable example of a platform of coincidence is, *par excellence,* any form of dialogical stage, be it personal, academic, or political. However, the arts also offer a privileged form of platforms of coincidence. By experiencing a work of art—reading a novel, watching a film or theatrical piece, visiting an exhibition of paintings, attending a concert, etc., a suitable space can be opened for double exposure, consilient assessment, and imaginary game.

Second Result: Religious Imaginaries in the CEV's Report

There is much that can be said about a theory of cosmopoietic imaginaries. However, I now wish to convey a set of some of its fundamental ideas, focusing less on the cosmopoietic technicalities and more on its comprehensibility and its contributions as a practical proposal for peace in Colombia.

The theory has developed three main categories—visualization, assessment, and adaptation—and evaluated how each of these comes about in the CEV's report and its engagement with religious imaginaries. The key questions to ask then have been: How does the CEV's report visualize religious imaginaries, especially those it considers problematic? How does it assess them? How does it propose to adapt them?

A short summary of the theory's answer—less laden with cosmopoietic jargon—could be the following. First, the report visualizes a wide array of religiously inspired cultural practices and the imaginaries that uphold them. It focuses on those it considers harmful, given the way they have contributed to preserving warring dynamics in the country. It also recognizes the potential communities of faith have as "devices of cultural re-edition," i.e., as important allies in peacebuilding efforts. Second, although the criteria the report uses to assess these imaginaries is not always evident, a closer reading of the text reveals it has "translated" the warring contributions by framing them in terms of a particular cultural project. In other words: the negative religious imaginaries the report visualizes as damaging are ultimately those that go against what seem to

be the CEV's core values—"dignity," "diversity," "life," "human rights," and "dialogue and reasoned deliberation" (CEV 2022, II, 726; cf. 631)—and against the report's own project of cultural reform towards the configuration of a secular ethics and the development of a more inclusive democracy. Third, the report's suggestions for the adaptation of imaginaries are thin; the report by itself is a long, complex, conceptually heavy text that, if left alone, would not suffice as a satisfactory means for cultural transformation. However, understanding how the report sees itself as part of a wider system—which includes the Comprehensive System, the CEV's Transmedia,[9] the numerous initiatives civil society had before the CEV existed, the articulation of many of those initiatives in what is now called the Legado (the CEV's Legacy), etc.—reveals it never intended to be seen as a compartmentalized initiative but as a guideline and a blueprint catalyzer for present and future peacebuilding initiatives.

There are many ways in which a cosmopoietic reading of the report can be discussed further and developed more fully towards a set of recommendations or suggestions that may be implemented by whoever wishes to work alongside communities of faith toward peace in Colombia. However, there is a train of thought I wish to convey in the following lines, as I believe it is of particular importance.

This line of work starts by recognizing somewhat of a caricature in the report's portrayal of religious imaginaries. If one follows the main lines of the report's arguments and tendencies, it seems as if there was a "bad," mostly warring community—or communities—of faith in Colombia before the 1960s and then a "good," mostly peaceable community of faith after that decade. Although there was indeed a major cultural shift during that decade, taking place in all cultural strata including the Catholic Church, it is important to note that there were peacebuilding initiatives and peaceable religious imaginaries in Colombia before the 1960s and that there are warring mindsets that have been nurtured by religious imaginaries since then.[10] Broadening the perspective of the report's reading is not just a matter of academic honesty, historical accuracy, and political justice; it allows us to complexify and enrich our understanding of communities of faith in the country and reveal an important fact that seems not to have much light in the overall landscape of the report—namely, the existence of a fracture within communities of faith.

In other words, the contrast between the warring community of faith and the peaceable community of faith the report points to is not—and should not be—interpreted as a historical divergence. It is not a conflict between two historical stages but a clash between two imaginaries that have been present in the past and, I suspect, are still present today. I believe this clash is worrying, not because I would prefer a homogenous community of believers but because of the violence engrained in it. Having a wide variety of ideological differences and approaches, even within communities of faith, is desirable.

In a sense, there is need for a *tertia via,* a new analogical path that may shield us from unnecessary extremes both in univocity—assuming all communities of faith are or should be one and the same—and equivocity—assuming each community of faith is or should be radically different from the rest, with no common grounds.[11] Such a path would allow us to identify and assume a set of practices, perhaps, that enables us to both preserve strong identities on the one hand while providing a context in which their grounding principles, the individual and communal identities they foster, and the social practices they ground, can all be revisited and discussed on the other. The fundamental motivation behind this is how a "spiritual iridescence" seems like a desirable trait to foster within communities; in that sense, the problem to be addressed lies not in the diversity that subsists within our communities but in the violence with which it has frequently been assumed.

Undoubtedly, the report's account of religious imaginaries is wide: it mentions how communities of faith have frequently played an important peacebuilding role while sometimes suffering as victims themselves. However, it notes how religious imaginaries have also structured negative (non-peaceable) attitudes throughout the conflict: they have encouraged violence against communists, liberals, women, and LGBTQIA+ people; they have encouraged violence towards other denominations and within their own communities; they have taken up violent stances from both the left and right sides of the political spectrum; and finally, they have sometimes committed a sin of omission, lacking a more forceful condemnation of the country's issues and the resort to violence.

Mentioning this particular list is key here, since these are the imaginaries the report considers problematic and thus in need of revision. Considering said cultural analysis and understanding it in light of a cosmopoietic theory of imaginaries, there are a set of questions we need to ask—questions that indicate a series of steps or tasks as a contribution to religious communities' peaceable role in the country.

First, we need to ask about the visualization of these imaginaries: Is the report's visualization of damaging imaginaries adequate? Is the historical diagnosis of these violent cultural practices an acceptable one? Have those damaging imaginaries really been present in the history of Colombian communities of faith? Are there other damaging imaginaries the report may have missed that are relevant for a description of the roles communities of faith have played in the history of the country's conflict? Are these imaginaries still present in Colombian communities of faith today?

Second, we need to ask about the assessment of said imaginaries: How do the report's criteria contribute to or hinder the conversation we need to have? I believe the report's assessment recognizes the grounding character of Colombian religious imaginaries, but it offers an assessment using criteria that do not correspond to believers' ecosystem of imaginary forms. Put more

simply: we are in dire need of theological criteria that allow us to engage in a conversation with religious communities.[12] The task here then is to find ways in which the CEV's core values and cultural project can be translated into theological terms—and also seek ways to translate theologically laden criteria to secular terms—or in broader terms, to find ways in which the CEV's project can genuinely and effectively engage in dialogue with a theologically savvy community.

Third, we need to ask about the adaptation of said imaginaries: How does the report suggest we move forward? I have already mentioned the idea of "platforms of coincidence" as the means to provide spaces for the visualization, assessment, and adaptation of imaginaries. The question then can be redirected towards the kind of platforms of coincidence that may help us in the transformative process we require. The CEV's work has taken root in the numerous peacebuilding experiences that preceded its mandate, and it also fostered new experiences and spaces of encounter. Some have allowed the CEV to meet communities of faith; others have bridged encounters between victims and perpetrators. However, in light of what has been said here, the question that arises is the following: Are there any currently existing platforms of coincidence that allow dialogical encounters between the different sides of the aforementioned divide within communities? If there are such platforms, a key step would be to strengthen them and enhance their ability. If such platforms do not currently exist, the key step would be to seek ways to design new platforms and support them. Whichever way the question is answered, there are at least two ideas that may contribute to the process that follows.

A first idea involves art is an important ally in the process, finding ways in which art may offer platforms of coincidence for these kinds of encounters; fostering transformational encounters between these imaginaries (e.g., my account of Jesús Abad Colorado's artistic exhibition) could be a way to move forward. John Paul Lederach's (Lederach 2005; 1999) theoretical reference to the arts and his performative use of them can give us an idea of how such artistic platforms of coincidence might be encouraged and why.

A second idea has to do with opening more explicit conversations in a theological register. In that sense, at this point, echoing Pope Francis's discourses during his 2017 visit to Colombia[13] seems adequate, especially due to his interest in synodality as a key feature of the kind of platforms of coincidence that communities of faith require. The pope has referred to synodality in the past as expressing "the nature of the Church," and it is also meaningful that the 16th Ordinary General Assembly of the Synod of Bishops (2021–24) is precisely on synodality and entitled "For a Synodal Church: Communion, Participation and Mission" (Vatican News 2021). In a sense, the fundamental traits of what a theological platform of coincidence should be are somehow structured in the concept of synodality itself; opening synodal platforms of coincidence as

spaces for theological dialogue of an improbable nature (to use a Lederachian adjective) between groups within the various communities of faith in Colombia, particularly among those of differing theological positions, seems like an apt way to move forward.

Final Remarks: Opening Up the Conversation

Although there are numerous directions in which a cosmopoietic reading of the CEV's report may lead, I have developed a particular line of action that retrieves fundamental aspects of that reading and lands them onto practical suggestions or tasks. They are the result of developing a theory of cosmopoietic imaginaries, using it to read and interpret the report's understanding of religious imaginaries, and "distilling" that interpretation (to quote from Lennon)—down to more concrete terms and feasible dimensions.

A final word: I am entirely aware of the numerous peacebuilding initiatives that have been active in the country in the past decades, and I am fully conscious that there are many, both in terms of artistic spaces and even religiously inspired associations, with vast experience in the field who might already be enacting the values, attitudes, and inspirations my research points to. In that sense, there are three things I would like to add. First, I want to recognize and honor the country's victims, as well as the tireless work and struggles of so many who have toiled for years to bring about peace in the country; my academic engagement with peacebuilding at this point is nothing but an effort to make the field, the country, the CEV's report, and their own efforts visible. Second, I would hope that what has been said so far contributes to broaden the discussions, nurture the conceptualizations, and clarify the pathways through which peacebuilding initiatives—especially those involving communities of faith—may continue supporting peace in Colombia. Third, I am also aware that the country is in dire need of every hand available for peace, be it for the ongoing negotiations of future agreements with warring groups still in conflict or for the pending implementation of the agreements signed in 2016; not only do I fail to see how there might be a contradiction between both, but I firmly believe that one is inextricably linked with the other. True peace cannot contradict true peace, and if there is any way in which my work contributes, it will have fulfilled the purpose stated at the beginning—my research is fundamentally understood as a means to serve.

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Notes

[1] It is worth noting here that the greater part of the science and religion corpus that has developed in the English-speaking world has mainly focused on the conversation between religion and the natural sciences; however, there have been projects in which its interaction with the social sciences has surfaced as culturally relevant and academically fertile, particularly in Latin American contexts (Silva 2015b, 486, 488, 490; 2015a).

[2] The STAR method is an interviewing technique that provides a down-to-earth, simple structure for narrative interview responses (Higgins 2014).

[3] The concept began to be referenced as an academic topic mainly in philosophical circles—especially thanks to the works of Jena Paul Sartre (2004), Cornelius Castoriadis (1997), and Charles Taylor (2004)—and its use has subsequently expanded to other disciplines, mostly within the social sciences and the humanities, e.g., sociology, anthropology, political sciences, cultural studies, and the like. See Mari Ovsepyan (2019), Kathleen Lennon (2015), Alister McGrath (2019, 2023), Lacan—cf. Carla Antonucci Licitra Rosa et al. (2021)—, Delfo Canceran (2009), Dilip Gaonkar (2002), etc.

[4] Cf. Decree 588 (2017), signed by Juan Manuel Santos, then president of the Republic of Colombia.

[5] By transitional justice, I am referring to a series of exceptional reforms and cultural shifts that emerge during political transitions, usually from conflict to sustainable peace or, more broadly, from periods of violence and repression to societal stability (International Center for Transitional Justice 2023; Hinton 2010; Teitel 2002)—reforms and shifts just like the ones sought after in post-agreement Colombia.

[6] I have discussed some of these aspects of Lennon's work in greater detail in *Imagination in Catholic Thought and Peacebuilding* (Gutiérrez González 2023).

[7] The case of science and religion is particularly interesting here. On the one hand, there are efforts to construct models—imaginaries—of the relationship between both fields: as an example, Stephen J. Gould's (2003) consilient imagination, especially in his later texts, offers a particularly interesting approach, where disciplinary identities are kept while allowing a fruitful dialogical dynamic between them. On the other hand, there are also those within science and religion who find that conceiving each individual field as an imaginary may be useful as well. Alister McGrath (2023, 136 ff.), for example, has recently written on "disciplinary imaginaries" as a category that can reintroduce useful theoretical traditions—like certain construals of natural philosophy—to contemporary academic discussions.

[8] I suggest the term as an umbrella concept that encompasses the multiple configurations of synergy the cosmopoietic imagination seeks in the various spheres of human experience—e.g., J. R. R. Tolkien's effort to articulate narrative elements into a story; Albert Einstein's project of including new information into wider, richer theoretical frameworks in physics; John Paul Lederach's idea of a new political form of relationship that includes one's enemy and allows both justice and peace; and so on. Briefly put, the concept of human consilience aims to describe a form of articulation that all of these configurations have in common, where (a) the distinctiveness of the different components is preserved and (b) instead of isolation, a form of dialogical articulation is put forth.

[9] The report's Transmedia is an online "digital complement" to the text, aiming to not only "promote its dissemination and appropriation" but also "overcome the obstacle of the Final Report being consulted only by a niche of people sympathetic to the research reports" (Legado CEV 2022, 105).

[10] Regarding the positive contributions before the 1960s, one only needs to think of the substantial influence of Bartolomé de las Casas in the whole of Latin America in the sixteenth century (Mayer 2014) and how his thought set strong precedents for the modern understanding of human rights (Delgado 2007) and is still referenced in public spaces (Gómez Isa 2019); or of peaceable figures that have moved closer to Colombia, like Saint Peter Claver in the seventeenth century, mentioned several times by Pope Francis during his aforementioned visit to the country; or of the way the Second Vatican Council understood itself as an effort in *aggiornamento,* in renovating the church in continuity (Gudiel 2011; Francis 2017c; 2017a; 2017b) and how this had roots in initiatives and theological movements that preceded the council itself; etc. On the other hand, regarding the problematic approaches after the 1960s, cf. William Mauricio Beltrán and Sian Creely (2018), Bibiana Ortega (2018), Alhena Caicedo and Carlos A. Manrique (2023, 160), among others.

[11] For a traditional view—deeply engrained in medieval philosophical discussions—of analogical thinking as a *tertia via* between univocity and equivocity, see Aquinas's *Scriptum super sententiis* (I d. 35 q. 1 a. 4 co).

[12] Although the CEV's core values—"dignity, " "diversity," "life," "human rights," and "dialogue and reasoned deliberation" (CEV 2022, II, 726; cf. 631)—are certainly not in themselves anti-religious or anti-Christian, they do offer room for varied interpretations and cultural adaptations, some of which may confront or clash with particular religious imaginaries. This is also the case with the report's project towards the configuration of a secular ethics and the development of a more inclusive democracy; depending on how these aims are presented and how their cultural concretions are conceived, the reactions of the various communities of faith move for or against them. It is precisely this space of conceptual and imaginary variance and that requires conversational bridges, clarifying translations, and dialogical spaces that ensure genuine conversations can take place.

[13] I am referring here to the various statements and discourses of the pope's public appearances during his apostolic visit to Colombia between September 6–11, 2017. Not only were some academics expecting the visit to be of particular significance for the country (Guerrero Guevara 2017), the Conference of Bishops and the media also saw the pope's visit as an opportunity for an important shift towards peace (Suescún 2017; Semana 2017).

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Boyle Lecture 2025—Science, Technology, Theology, and Spirituality: A Necessary Partnership?

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The 2025 Boyle Lecture explores the partnership between science, technology, theology, and spirituality in addressing contemporary challenges. Reflecting on historical and modern dynamics, it emphasizes the need for transdisciplinary collaboration to avoid cultural poverty and handle the current polycrisis in a world prone to polarization, populism, protectionism, post-truth, and patriarchy. The lecture offers a brief sketch of the development of the science-and-religion field and underlines the importance of including spiritual perspectives in the discourse. Drawing on Sigmund Freud, the author describes the impact of artificial intelligence on humanity as a fourth narcissistic insult and discusses four alternative approaches to this new existential threat. Two examples of the added value of including spirituality in science and religion are provided: healing the injustices of colonialism by bringing together neuroscience and theology with religious symbols, rituals, and narratives; and dealing with the climate crisis more holistically by including spiritual sustainability alongside ecological, economic, and social dimensions. The lecture concludes by describing a spirituality of hope.

Introduction

As you may have noted, the theme of this lecture ends with a question mark. You may assume my answer to the question is yes, and that is, of course, correct. As is often the case, the most intriguing part is not the answer itself but rather the path towards it. Hence, in the following, I would like to share some reflections on this path.

For a long time, this affirmative answer was far from obvious. Sixty-six years ago, C. P. Snow (1959) famously talked about "The Two Cultures." His point was that the lack of communication between the sciences and the humanities would hamper constructive engagement with the world's problems. However, while Snow saw the neglect of science by many of the highly educated of his day as the main problem—a disrespect of science by the humanities, as it were—I have often encountered the opposite: a disrespect of the humanities by scientists. In a conversation about the significance of hermeneutics in the framing and communication of research, a scientist responded: "Hermeneutics? Never heard of it. Can't be important."

In Sweden, where I have resided for most of the past forty-eight years, it is quite common to favor science and technology over the humanities. That is where the money is, and that is where the money goes. Tech is serious, while the humanities are a hobby; such views are alive even at the government level. Some years ago, a tweet was circulated that caricatured a consequence of this attitude. It said something like: In the financial world of Paris, lots are drawn to see who will meet Swedish businessmen. No one wants to because they can only talk money, possibly golf. No one has read novels, no one has seen art, no one has any religion.

This is certainly not the whole truth about Swedish businessmen! What is true, however, is that polarization between the world of science and technology on the one hand and the world of the humanities and theology on the other leads straight into cultural poverty. This in turn dramatically shrinks our chances of adequately meeting the challenges humanity is facing—challenges that today can be summarized with the words climate and conflict, digitalization and democracy. We need strong, vibrant, critical, and self-critical partnerships between science, technology, theology, and spirituality. To substantiate this claim, I will briefly reflect on what brought us to the point where we are.

From Then to Now: Science and Theology in Relationship

The history of the relationship between theology and the natural sciences in the Western world is not unlike the dynamics of a growing family. During the Middle Ages, theology was the queen of sciences. In the thirteenth century, Thomas Aquinas created a powerful synthesis of the best knowledge about theology, philosophy, and nature, drawing on the philosophy of Aristotle, which had come to Christian Western Europe thanks to the high standards of Muslim scholarship.

Christian theology could inspire scientific inquiry. Where God is understood as the creator who has endowed the cosmos with order and humans with creative rationality, inquiry into how the cosmos works can indeed be a way of worship. Reading and understanding both "the book of scripture" and "the book of nature" becomes a noble enterprise. In that sense, early modern science was a child of theology. Many of the pioneers of modern science were close to theology or the church (Brooke 1991).

Nevertheless, just as children struggle their way through adolescence, the natural sciences had to strive for their emancipation and autonomy. At least since the days of René Descartes, much of Western Christian theology has had the separation of nature and thought (*res extensa* and *res cogitans*) as its paradigm. The premodern view of the world, which saw the relationship between the book of nature and the Bible as symmetrical and complementary, was replaced by a modern view that tended to separate spirit and idea from matter and body. This resulted in a mechanistic view of nature, which permitted the (over) exploitation of nature, often legitimized by theological discourses of humans (men) as the crown of creation. Humans became alienated from nature/the whole of creation.

Such separation of nature and humanity provided fertile ground for patriarchal and sexist views of nature and science. The program of the Royal Society, founded in 1660, reflects a view of nature as the woman the (male) scientist must conquer. Research is envisioned as the systematic unveiling of mother nature, exposing her secrets and penetrating her womb, thus forcing her into submission (von Wright 1986, 65). Or, more poetically: "The Beautiful Bosom of *Nature* will be Expos'd to our view: we shall enter into its *Garden*, and taste of its *Fruits*, and satisfy our selves with its *plenty*" (Sprat 1958, 327; spelling adapted by the author). Oppression and exploitation in romantic disguise, that is. In a similar vein, colonial worldviews have exercised power in both science and theology.

God moved into the emotional dimensions of life, while the natural world became the arena of technology and industrialization. As German physicist and philosopher Carl Friedrich von Weizsäcker (1983, 374f) drastically put it: "Die Theologie hat der Naturwissenschaft die Natur zum Fraße hingeworfen." In nonliteral translation: Theology has thrown nature under the bus of natural science.

Be that as it may, we ended up with a world that fell apart: on the one hand, desecrated nature as an object for science and technology (think of Max Weber: *die Entzauberung der Welt* [the disenchantment of the world]), on the other hand, religiosity/spirituality as something subjective and private.[1] As a methodological separation for the sake of research, this may have been necessary and productive at the dawn of modern science. However, seen as an ontological or existential necessity, this separation was and is disastrous. Dualisms such as "one is

objective, the other is subjective" or "one is rational, the other is irrational" are untenable. As is the apologetical misuse of science along the lines "and the Bible is right after all" (cf. Keller 1955).

It is worth noting that, although the field often is referred to as science and religion, the dialogue partner of science—however understood—is not religion as such but rather theology, which I define as the critical and self-critical reflection about the content and effects of a religious tradition—in my case, mostly Christian tradition (cf. Watts, Nairn, and Petersen 2022). And I agree with a previous Boyle Lecturer, Robert J. Russell (1988, 370), who wrote: "To some limited but irreducible degree, [theology and science] already include something of the discoveries, histories, visions, and commitments of one another, both intentionally and inadvertently."

Against this backdrop, I have argued for an intellectually honest theology that includes an understanding of the world as open-ended, creative at its boundaries and rough edges, and ambiguous in its potentialities. This ambiguity implies that a partnership between theology and science always must remain unfinished business. Together with the common responsibility of both for the world, this ambiguity stirs up "some healthy unrest in what could become a cozy togetherness between two partners who have to come to know their standard rejoinders all too well" (Jackelén 2008, 53).

I have been part of this dialogue for about four decades, both as an academic and as a church leader. It may very well be the case that church leadership has sharpened my interest in the impact of science turned into technology on life on the planet and in theology as a catalyst of a spirituality that inspires action. When I look back, I notice some interesting developments.

Roughly speaking, back in the 1980s, this dialogue was pretty much about physicists trying to bring theologians up to speed on quantum theory and, for their own part, trying to understand the philosophical consequences of the uncertainty principle. Then, molecular biologists showed up and said something like: "Look, we don't really need religion. It's all in the genes, you know, and in the end, there will be a biological explanation of everything." After them, cognitive scientists entered the stage. And their take was: "Well, religion is natural, sort of"—and we witnessed a renaissance of the *homo religiosus*, the idea that humans have an inherent inclination towards religion, a religious musicality as it were. And recently, climate scientists have come on board. Their message is: "We need religion! The reason is straightforward. We need positive social tipping points to get away from an otherwise catastrophic development. And achieving those tipping points includes religion. We won't reverse the curves and save the planet without it." Nowadays, we hear even politicians say the climate crisis is also an existential and spiritual crisis.

If I am to summarize my position on theology and science in one sentence, I choose the image of a triangle drama: it is a dynamic love triangle between faith

in knowledge (science), knowledge of faith (theology and spiritual wisdom), and their common responsibility for the world. It is after all in this common responsibility for the world that the rubber hits the road.

For precisely this reason, it is important to acknowledge that partnerships between science, technology, theology, and spirituality always take place in specific contexts. Therefore, I will now move on to a brief sketch of current contexts.

Current Contexts

Polycrisis is a word frequently used to describe the state of the world, meaning the occurrence of several crises at the same time: climate emergency and loss of biodiversity, conflict and war (which, besides everything else, is also an ecological disaster), conflict and crime, global migration, economic crisis, the global decline of democracy, and the ambivalence of digitalization and AI. Polycrisis happens in a world widely marked by what I have called the five poisonous P's of polarization, populism, protectionism, post-truth, and patriarchy.

- **Polarization** widens the gap between those who have too much and those who have too little, creating climate, education, health, demographic, and intergenerational injustice.
- **Populism** pits people against each other and fails to do justice to the complexities of current crises, thus nurturing hostility and even hate toward those who are different and claims of primacy or superiority of one group over others. This in turn results in racism, xenophobia, and an irrational fear of ethnic, religious, and sexual minorities.
- **Protectionism** blurs the view of the global scope of polycrisis, sacrificing the common good for self-interest and promoting egoism and nationalism.
- **Post-truth**, with the dissemination of disinformation and lies exacerbated by the strategic use of powerful digital tools, undermines the kind of honest communication without which democratic systems cannot develop and survive.
- **Patriarchy** boosts a global pushback on the rights of women and girls, promotes toxic masculinities, and counteracts gender justice. It develops a destructive synergy together with the other four poisonous P's.

In such a scenario, it is no surprise that we see a rise in mental health issues and scarcity when it comes to the kind of hope that enables people to act well in uncharted territory. In response, joint forces that work truly transdisciplinarily are called for.

We have been used to seeing rational accounts of the best knowledge available as the main task of the dialogue between science and theology. As

important as this is, it is not enough. To be fully intellectual includes spiritual perspectives. In the current cluster of crises, this becomes ever more evident. To cope, hope, and act, humans also need access to spiritual perspectives. And I am convinced that communicating spiritual insights requires as much acumen as the dissemination of rational knowledge.

A spiritual vacuum prevents people from mobilizing their full potential. It leads to an increase in fear instead of fostering the courage that would be needed for change and adaptation. It may even be the case that the propensity to embrace conspiracy theories increases due to the lack of a culture that is both rationally and spiritually sound, i.e., a culture that is fully intelligent. In other words, we are at a point where we need to have a fresh look at possible partnerships between science and theology from the perspective of spirituality (Jackelén 2021).

Exploring Partnerships

I will now try to explore what such partnerships might mean today. To that end, I first turn to a topic that engages and affects people in almost all walks of life, namely, artificial intelligence (AI).[2]

AI as the Fourth Narcissistic Insult

In a paper from 1917, Sigmund Freud, the founder of the psychoanalytic school, describes three narcissistic insults, violations, wounds, or injuries (*Kränkungen*) of the human person. The first narcissistic insult came with the heliocentric worldview and the insight that we are not the center of the universe. It was followed by two more: the loss of the position of "the crown of creation" through the theory of evolution and the loss of sovereignty over oneself through the discovery of the power of the unconscious. Copernicus stood for the first insult, Charles Darwin for the second, and Freud, according to himself, for the third and most serious. Now, had Freud heard of generative AI or artificial general intelligence, he would have been prompted to add a fourth narcissistic insult of the human person. The cosmological, biological, and psychological insults are followed by the intellectual insult. How we will cope with that one remains to be seen.

The entrance of AI is not the first time in the history of science and technology that a fourth narcissistic insult or wound is referred to. Donna Haraway (2008) also refers to Freud and what she calls the three narcissistic wounds. In her take, the fourth wound is "the informatic or cyborgian, which infolds organic and technological flesh" (Haraway 2008, 12). I would argue, however, that the development she describes does not really constitute a wound or violation. Rather, humans tend to frame this infolding primarily in terms of remedy and gradual improvement rather than an infringement. It is a gain rather than a loss, whereas, in the case of AI, the loss side can be experienced as

more prevalent. Even though AI can be perceived as an assistant that improves and enhances human activity, the tremendous capacity and speed of performed calculations, combined with the sense of agency it displays, puts it in a category of its own. Whereas cyborg development appears to be gradual, the rhetoric around AI suggests a sudden and overwhelming development.

How should the threat of this new existential insult be managed? There may be several ways.

Alternative 1: Modifying the Language of AI

Even though the achievement and range of AI can be breathtaking in many ways, we can still question the term "artificial intelligence" altogether. One may speak of "co-intelligence" instead, as for example Lund University Vice Chancellor Erik Renström (2024), who writes: "Personally, I prefer the term co-intelligence as a more intuitive description of how we should relate to the phenomenon." According to this, the resources that large language models provide are to be used as complementary to our own mental resources and nothing else. This could maybe soften the threat but will not have it disappear.

Alternative 2: Questioning the Intelligence of AI

One can also argue that so far, AI is rather stupid compared to the many facets of human intelligence, as for example cognitive scientist Peter Gärdenfors (2024) has argued. There is much to support this claim. Gärdenfors concludes that we will not have to fear the intelligence of AI systems: "We are not going to be AI's stupid pets" (Gärdenfors 2024, 263; author's translation). Rather, according to Gärdenfors (2024, 265–68), we should be fearful of ourselves, namely, the risk of us voluntarily giving up on the fruits of the Enlightenment and thus again ending up in the self-afflicted immaturity once so vehemently criticized by Immanuel Kant.

Others have questioned the intelligence of AI by pointing out that a large language model is a "stochastic parrot," as it is "a system for haphazardly stitching together sequences of linguistic forms it has observed in its vast training data, according to probabilistic information about how they combine, but without any reference to meaning: a stochastic parrot" (Bender et al. 2021, 617).

Alternative 3: Focusing on Intelligences Rather Than Intelligence

Today, AI is far from exceeding human intelligence when compared to the whole range of different capacities that together constitute human intelligence. With Fraser Watts (2024, 272), we can speak of a variety of intelligences, such as artistic, personal, and moral, that all are connected to a mode of intelligence that is embodied, intuitive, socially embedded, and affective and holds special importance for spirituality. The opposite of a stochastic parrot, as it were.

There is something correct with all these alternatives, and yet, they do not really hit the point, because AI is not built by imitating the ways human intelligence develops and works. Unlike humans, it has its identity in computation and statistics and thus is profoundly different from human intelligence. So far, the three alternatives mentioned make at least some sense. However, this does not mean AI cannot deal a fateful blow to human intelligence—a blow that will have dramatic effects on our human self-understanding. This is because the speed, volume, and complexity of data processing that constitutes AI can reach levels at which the distinctions in alternatives one through three are rendered irrelevant. This happens because it is the output that counts rather than the way it was achieved.

AI is constantly pushing boundaries. Assessing the impact of this is increasingly difficult due to the speed of development. The advancement of AI is quicker than the processes to analyze its consequences and adapt social and legal systems. In the haze of this dilemma, transparency gets lost, lines of responsibility become blurred, and consequences strike surprisingly and unevenly.

It looks like it is only a matter of time until it becomes infinitely difficult or even impossible to determine whether I am talking to an artificial or natural intelligence, to a robot or to a fellow human being—even about eternal, existential questions. For example, if I suffer from a massive fear of death and realize that my partner due to their own fear is not helpful, and at the same time I experience that my AI assistant shares caring, beneficial, and valuable advice—what would be my conclusion? In other words, how much does it really matter what I call this thing (alternative one), whether it is really intelligent (alternative two), or how many intelligences it represents (alternative three)? It is reasonable to assume that we are likely to judge from the experienced usefulness of the resulting output and will not care so much about whether or how the infrastructure of AI is inferior to human intelligence.

Drawing this line a little further: What when human intelligence no longer has the means to judge the usefulness or even the plausibility of what AI tells us regarding issues of societal significance? I would say a line is crossed when this happens. Also, when it no longer matters that an AI is not sentient as humans are but, by human standards, merely pretends, a line is crossed. And since, in the end, it is the result rather than the method that matters, there will be consequences.

Put differently: as crucial as issues such as syntactic correctness and incomplete or biased training material for AI systems are, the real challenge is to reflect on the different futures the ongoing massive shift of technology is offering us. While we can keep wavering between techno-messianism and techno-dystopia, economic incentives tend to accelerate development and leave critical humanistic reflection behind. If financial interests are the only ones in

the driver's seat, new technology will most likely fail to contribute to a good society for all (Tudor et al. 2024, 86–97).

Seen that way, the development and proliferation of AI sends us back to the basics of anthropology, sociology, and theology. Considering the intellectual insult or violation through AI, what then is a human being, individually and socially? What does the *imago Dei* mean in relation to AI robots? As Marius Dorobantu (2024, 93) has argued, interpretations of the *imago Dei* will be crucial to the relationship between AI and Christianity, all the more since "relationality has lately become a buzzword in both theology and AI." I agree that relationality has implications for interpretations of the *imago Dei*, even though the concept of the *imago Dei* is not the only way to discuss relationality in AI and Christian theology and spirituality (Jackelen 2002). As humans, we live in relationship with the transcendent, nature, each other, and self—in what I have called a fourfold web of relationality (Jackelén 2023, 2024a, 18–26). How will this fourfold web of relationality work out in the context of AI? Addressing questions like this forces us to revert to basic existential questions, such as how we understand reason (Jackelén 2024b). Therefore, I wish to offer a fourth alternative:

Alternative 4: Distinguishing between Ratio and Intellectus

To that end, I find it helpful to revisit the distinction between *ratio* and *intellectus* by the fifteenth-century polymath Nicolas of Cusa. Both Latin words mean "understanding" or "reason," but in different ways. Ratio is the reason that counts. Literally, ratio means counting and calculation. Calculating and controlling reason is needed for everything, from making everyday life work to conducting experiments that can push the boundaries of knowledge. Ratio will take us a long way. But ratio alone does not provide intelligence. Full-fledged reason also needs intellectus. The Latin verb *intellegere* means to perceive, realize, understand. Intellectus is the reason that stands for insight, understanding, and meaning. Intellectus is not, however, the opposite of ratio; using intellectus is not the same as being irrational. Rather, without intellectus, ratio is not fully rational. Ratio calculates, controls, monitors. Intellectus has its strength in looking and listening, both inwardly and outwardly, toward the horizon of the unknown.

Intellectus can relate to the immeasurable and to what we humans can never fully know. We could say that intellectus knows the unknowable precisely as unknowable. Ratio must surrender to the unknowable; intellectus can relate to the unknowable without wanting to turn it into knowledge. It is indispensable for engagement with eternal questions. Against this background, it is not surprising that such a challenging and imaginative concept as learned ignorance (docta ignorantia) is a key term in Cusanus. It is also the title of a book of his from 1440.

Intellectus understands that there are things that cannot or should not be forced into human calculations—that there are things that cannot or should not be at our disposal, as argued by German sociologist Hartmut Rosa (2020) in his

book on *Unverfügbarkeit* [*The Uncontrollability of the World*]. There are existential truths that we cannot conquer on our own. They are more likely to come to us when we hone our skills of enduring the unknowable or, in other words, when we care about the spiritual dimensions of existence in the world.

Modernity has often had a penchant for ratio. It has flattered our need for control and given us the partly illusory, yet real, sense that we can plan and control most things in our lives, even in the life of the planet. The guarantee of progress has been seen in regularly updated policies and procedures rather than in the schooling of judgment by refining our intellectus qualities. Now that modernity must mature, it is useful to refocus on the necessary togetherness of ratio and intellectus. It is high time to forge a partnership that includes science, technology, theology, and spirituality.

The idea that human intelligence is characterized by the interplay between ratio and intellectus is relevant for how we can deal with the intellectual insult caused by AI. No doubt, when it comes to ratio, the achievements of AI are increasingly impressive and overwhelming. It is the intellectus aspect that makes the AI adventure so much trickier; it is the intellectus aspect that allows us to call today's AI "quite stupid" after all.

AI can be characterized as "here"-based and profane (Singler 2024, 229), whereas human intelligence can make sense of the "there" and experience transcendence. When a large language model perceives patterns or objects that are nonexistent and creates nonsensical or inaccurate outputs, this is called a hallucination. Hence, one is tempted to quip: AI hallucinates, human intelligence transcends.

Such differences are not trivial. What happens in the disembodied and placeless depths of an unfolding algorithm can have significant impact on the embodied lives of children, men, and women in all kinds of spaces and places. Or, in more theoretical words: "In accepting large amounts of web text as 'representative' of 'all' of humanity we risk perpetuating dominant viewpoints, increasing power imbalances, and further reifying inequality" (Bender et al. 2021, 614).

Justice and Sustainability

Theologically speaking, here is a call for justice to heed! What then are the resources we can use to live up to this call within a theology-and-science context? I want to suggest that we turn our attention for a moment to a project that brings together science, theology, and spirituality to heal the wounds of injustice inflicted by colonialism.

In his *A Liberation Theology of the Brain: Neuroscience, Theology, and Decolonizing Emotions*, Carmelo Santos-Rolón (2025) brings a decolonial perspective to bear on the dialogue between neuroscience and theology. His work can serve as an example of a partnership between science, theology, and spirituality in action.

Drawing on both neuroscience and theology, Santos-Rolón (2025, 5) pursues a rationally grounded, fully intellectual, and therefore also spiritual goal, namely, "the project of healing the colonial wounds that we all carry collectively and individually on our minds and brains and . . . our bodies." He argues that "our affective-cognitive systems function like a sort of generative grammar that gives moral and ontological weight and texture to our perceptual reality" (Santos-Rolón 2025, 10). These grammars are shaped by the historical and cultural milieus we grow up in and with. Reshaping these, such as decolonizing our emotions, requires transformation of "our holistic embodied selves" (Santos-Rolón 2025, 36). Based on neuroscience, Santos-Rolón (2025, 36) contends that religious symbols, rituals, narratives, and practices can have the power to achieve that.

Much like Vítor Westhelle (2012), Santos-Rolón emphasizes the importance of space in theology—often neglected in traditional Western theology. Theology needs to pay more attention to categories of place, such as the margins (*eschata*) and space between spaces (*chora*), if it wants to speak about justification and justice to those dwelling on the margins and in the space between spaces. This includes those suffering the bitter consequences of colonization, those pushed between places and no-places in times of global migration, and those disenfranchised, left out, and left behind in the world of algorithms.

Santos-Rolón (2025, 205) argues that the language that emerges from the experiences that take place in the margins (*eschata*) and the spatial cracks (*chora*)—spaces that are social, spiritual, psychological, and physical—has the potential to destabilize structures of oppression that are an expression of sin. He asks: "What if the task of theology is more than just constructing a rational and coherent articulation of the faith but also a *poiesis*, a midwifery of the soul, or, better yet, of embodied selves and worlds made of flesh and word?" (Santos-Rolón 2025, 223). In other words: Santos-Rolón tries to flesh out what a partnership between science, theology, *and* spirituality can be and do.

Let me add, very briefly indeed, yet another area where the partnership between science, technology, theology, and spirituality can make a difference, namely, the science of sustainability. It is not so well known that the term sustainability has roots in the world of the Church, more precisely in the World Council of Churches of the 1970s (Brown 2015 and Conradie 2023). From there, it made its way into the famous Brundtland report in 1987 (Meireis 2015, 3f). Since then, sustainability has largely been defined in terms of ecology, economy, and sociology.

There is some current research, however, that signals awareness of the link between spirituality and sustainability and the benefits of including spirituality in research and teaching on sustainability (Leal Filho et al. 2022). It can be argued that better integration of spirituality and sustainability leads to more effective and sustainable strategies for future development (Luetz and Nunn 2023).

Given this and the fact that more than eighty percent of the world's population has a religious affiliation, there is a strong case for expanding traditional understandings of the concept of sustainability to include a fourth dimension: spiritual sustainability alongside ecological, economic, and social aspects. The significance and "added value" of spiritual sustainability has been explored in an official study on forestry by the Church of Sweden (Jackelén and Wejryd 2024). The concept of spiritual sustainability has gained attention even beyond the dealings of the church. The municipality of Ljusdal in Sweden has adopted this broadened concept. According to the sustainability policy for their tourist destination Järvsö, they strive for ecological, social, economic, cultural, and existential/spiritual sustainability (Ljusdals kommun 2024, 2).

Concluding Remarks: Fostering a Spirituality of Hope

I have argued elsewhere that we need a spirituality of coexistence, resilience, and hope (Jackelén 2021). Here, I will restrict myself to sharing some thoughts about a spirituality of hope.

Cultivating a spirituality of hope will enable us to counter narratives of hate and fear with narratives of love and courage—urgently needed in times of polycrisis. Hope is both a gift and a virtue. It works like a muscle: a muscle is a gift in your body, but you need to train and exercise to develop and maintain its strength. The same applies to hope: train it, practice it!

Hope differs from optimism. Optimism, as well as pessimism, builds on what we already know. Optimism extrapolates those facts that we regard as positive at the present time. Optimism is often fascinated by statistics. It loves graphs, especially when they point in the right direction.

Both optimism and pessimism build a lot on statistics, which can lead into deception. After all, we have all heard of "lies, damned lies, and statistics." But hope can be deceitful, too. Like all human endeavors, even such a good thing as hope can take a wrong turn, be distorted, and be abused. And yet, there is an important difference between optimism and hope. While optimism extrapolates the trend, hope is the practice of spotting the promise. Optimism aims at extending reality, while hope wants to change it. Optimism draws conclusions based on the known; hope looks forward in anticipation, finding ways of dealing constructively with that which we do not and cannot know. Hope draws on the best knowledge available, whether it comes from science or theology or the dialogue between various disciplines. It combines ratio and intellectus in a deeply sustainable way.

Hope embodies a threefold potential. First, hope does not close its eyes to that which can elicit despair. Rather, hope holds the power to harbor anger, grief, and frustration over that which is and goes wrong in how humans take care of each other and this world and planet. Second, hope relates wisely both to our strength, power, ingenuity, and creativity and to our vulnerability, weakness,

destructivity, and mortality. Hope is realistic and humble. And third, on most occasions, we are still left with choices. Hope empowers us to make a choice that remains a possibility in most situations: to choose the path of courage rather than a different one. Powerful, humble, courageous—that is what hope is (Jackelén 2024b, 149–59).

While optimism rejoices at the continuity of a graph moving in the right direction, hope sees meaning despite and through the leaps and cracks of discontinuity. After all, as Leonard Cohen (1992) has taught us about the crack: "That's how the light gets in."

Is this just words? Yes. But words matter! Words shape thoughts. Thoughts shape ideas. Ideas shape policies. Policies shape actions. Actions shape societies. In the beginning was the Word—as a famous phrase in a wise and influential book puts it (John 1:1). This rings true, even as we strive for the necessary partnership of science, technology, theology, and spirituality. Therefore, staying in conversation with and about that which is of ultimate concern—keeping in mind that faith is "the state of being ultimately concerned" (Tillich 1957, 4)—will keep our humanity and inspire necessary action. And therefore, such institutions as the Boyle Lecture are worth our care and efforts. Thank you for your attention!

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Notes

[1] By religiosity, I refer to various degrees of theoretical and practical engagement with religious traditions. By spirituality, I refer to the habitus of cultivating spiritual (existential) gifts and needs in embodied selves. This can occur within or outside religious traditions. It is analogous to a broad understanding of the concept of *praxis pietatis* in Christian tradition.

[2] Cf. the series of articles on AI and religion in *Zygon: Journal of Religion and Science* 57 (4): 933–1018, as introduced and summarized by Andrea Vestrucci (2022).

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Sustainable Development and the Spiritual: Response to Antje Jackelén

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The particular question The Most Reverend Dr. Antje Jackelén's Boyle Lecture puts in front of us is: How can science and technology engage with the spiritual? In my response, I unpack this question in three parts: (1) the obstacles for theology and the possibilities for philosophy to help scientists and engineers in engaging with the humanities, and with spirituality; (2) the centrality of experience and uncertainty in all domains of culture (which I define in a very wide sense as the "field of resources" that practitioners in a practice draw on, be it a scientific or engineering practice, a religious practice, a political practice, and so on); and (3) the implications of all this for addressing the spiritual in policymaking for sustainable development.

I applaud The Most Reverend Dr. Antje Jackelén for defending so clearly the importance of the humanities in the deployment of science and engineering for social change. Scientists and engineers have to grapple with "wicked" problems, such as the governance of AI and sustainable development, which have repercussions at all scales, from the global to the local. In doing this, natural scientists and engineers need to engage with both social scientists and humanities scholars—but not only that: through this engagement, they also need to open up to the spiritual, not as a separate, well-defined category but as an integral element of quality of life, part of Martha Nussbaum's (2006) list of central human capabilities, in particular the capability of having senses, imagination, and thought. Our senses, imagination, and thought can give rise to spiritual experience, and while this of course leads to important philosophical and theological questions about the causes and consequences of such spiritual experience, the particular question the Boyle Lecture puts in front of us is: How can science and technology engage with the spiritual? Here, I unpack this question in three parts: (1) the obstacles for theology and the possibilities for philosophy to help scientists and engineers in engaging with the humanities, and with spirituality; (2) the centrality of experience and uncertainty in all domains of culture (which I define in a very wide sense as the "field of resources" practitioners in a practice draw on, be it a scientific or engineering practice, a religious practice, a political practice, and so on); and (3) the implications of this all for addressing the spiritual in policymaking for sustainable development.

Theology and Philosophy

Jackelén singles out theology for the engagement of the humanities with science and technology. This makes perfect sense in contexts where theology has an accepted role to play—Jackelén acknowledges that these contexts are diverse—and I will not argue against the importance of theological reflective thought playing this role. But *what* are the proper roles of *which* theologies *where* in our global culture, or patchwork of cultures? At least in the present cultural climate in the West, I see many obstacles for creating the strong partnerships between science, technology, theology, and spirituality Jackelén is proposing. For instance, when in secular societies "godless"[1] institutions such as University College London (UCL) desire to relate to the spiritual, they cannot draw on theology like a church can. But they can, alternatively, draw on philosophy.

The Indigenous and premodern cultures that preceded modernity—and in the contemporary world are enmeshed in the web of modernity (Randazzo and Richter 2024)—may have seen a dominant role for spirituality and theology, but we cannot go back to the spirituality of Indigenous thought or to the theology of premodernism. Spirituality, like religion, seems to have become more of a private than a public matter; moreover, spirituality is increasingly found outside of religious traditions. Crucially, one must realize that there is no single dialogue

between science and technology on the one hand and religion, theology, and spirituality on the other (Watts et al. 2022). This all leads to the present situation in our culture that —after first having gone through modernity and subsequently postmodernity—the voices of critical and self-critical theologies seem unable to create spiritual publics that can mobilize politics or spiritual attitudes that can deeply affect science and technology.

While there is no single dialogue or single potential partnership, according to recent philosophical work, there are a plurality of options for making connections between different domains in culture (e.g., Petersen 2023). I would like to suggest that a rehabilitation of spirituality, religion, and theology (which are separate things)—in a form that can fruitfully engage with science and engineering—is afoot in a new form that goes by the name of "metamodernism" (Dempsey 2023). Metamodernism, which is what comes after and transcends postmodernism (which came after and transcended modernism), offers an integrative worldview, a cultural logic of cultural logics, in which things can be both social constructs and real at the same time, and in which one is able to "toggle" between premodern, modern, and postmodern worldviews without fully losing oneself in any of these. I do not have the space to dwell on this emerging current in philosophy here. I will just signal that philosophy can be of help in brokering a spiritual way forward in science and engineering for social change. "Science and engineering for social change" also happens to be the name of an undergraduate degree we have recently launched at UCL. This degree involves a mandatory module in philosophy of culture that explicitly addresses religion and the spiritual in its larger cultural settings worldwide.[2]

Experience and Uncertainty

Jackelén highlights the importance of *intellectus* vis-à-vis *ratio*. Metamodern philosophy foregrounds experience and uncertainty while not forgetting about values. This means that in all domains of culture—science, technology, religion, politics, etc.—once you scrutinize what is going on in their practices, the philosophical attention can get drawn to the experience of wonder and judgment under uncertainty. For instance, if one looks, with Bruno Latour (1987), at science in the making, a strikingly different picture emerges from that of ready-made science. Once scientists and engineers pause to reflect on their practices—and they do that all the time to assess the risks and uncertainties—they are aware that they are creating chains of reference or constants through transformations, in the case of science, and inventions that rearrange technology in ingenious ways to circumvent obstacles, in the case of engineering (Latour [2012] 2013). But they are also aware that they are always at risk of being wrong.

So, the question is how ratio (calculating, controlling, monitoring) is used in the different cultural practices—especially science and engineering—versus intellectus (judgment, understanding, reflective openness to uncertainty). I

would argue that science and engineering cannot be done without either. But I also agree with Jackelén that modernity has had its preference for ratio and forgotten intellectus, even though intellectus has always been there.

Then, what do you think happened, for instance, to authors of the Intergovernmental Panel on Climate Change, who allow themselves only a modernist repertoire of talking and thinking about science, when a country delegation emphatically asked them to include Mother Earth in the Summary for Policymakers of their report on adapting to climate change?[3] I witnessed this in Yokohama in 2014, and the authors were like deer staring into headlights. The compromise text they came up with in the end did not include Mother Earth and effectively only referred to a potential for instrumental use of Indigenous knowledge: "Indigenous, local, and traditional knowledge systems and practices, including indigenous peoples' holistic view of community and environment, are a major resource for adapting to climate change, but these have not been used consistently in existing adaptation efforts" (IPCC 2014, 26). I am not sure how to do this better, since there is a fundamental incommensurability between Western science and nonmodern worldviews, but we surely should train our scientists and engineers to be able to deal with the spiritual in a less instrumental way. At the same time, we should not other Indigeneity too much, given the complex ways in which Indigenous thought is enmeshed in modernity nowadays. We need to refrain from making a binary distinction between modern and nonmodern and give attention to localized differences in how cultural values are realized and the political agency of marginalized Indigenous communities facing ecological crises (Randazzo and Richter 2014).

Sustainable Development and the Spiritual

Jackelén mentions the science of sustainability as a major area where engagement with the spiritual can make a difference, and to conclude my response I would like to briefly expand on the link between sustainable development and the spiritual. As Jackelén points out, the history of the concept of "sustainability" lies in the church. From the way the World Council of Churches described a sustainable society in 1974, one can argue that the spiritual is an aspect of quality of life that needs nurturing: "[T]he benefits of more material production and the material demands of an increasing number of people no longer outweigh the negative effects of this growth on the non-material dimensions of the quality of life" (WCC 1974, 12). Jackelén's plea to expand some overly simplistic understandings of sustainability as consisting of three narrowly defined dimensions of ecological, economic, and social sustainability and to include the dimension of "spiritual sustainability" deserves support. The related policy question, however, becomes how governments can assess this spiritual sustainability, let alone propose and implement policy measures to protect and grow it.

On this topic, the Church of Sweden and the Swedish municipality of Ljusdal have shown leadership that merits closer study and reflection to learn how the rest of the world might benefit from these approaches. In terms of sustainability assessment for policy making, I think scenario-based approaches that rely on a comprehensive notion of quality of life (e.g., de Vries and Petersen 2009) have potential to bring out more explicitly the dimension of spirituality.

Thus, I would like to thank the archbishop for raising these important issues, and this concludes my response.

Acknowledgments

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Notes

[1] From the UCL website ("Practising Your Faith at UCL," published on October 12, 2022, https://www.ucl.ac.uk/students/news/2022/oct/practising-your-faith-ucl): "You may have heard the famous quotation from the historian Thomas Arnold, who once described UCL as 'that Godless institution in Gower Street.' Prior to UCL's inception in 1826, a university education was restricted to male members of the Church of England. UCL led the way to making education available to all, regardless of race, class, or religion. . . . It's true that UCL is a secular institution which has no religious affiliation and doesn't endorse any particular denomination or faith. However, religious identity is at the heart of life for many of our staff and students and UCL is committed to providing an inclusive learning and working environment where students and staff of all religions, and none, can thrive."

[2] For a summary description of the module Philosophy of Culture for Scientists and Engineering, co-taught by me and Dr. Elisa Randazzo, see https://www.ucl.ac.uk/module-catalogue/modules/philosophy-of-culture-for-scientists-and-engineers-STEP0046. For more information on the BSc degree, see https://www.ucl.ac.uk/prospective-students/undergraduate/degrees/science-and-engineering-social-change-bsc.

[3] See Petersen (2023, 243–47).

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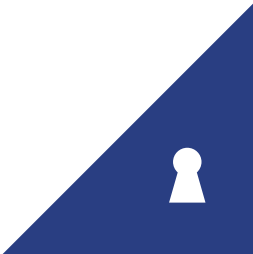

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