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Toward an Analysis of the Abductive Moral Argument for God's Existence:
Assessing the Evidential Quality of Moral Phenomena and the Evidential Virtuosity of Christian
Theological Models

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By

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APPROVAL SHEET

TOWARD AN ANALYSIS OF THE ABDUCTIVE MORAL ARGUMENT FOR GOD'S
EXISTENCE

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DEDICATION

To Britnee and Lila.

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ABSTRACT

The moral argument for God's existence is perhaps the oldest and most salient of the arguments from natural theology. In contemporary literature, there has been a focus on the abductive version of the moral argument. Although the mode of reasoning, abduction, has been articulated, there has not been a robust articulation of the individual components of the argument. Such an articulation would include the data quality of moral phenomena, the theoretical virtuosity of theological models that explain the moral phenomena, and how both contribute to the likelihood of moral arguments. The goal of this paper is to provide such an articulation. Our method is to catalog the phenomena, sort them by their location on the emergent hierarchy of sciences, then describe how the ecumenical Christian theological model exemplifies evidential virtues in explaining them. Our results show that moral arguments are neither of the highest or lowest quality yet can be assented to on a principled level of investigation, especially given existential considerations.

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Chapter 1: Introduction

In the last half-century, there has been a resurgence of interest in natural theology in the philosophy of religion. In the same span of time, there has been substantial progress investigating the nature of explanation in the philosophy of science. There have been several interdisciplinary works marrying the two disciplines. However, these have focused heavily on Bayesian reasoning and have left little room for the advances in abduction to make their mark. Where abduction has made its mark, there has been a lack a robust articulation of how this mode of inference is qualified in the realm of natural theology.

In what follows, we aim to expand that space by explaining these advances and applying them to one argument of natural theology—the moral argument. Although there has been use of abduction in the moral argument (especially by Baggett and Walls), a full explication of this mode of reasoning has been lacking—especially given the advances in science in determining data quality and the advances in analytic philosophy concerning theory selection.

Applying these advances to the moral argument will help shine light on the significance of phenomena in crafting explanations. Moreover, given the unique nature of moral phenomena, this inquiry will also bring out some key factors that determine data quality when examining other observable phenomena. The hope is not merely that the moral argument be treated as a case study (though it can correctly be described as that). Rather, the hope is that one is given tools to rigorously evaluate the moral argument for God's existence *and* that they may generalize these tools to other areas of natural theology and beyond. We will not be arguing for a particular position on either the competing data or theories but will demonstrate how abduction can be rigorously applied to even the most abstract of queries.

A Review of Moral Arguments

Moral arguments, broadly defined, can include anything that explains why and how moral phenomena is—or seems to be—the way it is, and provide an account of it (or describe why no account is needed). Given this definition, it can be said that the moral argument started as early as Socrates, Plato, and Aristotle. However, these early formulations do not directly argue for the existence of God. Proponents of these types of moral arguments can be moral realist or antirealists, theists or naturalists, or what have you. More narrowly, moral arguments as we use as use them here argue for God's existence. Even more constraining, as we will see, we will focus on Christian moral arguments.

These moral arguments, at minimum, state that there is something about morality that implies God. Their considerations of morality discuss our knowledge of morality, its features, its foundations, the consonance between our knowledge, its features and foundations and more. What these moral arguments aim to demonstrate is that for morality to be known, function, or exist, God—or at least some notion of God—seems to be involved. It is this narrow definition that we will concern ourselves in the foregoing section. Below is a cursory overview of significant historical developments in the moral argument using representative figures in different eras.

The philosophers presented all seem to argue, in one form or another, for the necessity of a divine or metaphysical component to our understanding of morality and ethics. They propose that, without a God or similar entity, our ability to comprehend moral truths, uphold justice, experience guilt or remorse, or even believe in the possibility of objective moral values, would be undermined or entirely non-existent. Their views represent a broad sweep of the history of

natural theology, the philosophy of religion, and Christian thought, and while there is substantial overlap, each philosopher brings unique perspectives to these intersecting fields.

Many of the thinkers presented—such as Zeno of Citium, Immanuel Kant, John Henry Newman, C. S. Lewis, and William Lane Craig—appeal to aspects of the natural world (like physical and moral order) to argue for the existence of God. They largely maintain that morality and ethical behaviors can only be rationally explained if they are connected to a divine entity or law. Figures like Augustine of Hippo, A. E. Taylor, Robert Adams, and Eleonore Stump wrestle with issues of philosophy of religion, often arriving at the conclusion that an understanding of God is necessary for any satisfactory explanation of morality and human experience. Many of the philosophers mentioned use Christian thought to ground their views. For instance, Lewis directly references the Christian doctrine of the Trinity, while Adams refers to a divine command theory, and Copan alludes to the Christian notion of humans made in God's image.

Zeno of Citium (334-262 BC) and Marcus Aurelius (121-180)	Physical and moral orders (taken together as the <i>natural law</i>) are governed by God(s) and thus must be honored. Since justice exists, God must exist. ¹
Augustine of Hippo (354-430)	God—as the ultimate good who impressed on humans the notion of goodness—explains the ability to distinguish between goods, rank goods, and aim at eudaimonia through loving God. ²
Immanuel Kant (1724-1804)	Grace from God is needed to fill the moral gap between our ideals and actions; the providence of God must be postulated to explain the correspondence between happiness and virtue. ³
John Henry Newman (1801-1890)	A divine mind (or God) of judgment explains the retributive justice demanded by the wrongdoing known by the self-reproach, shame, remorse, and dismay (and their converses) mediated through our conscience. ⁴

¹ W. David Beck, *Does God Exist?: A History of Answers to the Question* (Downers Grove, IL: InterVarsity Press, 2021), 192-193.

² David Baggett and Jerry Walls, *The Moral Argument: A History* (New York, NY: Oxford University Press, 2019), 10-11.

³ *Ibid.*, 24-28.

⁴ *Ibid.*, 43-46.

Henry Sidgwick (1838-1900)	Morality is only rational if there is harmony between self-love and benevolence. This harmony can only be sanctioned by a being such as God promoting universal happiness. ⁵
William Sorley (1855-1935)	Moral goodness, instantiated in concrete particulars of the world, served an evidential role as well as a teleological role, bridging the gap between the moral and physical order (or <i>is-ought dichotomy</i>). God, who is both the creator of the physical world and a personal being, grounds that union. ⁶
Alfred Edward Taylor (1869-1945)	Moral life is a pilgrimage from the temporal to the eternal. Belief in God is rationally justified if one is aiming for eternal life since God is the necessary condition for an eternal life and brings logical consistency and practical motivation for one's moral life. So, for those who aim toward a moral life where progress is possible, belief in God is rationally justified. ⁷
Clive Staples Lewis (1898-1963)	<p>There are two moral arguments here: the rhetorical argument—made for consumption by the general public—and the more sophisticated argument—made for consumption by the more scholarly-minded. The rhetorical version starts with the idea that we have expectations of fairness for others that seem law-like (it is universal, applying to everyone; and is morally, not necessarily physically, enforced). These expectations do not seem reducible to human convention or natural selection since morality requires an authorizing agent with a perfect sense of justice as its source.⁸</p> <p>The more sophisticated version starts with the idea that most all cultures hold that the world, humanity included, can merit reverence and contempt. If it could not, this would spell the end for education, patriotism, society, and all the things we value. Thus, we must axiomatically postulate some law-like “ultimate platitudes of practical reason” that urge us to do what is right.⁹ Moral laws such as these are only known to be imposed by minds. But, given the Euthyphro dilemma, this mind cannot be subject to the laws or merely a giver of the laws. Thus, the mind must be Goodness itself. Such a unity is reminiscent of the Trinity—and similarly, if that mind-Goodness unity seems to want a relationship with humanity, it would provide a path for reconciling trespasses of the moral law. Such is reminiscent of Jesus's—the incarnation of goodness—sacrifice.</p>
David Elton Trueblood (1900-1994)	Unless there is a Divine Being—a moral lawgiver—an objective moral order is meaningless and moral experience implies an objective moral order. Since moral experience (of shame, harm of persons, pollution, etc.) accurately represents reality, there is a Divine Being. If moral realism were false, there could not even be meaningful discussions of right and wrong. ¹⁰
Huw Parri Owen (1926-1996)	Moral phenomena, though mostly self-evident, is not self-explanatory and cry out for a theistic account. Goodness, duty, and beatitude—perfected happiness—can be dimly explained by theism but more deeply known through Christian theism. ¹¹

⁵ Ibid., 58-59.

⁶ Ibid. 73-77.

⁷ Beck, *Does God Exist?* 220-221.

⁸ Ibid., 217-218.

⁹ Baggett and Walls, *The Moral Argument*, 162-173.

¹⁰ Baggett and Walls, *The Moral Argument*, 210-213.

¹¹ Ibid., 196.

Robert Merrihew Adams (1937-)	There is a practical advantage to believing that the universe has a moral order—namely, that it would be demoralizing to believe it did not really. Since theism, especially one that shows divine command theory which explains the relationship between obligations and objective commands, can explain the moral order, there is a moral advantage to accepting theism. ¹²
Stephen T. Davis (Unknown)	Supererogatory acts—going above and beyond the call of duty—such as heroic self-sacrifice, seem to be insufficiently explained on naturalism. If God exists, these acts can be justified, rectified in the afterlife, and show God as the foundation for objective morality where naturalistic accounts of morality fail. ¹³
Eleonore Stump (1947-)	Our recognition of objective evils in the world could not be possible without a good God who gives our lives meaning. Either our lives have no meaning or there is a good God who gives them meaning. ¹⁴
Linda Zagzebski (1946-)	Unless God—who can make up for our moral powers and capacities—exists, then we should despair in our confidence of moral knowledge, moral efficacy, and moral goals in cooperation with others. Thus, our we should not be motivated to act morally if our flawed intuitions are what humans must rely on. ¹⁵
C. Stephen Evans (1948-)	Moral obligations include within it concepts of verdicts on actions, closure to reflections on conscience, responsibility, and personhood. As such, they are natural signs that point toward a divine commander of duties.
William Lane Craig (1949-) and James Porter Moreland (1948-)	If God—who nature is goodness and commands obliging actions—does not exist, then objective moral values and duties would not exist. As such, human and animal rights should not be considered universal and there is no practical reason to put oneself in the position of being morally accountable to others.
C. Stephen Layman (Unknown)	Moral reasons override other reasons. If there is no God, then other reasons should override moral reasons.
Mark Linville (Unknown)	Because evolutionary naturalism does not aim at truth, it is insufficient to account for moral discomfort, moral standing, or personal dignity as anything more than illusory whereas the imago dei can affirm its objectivity. ¹⁶
Richard Swinburne (1934-)	Without a God who wants human agents who are free to be in a mutual relationship, it is unlikely that humans would have the conscious awareness of moral goodness—one that goes beyond altruism—and the urge to do them even against our desires. ¹⁷
W. Jay Wood (Unknown)	Unless there is a God who is goodness itself and makes moral judgments that we can know and measure our actions against, there is no reason to be altruistic and objective moral values are illusory.

¹² Robert M. Adams, “Moral Arguments for Theistic Belief,” *Rationality and Religious Belief*, ed. C. F. Delaney (Notre Dame, IN: University of Notre Dame Press, 1979), 117.

¹³ Stephen T. Davis, *God, Reason, and Theistic Proofs* (Edinburgh: Edinburgh University Press, 1997), 146-149.

¹⁴ Beck, *Does God Exist?* 221-222.

¹⁵ Linda Zagzebski, “Does Ethics Need God?” *Faith and Philosophy* 4, no. 3 (1987): 294-303.

¹⁶ Mark Linville, “The Moral Argument,” *The Blackwell Companion to Natural Theology*, ed. William Lane Craig and J. P. Moreland, Kindle ed. (Malden, MA: Blackwell Publishing, 2009), 758-861. Kindle.

¹⁷ Richard Swinburne, *The Existence of God* (New York, NY: Oxford University Press, 2004), 215.

Paul Copan (1962-)	A personal creator—who made persons in His image—is an adequate ontological foundation for objective moral values, obligations, human dignity and human rights; whereas supervenience accounts of value based on non-value composites fail. ¹⁸
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The Current Abductive Formulation

Perhaps the most fully developed moral argument comes from David Baggett and Jerry Walls, contained in their tetralogy on the moral argument for God’s existence. They state that there are three tasks of the moral apologist: to defend theistic ethics, to critique naturalistic and secular ethics, and to defend moral realism. David Baggett and Jerry Walls have taken on the first two tasks in the first three books of their tetralogy: *Good God* (2011), *God and Cosmos* (2016), and *The Moral Argument* (2019). In these, they argue for the sufficiency of theistic ethics and inadequacy of naturalistic and secular ethics. More specifically, they have argued for an Anselmian “classical theism and distinctively Christian theology” using inference to the best explanation.¹⁹

Their version argues that the Christian God makes the wide variety of moral phenomena expected. These data are the first principles of morality and instantiations of *expansive epistemology*.²⁰ Baggett and Walls define expansive epistemology as a way of knowing “that takes moral phenomenology seriously” and recognizes “reality in all of its fecundity and fullness,” “resembling verification theory in the natural sciences but intentionally inclusive of the

¹⁸ Paul Copan, “The Moral Argument,” *Philosophy of Religion: Classic and Contemporary Issues*, ed. Paul Copan and Chad Meister, 127-141 (Malden, MA: Blackwell Publishing, 2008), 131-132.

¹⁹ David Baggett and Jerry L. Walls, *God and Cosmos: Moral Truth and Human Meaning* (New York, NY: Oxford University Press, 2016), 8-14. Kindle.

²⁰ Ibid., 254. Baggett and Walls define the first principles of morality as “foundational, basic, a preliminary to further argumentation ... analogous in important ways to axiomatic principles in theoretical reason by which we are able to reason at all.”

evidential significance of moral values.”²¹ As such, an expansive epistemology (or “cumulative”) approach to explicandum includes not just salient comparative facts but any and all moral evidence for God’s existence. These explicanda can range from perennial universals to ephemeral seemings. Historical instantiations of these moral phenomena in moral arguments have included:

- “intimations of beauty, steps of precursive faith, discernment about proper evidential fits, sympathetic attentiveness to the experiences of others,”²²
- “relational, aesthetic, and ethical deliverances,”²³
- “integration of poetry and philosophy, thus effecting the kind of synthesis of the head and heart,”²⁴
- “sentient creation and the facts of human history,”²⁵
- “characteristics of human consciousness and human development,”²⁶ and
- “religious experience.”²⁷

Baggett and Walls classify moral phenomena into four categories: moral facts, moral knowledge, moral transformation, and moral rationality—with all the varied deontic, epistemic, performative, and axiological phenomena therein.²⁸ Moral facts refer to ontological matters—that there are some indisputable cases of moral judgments (for example, the wrongness of torturing an innocent child for fun). Moral knowledge refers to epistemic matters—how we come to know what is good and bad. Moral transformation refers to performative matters—the reality

²¹ Baggett and Walls, *The Moral Argument*, 82, 85-86, 93.

²² Ibid., 65.

²³ Ibid., 71.

²⁴ Ibid., 74.

²⁵ Ibid., 90.

²⁶ Ibid., 94.

²⁷ Ibid., 96.

²⁸ Baggett and Walls, *God and Cosmos*, 15.

of personal betterment; progress rather than mere change. Moral rationality refers to the organic convergence of moral virtue and the good life. In essence, these categories are a repackaging of previously used arguments in the history of moral philosophy into a cohesive whole.

The Argument from Inadequate Evidence

One argument against moral realism (and thus the moral argument) is the *argument from inadequate evidence*. It states that moral phenomena are not an object of the five senses (tangible visible, audible, odor, taste), nor analytically true (quantitative, indefeasible), nor scientific (obvious control, falsifiable, experimental intervention). Thus, if we have no empirical, logical, or verifiable evidence to believe that morality is real, respectively, it is not rational to hold to moral realism. In response, Russ Shafer-Landau says that we can admit ethical evidence is different in kind than natural sciences.

Ethics cannot rely on sense evidence in the same way. Moral principles are not in the business of describing/predicting. It is in the business of evaluating the world and our conduct within it. Embryology does not give us moral imperatives on abortion (fact/value distinction). Philosophers disagree on how to confirm philosophical truths but agree that there are answers (God, free will, scientism). If we can be justified in beliefs about philosophy, this includes moral beliefs about capital punishment, euthanasia, pacifism, slavery, etc.²⁹

Shafer-Landau says the argument from inadequate evidence suffers from category error. But what *is* the quality of the evidence of moral phenomena? And what is the threshold of adequacy to be considered sufficient? Before accepting the conclusion of the argument and

²⁹ Russ Shafer-Landau, *Whatever Happened to Good and Evil* (Oxford University Press, 2004), 112.

rejecting the category altogether, we should consider the falsity of its premises. There is no dispute that there are referential data called “moral phenomena” that some people label as such. However, admission that there are moral data (even if merely a label) moves the conclusions about realism-antirealism from a dichotomy to a continuum—from possibility and impossibility to probability and improbability.

What is needed is a qualitative-comparative examination of that data and a good explanation of it. Contrary to Shafer-Landau, we argue that moral phenomena are evidential for moral arguments and thus are comparable to other non-ethical data-driven theories. To demonstrate this, we map the moral phenomena on the emergent hierarchy described in our methodology. The upshot, as we see below, is that the quality of moral phenomena is neither perfect nor non-existent—but principally comparable to other emergently proximate disciplines. This position does not preclude the possibility of Shafer-Landau’s view. But our position does not necessitate discussing those considerations. Nor do we decisively state what threshold of adequacy ought to be considered sufficient—only what is common and consistent. In any case, we must consider the range of moral data there is and reclass them into our hierarchical structure.

Reframing the Moral Argument

When it comes to reframing, we are not providing a completely novel frame, but a reinforced frame that fits its pictures better. Nor are we offering a completely novel set of pictures but a collection and resizing of the pictures that fits their frame better. In what follows, we plan to keep in line with the framework of the moral argument in explaining moral phenomena. However, we plan to reinforce and augment this use through advances in explanatory reasoning and data quality evaluation. In the realm of explanatory reasoning, we

delineate how moral arguments exemplify theoretical virtues. In the realm of data quality evaluation, we delineate how moral phenomena are classified on an emergent hierarchy of sciences.

The benefit of this reframing is that it presents a positive argument for the moral argument proponents. Instead of answering objections one-by-one, the method is laid out so that it may screen off any irrelevant objections and leave it vulnerable so that any deficiencies are more readily shored up. Another benefit of this reframing is that it allows one to iterate, permutate, transform, and transmute the moral argument to fit one's dialogical aims. When one views the parts as modular, yet inextricably linked, it becomes easier to move through new conversational territory with familiarity.

With data locatable on an emergent hierarchy of sciences, one can decipher whether a phenomenon, datum, or piece of evidence is higher or lower on the continuum of quality. With theories qualified by theoretical virtues, one can decipher whether a theory, model, or explanation is good or bad on the continuum of choiceness. With all the moral phenomena catalogued, one may decide which are significant and/or salient for the situation. With the theological model parsed, one may decide which explanation is rational and rhetorical for the occasion. Taken together, the moral phenomena and theological model present some moral argument. The following summarizes what we plan to do in the foregoing chapters.

Chapter two delves deeply into the methodology, placing a significant emphasis on the validity of abduction, the emergent hierarchy of sciences, and their role in providing the desiderata for theories and data. Chapter three explores the spectrum of moral phenomena, starting with more practical fields where morality is the subject to more abstract fields where morality is object of investigation—applied ethics, descriptive ethics, normative ethics, and

metaethics. Chapter four begins with natural theology, moves to revealed theology, then focuses on ecumenical theologies and their integration with natural theology. Chapter five looks at individual moral arguments, evaluating the evidential virtuosity of each theological model.

Chapter 2: Methodology

Abduction

Also called *retroduction*. From the Latin *ab* (“away”) and *ducere* (“to lead”), abduction is a deductively fallacious yet scientifically valid way of reasoning focused on explanations of facts, data, and phenomena. Although it has only recently been labeled and more rigorously defined, the concept of explaining causes has been the spotlight of attention at least since Aristotle. It follows the general procedure:

Observed fact C is surprising. A would make C expected. Therefore, we have reason to hold A.

As C. S. Peirce, who coined the term, would say, “If A were true, C would be a matter of course.”³⁰ More colloquially, we may say, “Of course C would happen if A were the case!” C may initially be surprising at first glance. However, C is to be expected, given A. Or put another way, A makes C seem to be the natural course things would go.

*The sidewalk being wet is surprising.
Rain would make the sidewalk being wet expected.
Therefore, we have reason to hold that it rained.*

Like induction, it deals with probable conclusions. Like deduction, its conclusions are contained in its premises.³¹ Like Bayesianism, it deals in probabilities and likelihoods. But, unlike

³⁰ Charles Peirce, *Collected Papers of Charles Sanders Peirce*. Vols. 1-6, ed. Charles Hartshorne and P. Weiss (Cambridge, MA: Harvard University Press, 1931-58).

³¹ Gilbert Harman, "The Inference to the Best Explanation," *Philosophical Review* 74, no. 1 (January 1965): 88-95.

induction, its conclusion is not merely ampliative—going beyond the premises. Unlike deduction, it does not merely preserve truth but also seeks it. And unlike Bayesian inference, which focusses on *conditionalization*—updating hypotheses in light of new data—abduction focuses on *explanation*— normative descriptions (causal or rational) that turn surprising phenomena into expected behavior.

The Validity of Abduction

Because abduction is akin to induction and deduction, yet not quite the same, it has been offered as a third mode of reasoning. Like induction, it deals with conclusions that are informally plausible or formally probabilistic. Like deduction, its conclusions are contained in its premises. But, unlike induction, its conclusion is not merely ampliative—going beyond the premises. And unlike deduction, it does not merely preserve truth but also seeks it.

In Aristotle's formulation, he proposed a valid syllogistic inference that carries plausible rather than certain conclusions (either due to a weak connection between major and middle or middle and minor terms).³² However, modern formalizations assume their deductive invalidity. We say it is deductively fallacious and invalid because of its classification as a branch of confirmation theory. When confirmation is formalized into a deductive syllogism, we see the issue.

If it rains, the sidewalk will be wet. The sidewalk is wet. Therefore it rained.

The problem is that there may be other reasons why the sidewalk is wet, so to claim that it rained is *affirming the consequent*—a deductive fallacy.

³² Jonathan Barnes, *Aristotle's Posterior Analytics* (Clarendon Press, 1993), 204-254.

$$\begin{array}{l} P \rightarrow Q \\ Q \\ \therefore P \end{array}$$

A valid syllogism should instead *affirm the antecedent*.

$$\begin{array}{l} P \rightarrow Q \\ P \\ \therefore Q \end{array}$$

If it rains, the sidewalk will be wet. It rained. Therefore, the sidewalk is wet.

One might ask: why not formulate it validly, then? The answer is that this is fine for theory invention—developing some hypothesis (the consequent) based on observations (the antecedent)—but it does nothing for theory testing. Once we engage in theory testing, we will always affirm the consequent. Yet, as with all confirmation theory, its deviation from deductive rules of inference is one of the less interesting things about it.³³ What is more interesting is the immediate possible insight it produces. This helps bring out the subtlety of all abductive reasoning—we are picking a theory given the known options, even if the objectively correct theory is left unpicked because it is unknown.

Abduction as a tool of discovery

Abduction has been useful as a tool of scientific discovery because of its ability to generate plausible hypotheses.³⁴ The key in the wet sidewalk scenario is that it *might* have rained (that is, it is a candidate hypothesis), and we can check the weather to confirm it. The uncertainty of the truthfulness of the hypothesis is to be expected. As with any synthetic theory—one that attempts to represent reality accurately—it uses past concepts and theories to test and confirm

³³ Carl G. Hempel, *Aspects of Scientific Explanation* (Free Press, 1965), 20-81.

³⁴ Norwood Russell Hanson, *Patterns of Discovery: An Inquiry into the Conceptual Foundations of Science* (Cambridge University Press, 1958), 70-92.

hypotheses. Since there might always be a *hidden variable* that confounds the test, it will always have the possibility of erring (the weather forecast might not be why *this particular sidewalk* was wet at the time—it could have been caused by someone who was watering nearby plants).

Hence, the uncertain conclusions.

Despite its weakness, abductive hypotheses provide creative starting points for scholars and scientists to advance a field or solve seemingly intractable problems. It adduces hypotheses from past observations, experiences, and principles derived from them (such as analogies and other manipulations of abstractions). Even still, these creative starting points may not be enough to stand the scrutiny of scientists and philosophers. The insight it produces has been critiqued as fallible as intuition, with its reliability bounded by the expertise and experiences of its users. But that is not the end of the matter.

If we take this abductive verificationist approach, what we come away with is this: all propositions, hypotheses, theories, models and explanations are conceptual and imaginative inventions. And before quality filters, they are purely inventions. Conversely, before phenomena are observed, abstracted into data, quality screened, and analyzed and evaluated by a theory, they will remain as irrelevant or untold discoveries.

A problem of dwindling probabilities

On their own, information-rich theories have a lower intrinsic probability than information-poor theories. We see this given the conjunct of two propositions. Imagine that we meet a woman named Linda and are told by some third party that she used to attend women's rights rallies and studied business. This person asks us which proposition is the most probable: that Linda is a bank teller (B) or that Linda is a bank teller and feminist ($B \wedge F$). Because we are given the information about her attending women's rallies, we are rhetorically led to believe that

$(B \wedge F)$ is more probable. However, (B) is actually more probable than $(B \wedge F)$. This non-intuitive conclusion has made many people commit the *conjunction fallacy*.³⁵ This is because she could equally be B (0.5, given the *principle of indifference*) or F (0.5). But to be both $(B \wedge F)$ would be 0.5×0.5 , which equals 0.25.

But why does it seem that the opposite should be the case? The reason is this: the closer we get to reality, the greater the detail, depth, and information we should have. If Linda *is* both a bank teller and a feminist, we should expect that the closer we get to reality, the higher the probability of the theory. Sure, if we are merely dealing with general (or *course-grain*) information, observations, and phenomena, then we should keep our selected theory simple. But once we deal with more specific (or *fine grain*) information, observations, and phenomena, then our theory necessarily becomes more complex. The reason is that the probability of our theory would be lowered if simplicity was the only property of good explanations. If Linda really was both a bank teller and a feminist, the probability of our theory would be lower if we only said (B) . This is because intrinsic probability is, generally speaking, negatively correlated with data accommodation. Indeed, a proposition's intrinsic probability is only high *because* it has fewer data points and variables to account for or accommodate.³⁶

Simplicity has never been the only index of a good theory. This is true even with Occam's Razor. Occam's Razor is a principle that says, in explaining something, we should not multiply entities unnecessarily (or needlessly complicate explanations). For example, if a farmer's calf goes missing, and he's trying to explain what happened, he may suppose that aliens

³⁵ Amos Tversky and Daniel Kahneman, "Judgment under Uncertainty: Heuristics and Biases," *Science* 185, no. 4157 (September 27, 1974): 1124-1131.

³⁶ Edwin T. Jaynes, *Probability Theory: The Logic of Science* (Cambridge University Press, 2003), 87, 149-95, 410-7.

abducted it. But that would needlessly complicate the matter. A more simple and adequate explanation would be that the nearby wolf pack took it. Even more simply, he could say that one wolf took it. Yet, Occam's Razor had two requirements: ontic simplicity (to not multiply entities) and adequacy in accounting for the data (unnecessarily).

The latter requirement has been developed and solidified into what is called *Hickam's Dictum*.³⁷ If the first requirement of Occam's Razor says, "Patients shouldn't have more than one disease at a time," Hickam's Dictum says, "Patients can have as many diseases as they darn well please!" Put more technically, Hickam's Dictum says that theories should adhere to ontic complexity if the data has more complexity. If a person presents with symptoms from multiple diseases, we should not dismiss the symptoms from one disease just to minimize the number of diagnoses. Using qualitative metrics, like Occam's Razor and Hickam's Dictum, to help us select the more likely theory is engaging in a new mode of reasoning—*inference to the best explanation*.

Inference to the Best Explanation

As a branch of abduction, inference to the best explanation (IBE) has brought with it new rigor abduction—expanding on the nature of simplicity, fleshing out the details of the adequacy, and adding more qualitative metrics. In its weak form, IBE is the inferential process of observing some phenomena and concluding that something is the case on the grounds that we are most familiar with it producing such phenomena. In its strong form, the process entitles an agent to

³⁷ John H. Hickam, "The Diaphragm and the Differential Diagnosis," *JAMA* 183, no. 6 (1961): 463-465.

infer the truth of an explanation based on how well it explains evidence better than competing hypotheses.

The qualitative metrics used to determine what constitutes a good explanation have come to be known as *theoretical virtues*. Theoretical virtues are normative properties that confer epistemic justification and explanatory quality, or merit, based on the reliability of past successes. If an explanation exemplifies these virtues better than the rest, you then have the “best” explanation. They have been used to explain the reevaluation of large data sets in the scientific community (called *paradigm shifts*).³⁸ The moves from a geocentric Ptolemaic model to a heliocentric Copernican model (*Copernican Revolution*) and Newtonian gravitation to Einsteinian general relativity (*Einsteinian Revolution*) are two examples of such paradigm shifts.

Each virtue is labeled and categorized by how it contours to some data set in need of explanation. As they developed, they have been called different names. Thomas Kuhn referred to them as *epistemic values* (accuracy, consistency, scope, simplicity, and fruitfulness). Peter Lipton called them criteria of explanatory *loveliness* (contrastive preference, mechanism description, precision, unification, elegance, simplicity).³⁹ C. Behan McCullough referred to them as *conditions* and *criteria* of best explanations (explanatory scope, explanatory power, lack of ad-hocness, plausibility, illumination).⁴⁰ Del Ratzsch called them scientific *desiderata*

³⁸ Thomas Kuhn, *The Structure of Scientific Revolutions* (4th Edition), (University of Chicago Press, 2012), 52-102.

³⁹ Peter Lipton, *Inference to the Best Explanation (International Library of Philosophy)* (2nd Edition), (Routledge: 2004), 142-163.

⁴⁰ Christopher Behan McCullagh, *Justifying Historical Descriptions (Cambridge Studies in Philosophy)*, (Cambridge University Press, 1984), 15-44.

(nesting, success, track record, smoothness, internal consistency, compatibility).⁴¹ J. P. Moreland and William Lane Craig called them *epistemic virtues* (simplicity, clarity, empirical accuracy, predictive success, scope of relevance, fruitfulness in guiding new research, solves internal and external conceptual problems, utilizes appropriate ways of explaining things).⁴² The following list is the most recent systemization of theoretical virtues proposed by Michael Keas (summarized here with less nuance).⁴³

Theoretical Virtues

Evidential

1. *Evidential accuracy*: A theory (T) fits the empirical evidence well (regardless of causal claims).
2. *Causal adequacy*: T's causal factors plausibly produce the effects (evidence) in need of explanation.
3. *Explanatory depth*: T excels in causal history depth or in other depth measures such as the range of counterfactual questions that its law-like generalizations answer regarding the item being explained.

Coherential

4. *Internal consistency*: T's components are not contradictory.
5. *Internal coherence*: T's components are coordinated into an intuitively plausible whole; T lacks ad hoc hypotheses—theoretical components merely tacked on to solve isolated problems.
6. *Universal coherence*: T sits well with (or is not obviously contrary to) other warranted beliefs.

Aesthetic

7. *Beauty*: T evokes aesthetic pleasure in properly functioning and sufficiently informed persons.
8. *Simplicity*: T explains the *same facts* as rivals, but with *less* theoretical content.
9. *Unification*: T explains *more kinds of facts* than rivals with the *same* amount of theoretical content.

Diachronic

10. *Durability*: T has survived testing by successful prediction or plausible accommodation of new data.
11. *Fruitfulness*: T has generated additional discovery by means such as successful novel prediction, unification, and non ad hoc theoretical elaboration.

⁴¹ Delvin Ratzsch, *Science & Its Limits: The Natural Sciences in Christian Perspective (Contours of Christian Philosophy)*, (IVP Academic, 2009), 73-91.

⁴² James Porter Moreland and William Lane Craig, *Philosophical Foundations for a Christian Worldview* (2nd Edition), (InterVarsity Press, 2017), 335-409, Kindle.

⁴³ Michael Keas, "Systematizing Theoretical Virtues," *Synthese* 195 (2018): 2761–2793.

12. *Applicability*: T has guided strategic action or control, such as in science-based technology.

Excursus on scientific realism

In the philosophy of science, IBE has been used to argue for *scientific realism*—the view that theoretical entities, even *unobservable entities*, asserted in science are real and exist independent of the mind. Such a view usually conjoins some *causal model of explanation* where entities are causally responsible for observable phenomena. Abductive hypotheses that successfully confirm *novel predictions* are said to give credence to the realist view (since theories seem to attach to hitherto unknown reality).

The alternative to the causal model is a *covering law model of explanation* which views explanations as generalized descriptions of happenings. Deductive-nomological and inductive-statistical (among others) have been developed. They are formalized, respectively, as follows:

$$\begin{array}{l}
 \forall x(Fx \rightarrow Gx) \\
 Fa \\
 \hline
 Ga \\
 \text{and} \\
 Fa \\
 \text{prob}(G/F) = r, \\
 \hline
 \hline [r] \\
 Ga
 \end{array}$$

where $r = 1 - \epsilon$ (arbitrarily close to 1) and the double lines indicate an inductive argument.⁴⁴ As an example, we can say,

All (or almost all) parrots can talk. Polly is a parrot. Therefore, Polly can talk.

⁴⁴ Stathis Psillos, "Inductive-statistical Model of Explanation," *Philosophy of Science A-Z* (Edinburgh University Press), 2007.

Although descriptively rigorous, in practice, covering law models start with the explicandum as the conclusion, then works back to the explicans and the generalized law. Such operations merely push back the question of why any x's have F and why G on F is highly probable to start.

The more serious problem that arises, however, is the hesitancy to assert causal relations. If data only correlates with one another, we are missing an important aspect of the explanation: the normative judgment. It seems obvious that we can make value judgments, descriptive statements, and entangled locutions which are a mix of both (c.f. the fact/value distinction and is-ought gap).

Value judgments can be thin--normative and minimally descriptive (Jane is a good person [in the moral sense])—and thick—normative and maximally descriptive (Jane is honest and honesty is good). Descriptive statements can be normative yet nonmoral (Jane is honest, and honesty is conducive to civil society [this might be moral, and it might not]) and non-normative and nonmoral (Jane has two legs).

Can it be that explanation is merely descriptive? That is possibly the case, but it is also impractical in the technical sense. As with medical diagnosis, covering law models of explanation would fail to distinguish between diagnoses that genuinely explain, rather than merely correlate, patient data. It views explanation as descriptive rather than causal and does not claim causal relations between events and agents.⁴⁵ Moreover, as persons, we are motivated to seek truth because it seems to have some final, if not intrinsic, value. However, this might say something more about our psyches and their disposition towards a good life, and not merely truth.

⁴⁵ Nancy Cartwright, *How the Laws of Physics Lie* (Oxford University Press, 1983), 49; Wesley C. Salmon, *Four Decades of Scientific Explanation* (University of Minnesota Press, 1989).

If causal models of scientific realism are correct, then events, agents, and anything else that stands in causal relations seems to be the most concrete things. The more data we have to show that an effect was produced by a cause (based on continuity) or effects seem to depend on causes (based on discontinuity), the greater confidence we have to believe those entities are real. If covering law (scientific realism) anti-realism is true, there is much less reason to expect anything to be discoverable rather than merely invented. IBE, and thus abduction, is required to make the former case (scientific realism).

The utility of theoretical virtues

If theoretical virtues are at least truth-indicating, they are valuable as a means that is normative in leading to epistemic ends (useful in the sub-discipline of *epistemic axiology*). To take a firmer tone, if scientific realism is true, these virtues determine how good an explanation is and are instrumental in approximating truth. The problem arises, however, as to how one should rank or measure theoretical virtues.⁴⁶ Without some hierarchy, all we are left with is some subjectivistic selection process.

In response, one might order them by thickness, moving from the thinnest to the thickest virtues when selecting some grand theory and moving from thickest to thinnest when conducting an experiment. The thinnest virtues minimize descriptive content (more abstract and generalized), and the thickest virtues maximize descriptive content (more precise and specified). Thus, a theory will contour to the data starting with the most generalized elements and move to the more precise elements. An analogy here may be one of woodworking: starting with a saw,

⁴⁶ Guy Axtell, "Bridging a Fault Line: On underdetermination and the ampliative adequacy of competing theories," in Abrol Fairweather, ed., *Virtue Epistemology Naturalized* (Synthese Library, 2014), 227-245.

moving to a whittling knife, all the way to a 1000 grit sandpaper and polishing liquid. Internal consistency, here, is so thin that it is an abstract logical saw, cutting away an infinite number of contradictory hypotheses. Applicability, here, is so thick that it is concrete: transtheoretical or metalinguistic (transcending words into reality).

Whatever the hierarchical structure, a more significant problem arises if we avoid using theoretical virtues: the *underdetermination of theories by data*.⁴⁷ So long as data is explicable by a theory, that data then becomes evidence, and the theory becomes a valid explanation. However, as long as a theory (T) explains the data, it can tack on extra propositions or hypotheses ($h_{1...n}$), so long as it makes moves to keep them consistent. There can never be a single *crucial experiment*—an experiment that decides between two rival theories given a significant fact. Since we can always add one more proposition, the implication is that data can be suited to an infinite number of equally valid explanations ($T+h_1 + h_2 \dots h_\infty$).

If one theory should be preferred at all over any other, we are making a normative claim. Because any hypothesis testing requires comparing competing theories (such as the null hypothesis or control group), it seems that normative judgments are part and parcel of explanations (we may call the *value-ladenness of explanation*). Any preference of theory smuggles some unstated criteria of theory choice (or theory selection). In statistical model fitting, we use the Bayesian information criterion (BIC), Akaike information criterion (AIC), and minimum descriptive length (MDL) to pick out curves that fit closely to data points yet avoid unnecessary complexity generated by random noise.⁴⁸ Even within these, there is implicit, if not

⁴⁷ Willard Van Orman Quine, *Word and Object*, (MIT Press, 1960), 23-71.

⁴⁸ K. P. Burnham and D. R. Anderson, "Multimodel Inference: Understanding AIC and BIC in Model Selection," *Sociological Methods & Research* 33, no. 2 (2004): 261-304.

explicit, import of theoretical virtues (e.g., consilience and syntactic simplicity—compressing informational to minimize entropy) in parameter selection.

Significant criticisms

Critics have pointed out that even if we have the best explanation, it does not mean it is a highly probable explanation.⁴⁹ The best explanation could only yield a subjective probability of 0.3, even if competing theories yield a 0.2. Like the hidden variable problem, we may always have a hidden hypothesis inaccessible to us. Are the best explanations of bad-yet-live options worthy of our time?

The consequence of this demonstrates abduction's reliance on data. The upper bound of an abductive hypothesis (*explicans* or *explanans*) is still set by the quality of data it seeks to explain (the *explicandum* or *explanandum*). It may be that one has the best explanation of low-quality data or that one has the worst explanation of high-quality data. Moreover, this is merely dealing with subjective probabilities. Objective probability would require establishing some hierarchy of sciences (more on this in the next section).

Another issue that analytic philosophers have had with abduction is its reducibility to inductive and deductive elements.⁵⁰ It seems to use the inductive tools of enumeration, prediction, retrodiction, analogy, and elimination. Moreover, it necessarily uses innumerable deductive predications, copulas, operators, argument forms, rules of inference, and their derivations. On these views, abduction's only contribution (or confusion) is that it captures the psychological prioritization of expectation and helps to articulate the scientific method in more

⁴⁹ Bas C. Van Fraassen, Bas, *Laws and Symmetry* (Oxford University Press, 1989), 135-46.

⁵⁰ Ibid., Harman.

philosophically rigorous verbiage. To that we say, “Fine with us!” We actually resonate with such a view.

At worst, abduction is pragmatic: economical and subjective. If such is the case, it can be used as a linguistic and epistemic heuristic for theory selection to weed out highly unlikely theories (or *dead options*), leaving a pool of *live options* that are generally agreed upon. In this way, abduction saves scholars valuable resources, such as time and money. Though not inherently quantitative, they may also be useful in determining some subjective prior in Bayesian inference once a theory is chosen, thus mitigating the *problem of priors*. On the subjective level, abduction may serve the cognitive function of safeguarding our noetic structure when introducing new potential explanations. As stated above, experts already perform all these operations. However, articulating them may provide much-needed clarity in navigating complex and urgent decisions.

Because all disciplines use theory, whether more scientific or philosophical, its operations are portable and highly transferable. Moreover, given the *theory-ladenness of observation*—the problem that we cannot but help smuggling in concepts in describing things, since we rely on language that is largely assumed—abduction is useful in clarifying any observation, from armchair reflections on thought experiments to highly controlled lab experiments.⁵¹

⁵¹ This is especially a problem in observing and interpreting, say, historical events. The difference between data and theory is whether the thing being observed is discovered—a remnant product of the world—or invented—a remnant product of the mind. Even with products of the world, our mind imposes itself on the thing being observed when creating a theory.

In what follows, we have chosen to hone in on evidential virtues. We chose these virtues because of their uniquely close relationship with phenomenological matters. If it is the case that (a) phenomena are the way reality is represented to us, (b) data are the abstracted descriptions of those phenomena, (c) evidence is the data explained by some theory, then it is the case that evidence-driven theory-selection seems to fit hand-in-glove. Although these are not the only virtues that should be preferred, they are the ones that should be most preferred. These, again, are evidential accuracy, causal adequacy, and explanatory depth. Without such virtues, one is merely opining out of ignorance, deceiving out of negligence, or outright lying—as it is clear they are not interested in getting any closer to reality.⁵² We start with evidential accuracy.

Evidential accuracy

Evidential accuracy is the descriptive account of, or adherence to, empirical observations either in the future (*prediction*), from the past (*postdiction* or *retrodiction*), or in the present (*contemporaneous observation*). In this respect, good theories exemplify two things: *goodness-of-fit* and *anomaly detection*. The former ensures that relevant evidence is included, and the latter ensures that irrelevant data are excluded (post data screening, adduction, and collection).⁵³

⁵² Harry Frankfurt would prefer a stronger term.

⁵³ Implied between these two categories are principles that guide data quality prioritization in theory-selection, when articulated. This is because some judgments need to be made to determine what data meets the quality threshold and what is counted as significantly adverse outlier data. These moves are made more explicit, even if unarticulated, in *data importance weighting* and *statistical estimation*, focusing mostly on the representativeness of samples, imputation of external information, and muting bias and variance.

In frequentist statistics, there are several factors that determine goodness-of-fit: *observed and expected frequencies, the null hypothesis, degrees of freedom, residuals, and chi-square*. In goodness-of-fit tests, observed data points are categorized and compared to expected frequencies based on a null hypothesis. The chi-square statistic quantifies this discrepancy, which is also represented by residuals. Degrees of freedom, determined by the number of categories, shape the test's chi-square distribution. A small p-value, derived from the chi-square statistic, indicates a significant difference between observed and expected frequencies, leading to rejection of the null hypothesis.

From a subjective Bayesian perspective, assessing the quality of a model given observed data involves a process that integrates initial beliefs, the observed data, and probabilistic reasoning.⁵⁴ We assess the quality or goodness-of-fit of the model by comparing predictions generated from the model to the observed data. These predictions are made based on the posterior distribution and are represented by the predictive distribution. Major discrepancy between the observed data and the predictions from the model, as manifested in predictive checks, implies model deficiency while minor discrepancies suggest goodness-of-fit—accurately representing the underlying structure of the data.

Finally, goodness-of-fit in Bayesian parameter estimation requires that parameters (θ) are inferred based on observed data (D) and prior beliefs about θ , represented by a prior distribution.⁵⁵ The posterior distribution $p(\theta | D)$ quantifies the updated belief about θ , given the data. This distribution is a function of the likelihood of the data given θ ($p(D | \theta)$) and the prior

⁵⁴ Andrew Gelman, John B. Carlin, Hal S. Stern, and David B. Dunson, *Bayesian Data Analysis (Texts in Statistical Science)* (3rd edition), (Chapman & Hall/CRC, 2013), 63-79.

⁵⁵ This perspective encompasses a continuous process of belief updating based on new data. The outcome of this process is represented as a range of plausible parameter values, given the data and initial beliefs, in the form of a posterior distribution or a set of credible intervals.

distribution $p(\theta)$. The degree of belief in different values of θ is shaped by the observed data, represented in the likelihood function, as well as prior beliefs. In a hierarchical model, this can also involve hyperparameters ϕ , representing higher-level groupings or categories.

Similarly, there are several terms relevant to anomaly detection: *normal behavior modeling*, *anomaly score*, *threshold selection*, *anomaly types*, and *algorithms*. In anomaly detection, normal behavior modeling defines the typical patterns in data.⁵⁶ An anomaly score is assigned to each data point based on how much it deviates from this normal pattern. Threshold selection sets a cut-off for these scores, above which points are deemed anomalies. Anomaly types categorize the various ways data can deviate from normal (as points, contexts, and collections). These elements are synthesized by anomaly detection algorithms which automate the process, identifying anomalous data for further investigation. This process is usually associated with frequentist statistics, but can be used on research where thresholds are determined by subjectively choosing some quality that can be compared against for consistency.

Causal adequacy

In theories, causal adequacy is the inclusion of some token concreta (such as an event, agent, robust property, or system node) with the power to initiate a causal process—the persistence of quality or characteristic sustained over space and time that constitutes a mechanism and transmits a mark on reality via some local interaction. Causation, here, can be described in terms of *dependence* or *production*, and characterized as a *necessary*, *sufficient*, or *contributory* for some effect.

⁵⁶ Chandola, Varun, Arindam Banerjee, and Vipin Kumar, "Anomaly Detection: A Survey," *ACM Computing Surveys (CSUR)* 41, no. 3 (2009): 1-58.

The elements of causal production together form an interconnected framework to understand how causes produce effects. The causal mechanism gives insight into the sequence of events or the system through which a cause brings about an effect.⁵⁷ This is underpinned by the concept of causal powers, which relates to the inherent abilities of entities to exert influence or instigate change. These powers manifest through causal processes, which are the connected series of events leading from the cause to the effect.⁵⁸ Causal Interaction adds another layer, highlighting the mutual influences between multiple entities or events, showing how they work together in the production of effects. Finally, causal complexity acknowledges the reality that causal production often involves intricate networks of interacting causes, rather than a simple one-to-one causation, allowing for a deeper understanding of complex systems and multifaceted causes.⁵⁹

Causal dependence's elements interrelate to provide a comprehensive view of causality. Causality forms the foundation, establishing that one event (cause) can lead to another (effect).⁶⁰ This relationship is deepened by counterfactual dependence, suggesting that without the cause, the effect would not occur. Probabilistic dependence brings in an element of uncertainty, showing how a cause changes the probability of an effect.⁶¹ Temporal precedence introduces

⁵⁷ Stuart Glennan and Phyllis Illari, "Introduction: mechanisms and mechanical properties," *The Routledge Handbook of Mechanisms and Mechanical Philosophy*, Stuart Glennan and Phyllis Illari, ed., (New York, NY: Routledge, 2018), 1-10.

⁵⁸ Stephen Mumford and Rani Lill Anjum, *Getting Causes from Powers* (New York, NY: Oxford University Press, 2011), 1-19. Phil Dowe, *Physical Causation* (Cambridge: Cambridge University Press), 2000. 89-122.

⁵⁹ Sandra D. Mitchell, *Unsimple Truths: Science, Complexity, and Policy* (Chicago, IL: University of Chicago Press, 2009), 1-19.

⁶⁰ Judea Pearl, *Causality: Models, Reasoning, and Inference* (2nd edition), (Cambridge University Press, 2009), 316-327.

⁶¹ *Ibid.*, 283-307.

chronology, ensuring causes precede effects, while context sensitivity adds dynamism, acknowledging that causal relationships can vary depending on different circumstances.⁶² These elements, together, enrich our understanding of how causes and effects are interdependent.

Describing causation in terms of dependence allows for a flexible approach, accommodating complex causal networks, but can struggle with cases of overdetermination, probabilistic causation, and counterfactual ambiguity. On the other hand, production-based causation provides a detailed mechanistic account of how causes lead to effects, which can be useful, especially in the natural sciences.⁶³ However, it may struggle with complex systems, 'action at a distance' scenarios, or cases where mechanisms are not easily identifiable or observable. In many instances, a combination of both conceptions is used to provide a comprehensive understanding of causality.

Though causation is described in terms of dependence and production, it is manifested in terms of necessity, sufficiency, and contribution. A *necessary cause* is a condition that must exist for an effect to occur, but it may not independently trigger the effect.⁶⁴ A *sufficient cause*, however, can independently trigger the effect, ensuring its occurrence.⁶⁵ A *contributory cause* does not independently cause the effect but increases its likelihood when present with other causes. These concepts interconnect in complex scenarios where an effect is the result of multiple causes. For example, in a disease, certain genetic factors (necessary causes) must be present, exposure to a pathogen (sufficient cause) may independently trigger the disease, while

⁶² Ibid., 249-256.

⁶³ Wesley C. Salmon, *Causality and Explanation* (New York, NY: Oxford University Press, 1998), 295-98.

⁶⁴ John L. Mackie, *The Cement of the Universe* (New York, NY: Oxford University Press, 1980), 29-58.

⁶⁵ Ibid.

lifestyle factors (contributory causes) may increase its likelihood. Understanding their interrelation enables us to understand causation in action.

Since the time of Aristotle, there have been four categories of metaphysical causes—material, formal, efficient, and final. In contemporary metaphysics, these have been thought of as useful groupings, whether viewed as fictional, metaphorical, or real.⁶⁶ For this reason, we will list them here. The *material cause* refers to the matter, material, substance (singular or plural) that composes a thing. The formal cause refers to the ideal structure, pattern, or design that gives a thing its form. The *efficient cause* refers to the agent or mechanism (event or person) that brings about the change or result. The *final cause* refers to the reason, purpose, or end goal for which the essence of a thing is naturally aimed toward.

Explanatory depth

Explanatory depth refers to the degree an explanation penetrates the layers of causation and understanding. It is a qualitative aspect of an explanation, emphasizing the richness and complexity of underlying mechanisms, causes, and context. Explanatory depth has related to the intricacy of inner workings or causes of a phenomenon, delineation of causal relations, uncovering mechanisms and causal processes, and how well an explanation outlines the nested structure of mechanisms producing a phenomenon. Thus, explanatory depth provides a detailed, more comprehensive understanding of studied phenomena, distinct from their mere fundamental physical structure.⁶⁷

⁶⁶ Bryan C. Reece, "Aristotle's Four Causes of Action," *Australasian Journal of Philosophy* 97, no. 2 (2019): 213-227.

⁶⁷ Brad Weslake, "Explanatory Depth," *Philosophy of Science* 77, no. 2 (April 2010): 273-294.

The *event-event* view of explanatory depth suggests that an explanation's depth is reflected in the complexity of its causal history, which could appear as a linear sequence, a branching tree, or an interconnected web. It extends on existing theories of causation, underlining the interconnectedness and continuity of events over time and space, and highlighting the importance of context in shaping these causal links.⁶⁸ The *law-like* view of explanatory depth posits that an explanation's depth lies in its invariance or resistance to change amidst various interventions.⁶⁹ Deeper explanations maintain their robustness and consistency under numerous conditions. They encompass mutual manipulability between phenomena, the application of high-level invariant laws, and asymptotic invariance that emerges in limiting the degrees of freedom in systems.⁷⁰ Essentially, the depth of an explanation under this view is gauged by its enduring stability under a wide range of scenarios.

⁶⁸ Wesley Salmon, *Scientific Explanation and the Causal Structure of the World* (Princeton, NJ: Princeton University Press, 1984), 152; Peter Menzies, "Difference-making in Context," *Causation and Counterfactuals*, ed. John Collins, Ned Hall, and L.A. Paul, 139-180 (Cambridge, MA: MIT Press, 2004), 139-180.

⁶⁹ James Woodward. *Making Things Happen: A Theory of Causal Explanation* (Oxford Studies in Philosophy of Science), (New York, NY: Oxford University Press, 2005), 239-314; Christopher Hitchcock and James Woodward, "Explanatory Generalizations, Part II: Plumbing Explanatory Depth," *Noûs* 37, no. 2 (2003): 181-199.

⁷⁰ Carl Craver, *Explaining the Brain: Mechanisms and the Mosaic Unity of Neuroscience* (New York, NY: Oxford University Press, 2007), 63-106; Robert Batterman, *The Devil in the Details: Asymptotic Reasoning in Explanation, Reduction, and Emergence* (New York, NY: Oxford University Press, 2002), 37-60.

Data Quality Testing Methods

Where there is an explanation (explicans), there is the thing to be explained (explicandum). When that thing is not explained, it is data. When that thing is explained, it is evidence. But not all data or evidence is created equal. Some are higher-quality, and some are lower-quality. Instead of referring to a continuous spectrum of quality that different sciences and disciplines are in, we often label them with discrete categories of science and pseudoscience.

The demarcation problem in the philosophy of science asks, “What is the difference between science and pseudoscience?” The question is a perennial issue, not because people are unwilling to call things scientific, but because people are unwilling to bite the bullet and deem everything else as unscientific. For example, most can agree that the hard sciences (physics, chemistry) are legitimate. But if their methods are the only ones counted as legitimate, we necessarily exclude biology, psychology, sociology, history, etc. Karl Popper famously attempted to answer the problem by saying using the *falsification criterion* as the guiding principle—if it is not falsifiable, then it is not scientific.⁷¹ Yet, the logical corollary, as was discovered, is that we cannot determine what hypotheses are true—we can only determine, indefinitely, what hypotheses are false. (This view even excluded positive conclusions physics and chemistry as valid!) There have been a number of positive criteria proposed since then, all with as many proponents as critics.

⁷¹ Karl Popper, *The Logic of Scientific Discovery (Routledge Classics)*, (New York, NY: Routledge, 2002), 57-73.

Yet, there are some hallmarks of pseudoscience that are salient. Though some of these hallmarks seem obvious, it is often hard to articulate while in a state of disbelief and bemusement, especially while attempting to maintain mutual respect. Moreover, some of the same methodological critiques leveled against said pseudoscience can equally be cast at other legitimate fields. Think about parapsychology, astrology, homeopathy, cryptozoology, ghost hunting, witchcraft, xenoarchaeology, cults, chemtrails, flat earth theory, and the like. One may point to their lack of empirical evidence, non-repeatability, anecdotal evidence, lack of predictive power, ambiguity, non-measurability, and so on.⁷² But areas of theoretical physics and psychology often lack empirical evidence. Most events in history are non-repeatable and make use of anecdotal evidence. Economics often lacks sufficient predictive power.

This does not mean that theoretical physics, psychology, history, and economics are pseudoscience. Nor does it mean that pseudoscientific topics are legitimate. It does mean that methodological critiques need to be both generalizable to all disciplines and nuanced. This means taking discrete categories, such as “science and facts” and “pseudoscientific and opinions,” and putting them on a continuous spectrum— “more scientific and factual” and “more of a pseudoscientific and opinionated”—with designated benchmarks. Now, it is beyond the scope of this work to take on such a monumental task. Other works have proposed comparative models used to assess data quality. However, there are some useful categories that we can use that are both significant and salient.

Again, we must separate between theory and data. On the theory side, we can point to the theoretical virtues mentioned above and their converse theoretical vices. We can think of flat

⁷² Carl Sagan, *The Demon-Haunted World: Science as a Candle in the Dark* (New York, NY: Random House, 1996), 41-96, 401-20.

earth theory, for example, as empirically unfitting when it comes to explaining space exploration or ad hoc and needlessly complex when it appeals to the mass conspiracy within NASA and airlines to keep it a secret.

Theoretically Virtuous	Theoretically Vicious
Evidential Accurate	Empirically Unfitting
Causal Adequate	Causally Effete
Explanatorily Deep	Haphazard And Myopic
Internally Consistent	Internally Inconsistent
Internally Coherent	Internally Incoherent
Universally Coherent	Universally Incoherent
Beautiful	Uncomely or Grotesque
Simple	Ad Hoc or Needlessly Complex
Unifying	Pigeon-Holed or Siloed
Durable	Flimsy or Short-Lived
Fruitful	Unfruitful or Unproductive
Applicable	Impractical or Unactionable

On the data side, we may point to high-grade and low-grade data quality. In the flat earth example, we can point to its indirectness of observation—pointing only to indirect and confounded observation (pointing only to select testimonies) when controlled and measured modes of direct observation are readily available.

High-grade	Low-grade
Concrete Data	Abstract Data
Full Signal	Noisy Signal
Direct Observation	Indirect Observation
Fine Granularity	Coarse Granularity
Controlled Measures	Confounded

Concreteness and abstractness

Concreteness and abstractness are terms often used in philosophy to describe the nature of entities, concepts, or data. Concreteness often refers to things that exist with causal powers—able to produce effects in the physical world—and can be empirically observed or measured, whereas abstractness refers to concepts, imaginings, ideas, or constructs—which themselves are

causally effete without their relation to some concrete entity—that are inferred conceptually from the experiences of phenomena.⁷³ Concreteness implies a direct or causal relationship to observable phenomena, reflecting the actual happenings in the world and giving direct causal links to the phenomena they represent. The mechanism traditionally involves some causal event, agent, or object transmitting a physical mark via some local interaction.⁷⁴ If we accept the premise that concreteness implies causal activity, and that causation provides us with epistemic access to reality, then it follows that concrete data—being causally linked to the phenomena they represent—should provide us with a more accurate and reliable reflection of reality than abstract data.⁷⁵

Signal-to-noise ratio

Signals refer to the phenomena that presents as accessible stimuli to be detected. Noise refers to the obstructive barriers that make the signal opaque, distorted, or entangled with other irrelevant signals. (We can refer to the latter, as we like to, as cacophonous signals.) Signal-to-noise ratio (SNR), broadly refers to how much some data of interest is available to be detected in relation to how much it is blocked or muddled.⁷⁶ More narrowly SNR relates to the integrity, reliability, and stability of information taken together with interferences that obstruct the

⁷³ David K. Lewis, *On the Plurality of Worlds* (Revised edition), (Oxford, UK: Wiley-Blackwell, 2001), 69-85.

⁷⁴ Alastair Wilson, "Metaphysical Causation," *Noûs* 52, no. 4 (2018): 723-751.

⁷⁵ A natural consequence of this is that it generally prioritizes a posteriori evidentialist method and deprioritizes a priori reliabilist methods.

⁷⁶ Nate Silver, *The Signal and the Noise: Why So Many Predictions Fail—but Some Don't* (Penguin, 2012), 142-175, 370-411.

underlying phenomena (such as the upper bounds of communication channel capacity) in information science.⁷⁷ Here, SNR has a profound impact on data fidelity.

Directness of observation

The directness of observation refers to how distant a conclusion is from its data. We can distinguish between direct observations and indirect observations. Direct observations have primary endpoints—points at which a process of measurement of an outcome is cutoff, whether or not it met some objective—while indirect observations have proxy variables and surrogate endpoints (stand-ins for primaries), secondary endpoints (for additional related effects), tertiary endpoints, composite, and so on.⁷⁸ There can be an infinite number of graduating steps on a spectrum of logical and statistical inferences moving away from the empirical data to the conclusion. But the farther you move away from the empirical data, the more speculative and circumstantial the conclusion. For example, in the GRADE method of evidence quality rating, indirectness is a metric for down rating.⁷⁹ Relatedly, mediating variables explain the mechanisms through which an independent variable influences a dependent variable, shedding light on the underlying processes (such as endorphins mediating exercise and mental health).⁸⁰ Proximal mediators represent the immediate pathways directly affecting the outcome, while distal

⁷⁷ Claude E. Shannon and Warren Weaver, *The Mathematical Theory of Communication* (Urbana: University of Illinois Press), 1998, 30-62.

⁷⁸ Timothy L. Lash, Kenneth J. Rothman, Sander Greenland, *Modern Epidemiology* (Wolters Kluwer Health/Lippincott Williams & Wilkins: 2021), 811-983.

⁷⁹ Gordon H. Guyatt et al., "GRADE guidelines: 8. Rating the quality of evidence—indirectness," *Journal of Clinical Epidemiology* 64, no. 12 (2011): 1303-10. See also: Guyatt, Gordon, et al. "GRADE: An Emerging Consensus on Rating Quality of Evidence and Strength of Recommendations." *British Medical Journal* (2008).

⁸⁰ Reuben M. Baron, and David A. Kenny, "The Moderator–Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations." *Journal of Personality and Social Psychology* 51, no. 6 (1986): 1173-1182.

mediators indicate more remote influences, working indirectly through other variables in the causal chain.

We can also see this reasoning applied in computer science with the use of black box and glass box testing.⁸¹ In black box tests, the observer can only see the inputs and outputs of the box while in glass box tests, the observer can see the internal structure and workings of the box. However, the former is sometimes used to observe expectations of the system, unintended consequences, and more. In these situations, black boxes are useful confounders can be controlled (compared with noise which—on our broad definition—cannot be).

Fine and coarse granularity

Granularity is closely related to concreteness and abstraction, with the connecting point being the level of precision available. Granularity is often used in the context of data visualization and analytics but has broader applicability. Concrete data is likely to be more informationally rich—dealing with numerous propositional elements and parameters subsumed within a large number of data and data sets—giving more opportunity to abstract precise specifics from.⁸² However, we can also precisely define and nuance terms in logic that are very generalized and detached from physical reality. Such is the case with pure mathematics, type theory, and higher-order logic, etc. Thus, granularity (as it relates to data quality representative of the world) requires a prior commitment to concreteness. The biggest reason to prefer a finer rather than coarser granularity is that fine-grained data can often be aggregated to a coarser level

⁸¹ Glenford J. Myers, Corey Sandler, and Tom Badgett, *The Art of Software Testing* (3rd edition) (John Wiley & Sons, 2011), 8-82.

⁸² Carlo Batini and Monica Scannapieco, *Data quality: Concepts, methodologies and techniques* (Berlin/New York: Springer, 2006), 25, 40, 67, 143-56, 179-82, 222.

if needed, but the reverse is not true, making fine-grained data generally more versatile and valuable.⁸³

Measure and control

Measure and control have been called the “muscle and bone” of data quality.⁸⁴ In an ideal world, theories in all clinical hypotheses, for example, could be tested via randomized controlled trials.⁸⁵ Specified interventions would be repeated at a whim. Regression discontinuities would be recorded by precise instruments.⁸⁶ Groups would be longitudinal, randomized, and placebo controlled. Experimenters would be triple-blind, and meta-analyses would be reevaluated regularly. However, we do not live in an ideal world and not all studies are clinical. Different disciplines use a host of observational methods appropriate for their field of study, and all tests have economic limitations.

Measures allow us to graph a trend of effects. Controls (such as laboratory settings) allow us to screen off correlative trend lines that confound our search for the true cause that produces the effects.⁸⁷ Because effects are dependent on their causes, the more we can screen off competing correlations, the more likely we are able to find the true cause. As Christopher R.

⁸³ Hadley Wickham and Garrett Golemund, *R for Data Science: Import, Tidy, Transform, Visualize, and Model Data* (Sebastopol: CA: O'Reilly Media, Inc., 2016), np.

⁸⁴ Frank M. Guess, Thomas C. Redman, and Mahender P. Singh, "Data Quality," *Encyclopedia of Medical Decision Making*, ed. Michael W. Kattan (Los Angeles, CA: Sage Publications, 2009), np.

⁸⁵ Lawrence M. Friedman, Curt D. Furberg, and David L. DeMets. *Fundamentals of Clinical Trials*. Springer, 2010. 199-214.

⁸⁶ David L. Streiner, “Regression Discontinuity,” *Encyclopedia of Research Design*, ed. Neil J. Salkind vol. 3, 1234-1235 (Los Angeles, CA: Sage Publications, 2010), 1234-1235.

⁸⁷ Charles M. Judd, Gary H. McClelland, and Carey S. Ryan. *Data Analysis: A Model Comparison Approach to Regression, ANOVA, and Beyond*. 3rd ed. (New York, NY: Routledge), 2017. 135-167.

Hitchcock puts it, “The most reliable causal knowledge comes not from passive observations, but from controlled experimentation.”⁸⁸

The data with the most measures and controls are of the highest quality. The closer we get to specifying a cause—through statistical significance (low α) and statistical power (low β)—the higher our data quality. Instruments that are calibrated to be highly situated and sensitive to detect certain phenomenon being detected but highly insensitive to closely related yet confounding phenomena. In short, the goal is to establish a link between some set of effects and their cause. The more we can control biases, assumptions, contrived responses, and extraneous variables, the closer we can get to see that causal link beneath the veil of confounding factors. And the more precise the measurements, the lower the margin of error. There may always be some unknown third variable that confounds the causal relationship. However, the best data is data that screens off as many known variables as possible.

Hierarchy of Sciences

In the past, various scholars analyzed and critiqued the hierarchical view of sciences, presenting diverse perspectives on the organization and interconnectedness of scientific disciplines. Auguste Comte’s work, *Cours de Philosophie Positive*, is the foundational text on the hierarchy of sciences, arguing that sciences develop over time in a specific order: mathematics, astronomy, physics, chemistry, biology, and sociology. This order is based on increasing complexity and decreasing generality.⁸⁹ In it, he argued that branches of knowledge

⁸⁸ Christopher R. Hitchcock, “Causation: Philosophy of Science,” *Encyclopedia of Philosophy (Volume 2)*, Donald M. Borchert, ed., (Farmington Hills, MI: Gale, Cengage Learning, 2006), 103-109.

⁸⁹ Auguste Comte, “Cours de Philosophie Positive vol. 1,” *The Gutenberg Project*. Ebook-No. 31881.

pass through three maturational stages: theological (fictional), then metaphysical (abstract), then positive (scientific).⁹⁰ However, Comte's view was critiqued for its inflexible structure and inadequate representation of interdisciplinary overlaps. Subsequently, theories gravitated towards the potential unification of sciences under a single encompassing theory, although these were critiqued for potentially oversimplifying the nuanced complexities of diverse fields.

Diverging from this, some perspectives accentuated the prominence of 'special sciences,' which could not be condensed to physics, fostering a discourse that embraced multiple realizabilities and challenged reductionist views.⁹¹ Further, discussions oscillated between favoring a unified structure based on the generality of sciences and advocating for a pluralistic approach that acknowledged the heterogeneous and localized aspects of scientific fields. As the discourse evolved, a multi-level, piecewise approximation view of sciences emerged, alongside concepts emphasizing ontic structural realism and 'naturalized metaphysics,' reshaping the perception of inter-disciplinary relationships yet necessitating further elaboration. Eventually, a shift was noted towards abandoning simplistic hierarchical views, emphasizing integrative sciences and introducing notions of evolving and informational hierarchies to encapsulate the varying complexities across disciplines from physics to sociology.

Indications of a hierarchy

Complexity and generality. There is an observable hierarchy in terms of complexity and generality, with physics being more general and less complex and social sciences being more

⁹⁰ In this sense, we can either broaden out his ranking to first include theology before mathematics, or we can remove mathematics and physics. Extending this thinking further, sociology might just be a predecessor to neurology (though this is all speculation).

⁹¹ Jerry Fodor, *In Critical Condition : Polemical Essays on Cognitive Science and the Philosophy of Mind*, (Cambridge, Mass: A Bradford Book, 1998), 3-5, 9-22, 173, 185-186.

complex and less general. Some argue that the complexity of sciences can be organized hierarchically based on the levels of informational processing they study, from physics to sociology.⁹²

Predictive success. More fundamental sciences like physics have had more predictive success, which is often seen as a sign of their epistemic superiority.⁹³ In many interdisciplinary research endeavors, 'hard' sciences often have more epistemic authority, shaping how research questions are framed and what methods are considered valid.⁹⁴

Levels of organization. The concept of emergence, in which new properties arise at higher levels of organization, supports the idea of a hierarchy of sciences, with each level corresponding to a particular scientific discipline.⁹⁵ Laws in physics are considered universal and apply regardless of context, while laws in sciences like biology or psychology tend to be more context-dependent, suggesting a hierarchy.

Consilience. The principle of consilience, where evidence from independent, unrelated sources can converge to strong conclusions, supports a hierarchical understanding of the sciences. Higher level sciences often rely on the predictions and models of lower-level sciences.⁹⁶ The digital revolution and emergence of convergent fields demonstrate a blurring of traditional disciplinary boundaries, indicating a shifting hierarchy.

⁹² César A. Hidalgo, *Why information grows : the evolution of order, from atoms to economies* (New York, NY: Basic Books, 2015), 18-24, 175-183

⁹³ Roger White, "The Economic Advantage of Prediction over Accommodation," *Mind* 112, no. 448 (2003): 653-683.

⁹⁴ Thomas F. Gieryn, "Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists," *American Sociological Review* vol. 48, no. 6 (1983): 781-795.

⁹⁵ Jaegwon Kim, "Making Sense of Emergence," *Philosophical Studies* vol. 95, no. 1 (1999): 3-36.

⁹⁶ Edward O. Wilson, *Consilience: The Unity of Knowledge* (New York: NY: Vintage Books), 1998, 3-8.

Disciplinary maturation. Disciplines tend to mature from more descriptive and qualitative stages to more quantitative and mathematical stages.⁹⁷ Those in the latter stages, such as physics and chemistry, are often seen as more 'advanced' or 'higher' in the hierarchy. The historical development of sciences demonstrates a certain hierarchical trend, with sciences like mathematics and physics appearing first and becoming foundational for subsequent sciences like chemistry and biology.

Methodological differences. Harder sciences, such as physics and chemistry, are typically characterized by their heavy reliance on stringent quantitative methods. These disciplines often engage in experiments with controlled environments, aiming to derive precise, reproducible, and universal laws governing the natural world. The methodologies in these fields often involve mathematical modeling, statistical analysis, and a rigorous peer-review process to ensure the validity and reliability of the findings. Softer sciences like psychology and sociology tend to incorporate a broader array of methodologies, including qualitative approaches that prioritize understanding human behavior and societal patterns in a nuanced and contextual manner. These fields often explore complex and multifaceted phenomena that cannot be easily reduced to numerical data or strict laws. Therefore, methodologies in these sciences might involve case studies, interviews, ethnographic research, and observational studies, aiming to gather deep, descriptive insights into human cognition, behavior, and societal dynamics.

Emergence as a guiding metric

Emergence theory, a cornerstone of complexity science, is intricately linked with

⁹⁷ Imre Lakatos. *The Methodology of Scientific Research Programmes* edited by John Worrall and Gregory Currie. Cambridge University Press, 2012. 18, 22, 87-88, 137, 179.

concepts from chaos theory and entropy.⁹⁸ Complexity science, through model complexity and Kolmogorov complexity, focuses on the intricacy and unpredictability within systems.⁹⁹ Model complexity helps in understanding the nuanced interactions and dynamics, while Kolmogorov complexity quantifies the system's randomness or structure.¹⁰⁰ Chaos theory, especially the butterfly effect, highlights the sensitivity of systems to initial conditions, suggesting that small changes can have significant, unpredictable outcomes. The edge of chaos, a state balancing between order and unpredictability, is particularly crucial in emergence theory, as it is here that systems are most adaptable and capable of exhibiting complex, emergent behaviors.

Entropy, including concepts of negentropy and Shannon entropy, plays a significant role in emergence theory. Entropy, a measure of disorder, contrasts with negentropy, which signifies order and information.¹⁰¹ This interplay between entropy and negentropy underscores the dynamic balance between disorder and order essential for emergent properties. Shannon entropy, which quantifies uncertainty in data, further aids in modeling and understanding these phenomena. Collectively, these concepts from complexity science, chaos theory, and entropy provide a comprehensive framework for emergence theory, explaining how complex, emergent properties arise from the interplay of structure, unpredictability, and the delicate balance between order and chaos in systems.

Different levels of emergence provide a meaningful way to classify phenomena within

⁹⁸ John H. Holland, *Emergence: From Chaos to Order* (New York, NY: Helix Books, 1998), 42-50, 238-46.

⁹⁹ Melanie Mitchell. *Complexity: A Guided Tour* (Oxford University Press, 2009), 98.

¹⁰⁰ Ming Li and Paul Vitányi, *An Introduction to Kolmogorov Complexity and Its Applications* (Springer, 2019), 226.

¹⁰¹ Erwin Schrödinger, *What is Life? With Mind and Matter and Autobiographical Sketches* (Cambridge University Press, 2012), 67-75.

the hierarchy of sciences, reflecting a transition from simplicity to complexity across scientific disciplines. In the lower levels, such as physics and chemistry, emergent properties arise from more fundamental and predictable interactions, fitting within a reductionist framework. As we ascend to biology, psychology, and sociology, the complexity increases, necessitating a holistic view to understand the interactions between diverse components. This progression also mirrors a shift from predictability and control towards more complex, less predictable phenomena that require interdisciplinary approaches. Higher up the hierarchy, phenomena involve broader scales and scopes, integrating knowledge across various fields.¹⁰² Therefore, the level of emergence serves as an effective index to categorize scientific phenomena, underscoring the increasing complexity and interconnectivity from fundamental to more elaborate systems.

The special demarcation problem

One significant criticism of the hierarchy of sciences is a special demarcation problem applied to the structure of the hierarchy itself. It asks: if disciplines are unified, why do they seem separable (by complexity, predictive success, methods, etc.)? Instead of asking what the difference between science and nonscience is, this special problem asks what is the real difference between one discipline and another? The simplistic view of the uniform unidirectional hierarchy is merely there for heuristic purposes. Scholars have debated what shape it should really take. It may be an inverse pyramid, some lattice shape, or some multi-directional graphical hierarchy. What really determines the shape, however, is the exact nodes that determine the benchmarks between categories.

¹⁰² William Bechtel and Robert C. Richardson, *Discovering Complexity: Decomposition and Localization as Strategies in Scientific Research*, (MIT Press, 2010), 202-27.

In many cases, principles or laws of a higher-level science can be explained by or reduced to principles of a more basic science. For example, chemistry can be reduced to physics, and biology can often be reduced to chemistry. Generalizing this principle to a metaphysical claim, we arrive at *reductionism*. This is the physicalist thesis that all phenomena are really epiphenomenal—incidental byproducts supervening on what is really at bottom: physics.¹⁰³ *Supervenience* is the theory that there are states of affairs which implicate other states of affairs non-causally. For every ‘B-property’ change, there is an ‘A-property’ change. Yet, the relation between A-properties and B-properties is asymmetric—A-properties supervenes and B-properties subvenes and changes in the latter do not necessitate changes in the former. A-properties supervene on B-properties if no two things can differ with respect to A-properties without also differing with respect to B-properties.

The classic example of supervenience is in philosophy of mind where mental states supervene on brain states. A more recent example of this has to do with the case of free will. Voluntary action seems to be an emergent property on the activity of the parietal lobe, frontal cortex, and basal ganglia.¹⁰⁴ Yet the property of volition cannot be exhausted by these active portions of the brain which controls sensory integration, planning, and coordination respectively. This lack of exhaustive grounding is seen especially in cases of seemingly radical brain plasticity.

But science, in practice, does not require a belief in reductionist accounts of emergent properties to function. Due to the nature of emergent properties, can hold to the belief that

¹⁰³ Jaegwon Kim, *Physicalism, or Something Near Enough* (Williams, Street: Princeton University Press, 2005), 64-79.

¹⁰⁴ Leon Gmeindl et al., “Tracking the will to attend: Cortical activity indexes self-generated, voluntary shifts of attention,” *Attention, Perception, & Psychophysics* 78, no. 7 (2016): 2176-2184.

higher-level disciplines are irreducible to lower-level disciplines and still make real progress. In fact, it is *prima facie* more expected that top-down causation should occur (from the higher-level emergent properties to lower-level emergent properties) if they are irreducible. Now, it may just be that the underlying processes at play would also explain the top-down causal chain to occur. But it is open to debate if we would ever get to the point where we can obtain, measure, model, and process the needed information (think Laplace's demon).

So where does this leave us with the special demarcation problem? The answer to this is the same answer that helps us to benchmark data quality and levels of the hierarchy: emergence. On this view, the shape of the hierarchy can be envisioned as layers of scalar nodes (represented as spheres) whose touchpoints are new nodes—emergent properties built on lower levels of emergent properties. As the scale of the sphere increases, new thresholds of emergence are crossed, also creating new nodes. Visibility is opaquer the deeper the layers of spheres. But more important than the shape is the underlying organizational conditions that it represents. On this model, there are three types of emergent nodes that are all separable but all interact: (1) whatever the most basic emergent phenomena we start with, (2) emergent properties that arise as scale increases, and (3) emergent properties that arise as a result of prior emergent properties interacting.

Nesting emergent conditions

Emergent properties in systems arise from a complex interplay of internal structure and external influences. Key to this phenomenon is the presence of multiple, diverse components that interact dynamically within close proximity. This diversity and complexity foster non-linear relationships, making the system's behavior unpredictable and ripe for the emergence of novel

properties. External factors, such as varied inputs and energy sources, influence these interactions, often driving the system to a threshold. Crossing this threshold can suddenly reveal emergent properties, which are not evident in simpler or static systems. These non-linear phenomena are also distinct from mere chaos, bifurcation, phase transition, and hysteresis. In essence, emergent properties are a result of the intricate and evolving interplay between a system's components, influenced by external conditions.

With these antecedents in mind, each emergent property can be viewed as a node in which it is both (i) conditioned upon some prior emergent properties and (ii) a condition for other emergent properties. Now, on pain of some infinite regress or progress, there may be (iii) primitive emergent properties not conditioned on any prior emergent property or (iv) emergent properties for which no more properties can be conditioned upon. However, (iii) and (iv) are likely to be entailed by some other ontological commitments. However, it is the emergent properties that are both (i) and (ii) that would be considered the norm. But even among these, we must differentiate between—if only conceptually—emergent properties that are the product of (a) an increase in scale or amount of any one emergent property and (b) an intersection of any emergent properties unrelated to an increase in scale and (c) emergent properties that are the result of different increases in scale and intersecting unrelated emergent properties. Again, the norm here will be the most complex—(c).

One significant benefit of qualifying data using this emergent hierarchy is its falsifiability. It can (a) be disconfirmed by showing no correlation to lower levels and (b) can be disconfirmed by lack of convergence at higher levels. The introduction of an emergent hierarchy offers a notable advantage in the realm of scientific inquiry, primarily due to its inherent falsifiability. Such a hierarchical framework, which posits that higher-level phenomena arise

from interactions at lower levels without being directly reducible to them, can be empirically tested in two key ways. First, if data reveals no discernible correlation between the emergent phenomena and their supposed foundational lower-level interactions (such as supposed mental state changes without any brain state changes), the hierarchical model can be challenged. Secondly, if there is an absence of convergence or agreement among phenomena or theories at the higher echelons of the hierarchy, this too serves as a potential point of disconfirmation. This dual avenue for falsification ensures that the emergent hierarchy remains grounded in empirical scrutiny, adhering to empirically rigorous philosophical standards.

Correlations with the hierarchy

In the context of the hierarchy of sciences, one might argue that as we move "up" the hierarchy towards the more complex sciences, we do often find increased use of proxy variables and surrogate endpoints. This is primarily due to the increasing complexity and variability of the phenomena being studied, which can make direct measurements or observations more challenging. In epidemiology, a surrogate endpoint like blood pressure might be used as an indicator for the risk of more complex outcomes like cardiovascular disease.

As we move up the hierarchy of sciences, there are more detection sources that allow for *sensor data fusion*.¹⁰⁵ Sensors can be artificially divided up into physical instrument detection sources and human sentient detection sources. We say artificially because these sensors can be indexically pinned to the hierarchy. As one goes up the hierarchy, there is an inability for emergent phenomena to be validated directly by more physical sensors and only detectable by

¹⁰⁵ David L. Hall and James Llinas. *Handbook of Multisensor Data Fusion: Theory and Practice* (CRC Press, 2017), 1-13.

human sensors. As stated earlier, the higher we go on the hierarchy, the lower the signal-to-noise ratio. Yet, this allows for more modes of data to be described. As such, this makes room for *multimodal data analysis* and thus more *convergent validation*.

As can be seen by the nature of conditions on emergence, convergent validation can only increase the quality of data when on the same stratum and scale of emergence. When it is on a lower stratum or scale, only plausibility can be conferred. And, conversely, when on a higher stratum and scale, no quality can be conferred (maybe only strict possibility of theory, once metacognition is in place). For example, we can use X-ray diffraction to measure the radius of atoms in our brain, but it would not help us understand brain sentience. In fact, if there were not atoms to measure, there would be no brain sentience. Thus, there needs to be atoms to measure to show the plausibility of brain sentience. But conversely, brain sentience itself—nor its associated measures—can provide any validity to what any given atom’s radius might be. We can use all the instruments from the lower levels of the hierarchy to the higher levels—and we should. However, they are not relevant in determining the validity of the emergent phenomena. Nor can we necessarily use the sensors on the higher levels to detect the lower levels.

Until the 21st century, the prevailing theory of epidemiology in healthcare was the biomedical model. This model focused on the pathology of a disease independent from the population affected. As such, the model was a triangle composed of three parts: the host affected, the agent causing disease, and the environmental conditions. In the last two decades, this model has been replaced by the biopsychosocial (BPS) approach to medicine.¹⁰⁶ This theory looks at different levels of causes that may be internal to the population, putting a much stronger

¹⁰⁶ Derek Bolton and Grant Gillett, *The Biopsychosocial Model of Health and Disease New Philosophical and Scientific Developments* (Palgrave MacMillan, 2019), 1-35.

emphasis on the conditions of the biomedical triangle and its integrative considerations. Per the name, these causes could be biological (age, sex, genes, physiology), psychological (mental states, instincts, beliefs), sociological (communications, support systems, economic status). BPS “is a way of understanding how suffering, disease, and illness are affected by multiple levels of organization [and] . . . understanding the patient’s subjective experience as an essential contributor to accurate diagnosis, health outcomes, and humane care.”¹⁰⁷ Recently, the limits of even this theory has also been called into question as it does not include “transcendent and sacred questionings of the spiritual dimension”.¹⁰⁸ These spiritual matters “cannot be exhausted on the mental and social grounds, notwithstanding the interfaces between the concepts.”¹⁰⁹ Spiritual variables can include: “search for ultimate meaning, purpose, and significance . . . as expressed through beliefs, values, traditions and practices.”¹¹⁰ As seen with volition, beliefs and the like have an impact on behavior. What the biopsychosocial-spiritual theory shows us is that this new behavior also affects other levels of the health hierarchy. One still needs to some structural causal parametric model that incorporates the biofeedback, neurofeedback, social feedback (etc.) to determine which causal relationship has the primary, secondary, tertiary, (etc.) influence. However, that there are top-down causal influences that track this specific kind of non-linear progression is expected on the emergent hierarchy indexical model.

¹⁰⁷ Marcelo Saad, Roberta de Medeiros, and Amanda Cristina Mosini, “Are We Ready for a True Biopsychosocial-Spiritual Model? The Many Meanings of ‘Spiritual’,” *Medicines (Basel)* 4, Iss. 4 (2017): 79.

¹⁰⁸ Ibid.

¹⁰⁹ Ibid.

¹¹⁰ Ibid.

If sciences (a) naturally group by complexity, predictive success, levels of organization, consilience, maturation, and methodology (b) emergent properties are conditioned on other emergent properties (all the way up), and (c) interdisciplinary ventures and pragmatic detection hindrances taken into account, then one should expect that the as we move down the hierarchy, the data will be more concrete, less noisy, more direct, more fine-grained, and with a higher capacity for measure and control. The upshot is that there are only three variables that we need to account for when locating some phenomena on the emergent hierarchy, (i) the conditions of the emergent property, (ii) the scale of the emergent property, and (iii) the interaction with other emergent properties.

Physics	Elementary Particles	Atomic Nuclei	Atoms	Molecules	Molecular Complex	Bulk Materials	Celestial Bodies	Interstellar Systems
Biology	Supra-molecular Chemistry	Organic Chemistry	Organelles	Cells	Tissues and Organs	Micro and Macro Organisms	Ecosystem and Geosystem	Biosphere
Psychology	Sensory Reception-Response	Nerve Net System	Brain Sentience	Emotional Response	Meta-cognition	Theory of Mind	Morality	Conscious Volition
Sociology	Norms	Roles	Institutions	Cultures	Civilizations	International System	Global Culture	Human Universals

Example of an Emergent Hierarchy

Summary and Foregoing Remarks

In our chapter, we explored the conceptual development and advances in abduction and the hierarchy of sciences in the philosophy of science. The concept of abductive reasoning is a method of inference distinct from both induction and deduction involved in explaining unexpected facts or phenomena by proposing hypotheses that would render these facts expected. Rooted in Aristotle's philosophy and refined in contemporary thought, abductive reasoning was acknowledged for its significant role in scientific discovery, despite its potential for deductive fallacies. We discussed its validity and importance in forming an inference to the best explanation and advancing scientific understanding. Central to our discussion were the

theoretical virtues, a well-articulated set of explanatory desiderata exemplified in best explanations. These virtues—evidential, coherential, aesthetic, and diachronic—are all instrumental in guiding the selection and evaluation of theories. However, for our purposes, we chose to focus on evidential virtues—evidential accuracy, causal adequacy, and explanatory depth. Virtuous theories empirically fit the data, include mechanisms of production and dependence, and are invariant amidst differing contexts.

Additionally, we examined data quality testing methods—concreteness and abstractness, signal-to-noise ratio, directness of observation, fine and coarse granularity. These all map onto the hierarchy of sciences that moves from physics to chemistry to biology to psychology to sociology. Phenomena on the lower end of the hierarchy are expected to (generally) have better signals to be detected, more capable of direct observation, and with finer granularity. Phenomena on the higher end of the hierarchy are expected to (generally) be noisier, indirectly observed, and coarser in granularity. Couching the hierarchy within emergence theory allows us to separate boundaries of disciplines, and properties between them, by their conditions on prior emergent properties (so long as we account for the scale and interactions of the properties). Such an emergent hierarchy provides us with a range of indexical benchmarks that allow us to qualitatively compare the data quality of any given phenomena.

Chapter 3: Classifying Moral Phenomena

Uriah Kriegel distinguishes between five types of moral phenomena: (a) moral intuitions, (b) moral perceptions, (c) moral cognitions, (d) moral agency, and (e) moral emotions.

Depending on what one takes to be considered “moral phenomena,” this taxonomy may be limited or overreaching. The range of moral phenomena and their characteristics have been disputed. We will take a look at the content of these five phenomena and more. What matters here is this: one may choose to be timid and only select (d) and (c) as worthy of providing hard evidence. Or one may take an expansive approach and select (a)(c) as hard evidence, leaving (d) and (e) as considered soft.

As Uriah Kriegel states, “An expansive moral phenomenology would admit not only moral emotion and agency, but also moral perception and cognition (judgments/beliefs), and perhaps even more (e.g., sui generis moral intuition), as forms of moral experience.” He continues, “A more timid moral phenomenology would accept only moral emotion and agency, or perhaps even less (i.e., denying that moral agency is experiential), as genuine moral experience.”¹¹¹ In this chapter, we aim to catalog the wide array of moral phenomena, using the classical ethical categories of applied ethics, normative ethics, descriptive ethics, and metaethics—moving from more application-based and practical to more abstract and theoretical. What we aim to accomplish is having an articulated, though not exhaustive, list of moral phenomena from which one may choose from in deciding their timidity or expansiveness.

¹¹¹ Uriah Kriegel, “Phenomenology, Moral,” *International Encyclopedia of Ethics*, ed. Hugh LaFollete (Hoboken, NJ: John Wiley & Sons, Ltd., 2013), np.

Moral Phenomena	Common Features	Example
Moral Intuition	sui generis, fallible, self-evident, used as casuistic counterexamples, nonnatural or “mental sense”, immediate, nonderived, and noninferential, directly produced by contact with their subjects, a priori	<p>(a) We just know that it is wrong to torture children for fun, take a healthy person’s vital organs to save five others, and punish someone for acts they are not responsible.</p> <p>(b) Happiness and love are immediately recognized to be intrinsic goods while suffering and hatred are intrinsic evils.¹¹²</p>
Moral Cognition	“coming down” on an issue, categorization in manner that is experience, involuntary, imposed by reasons, sententially in the declarative mood, describing mind-independent facts ¹¹³	<p>(a) It is true that counselors have a moral obligation to report active abuse to the police apart from professional ethics.</p> <p>(b) An ideal observer would say that it is bad when death row executioners or soldiers feel happy killing.</p>
Moral Perception	reliable belief-forming mechanism, having the characteristics of a sense, a posteriori seemings about concrete events. ¹¹⁴¹¹⁵	<p>(a) Moral events, such as a woman being raped, are known to be bad upon perception by the moral sense.</p> <p>(b) Sins, such as murder, are known to be evil upon perception by conscience.</p>
Moral Agency	conation or conative action, having agent-relative or agent-neutral value, adhering to principles of culpability. ¹¹⁶	<p>(a) We are responsible (blameworthy or praiseworthy) for volitional (or voluntary) acts of autonomy and their extended consequences.</p> <p>(b) Moral injustice deserves retributive punishment, supererogatory acts deserve recognition, and rights deserve to be enforced.</p>
Moral Emotion	positive or negative, self or other-focused, bringing awareness to responsibility, motivating to act, or withhold action. ¹¹⁷	<p>(a) Guilt, shame, and embarrassment are negative self-focused moral emotions while pride (self-respect) and sympathy are positive other-focused moral emotions.</p> <p>(b) Righteous anger, contempt, and disgust are negative self-focused moral emotions while elevation, gratitude, and compassion are other-focused moral emotions.</p>

¹¹² Bruce Russell, “Intuitionism, Moral,” *International Encyclopedia of Ethics*, ed. Hugh LaFollete, (Hoboken, NJ: John Wiley & Sons, Ltd., 2013), np.

¹¹³ Kriegel, “Phenomenology, Moral,” np.

¹¹⁴ Sarah McGrath, “Moral Knowledge by Perception,” *Philosophical Perspectives (Ethics)* 18, (2004): 209-228.

¹¹⁵ Peter Railton. “The Affective Dog and Its Rational Tale: Intuition and Attunement,” *Ethics* 124, no. 4 (July 2014): 813-859.

¹¹⁶ John Deigh. “ethics,” *Cambridge Dictionary of Philosophy* (3rd edition), ed. Robert Audi (Cambridge: Cambridge University Press, 2015), np.

¹¹⁷ Tina Malti and Brigitte Latzko, “Moral Emotions,” *Encyclopedia of Human Behavior*, (2nd edition), ed. Vilanayur Ramachandran, (Frisco, CO: Elsevier Science & Technology, 2012), np.

Applied Ethics

Applied ethics is the philosophical examination, from a moral standpoint, of particular issues in private and public life that are matters of moral judgment. It is thus a term used to describe attempts to use philosophical methods to identify the morally correct course of action in various fields of human life.¹¹⁸

Research ethics

Research ethics, a crucial aspect of applied ethics, constitutes the application of ethical principles to the planning, conduct, and reporting of research across various fields. It is predominantly concerned with ensuring that the conduct of research abides by a moral framework that minimizes harm, maximizes benefits, and upholds the autonomy rights of research subjects.¹¹⁹ In a broader sense, it addresses the appropriateness of the researcher's behavior, ensuring that it respects the rights of those who become subjects of research or are affected by it. This moral framework becomes applicable in a variety of contexts, including biomedical, scientific, and social research.

Environmental Ethics

In the field of environmental ethics, there are guiding principles that underscore our moral relationship with the natural world. The core of these principles hinges on the notion of

¹¹⁸ Brenda Almond, "Applied Ethics," *The Oxford Companion to Philosophy*, ed. Ted Honderich. (New York, NY: Oxford University Press, 2005), 42-45.

¹¹⁹ David B. Resnik, *The Ethics of Science: An Introduction* (New York, NY: Routledge, 1998), 1-12.

respect for nature, acknowledging that natural processes and systems carry an inherent value beyond their utility to humans, and hence, deserve our non-interference and reverence. Some of the concepts underlying these principles started specifically applied toward animals before being broadened out to plant-life and ecologies.¹²⁰ However, the application to more species of life can be looked back at as expected if they were to maintain consistency.

- Principle of Respect for Nature: Respect for nature means non-interference in the natural processes and systems. Nature has an inherent value which has to be respected irrespective of its utility to humans.¹²¹
- Principle of Sustainability: To meet our needs and aspirations without compromising the ability of future generations to meet their own.¹²²
- Principle of Environmental Justice: Environmental justice is realized when access to environmental and health benefits and burdens are distributed fairly.¹²³
- Precautionary Principle: Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.¹²⁴

Plant Ethics

Plant ethics, or phytocentrism, is a subset of environmental ethics focusing on the moral relationship between human beings and the vegetal world. The following are commonly accepted principles—sometimes codified—within these areas.

¹²⁰ Holmes Rolston III, *A New Environmental Ethics: The Next Millennium for Life on earth* (New York, NY: Routledge, 2020), 1-34.

¹²¹ Paul W. Taylor, *Respect for Nature: A Theory of Environmental Ethics* (Princeton University Press, 1986), 127-183.

¹²² Andrew Dobson, *Citizenship and the Environment* (Oxford University Press, 2003), 141-173.

¹²³ David Schlosberg, *Defining Environmental Justice: Theories, Movements, and Nature* (Oxford University Press, 2007), 103-163.

¹²⁴ Jordan, Andrew, and Timothy O'Riordan, "The Precautionary Principle in Contemporary Environmental Policy and Politics," In *Protecting Public Health and the Environment: Implementing the Precautionary Principle*, edited by Carolyn Raffensperger and Joel Tickner (Island Press, 1999), 13-35.

1. Recognition of Intrinsic Value: Plants possess inherent worth, and their value is not solely derived from their utility to humans or animals.
2. Respect for Plant Life: It is essential to respect the lifecycle and existence of plants, giving them space to grow and thrive.
3. Promotion of Biodiversity: Promote biodiversity and the flourishing of a variety of plant species.¹²⁵

Animal Ethics

Animal ethics, as a field of study, considers the moral dimensions of our relationships with animals. It emphasizes the idea that animals, similar to humans, have inherent rights and value, stemming not from their utility to humans, but from their capacity to have experiences, particularly to suffer or feel pleasure.¹²⁶

- Principle of Equal Consideration: The principle of equal consideration of interests does not dictate equal treatment of all those with interests, any more than it would dictate the same amount of food for the robust and the infirm, or the same curriculum for the slow learner and the child prodigy.
- Principle of Inherent Value: All subjects-of-a-life have inherent value, irrespective of their utility to others, and this inherent value must be respected and protected under all circumstances, where the capacities of animals to experience pleasure or pain provide the primary basis for this attribution of inherent value.
- Principle of Minimizing Suffering: If a being suffers, there can be no moral justification for refusing to take that suffering into consideration. No matter what the nature of the being, the principle of equality requires that its suffering be counted equally with the like suffering—in so far as rough comparisons can be made—of any other being.
- Precautionary Principle: When we are uncertain about the sentience of a being, we should err on the side of caution and extend moral consideration to that being. In debates about animal sentience, the precautionary principle is often invoked. The idea is that when the evidence of sentience is inconclusive, we should ‘give the animal the benefit of the doubt’ or ‘err on the side of caution’ in formulating animal protection legislation.
- Principle of Humane Treatment: We are called upon to attend to and respect the needs, interests, and well-being of animals in their own right, without seeing them as mere resources for human use.

¹²⁵ Edward O. Wilson, *The Diversity of Life* (2nd ed.), (Harvard, MA: Belknap Press, 2010), 343-354.

¹²⁶ Bernard E. Rollin, *The Unheeded Cry: Animal Consciousness, Animal Pain, and Science* (Ames, IA: Iowa State Press, 1998), 211-60.

The following are principles as they specifically relate to the use of animals in research, sometimes called the *3Rs*.¹²⁷

1. Replacement: substitute animal experiments with alternatives wherever possible.
2. Reduction: use methods that enable researchers to obtain comparable levels of information from fewer animals.
3. Refinement: minimize animal suffering by improving experimental techniques and providing better animal care.

Human Ethics

Human ethics, spanning the Golden Rule to unalienable rights to research ethics, reveals universal values like respect for dignity, fairness, and collective well-being. They are codified and delineated in civil documents—such as the United States Declaration of Independence—during more auspicious times.¹²⁸ However, they are also codified in research documents—such the Nuremburg Code, Declaration of Helsinki, and Belmont Report—in more tragic times.¹²⁹ Balancing individual autonomy with societal responsibility, these principles evolve with societal norms and underline the human need for empathy and cooperation. They guide decision-making, harmonizing personal rights with the greater good, essential for societal harmony and progress.

¹²⁷ Michael Balls, "It's Time to Reconsider The Principles of Humane Experimental Technique," *Alternatives to Laboratory Animals* 48, no. 1 (2020): 40-46. See also: Russell, W. M. S., and R. L. Burch. *The Principles of Humane Experimental Technique*. Methuen, 1959.

¹²⁸ Jeffrey Wattles, *The Golden Rule* (New York: Oxford University Press), 1996. 4-164.

¹²⁹ Beauchamp, Tom L. and James F. Childress, *Principles of Biomedical Ethics* (Oxford University Press, 2001), 57-336. See also: George J. Annas and Michael A. Grodin, eds. *The Nazi Doctors and the Nuremberg Code: Human Rights in Human Experimentation*. Oxford University Press, 1992; National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, *The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research*. U.S. Government Printing Office, 1978.

<i>Civilizations Codes</i>	
Golden Rule	"I should treat others as I would wish to be treated, ensuring that my actions towards others reflect the respect, kindness, and fairness I would expect to receive."
Ought Implies Can	"I should take responsibility only for actions within my capabilities, recognizing that ethical obligations are contingent upon one's ability to perform them."
Universalizability	"I should act only according to that maxim which I can at the same time will that it should become a universal law, ensuring that my actions are morally acceptable when applied universally."
<i>Unalienable Human Rights</i>	
Life	"I should respect and protect the inherent right to life of every individual, ensuring that my actions and decisions contribute to the preservation and enhancement of life."
Liberty	"I should uphold and defend the right to liberty, ensuring that my actions do not unjustly restrict the freedom of others and support their autonomy and freedom of choice."
Property	"I should respect the right of individuals to own and use property, ensuring that my actions do not infringe upon others' property rights and recognizing the importance of property in personal and economic well-being."
Security	"I should contribute to the safety and security of individuals, ensuring that my actions support a safe environment and protect others from harm or threat."
<i>Research on Human Subjects</i>	
Pursuit of Happiness	I should recognize and support the right of individuals to seek their happiness and fulfillment, ensuring that my actions foster an environment where this pursuit is possible and unimpeded."
Respect for Autonomy	"I should uphold and facilitate my patients' capacity for autonomous choice by ensuring informed consent through comprehensive disclosure, fostering understanding, promoting voluntariness, and applying ethical standards in surrogate decision-making."
Nonmaleficence	"I should act in a way that minimizes harm and respects the ethical boundaries of medical treatment."
Beneficence	"I should act in a way that enhances the welfare and well-being of others while respecting their autonomy and balancing the benefits, costs, and risks of my actions."
Justice	"I should act in a way that ensures fair and equitable access to healthcare resources, respects individual rights to a minimum standard of care, and involves ethical decision-making in the allocation and rationing of scarce resources."
Professional-Patient Relationships	"I should maintain a relationship with my patients that is founded on truthfulness, respects their privacy and confidentiality, demonstrates fidelity to their well-being, and carefully navigates the dual roles of physician and investigator."

Professional ethics

Business Ethics

Business ethics, a branch of professional ethics, is a specialized study of moral right and wrong. It concentrates on moral standards as they apply to business policies, institutions, and behavior. As a form of professional ethics, it sets the standards and codes of conduct expected of individuals in their professional roles, focusing on the actions of businesses and their agents. The concept of the Triple Bottom Line (Profit, People, Planet) or 3BL was introduced by John

Elkington in 1994. It refers to the financial, social, and environmental performance of a company over a period of time.¹³⁰ Each of these values are necessary for the sustainability of a company in the long-term.¹³¹ Where people and the planet are valued, 1

1. Profit (Economic): Businesses should be financially sustainable and profitable, contributing to the economy.
2. People (Social): Businesses should be socially responsible, treating people fairly, promoting health and safety, and contributing to the community.
3. Planet (Environmental): Businesses should strive to minimize their negative environmental impact and promote sustainability.

Viable practices, at the intersection of economic and environmental spheres, focus on long-term economic sustainability alongside environmental stewardship. Bearable practices, where the social and environmental spheres intersect, ensure that environmental efforts do not compromise social equity. Equitable practices, at the juncture of social and economic spheres, balance economic growth with social fairness, aiming for widespread benefits from economic activities. This integrative approach emphasizes sustainability and justice in business operations.

Journalistic Ethics

Journalistic ethics, also known as media ethics or news ethics, can be technically defined as the professional norms and standards that guide journalists in their work. There are worldwide values in journalistic ethics that center around truth, accuracy, factualness, objectivity,

¹³⁰ Ronald Jeurissen, "Reviewed Work: Cannibals with Forks: The Triple Bottom Line of 21st Century Business," *Journal of Business Ethics* 23, no. 2 (January 2000): 229-231. See also: John Elkington, *Cannibals with Forks: The Triple Bottom Line of 21st Century Business* (Mankato, MN: Capstone Publishing, 1999).

¹³¹ It may be argued that greed of individuals owning private businesses have little incentive to abide by these ethical standards, where they would have less to gain (profit) by acting in the interests of the people and planet—especially when nearing the end of their life. Lipton and Lorsch proposed a series of changes to corporate governance structures, including the idea of staggered or rotating boards of directors, to mitigate the concentration of power and potential for unethical decisions. (Nikos Vafeas, "Board Structure and the Informativeness of Earnings," *Journal of Accounting and Public Policy* 19, no. 2 (2000): 139-160.)

credibility, balance, completeness, verification, independence, impartiality, fairness, integrity, responsibility, accountability, honesty, and respect—with the first three to be the most shared core.¹³²

1. Truth: Reporting information that is genuine and correct to the best of the journalist's knowledge.
2. Accuracy: Ensuring that all reported details, from facts to quotations, are precise and correct.
3. Factualness: Reliance on verified facts rather than opinions or speculation in reporting.

Legal Ethics

Also referred to as the ethics of law or professional ethics in law, legal ethics pertains to the moral and professional duties, responsibilities, and standards that guide the behavior of legal professionals such as attorneys and judges. This encompasses principles such as upholding the law, confidentiality, maintaining professional integrity, and serving the best interests of the client.¹³³

1. Justice: The commitment to uphold the law and promote fairness and equity in the legal system.
2. Confidentiality: Preserving the secrecy and privacy of client information to maintain trust in the lawyer-client relationship.
3. Competence: The obligation to provide skillful, knowledgeable, and appropriately informed representation.
4. Integrity: Upholding high standards of moral and ethical conduct, both professionally and personally.
5. Loyalty: The duty to prioritize the best interests of the client, avoiding conflicts of interest.

¹³² Thomas Hanitzsch, Patrick Lee Plaisance, and Elizabeth A. Skewes. “Universals and Differences in Global Journalism Ethics,” in Stephen John Anthony Ward, *Ethics and the Media: An Introduction*. Cambridge University Press, 2011. 33-37, 44.

¹³³ Deborah L. Rhode, *Legal Ethics* (8th edition), (St. Paul, MN: Foundation Press, 2020). See also: Charles W. Wolfram, *Modern Legal Ethics*, (West Publishing Company, 1986); Susan R. Martyn, Lawrence J. Fox, and W. Bradley Wendel, *The Law Governing Lawyers: National Rules, Standards, Statutes, and State Lawyer Codes* (Wolters Kluwer Law & Business, 2017); David Luban, *Legal Ethics and Human Dignity*, (Cambridge University Press, 2007).

These values are often codified into codes of professional conduct or ethics for legal professionals. For instance, the American Bar Association's codifies such ethical codes into the Model Rules of Professional Conduct and covers items such as competence, scope of representation and allocation of authority between client and lawyer, diligence, communications, fees, confidentiality of information, and more.

Counseling Ethics

Often referred to as ethical practice in counseling, counseling ethics can be technically defined as the professional and moral guidelines that direct the conduct of counselors, therapists, and other mental health professionals, which are established to ensure the safety, integrity, and well-being of both the professionals and their clients. These guidelines are often codified into ethical codes or standards by professional counseling organizations, like the American Counseling Association (ACA) and the British Association for Counselling and Psychotherapy (BACP). Commonly held principles are listed as follows.¹³⁴

1. Autonomy: The respect for the client's right to be self-governing and to make decisions concerning their life.
2. Nonmaleficence: The commitment to avoid causing harm to the client.
3. Beneficence: The commitment to promoting the client's well-being.
4. Justice: The principle of treating all clients fairly and providing equal treatment.
5. Fidelity: The duty to keep promises, maintaining consistency and fairness.

¹³⁴ Karen S. Kitchener, "Intuition, Critical Evaluation and Ethical Principles: The Foundation for Ethical Decisions in Counseling Psychology," *The Counseling Psychologist* 12, no. 3 (1984): 43-55; Tom L. Beauchamp and James F. Childress, *Principles of Biomedical Ethics*, (Oxford University Press, 1979); Karen S. Kitchener, *Foundations of Ethical Practice, Research, and Teaching in Psychology and Counseling* (Routledge, 2000); Derald Wing Sue and David Sue. *Counseling the Culturally Diverse: Theory and Practice*, (Wiley, 2016).

Social Work Ethics

The National Association of Social Workers (NASW) code of ethics has been the leading organization that has a social work code of ethics. These have been reevaluated over the years to include updates based on cultural awareness, global perspectives, and technological developments. The following have been at the core of social work ethics and have withstood the test of time.¹³⁵

1. Integrity: Upholding honesty, reliability, and ethical practices in all professional actions.
2. Services: Committing to helping people in need and addressing social problems.
3. Importance of Human Relationships: Recognizing and valuing the significance of human relationships in enhancing well-being and fostering positive change.
4. Social Justice: Advocating for social fairness and challenging social injustices and inequalities.
5. Dignity/Worth of Person: Respecting the inherent dignity and worth of every individual and treating them with respect and compassion.
6. Competence: Maintaining and continually developing professional skills and knowledge to provide high-quality services.

Chaplaincy Ethics

Chaplains often adhere to principles based on their religious affiliation, the specific setting in which they work (such as a hospital, military, or prison), and the broader field of ethics. They generally uphold values like respect, confidentiality, non-maleficence, beneficence, and autonomy.¹³⁶ The Association of Professional Chaplains (APC) codifies these values in their

¹³⁵ Sandra R. Williamson-Ashe and Charles M. S. Birore, "An integrated principle-based approach to international social work ethical principles and servant leadership principles," in *The Routledge Handbook of Social Work Ethics and Values* (1st edition), Stephen Marson and Robert McKinney Jr., ed., (Routledge, 2019), 28-35.

¹³⁶ Arthur M. Lucas, "Introduction to *The Discipline for Pastoral Care Giving*," *The Discipline for Pastoral Care Giving: Foundations for Outcome Oriented Chaplaincy*, ed. Larry VandeCreek and Arthur M. Lucas, (New York, NY: Routledge, 2012), 1-34; Jean Fletcher, "Introduction," *Chaplaincy and Spiritual Care in Mental Health Settings*, ed. Jean Fletcher (London: Jessica Kingsley Publishers, 2019), 12-18; Wendy Cadge, *Paging God: Religion in the Halls of Medicine* (Chicago, IL: University of Chicago Press, 2012), 1-17. VandeCreek, Larry, and

code of ethics for chaplains.

1. Respect: Chaplains should respect the dignity and worth of every individual.
2. Confidentiality: Chaplains should maintain the confidentiality of information shared with them, unless there is a compelling ethical or legal reason not to do so.
3. Non-Maleficence: Chaplains should not cause harm to those they serve.
4. Beneficence: Chaplains should actively promote good and contribute to the well-being of those they serve.
5. Autonomy: Chaplains should respect the individual's right to make their own decisions.

Criminal Justice Ethics

Criminal Justice Ethics is a discipline of applied professional ethics that scrutinizes the moral dilemmas, standards, and principles in the criminal justice system, including areas such as law enforcement, courts, and corrections. The values upheld in criminal justice ethics often encompass fairness, justice, equality, respect for rights and dignity, and adherence to the law.¹³⁷ (For example, the International Association of Chiefs of Police (IACP) codifies these principles in their law enforcement code of ethics.)

1. Fairness: Ensuring impartiality and proportionality in the application of the law.
2. Justice: Making sure everyone receives what is due to them according to law and equity.
3. Equality: Treating all individuals without bias or favoritism.
4. Respect for Rights and Dignity: Respecting the inherent human rights and dignity of all individuals, including suspects, offenders, and victims.
5. Adherence to the Law: Upholding and enforcing the law in a consistent and just manner.

Arthur M. Lucas, *The Discipline for Pastoral Care Giving: Foundations for Outcome Oriented Chaplaincy* (Routledge, 2001).

¹³⁷ Michael Braswell, Belinda R. McCarthy, and Bernard J. McCarthy, *Justice, Crime, and Ethics* (Routledge, 2017) 1-40; Edwin J. Delattre *Character and Cops: Ethics in Policing*, (AEI Press, 2011); Cyndi Banks. *Criminal Justice Ethics: Theory and Practice*, (SAGE Publications, 2016); Sam S. Souryal, *Ethics in Criminal Justice: In Search of the Truth* (Anderson Publishing, 2014).

Descriptive Ethics

Descriptive ethics, also known as comparative ethics, is a branch of ethics that involves the empirical study of people's moral beliefs, attitudes, and practices. It aims to observe and describe what moral standards people actually follow, as opposed to what they should follow, a concept studied under normative ethics.

Moral psychology

Psychology focuses on cognitive, affective, conative, and behavioral events among individuals, and their interactions with others (individuals and groups). Cognition encompasses the intricate mental activities that allow individuals to gather knowledge, devise solutions, and strategize for the future.¹³⁸ It represents the myriad ways in which our mind processes and understands information. The brain's cognitive functions include attention, where we focus on specific stimuli; perception, which interprets sensory information; thinking, a broad activity of processing information; and judging, which evaluates situations. We also rely on decision-making to choose based on evaluations, employ problem-solving skills to tackle challenges, use memory to retain and recall past experiences, and utilize linguistic abilities to understand and communicate through language. A cornerstone of cognition is the brain's ability to represent or visualize objects and events not immediately present, allowing us to recall past events or anticipate future scenarios.

Affection is the observable manifestation of a person's emotions, encompassing facial expressions, hand movements, voice tones, posture, and other direct nonverbal displays like

¹³⁸ "Cognition," In *Gale Encyclopedia of Psychology* (3rd edition), Jacqueline L. Longe, ed., (Gale, 2016).

laughter or tears. These expressions provide a window into an individual's emotional state, which can vary over time. However, cultural contexts significantly shape how emotions are outwardly expressed. What is deemed as a typical or "broad affect" in one culture might be different in another, with some cultures endorsing open displays of emotion and others being more reserved. Within any given culture, individual variations are also prevalent. Some people might be naturally expressive, vividly showcasing their emotions, while others might present a more restrained exterior, offering only subtle hints of their inner feelings.¹³⁹

Behavior refers to the observable and measurable actions, reactions, or conduct of an individual in response to external or internal stimuli. This includes overt actions (e.g., walking or speaking) and covert activities (e.g., thinking or feeling), which can be either voluntary or involuntary. Behaviors are often studied to understand the relationship between the individual's environment, cognition, and outcomes in various psychological disciplines. The field of psychology is allied with anthropology and sociology when dealing with social influences on behavior, biology when dealing with organic environmental and physiological influences on behavior, and physics when dealing with perceptual science.

There are no specific regions of the brain solely dedicated to morality; however, various regions play crucial roles in moral reasoning and processing.¹⁴⁰ The parietal lobe predominantly involves moral cognition, whereas the limbic system delves deeper into moral emotion. Elements of the frontal and temporal lobes influence both cognitive and emotional aspects of morality. Moral reasoning encompasses methods people use to discern notions of right, wrong, virtue, and

¹³⁹ Ibid., "Affect."

¹⁴⁰ Patricia S. Churchland, *Braintrust: What Neuroscience Tells Us about Morality* (Princeton University Press, 2011), 16-25, 71-84.

vice. This reasoning involves processes like moral sensitivity, judgment, motivation, and action. Numerous models suggest the cognitive and affective (rational and emotional) facets of our psychology intertwine during these processes and strongly affect our decision-making and positions, enough to have a significant social impact.¹⁴¹ The primary regions of the brain integral to moral reasoning, such as the perception, processing, and amalgamation of moral emotions like fear, disgust, and forgiveness, include the frontal, parietal, and temporal lobes. These structures also partake in valuations, judgments, and decisions based on others' beliefs and intentions. Since no distinct neural circuits or lobes exclusively handle morality without overlapping other functions, it is unlikely there exists a singular "moral brain." Instead, our brains inherently possess moral capabilities, with moral judgments supervening on brain states without being wholly reducible to them.

Moral Neurology

The frontal lobe is involved in reasoning, personality, emotion, and memory formation. Within the frontal lobe are the primary motor cortex (which controls voluntary movement), the prefrontal cortex (which is involved in cognitive, motivational, and emotional processes), Broca's area (which plays a role in language comprehension and voluntary speech), and the orbitofrontal cortex (which plays a role in personality, mood, social skills, and addiction). The ventromedial prefrontal cortex is involved consistently when making moral judgments. Patients with brain lesions in this area are more likely to endorse utilitarian decisions in moral dilemmas,

¹⁴¹ Jonathan Haidt, *The Righteous Mind: Why Good People Are Divided by Politics and Religion* (Pantheon Books, 2012), 126-247. See also: Joshua D. Greene, *Moral Tribes: Emotion, Reason, and the Gap Between Us and Them* (Penguin Press, 2013).

abstracting consequences, and account for others' intentions in decision-making.¹⁴² The orbitofrontal cortex has been implicated with the online representation of punishment and reward and imbuing emotionally salient statements with moral value. The dorsolateral prefrontal cortex mitigates utilitarian responses to moral dilemmas, judges the responsibility for crimes from a third-person perspective, analyzes situations with rule-based knowledge, and possibly executive functions that predict social deception. The anterior cingulate cortex is involved in error detection, utilitarian responses, recursive awareness, and moral conflict monitoring. Similarly, the medial frontal gyrus intervenes in theory of mind, moral judgment, and integrating emotions with decision-making.

The parietal lobe integrates sensory information and perception, gives us a sense of space and navigation, plays a central role in recognizing pain, pressure, touch, and kinesthetic sense, and is associated with a number of mental processes (such as numerical calculation, mental rotation, working memory, episodic memory, and long-term memory). The temporoparietal junction may be recruited in processing cognitive engagement. It plays a key role in moral intuition, belief attribution and intention in others, and is associated with perceiving and representing social information. The precuneus is involved in encoding and integrating beliefs with actions and processing prior intentions. The right temporoparietal junction is involved in the recognition of lying. Lesions in these areas diminish the ability to use mental states in moral judgment. In dictator game studies, the temporoparietal junction is associated with punishing excluders with low offers.

The temporal lobe processes higher-order visual information, spatial representation, and

¹⁴² Leo Pascual, Paulo Rodrigues, and David Gallardo-Pujol, "How does morality work in the brain? A functional and structural perspective of moral behavior," *Frontiers in Integrative Neuroscience* 7, Iss. 65, (September 2013): 1-8.

emotion. It is one of the main regions activated during theory of mind tasks. Abnormalities have been associated with psychopathy. The left lobe governs speech and contains Wernicke's area known to involve language comprehension and verbal memory. Also contained within the temporal lobe are the hippocampus and amygdala which are central to memory and mood stability. These parts of the limbic system are contained within the temporal lobe, but it does not exhaust it. The superior temporal sulcus is involved in moral judgments related to emotional processing and social cognition. It is indispensable in making inferences about others' beliefs and intentions, has increased activity during personal dilemmas, justice-based dilemmas (compared to care-based dilemmas). The angular gyrus is engaged during the evaluation of personal moral dilemmas. In the limbic lobe, the posterior cingulate cortex (which deals with personal memory, self-awareness, and emotional salient stimuli) has been activated during experiences of empathy, forgiveness, and the magnitude of criminal punishment. The insular cortex is activated during experiences of disgust, empathic sadness, emotional processing, detection of uncertainty, and perception of inequity. The anterior insular cortex is involved in visceral somatosensation, emotional feeling and regulation, empathy, anger and indignation, perception of painful experiences in others, and unfair offers in ultimatum games.

Among the subcortical structures, the hippocampus is crucial for the acquisition and retrieval of fear conditioning, induction of appropriate emotional reactions, and the processing of emotional facial expressions. The amygdala is crucial for moral learning and is involved in the evaluation of moral judgments, empathic sadness during morally salient scenarios, and prediction of criminal punishment magnitude. Its dysfunction is implicated with psychopathic affective deficits. The thalamus is activated during the perception and assessment of painful situations and when subjects are asked to decide between moral rules and personal desire. The

septum is activated during experiences of charitable contributions and has been associated with psychopathy. The caudate nucleus is activated during altruistic punishment and evaluation of morally salient stimuli.

Moral Emotions

Valence/Moral Type	Moral Exemplars	Elicited Emotions
Help/Agent	Heroes	Inspiration, Elevation
Help/Patient	Beneficiaries	Relief, Happiness
Harm/Agent	Villains	Anger, Disgust
Harm/Patient	Victims	Sympathy, Sadness

The concept of moral emotions can be understood through the combination of two pivotal dimensions: valence and moral type.¹⁴³ Valence refers to the perceived nature of an action or event, delineating it as either positive (helpful) or negative (harmful). The moral type, on the other hand, underscores the role an individual adopts in a given moral situation, differentiating between the agent (the doer of the action) and the patient (the recipient of the action).

Based on the intersection of these dimensions, we derive four archetypal representations termed as moral exemplars. Heroes emerge as individuals who champion positive deeds, standing as agents of benevolence. Beneficiaries are those who find themselves on the receiving end of such kindness, symbolizing the patients in helpful scenarios. Conversely, villains epitomize individuals who engage in negative actions, making them the agents of harm. Lastly, victims represent the individuals who endure these negative actions, hence being the patients in harmful situations.

The actions and roles of these moral exemplars evoke specific emotional responses.

¹⁴³ Kurt Gray and Daniel M. Wegner, "Dimensions of Moral Emotions," *Emotion Review* 3, no. 3 (July 2011): 258-260.

When people witness acts of moral beauty by heroes, they often experience uplifting emotions like inspiration and elevation, fostering a desire to emulate such morally commendable behavior. Beneficiaries, who benefit from acts of kindness, typically evoke feelings of relief and happiness in observers. In contrast, witnessing the misdeeds of villains can stir emotions of anger and disgust due to the perceived injustice and moral repulsion. Finally, when confronted with the plight of victims, individuals tend to feel sympathy, a profound compassion for the suffering of others, accompanied by an overarching sense of sadness. This framework provides a comprehensive lens to navigate the intricate landscape of moral emotions, highlighting how different actions and their associated roles culminate in distinct emotional outcomes.

Moral Development

Lawrence Kohlberg was a psychologist who is best known for his theory of moral development.¹⁴⁴ He expanded upon Jean Piaget's work and identified six stages of moral reasoning, organized into three levels. The stages reflect the complexity and sophistication of moral reasoning that he believed individuals could progress through as they mature. Just as Piaget's theory has been challenged, Kohlberg's has been on not accounting for cultural diversity, gender differences, instances of non-linear development, and other psychological complexities.¹⁴⁵ Yet, no framework has since been as influential or explanatory in scope.

1. Pre-conventional Level

(i) Stage 1: Obedience and Punishment Orientation

¹⁴⁴ Charles Levine, Lawrence Kohlberg, Alexandra Hower, "The Current Formulation of Kohlberg's Theory and a Response to Critics," *Human Development* 28, no. 2 (March-April 1985) 94-100.

¹⁴⁵ Carol Gilligan, *In a Different Voice: Psychological Theory and Women's Development* (Cambridge, MA: Harvard University Press, 2003); John Snarey, "The Cross-Cultural Universality of Social-Moral Development: A Critical Review of Kohlbergian Research," *Psychological Bulletin* 97, no. 2 (1985): 202-232.

1. Right and wrong are determined by what is punished. The child will obey rules to avoid punishment.
- (ii) Stage 2: Instrumental Orientation
 1. Right and wrong are determined by what is rewarded. The child begins to understand that others have their own interests, and they may cooperate to benefit themselves.
- 2. Conventional Level**
 - (i) Stage 3: Good Boy/Nice Girl Orientation
 1. The individual wants to live up to social expectations and gain approval from others. Decisions are made based on what will please others.
 - (ii) Stage 4: Law and Order Orientation
 1. The focus shifts to obeying laws and respecting authority, maintaining the social order. This stage emphasizes the importance of rules, laws, and regulations.
- 3. Post-conventional Level**
 - (i) Stage 5: Social Contract Orientation
 1. The individual recognizes that rules and laws are social agreements that can be changed if they are not just. They may take a broader perspective on societal welfare.
 - (ii) Stage 6: Universal Ethical Principles
 1. At this final stage, the individual acts according to universal principles of justice and equality. Laws are valid only insofar as they are grounded in justice, and a commitment to justice carries with it an obligation to disobey unjust laws.

Four Component Model

James Rest's model posits that moral action is a sequential process: first, one must recognize and interpret the moral dimensions of a situation (moral sensitivity); then, decide on what the most ethical course of action (moral judgment); be internally driven to prioritize this decision over other desires (moral motivation); and, finally, possess the resolve and skills to carry out this decision (moral character). Each component builds upon the previous, cumulatively leading to ethical behavior.¹⁴⁶

1. Moral Sensitivity: the individual must interpret a given situation by assessing possible courses of action, discerning who might be affected, and understanding how those

¹⁴⁶ Elizabeth C. Vozzola and Amie K. Senland, "From Stages to Schemas: Kohlberg and Rest," *Moral Development* (2nd ed.), (New York, NY: Routledge, 2022), 27-42.

affected would perceive the results. This process involves the recognition of moral implications and nuances in a scenario, extending beyond mere personal implications.

2. Moral Judgment: this component necessitates the ability to evaluate potential courses of action, determining which is morally correct. The individual must decide what is ethically appropriate in the specific context, drawing on moral reasoning and ethical frameworks.
3. Moral Motivation: the individual must prioritize moral values above other personal desires, whether those desires are material or align with group norms. While recognizing a moral issue and its appropriate response is essential, the actual shift toward moral action requires a genuine inner drive or motivation. It's this motivation that differentiates mere acknowledgment from actualized behavior.
4. Moral Character: to execute their moral intentions, individuals need to exhibit determination, possess a strong sense of self, and have the skills necessary for effective action. This involves both the inner strength to withstand external pressures and the practical skills to implement ethical decisions.

Quality of Life Inventory

The Quality of Life Inventory (QOLI) is a psychology-based tool that measures a person's quality of life in terms of overall satisfaction with life and general wellbeing on a scale of -6 to +6. It assesses sixteen different areas of life. These are as follows: health, self-esteem, goal and values, money, work, play, learning, creativity, helping, love, friends, children, relatives, home, neighborhood, and community.¹⁴⁷ Its utility extends beyond simple assessment, being instrumental in both intervention formulation and in measuring the effectiveness of implemented positive psychology interventions, hence serving as an efficient tool in outcome evaluation.¹⁴⁸

- Does it improve our living conditions and prolong survival? (Livability of the Environment)
- Does it help equip us to cope with the problems of life? (Life Ability of the Person)

¹⁴⁷ Michael B. Frisch, *Quality of Life Therapy: Applying a Life Satisfaction Approach to Positive Psychology and Cognitive Therapy* (Hoboken, NJ: John Wiley & Sons, Ltd., 2006), 22-23.

¹⁴⁸ Michael B. Frisch, "Quality of life inventory (QOLI)," *The Encyclopedia of Positive Psychology*, ed. Shane J. Lopez, (Hoboken, NJ: John Wiley & Sons, Ltd., 2009), np.

- Does it help us find meaning in life and pursue something greater than ourselves? (Usefulness of Life)
- Does it help us find happiness—long-term pleasure and contentment? (Subjective Satisfaction)

	Outer Qualities	Inner Qualities
Life Chances	Livability of environment	Life-ability of the person
Life Results	Utility of life	Enjoyment of life

Moral Virtue & Vice

Positive psychologists Christopher Peterson and Martin Seligman describe six areas of character strengths. These include wisdom and knowledge, courage, humanity, justice, temperance, and transcendence.¹⁴⁹

Strength of Character	Includes
Wisdom & Knowledge	Creativity (originality, ingenuity), curiosity (interest, novelty-seeking, openness to experience), open-mindedness (judgment, critical thinking), love of learning, perspective (wisdom)
Courage	Bravery (valor), persistence (perseverance, industriousness), integrity (authenticity, honesty), vitality (zest, enthusiasm, vigor, energy)
Humanity	Love, kindness (generosity, nurturance, care, compassion, altruistic love, niceness), social intelligence (emotional intelligence, personal intelligence)
Justice	Citizenship (social responsibility, loyalty, teamwork), fairness, leadership
Temperance	Forgiveness and mercy, humility and modesty, prudence, self-regulation (self-control)

¹⁴⁹ Christopher Peterson and Martin Seligman, *Character Strengths and Virtues: A Handbook and Classification* (New York, NY: Oxford University Press, 2004), 625-644.

Transcendence	Appreciation of beauty and excellence (awe, wonder, elevation), gratitude, hope (optimism, future-mindedness, future orientation), humor (playfulness), spirituality (religiousness, faith, purpose)
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Values in Action Inventory

The values in action inventory (VIA-IS) five factor model categorizes character strengths into five key virtues: restraining, intellectual, interpersonal, emotional, and theological.¹⁵⁰

Restraining virtues, like prudence and self-regulation, focus on self-control and moderation, guiding responsible decision-making. Intellectual virtues encompass cognitive strengths such as creativity and curiosity, driving the pursuit of knowledge and openness to new experiences. Interpersonal virtues include traits like teamwork and fairness, essential for positive social interactions and community building. Emotional virtues, involving strengths like bravery and zest, are crucial for facing challenges and living life with energy and enthusiasm. Lastly, theological virtues, including hope and gratitude, transcend everyday experiences, fostering a sense of connection to the larger universe and spiritual well-being. This model provides a holistic understanding of character strengths, emphasizing their role in personal fulfillment and societal contribution. The following chart shows examples that either have been or could be used as part of virtue-measuring assessments.

Strength	Virtue	Example
<i>Restraining</i>	Fairness	I am strongly committed to principles of justice and equality.
	Humility	I am proud that I am an ordinary person.
	Mercy	I always allow others to leave their mistakes in the past and make a fresh start.
	Prudence	I avoid people or situations that might get me into trouble.

¹⁵⁰ Afifa Anjum and Naumana Amjad, “Values in action inventory of strengths: Development and validation of short form-72 in Urdu,” *Current Psychology* 40, no. 5 (2021): 2039-2051.

<i>Intellectual</i>	Creativity	When someone tells me how to do something, I automatically think of alternative ways to get the same thing done.
	Curiosity	I am never bored.
	Love of Learning	When I want to learn something, I try to find out everything about it.
	Appreciation of Beauty	I have often been left speechless by the beauty depicted in a movie.
<i>Interpersonal</i>	Kindness	If there are new students in my class, I try to make them feel welcome.
	Love	There are people in my life who care as much about my feelings and well-being as they do about their own.
	Leadership	In a group, I try to make sure everyone feels included.
	Teamwork	I aim to be reliable and accountable in team settings.
	Playfulness	I attempt to incorporate creativity, humor, and fun to everyday moments as I interact with others.
<i>Emotional</i>	Bravery	I have taken frequent stands in the face of strong opposition.
	Hope	I can find what is good in any situation, even when others cannot.
	Self-regulation	Once I make an exercise or study plan, I stick to it.
	Zest	I approach old and new experiences with vigor and curiosity.
<i>Theological</i>	Gratitude	I always express my thanks to people who care about me.
	Spirituality	In the last 24 hours, I have spent 30 minutes in prayer, meditation, or contemplation.

Moral sociology

Moral sociology is a subfield of sociology that examines how societies develop, interpret, and practice moral norms and values. It focuses on understanding the social processes and structures that influence ethical behavior and belief systems within different cultural and social contexts. This discipline explores the ways in which moral ideas are embedded in social institutions, cultural practices, and group interactions, analyzing how these ideas shape and are shaped by social relations, power dynamics, and historical developments. Moral sociology seeks to uncover the social underpinnings of moral judgments, ethical conflicts, and the collective

sense of right and wrong in various communities.

Love Theory

Berit Brogaard states that there are three central questions that surround love theory.

These topics cover: (1) why people fall in love, (2) what love is, and (3) and what causes unhealthy love. These can be restated as factors of love, the nature of love, and unhealthy love, respectively.

Factors of Love

Elements of (1) have been listed as follows:

- *Similarity*: belief sets, personality traits, and ways of thinking.
- *Propinquity*: familiarity, time spent together, living nearness, thinking about each other, and anticipating future interactions.
- *Desirability*: outer appearance and, to a lesser extent, personality traits.
- *Reciprocity*: increase in attraction when the other person likes you.
- *Social influences*: union that satisfies the norms of one's social network.
- *Filling needs*: satisfying companionship, love, sex, and mating needs.
- *Arousal/unusualness*: Being in an environment that is different, especially dangerous or spooky sparks passion.
- *Specific cues*: particular characteristics of interest such as body parts or facial features.
- *Readiness*: the more you want to be in a relationship, the lower your self-esteem and likelihood to fall in love.
- *Isolation*: spending time alone with the other person.
- *Mystery*: uncertainty about what the other person thinks or feels contributes to passion.¹⁵¹

As these data have developed, they have been accommodated by a variety of models. One of the longstanding theories of love was the triangular theory, which proposed love being divided into intimacy, passion, and commitment.¹⁵² Among the aspects of love mentioned, these included

¹⁵¹ Berit Brogaard, "Love in Contemporary Psychology and Neuroscience," *The Routledge Handbook of Love in Philosophy*, ed. Adrienne M. Martin, 465-475 (New York, NY: Routledge. 2019), 466-467.

¹⁵² Ibid., 470.

the following: openness, sexual intimacy, affection, supportiveness, togetherness, quiet company, romance, supportiveness, expressions of love, fidelity, expressions of commitment, consideration, and devotion. Some of these aspects overlap while others do not.

Nature of Love¹⁵³

Because there were aspects common to all three sections, leading researchers to question whether it was overly simplistic. Another issue was the focus on romantic manifestation of love. Romantic love does not capture the full breadth of love, especially when dealing with familial and friendship love. Another model that was proposed, that included with it the research of love as a short-term emotion and manifested in long-term behavior, was the AAC (attraction, attachment-commitment, and caregiving) model. However, the most recent theory that accommodates the present data in a more simplified model is the *quadruple theory*.¹⁵⁴

¹⁵³ It should be noted that the nature of love in psychology is very different than the metaphysical questions that are asked in philosophy.

¹⁵⁴ Taboré Onojighofia Taboré, "Towards a Comprehensive Theory of Love: The Quadruple Theory," *Frontiers of Psychology* 11, no. 862 (2020): 1-15.

Attraction	Physical attributes, personality, wealth, value
Connection (Resonance)	Similarity, proximity, familiarity, positive shared experiences, interdependence, novelty
Trust	Reliability, familiarity, mutual self-disclosures, positive shared experiences
Respect	Reciprocal appreciation, admiration, consideration, concern for wellbeing, and tolerance

This theory states that the four factors that capture the nature of love: attraction, connection or resonance, trust, and respect. Romantic, parental, and brand love have been the most widely studied and contributed to the ways in which love manifests.

	Attraction	Connection	Trust	Respect
Romantic	Sexual-material: beauty, aesthetics, appeal, wealth, etc. Non-sexual-non-material: personality, social status, power, humor, intelligence, character, confidence, temperament, honesty, good quality, kindness, integrity	Intimacy, friendship, or companionship and caregiving, strengthened by novelty, proximity, communication, positive shared experiences, familiarity, and similarity (values, goals, religion, nationality, career, culture, socioeconomic status, ethnicity, language). Sexual attraction and friendship are necessary.	Will remain, reliability, dependability, can count on in times of need, mutual understanding, sharing of self and possessions. Trust is essential to fidelity, commitment, monogamy, emotional vulnerability, and intimacy.	Consideration, admiration, high regard, value for the other as a part of one's life, fondness, positive correlations (passion, altruism, self-disclosure, relationship satisfaction), overlooking partner's negative behavior or responding with compassion to their shortcomings.
Parental	Material: child's health, gender, accomplishments, success Non-material: intelligence, character, and personality traits	Proximity, positive unique shared experiences, and similarity along every dimension	Confidence, obedience, reconciliation, inheritance	Consideration, regard, harmony, comfort, protection, admiration
Brand	Material: superior design, quality, aesthetics, price, benefits Non-material: social status symbol, brand personality, uniqueness, distinctiveness, user experience, image	Brand identification, image, familiarity or awareness, proximity, length or frequency of usage, congruences (along values, lifestyle, goals)	Confidence, reliability, dependability, identification, loyalty, word of mouth, continuance, retention, satisfaction, strength	Regard, admiration, loyalty, consideration, tolerance of negative information, willingness to pay premium price

Unhealthy Love

Love, however, also manifests in unhealthy ways. These forms of love can go awry at any number stages of a developing relationship. Although, they are aversive and even disgusting in some cases, they are an opportunity to study about important facets of love. Just as neuroscience utilizes brain lesions to determine healthy brain function (by its loss of use), so too love theorists can utilize unhealthy forms of love to get a better understanding of healthy love.¹⁵⁵

The following have been identified in congruence with attachment theory of love.

1. *Compulsive care-seekers*: wanting their partner to pamper and take care of them.
2. *Attached individuals*: anxious when separated and angry for abandonment.
3. *Compulsive caregivers*: the attached person assumes role of parent to maintain the illusion of mutuality and unity (sometimes known as “helicopter parenting”).
4. *Avoidant individuals*: cannot form close romantic relationships, fearing commitments and showing patterns of compulsive self-reliance, refusing help from others.

	Aversion	Disconnect	Distrust	Disrespect
Romantic	Material: aging or accidents Immaterial: loss of fortune, social status	Loss of sexual activity, predictability/monotony/stagnation, loss of jealous and anxiety to threats, weakened communication, dissimilarity in values and interests	Corrupts intimacy, indicates end of relationship, dissolution	Indicates end of relationship, lack of partnership, four horsemen (contempt, criticism, defensiveness, and stonewalling)
Parental	Physical punishment, unhealthy children are favored less until parent has plentiful resources	Dissimilarities or discrepancies in values, attitudes, religion, etc. can lead to rebel children; less infant care in mothers and divorce lead to weakened connection and intimacy; lack of separation distress, worry, concern for welfare and performance are signs of a poor connection	Intimacy is unable to blossom, lack of turning to kids for personal problems, kept at a distance, less inheritance	Child abuse, neglect, display of lack of consideration of child’s need, disfavor if ambitions are not admired
Brand	High price; low quality, aesthetic, benefits; low status, bland, common, no/bad image	Lack of familiarity/awareness, poor/negative user experience, dearth of innovation, increased dissimilarities in values and lifestyles of brand and user	Weakened by poor user experience, quality, image, and lack of brand familiarity	Negative reactions when expectation is violated, sometimes contributing to hate

¹⁵⁵ Jan B. Engelmann and Gregory S. Berns, "Cognitive Neuroscience," *The Corsini Encyclopedia of Psychology and Behavioral Science*, ed. W. Edward Craighead, and Charles B. Nemeroff, 4th ed. (Hoboken, NJ: John Wiley & Sons, Ltd., 2010), np.

Moral Foundations

Jonathan Haidt has shown that these cross-cultural clusters of moral terms surround at least five domains: care, fairness, loyalty, authority, and purity. This theory of lexical groupings is called *moral foundations theory*, implying that these are the psychological mechanisms that serve of the basis of the wide variety of moral systems. They have been used to explain the large-scale differences between political liberals and conservatives, the former valuing the first two a great deal more than the last three, and the latter more evenly valuing all five. The upshot of moral foundations theory, for our purposes, is its ability to label and group moral behavior on a social level. On a day-to-day level, we may see values assigned by prices set in markets or by sentencing lengths in the criminal justice system. But the five foundations permeate the dollars and dates chosen.

Foundation	Converse	Explanation	Principle Statement
<i>Care</i>	<i>Harm</i>	Concern for the suffering of others, including virtues of compassion.	"I should mitigate and ameliorate the suffering of others and be more caring and compassionate."
<i>Fairness</i>	<i>Cheating</i>	Concerns about unfair treatment, cheating, and more abstract notions of justice and rights.	"I should mitigate and ameliorate unfair treatment and cheating."
<i>Loyalty</i>	<i>Betrayal</i>	Concerns related to obligations of ingroup membership such as self-sacrifice, and vigilance against betrayal.	"I should keep promises, return favors, sacrifice self, and be vigilant against betrayal against ingroups."
<i>Authority</i>	<i>Subversion</i>	Concerns related to social order and the obligations of hierarchical relationships, such as obedience, respect, and the fulfillment of role-based duties.	"I should be obedient to the social order and hierarchy of relationships."
<i>Purity</i>	<i>Degradation</i>	Concerns about physical and spiritual contagion, including virtues of chastity, wholesomeness, and control of desires.	"I should be concerned about physical and spiritual contagions."
<i>*Liberty</i>	<i>Oppression</i>	Concerns about the restrictions of liberties by governments (authoritarianism) and individuals (bullies), and the associated resentment and reactance (* = some cultures).	"I should be concerned about restriction of liberties by governments (authoritarianism) and individuals (bullies), and the associated resentment and reactance."

International Priorities

Shalom Schwartz and Anat Bardi found ten value types in common between sixty-three nations surveyed (listed from greatest to least in the value hierarchy): benevolence, self-direction, universalism, security, conformity, achievement, hedonism, stimulation, tradition, and power.

Benevolence	“I should preserve and enhance the welfare of people with whom I am in frequent personal contact (helpful, honest, forgiving, loyal, responsible).”
Self-direction	“I should promote independent thought and action choosing, creating, exploring (creativity, freedom, independent, curious, choosing own goals).”
Universalism	“I should promote understanding, appreciation, tolerance, and protection for the welfare of all people and for nature (broad-minded, wisdom, social justice, equality, a world at peace, a world of beauty, unity with nature, protecting the environment).”
Security	“I should promote safety, harmony, and stability of society, of relationships, and of self (family security, national security, social order, clean, reciprocation of favors).”
Conformity	“I should promote restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms (politeness, obedient, self-discipline, honoring parents and elders).”
Achievement	“I should promote personal success through demonstrating competence according to social standards (successful, capable, ambitious, influential).”
Hedonism	“I should promote pleasure and sensuous gratification for oneself (pleasure, enjoying life)”
Stimulation	“I should promote excitement, novelty, and challenge in life (daring, a varied life, an exciting life).”
Tradition	“I should promote respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide the self (humble, accepting my portion in life, devout, respect for tradition, moderate).”
Power	“I should promote social status and prestige, control or dominance over people and resources (social power, authority, wealth, preserving my public image).”

Natural & Moral Evil

There are, generally speaking, two kinds of evil: moral and natural. Moral evils include things such as lying, murder, theft, adultery, and usury. Ian A. McFarland writes, “As distinguished from natural evil, moral evil is a categorical designation for all causes of creaturely suffering that can be attributed directly to creaturely (viz., human) agency.”¹⁵⁶ The quality of

¹⁵⁶ Ian A. McFarland, “Moral Evil,” *Cambridge Dictionary of Christian Theology*, ed. Ian A. McFarland, D. A. S. Fergusson, K. Kilby, and Iain R. Torrance, 322-323 (United Kingdom: Cambridge University Press, 2011), 322.

moral evils can be characterized as criminal acts or horrendous instances of devaluation and usury of persons. Guilt of mind (*mens rea*; through malice or malevolence) is always associated with moral evil (directly or indirectly) while guilt of action (*actus reus*) is commonly associated. However, the magnitude of moral evil can be amplified by *actus reus* and the attributes of natural evils.

Natural evils include things such as disease, disasters, famine, earthquakes, storms, floods, volcanic eruptions, and astronomic activity. McFarland again, “As distinguished from moral evil, natural evil is a categorical designation for all causes of creaturely suffering that cannot be attributed directly to creaturely (*viz.*, human) agency.”¹⁵⁷ The quality of natural evils can be characterized by physical, ecological, animal, and civil dysfunction, destruction, and pain.¹⁵⁸ Such evils can be more readily quantified by utilitarian hedono-doloric values by the intensity, extent, and duration of pain and suffering.¹⁵⁹

Moral Anthropology

Moral purity is a concept that aligns closely with sacred purity, suggesting that an individual's moral character and actions should be free from corruption or immorality. This often entails adhering to certain rituals or practices, like bathing, dietary restrictions, or spiritual activities such as prayer or meditation, to maintain or restore purity. Sacred purity is deeply

¹⁵⁷ Ibid., “Natural Evil,” 332.

¹⁵⁸ It is important to note that natural evils may be byproducts of human behavior and things associated with people yet unmotivated by bad intentions. A distinction of intention used in law is helpful here: *mens rea* (guilt of mind) and *actus reus* (guilt of action); both are needed for a criminal conviction.

¹⁵⁹ Hedonic referring to generalized happiness and doloric referring to generalized pain in relation to the good life.

linked with the avoidance of taboos and situations deemed impure, with any transgression requiring specific actions to regain purity. This idea of purity is often intertwined with *holiness* and *sanctity*, where holiness represents a profound spiritual or moral goodness, embodying divine virtues and moral excellence. Sanctity, on the other hand, refers to the inviolability of life and moral laws, emphasizing the importance of maintaining sacred purity to uphold these sacred aspects of life.

These concepts feed into *value orientations*, which are the predominant moral frameworks within societies dictating acceptable behaviors and reactions to social violations. Honor/shame cultures focus on maintaining honor and avoiding public shame, whereas guilt/innocence cultures are driven by an internal sense of right and wrong. Fear/power cultures, meanwhile, are centered around the dynamics of fear and control, motivating people to seek power to overcome fears and exert control over their environment. Another crucial aspect is *moral kinship*, which encompasses the moral norms and obligations inherent in family relationships and practices such as marriage and parenting. Kinship practices have historically been tied to existential matters like identity and authority, although the importance of individual autonomy has led to changes in these ties.

The way individuals communicate their moral values and respond to moral impressions is encompassed in *social norms*. This area, studied within sociolinguistics, examines how language conveys social meanings, including moral values and norms, in various interpersonal and group settings. Language, both verbal and non-verbal, is used to express commitment to moral principles and respond to others' actions within a moral framework. In the realm of governance, *legal systems* play a significant role. In societies with a legal positivist view, laws are seen as distinct from personal morality and clearly define societal norms. Conversely, societies inclined

towards legal moralism view their laws as an extension of shared morality, often regulating both public affairs and private moral matters.

Moral economy delves into how social norms influence economic practices and behaviors, including what individuals give and receive. This concept has evolved from ancient critiques of money-making to contemporary concerns around ethical consumption and the social and ecological origins of goods, gaining relevance in the face of global challenges like climate change and economic downturns. Finally, *moral geography* links people and practices to specific spaces, intertwining geographical and sociocultural elements. This concept helps in understanding social and spatial justice, associating moral narratives with geographical aspects like place and mobility, and examining the interplay between geographical order, societal expectations, and notions of morality.

Normative Ethics

As opposed to descriptive ethics, which merely describes characteristics of moral behavior, normative ethics studies how agents ought to behave. There are several normative theories by which ethicists use to evaluate moral acts. There is deontology, consequentialism, and virtue ethics. These three are duty-based, outcome-based, and action-based, respectively.

Deontological theories

Deontology is known as the duty-based normative view of ethics. It is concerned with moral obligations as set forth through reason, rights, or commandments by God. Deontologists may refer to an act as obligatory, prohibited, permitted, or optional.

Contractualism

Contractualism is a normative ethical theory which holds that the rightness or wrongness of actions can be determined by the principles that free, equal, and rational people would agree to live by under a hypothetical contract.¹⁶⁰ This concept is often associated with the modern philosopher Thomas Scanlon. The key elements and principles of contractualism include.

1. **Hypothetical Contract:** Unlike social contract theories that posit actual historical contracts or agreements, contractualism posits a hypothetical situation where rational agents come together to agree upon certain moral principles.
2. **Reasonable Rejection:** A central concept in Scanlon's version of contractualism. An action or rule is wrong if any rational agent could reasonably reject a principle allowing that action or rule. The test is whether an action can be justified to others based on principles they could not reasonably reject.
3. **Rational Agents:** These are hypothetical persons who are capable of rational thought and decision-making. Contractualism is concerned with what these rational agents would agree upon as principles for guiding moral actions.
4. **Mutual Justifiability:** Morally right actions are those that can be justified to others based on principles that they could not reasonably reject. The emphasis is on justifiability rather than individual utility or benefit.
5. **Equality and Impartiality:** Every individual's interests and perspectives are given equal consideration. The hypothetical contract is imagined to be made under conditions of equality, ensuring impartiality.

The thought experiment most commonly associated with contractualism is the "hypothetical contract" approach. It is not a single thought experiment, per se, but rather a methodology for determining the right action. In this model, an action is right if it can be justified to others on the basis of principles that they, as rational, self-interested agents, could not reasonably reject.

¹⁶⁰ Thomas Michael Scanlon, *What We Owe to Each Other* (Cambridge, MA: Harvard University Press, 1998); Derek Parfit, *On What Matters* (Oxford: Oxford University Press, 2011), Volume I.

Rights-Based Ethics

Rights Theory (known most commonly through humanism) is a normative ethical theory that posits that individuals have inherent rights, which must be respected and protected. These rights are not granted by governments or based on cultural norms but are either derived from nature or human reasoning.¹⁶¹ Here are the key elements and principles.

- Inherent Rights: These are rights that individuals possess by virtue of being human. They are not conferred by society or the state but are intrinsic.
- Negative and Positive Rights:
 - Negative Rights: The right to be left alone or not to be interfered with. Examples include the right to life, liberty, and property.
 - Positive Rights: The right to something, such as education, healthcare, or basic welfare.
- Moral Autonomy: Rights-based ethics often places emphasis on the moral autonomy of individuals. This principle underscores the importance of allowing individuals to make decisions about their lives without interference, as long as they don't infringe upon the rights of others.
- Duty to Respect Rights: Along with the recognition of inherent rights comes the duty or obligation to respect and not violate these rights. This duty can apply to individuals, organizations, or states.
- Hierarchy of Rights: Some rights might be seen as more fundamental than others. For instance, the right to life is often viewed as more basic and inviolable than property rights.
- Rights as Trumps: In many interpretations of rights-based ethics, rights serve as "trumps" over other moral considerations. This means that, in most situations, rights should prevail over other moral or social concerns, such as overall welfare or utility.

One of the most commonly referenced thought experiments that brings out the nuances of rights-based deontological ethics is Robert Nozick's "Experience Machine" from his book "Anarchy, State, and Utopia" (1974). While Nozick's larger work is a defense of libertarian political theory, this particular thought experiment serves to critique utilitarianism and, in doing so, underscores the importance of rights and the intrinsic value of our experiences and actions

¹⁶¹ Joseph Raz, *The Morality of Freedom* (Oxford: Clarendon Press, 1986).

beyond mere pleasure or happiness.

The Experience Machine works as follows: imagine scientists have developed a machine that could give you any experience you desire. Once plugged into this machine, you would think and feel like you are leading the life you have always wanted. You could experience endless pleasure, happiness, success, or whatever you define as the best possible life. But there is a catch: you would have to be in the machine for the rest of your life, and everything you experience would be a mere simulation.

Nozick raises the question: Would you plug into the machine? Many people's intuition is to decline the offer. Nozick argues that if hedonistic utilitarianism (the idea that the right action is the one that produces the most pleasure or happiness) was correct, we should all want to plug into the machine. The fact that many of us would not suggests that we value things other than just pleasure or happiness. We care about leading a genuine life, having real experiences, and exercising our autonomy. These are inherent rights and values grounded in a deontological perspective.

Kantian Ethics

A deontological theory formulated by Immanuel Kant, Kantian ethics revolves around the idea that morality is not about the consequences of our actions but rather the intentions and principles behind them.¹⁶² The primary elements and principles of Kantian Ethics are the following.

¹⁶² Immanuel Kant, *Groundwork of the Metaphysics of Morals*, trans. Mary Gregor (Cambridge: Cambridge University Press, 1998); Jens Timmermann, ed., *Kant's Groundwork of the Metaphysics of Morals: A Critical Guide* (Cambridge: Cambridge University Press, 2009).

- (1) Good Will: Kant believed that the only thing that is good without qualification is a good will. Good actions come from good intentions, and a morally right action is one performed out of a sense of duty.
- (2) The Categorical Imperative: This is the central philosophical concept in Kant's moral philosophy. It is a way of evaluating motivations for action. The Categorical Imperative is often formulated in several ways:
 - a. Universalizability Principle (or Formula of Universal Law): "Act only according to that maxim whereby you can at the same time will that it should become a universal law without contradiction."
 - b. Formula of Humanity: "Act in such a way that you treat humanity, whether in your own person or in the person of any other, never merely as a means to an end, but always at the same time as an end."
 - c. Formula of Autonomy: This stresses the importance of rational agents legislating moral laws to themselves.
 - d. Formula of the Kingdom of Ends: This combines the earlier principles by asserting we should act according to maxims of a universally legislating member of a merely possible kingdom of ends.
- (3) Duty: For Kant, duty is the necessity of an action done out of respect for the moral law. This means doing the right thing simply because it is the right thing to do, not because of any external rewards or consequences.
- (4) Rationality: Kant believed that all rational beings are intrinsically valuable and have moral worth. This means that they should be respected and not used merely as means to an end.
- (5) End in Itself: This principle asserts that every rational being, capable of setting ends according to his or her own autonomy, has intrinsic worth and should not be used by others purely as a means to achieve their ends.

In discussions of Kantian deontological ethics, the most commonly referenced thought experiments are not necessarily specific scenarios invented for the purpose, but rather general hypotheticals derived from Immanuel Kant's own examples and principles. Kant's ethics emphasize duty, rationality, and the intrinsic worth of individuals. The key element of his moral philosophy is the Categorical Imperative, a standard of rationality from which all moral duties are derived. One formulation of the Categorical Imperative that Kant offers is the "universalizability principle": act only according to that maxim whereby you can at the same time will that it should become a universal law without contradiction. Let us delve into a common hypothetical scenario to elucidate this: The Case of False Promising.

Imagine you are in dire need of money and consider borrowing it from a friend. You

know you will not be able to repay it, but you think about promising your friend that you will, just to get the money now. Would it be morally permissible to make such a false promise? Using the Categorical Imperative's universalizability principle, you would ask: "What if everyone acted on this maxim (i.e., making false promises whenever it benefited them)?" If this were a universal law, promises would lose their meaning. People would expect others to break their promises, especially in situations where it was advantageous. Thus, the very institution of promising would be undermined. Since it leads to a contradiction in conception (a world where promising is both a thing and not a thing), acting on such a maxim is impermissible. This thought experiment brings out the nuances of Kantian ethics, highlighting the emphasis on universal principles and the inherent duty not to treat others merely as means to an end, but as ends in themselves.

Divine Command

Divine Command Theory (DCT) is a form of deontological ethics that maintains that morality is ultimately based on the commands or will of God.¹⁶³ The key elements and principles of Divine Command Theory include the following.

1. **God's Will:** According to DCT, what is morally right or wrong is determined by God's commands or will. Actions are good if they align with God's will and bad if they diverge from it.
2. **Omnibenevolence of God:** A foundational belief for many proponents of DCT is that God is all-good. Therefore, His commands are inherently good and just, providing a clear moral compass for believers.
3. **Religious Moral Epistemology:** For adherents of DCT, knowledge of right and wrong often comes from religious texts (like the Bible, Quran, etc.), religious authorities, personal revelation, or prayer. This is in contrast to relying solely on human reason or experience to determine moral truths.

¹⁶³ Robert Merrihew Adams, *Finite and Infinite Goods: A Framework for Ethics* (New York: Oxford University Press, 1999).

4. Non-Natural Moral Ontology: According to DCT, God's commands do not just inform humans about what's morally right—they make things morally right. That is, God's commands are what give moral principles their ontological foundation.
5. Independence from Human Reason: While human reason might align with God's commands in many instances, DCT asserts that even if a divine command seems irrational or unreasonable to humans, it still holds moral authority. The emphasis is on obedience to God's will rather than human understanding.

The Euthyphro Dilemma is one of the most renowned thought experiments associated with the discussion of divine command theory (DCT) in deontological normative ethics. It originates from Plato's dialogue "Euthyphro," in which Socrates asks Euthyphro, "Is the pious loved by the gods because it is pious, or is it pious because it is loved by the gods?"

In more contemporary terms and pertaining specifically to monotheistic religions, the dilemma can be posed as: "Is an action morally good because God commands it, or does God command it because it is morally good?" The Euthyphro Dilemma raises challenges for the divine command theory: If an action is morally good simply because God commands it, this makes morality seem arbitrary. For example, if God were to command torture or lying, those actions would become morally good by this logic. This can lead to the uncomfortable implication that God could decree any action, no matter how abhorrent, to be morally obligatory.

If God commands an action because it is morally good, then morality exists independently of God, which seems to undermine the central tenet of the divine command theory. This implies there is a standard of goodness external to God to which even He adheres. Many who adhere to the divine command theory have developed responses to the Euthyphro Dilemma. Some argue that God's nature itself is the standard of goodness, and thus His commands reflect that inherent goodness. This perspective attempts to sidestep the dilemma by asserting that what is morally good is not independent of God nor arbitrarily decreed by Him, but instead intrinsically tied to His nature.

Consequentialist theories

Consequentialism is known as the outcome-based normative view of ethics. It is concerned with the utility of decisions and action; particularly if and how an act creates the most amount of pleasure, happiness, or good for the most amount of people. Utilitarians may say an act is hedonic or doloric.¹⁶⁴

Utilitarianism

Utilitarianism is a consequentialist ethical theory which posits that the best action is the one that maximizes utility, commonly defined as that which produces the greatest well-being of the greatest number.¹⁶⁵ Here are the key elements and principles.

- A. Utility Principle: The core idea of utilitarianism is to produce the greatest amount of good for the greatest number. This could mean maximizing happiness, pleasure, or preference satisfaction, and minimizing suffering or pain.
- B. Consequentialism: Utilitarianism is a form of consequentialism, meaning that the moral worth of an action is judged solely by its consequences. The intentions or motivations behind an action are not intrinsically significant.
- C. Hedonistic Calculus: Proposed by Jeremy Bentham, this is a method of working out the sum total of pleasure and pain produced by an act, and thus the total value of its consequences.
- D. Impartiality: Every individual's happiness or preferences count equally. One person's happiness isn't more valuable or important than another's.
- E. Act vs. Rule Utilitarianism:
 - a. Act Utilitarianism: Assesses the utility of each individual action in isolation. It examines the consequences of a particular act to determine its morality.
 - b. Rule Utilitarianism: Evaluates the utility of adopting a particular rule that will then guide future actions. If adopting a rule (e.g., "always tell the truth") tends to maximize utility in the long run, then it is seen as the moral rule to adopt.
- F. Total vs. Average Utility:

¹⁶⁴ Hedonic loosely meaning "pleasurable" and doloric loosely meaning "painful".

¹⁶⁵ John Stuart Mill, *Utilitarianism* (London: Parker, Son, and Bourn, West Strand, 1863); Ben Eggleston and Dale E. Miller, eds., *The Cambridge Companion to Utilitarianism* (Cambridge: Cambridge University Press, 2014).

- a. Total Utility: Concerned with maximizing the total amount of happiness in the world.
- b. Average Utility: Concerned with maximizing the average level of happiness per person.

The Trolley Problem

The Trolley Problem poses a moral dilemma where one must decide between actively pulling a lever to divert a runaway trolley onto a track where it will kill one person, or doing nothing and allowing the trolley to continue on its current track where it will kill five people.

From a utilitarian perspective, the decision process would primarily focus on the consequences of each option.

- (i) Greatest Overall Utility: Utilitarians would consider the total happiness and suffering resulting from each decision. If the overall pain or suffering caused by the death of five people is greater than that caused by the death of one, then the moral action would be to pull the lever, even if it means actively intervening and causing a death.
- (ii) Impartiality: Each individual's well-being in the scenario would be weighed equally. The fact that actively pulling the lever might feel morally different than passively allowing events to unfold does not hold intrinsic weight for utilitarians. The focus is solely on the outcome.

In essence, utilitarians would likely conclude that pulling the lever—thereby saving five lives at the expense of one—is the morally right decision, as it maximizes overall utility by reducing the total amount of pain or suffering.

Egoism

Egoism is a normative ethical theory which posits that individuals should act in their own self-interest. It can be differentiated from mere selfishness as egoism presents self-interest as a normative principle—that is, it is not just a description of how people act but a prescription for

how they ought to act.¹⁶⁶ Here are the key elements and principles.

- Self-Interest: The core idea of egoism is the pursuit of one's own well-being or advantage. Egoists argue that individuals should prioritize their own interests above those of others.
- Types of Egoism:
 - Ethical Egoism: The belief that individuals ought to do what is in their own self-interest. This is a normative claim, prescribing how individuals should behave.
 - Psychological Egoism: The descriptive claim that individuals always act in their own self-interest, whether they realize it or not. It is an empirical observation about human behavior, not a prescription.
- Rational Self-Interest: This does not necessarily mean pursuing short-term desires. Often, it can be in an individual's rational self-interest to cooperate with others, build long-term relationships, and even, at times, make personal sacrifices.
- Individualistic Perspective: Egoism views moral claims through the lens of individual agents rather than a collective or group perspective.
- Long-Term vs. Short-Term: Egoism does not always advocate for immediate gratification. Sometimes, an individual's long-term self-interest might necessitate short-term sacrifices.

While egoism often faces criticisms for potentially leading to morally questionable outcomes, there are scenarios in which acting in one's self-interest can coincide with broader societal benefits. This alignment is sometimes referred to as the "invisible hand" in economic contexts (a concept introduced by Adam Smith) where individual self-interest can inadvertently benefit society as a whole.

Invention Patenting

Imagine you are a talented inventor with a groundbreaking idea for a new technology that can provide clean energy at a fraction of current costs. You can choose to pursue your idea, patent your invention, start a business, and eventually earn billions from this revolutionary technology. Alternatively, you can choose to give away your idea for free, allowing anyone to

¹⁶⁶ Ayn Rand, *The Virtue of Selfishness: A New Concept of Egoism* (New York: Signet, 1964); Allan Gotthelf and Gregory Salmieri, eds., *A Companion to Ayn Rand* (Chichester, West Sussex: John Wiley & Sons, Ltd, 2016).

use and produce the technology without any potential financial gain for yourself.

From an ethical egoist standpoint, choosing the first option aligns with one's self-interest, leading to personal wealth and success. Interestingly, many would argue that by following this self-interest, the broader society also benefits immensely. In trying to maximize personal gain, the entrepreneur is incentivized to ensure the technology is widely adopted, which could lead to job creation, economic growth, and the environmental benefits of widespread clean energy.

On the other hand, if the inventor gives away the idea, without the structure and resources of a dedicated organization behind it (like a company with a vested interest in its success), the technology might not be as effectively developed, distributed, or adopted, leading to potential lost opportunities for society. This thought experiment shows that egoistic motives can, in certain contexts, align with and even drive societal progress. It presents a more favorable view of egoism by suggesting that personal ambition and societal good are not always at odds and can often complement each other.

Mohism

The Chinese ethical and political philosophy called Mohism is a state consequentialist theory which holds that the moral worth of an action is determined by its overall contribution to the welfare of a state or collective, rather than the individual.¹⁶⁷ Here are the key elements and principles.

1. Welfare of the State: The primary concern is the overall welfare, order, and benefit of the state or collective. Actions are judged based on their consequences for the state or society at large.

¹⁶⁷ Burton Watson, *Mozi: A Study and Translation of the Ethical and Political Writings* (Beijing: Foreign Languages Press, 1963); Ian Johnston, *The Mozi: A Complete Translation* (Hong Kong: The Chinese University Press, 2010).

2. **Impartiality:** Just as classical consequentialism requires impartial concern for each individual's welfare, state consequentialism demands impartial concern for the various components and classes within a state or society.
3. **Meritocratic Assessment:** In some interpretations, actions and policies are assessed based on merit—how effectively they contribute to the good of the state.
4. **Pragmatic Approach:** The emphasis is often on practical and tangible results, such as economic prosperity, stability, and security, rather than abstract or individual moral principles.
5. **Collective Over Individual:** The well-being of the collective takes precedence over individual rights or interests. The individual's value is often assessed in terms of their contribution to the state or society.

Mohism is typically explored through its foundational texts, parables, and key principles.

One principle of Mohism that could serve as the basis for a thought experiment is the principle of "impartial care" or "universal love." Mozi criticized the Confucians for advocating filial piety without also endorsing the principle of universal love. In essence, he argued that if one really cared about their own family's well-being, one should also care for the well-being of others' families, as this leads to a harmonious and peaceful society.

The Two Villages Thought Experiment

Imagine two neighboring villages, A and B. In Village A, people prioritize the well-being of their own families above all else, even if it means harming members of other families or people from Village B. In Village B, people practice the Mohist principle of impartial care – they care for every individual's well-being, whether they're from their own family or another. Over time, which village is more likely to thrive and have fewer conflicts? Which village is more likely to establish cooperative ties with surrounding villages? The likely answer is Village B, as their actions, grounded in the principle of universal love, would lead to mutual cooperation and less internal and external conflict.

Virtue ethics is known as the action-based normative view of ethics. Virtue ethics is concerned with the character of person and how virtues cultivate “the good life”. Virtue ethicists may say an act is virtuous or vicious, enkratic or akratic.¹⁶⁸

Platonism

Platonic virtue ethics stems from the works of the ancient Greek philosopher Plato, particularly his dialogues where Socrates is the main protagonist. Plato's ethical views focus heavily on the nature of the good life and the importance of virtue, knowledge, and the health of the soul.¹⁶⁹ Here are its key elements and principles.

1. The Good (Form of the Good): Plato posited the existence of the realm of Forms or Ideas, which are perfect, unchanging archetypes of things we see in the world. The highest of these is the Form of the Good, which is the ultimate source of reality and knowledge.
2. Ignorance and Virtue: For Plato, virtue is a kind of knowledge. If one knows the good, one will do the good. This makes ignorance the root of all vice. Thus, ethical failings are not due to deliberate malice but rather ignorance of the Good.
3. The Tripartite Soul: Plato divides the soul into three parts: the rational (logistikon), the spirited (thumos), and the appetitive (epithumetikon). Virtue consists of these parts being in harmony, with reason rightfully governing the other parts.
4. Cardinal Virtues: Plato identified four main virtues:
 1. Wisdom (Sophia): The virtue of the rational part of the soul.
 2. Courage (Andreia): The virtue of the spirited part.
 3. Temperance (Sophrosyne): A harmony among all parts of the soul.
 4. Justice (Dikaiosyne): Each part of the soul doing its job properly, resulting in inner and outer harmony.
5. Philosopher-Kings: In his dialogue, "The Republic", Plato argued that the best rulers would be philosopher-kings, those who understand the Form of the Good and thus can rule justly.

¹⁶⁸ Enkratic meaning “having a strong will” and akratic meaning “having a weak will.” These are simplistic definitions as there are many individual theories within each category. Moreover, there is sharp disagreement as to which theory, if any, should be regarded as primary.

¹⁶⁹ John M. Cooper, ed., *Plato: Complete Works* (Indianapolis: Hackett Publishing Company, 1997); G. R. F. Ferrari, ed., *The Cambridge Companion to Plato's Republic* (Cambridge: Cambridge University Press, 2007).

6. Moral Education: Proper education and training, especially in one's youth, are crucial for shaping a virtuous character. Plato saw music, poetry, and physical training as key components of this moral education.

Plato's own writings, particularly his dialogues featuring Socrates, delve deep into questions of virtue, ethics, and the nature of the good. However, one can point to the "Allegory of the Cave" from the "Republic" as a profound thought experiment that elucidates many aspects of Platonic philosophy, even though it is not exclusively about virtue ethics.

The Allegory of the Cave

Imagine a cave where prisoners have been chained since birth, facing the wall. Behind them is a raised walkway and behind that is a fire. All the prisoners see are the shadows cast on the wall by objects passing on the walkway between the prisoners and the fire. These shadows are the only reality the prisoners know. One day, a prisoner is freed and is forced to turn around and look at the fire, the objects, and eventually is dragged outside to see the world in the light of the sun. Initially, he's blinded by the sun and longs to go back to the cave and the familiar shadows. Over time, he adjusts to the sunlight, recognizes it as the true source of light, and understands that the shadows were mere reflections of a deeper reality. The Allegory of the Cave encapsulates several Platonist principles.

1. Theory of Forms: The shadows represent the empirical, physical world that we experience, while the objects (and especially the sun) represent the non-material, eternal Forms or Ideas, which are the true reality. Virtues, in Plato's view, are aligned with these Forms.
2. Education and Enlightenment: The process of being dragged out of the cave symbolizes the philosopher's journey from ignorance to knowledge, highlighting the transformative power of education.
3. Role of the Philosopher: Once enlightened, the philosopher has a duty to return to the cave and educate others, even if they are met with resistance or even hostility.

In the context of virtue ethics, the allegory underscores that virtuous behavior and moral

education are connected to recognizing and aligning oneself with higher truths (the Forms). True virtues are more than just habits or conventions but are rooted in the eternal and unchanging realm of the Forms. Living a good life means aligning one's soul and actions with these higher realities.

Aristotelianism

Aristotelian virtue ethics is grounded in the philosophy of Aristotle and focuses on the development of virtuous character traits as the path to true happiness or the "good life" (eudaimonia).¹⁷⁰ Here are its key elements and principles.

1. Eudaimonia: Often translated as "flourishing" or "well-being," eudaimonia is the ultimate goal in Aristotelian ethics. It is not just about fleeting pleasure but achieving a fulfilling, well-lived life.
2. Virtue (Arete): Virtues are stable character traits that reflect excellence in the human soul. They represent the mean between two vices—excess and deficiency. For instance, courage is a virtue between recklessness (excess) and cowardice (deficiency).
3. Golden Mean: Virtuous action is described by Aristotle as lying between deficiency and excess. Each virtue can be understood as the mean between two extremes.
4. Practical Wisdom (Phronesis): It is the ability to deliberate and judge what is morally right or wrong in practical situations. This involves understanding the particular details of a situation and applying virtues appropriately.
5. Moral Education: Virtues are not inherent; they are cultivated through education and consistent practice. Habituation plays a critical role in developing virtuous character traits.
6. Moral Exemplars: People who embody virtuous characteristics serve as models for ethical behavior. By observing and emulating these individuals, one can cultivate virtue in one's own life.
7. Teleology: Everything in nature has a purpose or "end" (telos) that it naturally seeks, and for humans, this end is eudaimonia.

Instead of specific "thought experiments" in the modern sense, Aristotle uses practical

¹⁷⁰ Aristotle, *Nicomachean Ethics*, trans. Terence Irwin (Indianapolis: Hackett Publishing Company, 1999); Ronald Polansky, ed., *The Cambridge Companion to Aristotle's Nicomachean Ethics* (Cambridge: Cambridge University Press, 2014).

examples, detailed analyses, and a dialectical approach to bring out the nuances of his ethical views. However, one of Aristotle's central concepts, the Doctrine of the Mean, can be illustrated through various hypothetical scenarios that might be thought of as "thought experiments."

The Doctrine of the Mean

Aristotle posits that moral virtue lies between deficiency and excess, and this "mean" is relative to the individual. For example, courage is a virtue that lies between the deficiency of cowardice and the excess of recklessness. The virtuous action or emotion is always a mean between extremes.

To bring out the nuances of this, consider The Scenario of Bravery. Imagine a soldier in battle. If the soldier sees the enemy and flees without engaging because of extreme fear, they display cowardice (a deficiency of courage). If the soldier charges at a vastly superior enemy without any strategic thought, endangering themselves and their comrades, they display recklessness (an excess of courage). The soldier who assesses the situation, feels appropriate fear but acts with strategy and valor, demonstrates courage (the mean). This scenario serves to elucidate Aristotle's point that virtues are not just about having emotions or taking actions, but about having the right emotions at the right times and taking the right actions in the right circumstances.

Another way to explore Aristotelian virtue ethics is by examining his views on the development of character. Aristotle believed that virtues are habits that we develop through repeated action. In this view, one does not become courageous merely by doing one brave act but by habitually acting bravely over time.

Neo-Aristotelian

Neo-Aristotelian virtue ethics is a modern revival and adaptation of Aristotelian virtue ethics, particularly developed in the 20th and 21st centuries. Philosophers like Elizabeth Anscombe, Philippa Foot, Alasdair MacIntyre, Rosalind Hursthouse, and others have reinvigorated the Aristotelian tradition by addressing challenges from contemporary philosophy and integrating newer insights.¹⁷¹ Here are its key elements and principles.

- Eudaimonia: Similar to Aristotle's original concept, eudaimonia in neo-Aristotelian perspectives is still central. It is understood as living well and achieving a fulfilling, flourishing life.
- Naturalism: Many neo-Aristotelians, especially Philippa Foot, have presented a naturalistic account of virtue based on what is beneficial or harmful for human beings given their nature. This seeks to ground moral judgments in facts about human nature and the conditions for human flourishing.
- Virtue: Virtues are still considered as excellent states of character, but with an increased emphasis on their role in aiding human flourishing given human nature.
- Moral Education and Habituation: This remains a fundamental aspect, emphasizing the role of upbringing, societal norms, and personal reflection in cultivating virtues.
- Moral Particularism: While Aristotle emphasized practical wisdom (phronesis) in moral decision-making, neo-Aristotelians often place greater emphasis on the idea that moral judgments must always account for the particularities of situations. There is not always a one-size-fits-all rule.
- Ethical Naturalism and Function: By analyzing the nature and function of human beings, neo-Aristotelians like Foot have argued that we can derive certain moral facts and values. If something is good for a human (given their nature and function), it can be considered morally good.
- Community and Practices: Figures like Alasdair MacIntyre emphasize the role of social practices and traditions in understanding and cultivating virtue.

The Tragic Dilemma

¹⁷¹ Rosalind Hursthouse, Gavin Lawrence, and Warren Quinn, eds., *Virtues and Reasons: Philippa Foot and Moral Theory* (Oxford: Clarendon Press, 1995); Daniel C. Russell, ed., *Virtue Ethics* (New York: Oxford University Press, 2013).

Imagine you are a train track switch operator. A runaway train is hurtling down the tracks. On one track, there are five workers unaware of the approaching danger. On another, there is only one worker. You have to decide where to divert the train: do you let it continue on its path towards the five or switch it to the track with the single worker?

While a utilitarian might approach this as a straightforward numbers game (sacrifice one to save five), a neo-Aristotelian virtue ethicist might ask: What would a virtuous person do, and why? They might consider the character traits involved: compassion, duty, responsibility, and bravery. The virtue ethicist might argue that there is not always a clear-cut "right" answer in such dilemmas, but the focus should be on cultivating virtuous dispositions and making decisions from that cultivated character.

Another example is the Trolley Problem's variant where you have to push a heavy person off a bridge to stop the trolley and save five people. While consequentialist perspectives focus on outcomes, a virtue ethicist might focus on the kind of character required to push someone to their death, even for a greater good. The goal of these thought experiments in the context of neo-Aristotelian virtue ethics is to shift the focus from rules or outcomes to character and the holistic development of moral agents. The nuanced discussions often revolve around what it means to lead a flourishing human life, the role of moral education, and the complexities of human emotions and decision-making in ethical contexts.

Agential

Agent-based virtue ethics is a relatively modern approach to virtue ethics that diverges from traditional virtue ethics, which often focuses on the virtues themselves. Instead, agent-based virtue ethics concentrates on the moral agent's inner life, particularly their motivations and

emotions, to determine the morality of actions.¹⁷² Here are the key elements and principles.

1. **Moral Exemplars:** Agent-based virtue ethics looks to individuals whom we consider to be morally exemplary. Instead of deriving virtue from principles or theories, this approach looks at the characteristics of individuals we admire for their moral qualities.
2. **Inner Life:** Central to this approach is a focus on emotions, desires, and motivations. An action's moral value is determined by the inner state from which it originates.
3. **Moral Intuition:** This approach emphasizes moral intuition over rational deliberation. It trusts that morally exemplary individuals have developed intuitive judgments about right and wrong.
4. **Narrative and Moral Identity:** The moral identity of the agent is critical. This involves an individual's personal narrative and the kind of person they see themselves as and aspire to be.
5. **Moral Development and Upbringing:** Just as with other forms of virtue ethics, moral education is essential. However, the focus here is on cultivating the right kind of motivations, emotions, and intuitions.
6. **Holistic Evaluation:** Morality is not just about isolated actions but the overall life of the individual. The whole life of the moral agent is taken into account.
7. **Moral Perception:** This is the ability of the agent to perceive situations morally. An individual with a well-developed moral sense will perceive and react to situations differently from someone less morally attuned.

The Artist's Dilemma

Imagine a talented artist who is passionate about creating original artworks. She is approached by a wealthy individual who offers her a significant sum of money to replicate a famous painting. The catch is that the replica will be used in a scam to deceive art enthusiasts. From an agent-based virtue ethics perspective, the artist might consider the following. What would a virtuous artist, someone who genuinely respects the integrity of art and her own moral character, choose to do? Does participating in the scam reflect the inner life of an exemplary individual, or would it betray a lack of moral integrity? The artist's decision is not derived from a

¹⁷² Michael DePaul and Linda Zagzebski, eds., *Intellectual Virtue: Perspectives from Ethics and Epistemology* (Oxford: Oxford University Press, 2003); Walter Sinnott-Armstrong and Christian B. Miller, eds., *Moral Psychology: Virtue and Character*, Vol. 5, Moral Psychology series (Cambridge, MA: MIT Press, 2017).

calculation of outcomes or a set rule, but from introspection on her character and the kind of person she wants to be.

In discussions of agent-based virtue ethics, scenarios like these are used to illustrate how moral decisions should be a reflection of one's character. They emphasize looking inwardly at one's values, intentions, and moral compass rather than solely focusing on external consequences or rules. Such thought experiments underscore the central tenet of agent-based virtue ethics: that ethical action is deeply intertwined with the moral character of the agent.

Normative logics

In normative ethics, utilitarianism is especially apt to be quantified. Kriegel suggests that in straightforward consequentialism, “Right action is identified with that which maximizes the number of utiles (and/or minimizes the number of disutiles) in the world” (with some designated ultimate utiles).¹⁷³ Eric Steinhart quantifies hedonic (pleasure) and doloric (pain) units in accordance with their duration, intensity, and quality—taken together to produce a gross hedonic or doloric value and mapped using possible world semantics.¹⁷⁴

In deontology, oughts may be separated further into obligations, permissions, options, and prohibitions.¹⁷⁵ Andrew Reisner implies that we can create a hierarchy of normative relations using pro tanto ought (that are right as far as they go in their domain) and prima facie

¹⁷³ Kriegel, “Phenomenology, Moral,” np.

¹⁷⁴ Eric Steinhart, *More Precisely: The Math You Need To Do Philosophy* (Ontario: Broadview Press, 2018), 164.

¹⁷⁵ James E. Tomberlin, “deontic logic,” *The Cambridge Dictionary of Philosophy*, ed. Robert Audi., 3rd ed., np (Cambridge: Cambridge University Press, 2015), np.

oughts (that compare between domains), ending in absolute (all things considered) oughts.¹⁷⁶

The basic operators of deontic logic include the following: $P_iA \equiv \sim O_i \sim A$, $W_iA \equiv O_i \sim A$, and $L_iA \equiv (\sim O_iA \ \& \ \sim O_i \sim A)$. O =Obligatory, P =Permissible, W =Prohibited, L =Optional; The deontic operators O_i , P_i , W_i , and L_i are read as ‘It is obligatory O_i that’, ‘It is permissible P_i that’, ‘It is wrong W_i that’, and ‘It is optional L_i that’, respectively, where i stands for any of the various types of obligation, permission, and so on. A and B stand for practitives, understood to express practitions. Supererogation and permissible suboptimality are contained within optionality, with the latter importing indifference and the former importing non-indifference.

Metaethics

Moral ontology

Moral ontology is the branch of metaphysics that deals with the nature of moral properties, entities, and values. It explores the fundamental aspects of morality, questioning whether moral values are objective, how they exist, and what constitutes moral facts. This inquiry closely relates to metaontology, which examines the nature of existence and being, including what it means for something to exist in a moral context. Mereology, the study of part-whole relationships, intersects with moral ontology in questions about how moral properties might combine or relate to form complex moral entities or systems.

¹⁷⁶ Andrew E. Reisner, "Prima Facie and Pro Tanto Oughts," *International Encyclopedia of Ethics*, ed. Hugh LaFollete, np (Hoboken, NJ: John Wiley & Sons, Ltd., 2013), np.

Metaontology & Mereology

Ontology is the study of being. It asks whether things such as holes, numbers, properties, or events should be included on our catalogue of things we label “beings”. The question for ontology is, “What is there?” To understand what metaontology is, we must ask two more questions: “What do we mean when we ask ‘What is there?’, and ‘What is the correct methodology of ontology?’.”¹⁷⁷

There are seven categories of metaontological positions: Quineans, Ontological Pluralists, Neo-Fregeans, Neo-Carnapians, Fictionalists, Meinongians, and Grounding Theorists. Ontological monists hold the standard Quinean view that the concept of being is univocal and captured by the existential quantifier in logic—dubbed by Quine, “No entity without identity.”¹⁷⁸ Ontological pluralists adhere to the use of the existential quantifier as well, but see a need to further distinguish types of being by using more restricted quantifiers. This is usually done through quantifying over concreta and abstracta separately; “associated mode of existence.”¹⁷⁹ Neo-Fregeans hold that reality is represented by denoting—using language to distill an object and its predicate. Their motto would be, “To be is to be the potential referent of a singular term.”¹⁸⁰ Neo-Carnapian deflationists give a privileged position to language as well, proposing that meaning comes from “internal” denotations in a constructed framework. “External” questions about the framework itself (concerning numbers, properties, etc.) are trivial, if not

¹⁷⁷ Francesco Berto and Matteo Plebani, *Ontology and Metaontology: A Contemporary Guide* (New York, NY: Bloomsbury Publishing, 2015), 2. Kindle.

¹⁷⁸ Ibid., 41.

¹⁷⁹ Ibid., 56.

¹⁸⁰ Ibid., 67.

meaningless, “pseudo-questions”.¹⁸¹ Fictionalists hold that “we should neither believe nor assert the full content of ontologically disputed sentences” as these disputed beings are merely useful tools in conveying actual content.¹⁸² “Meinongians believe that some objects do not exist, but we can generally refer to them, quantify over them, and make true claims about them.”¹⁸³ Grounding Theorists actually find the Quinean approach too restrictive, and instead “take fundamentality as the target of ontology and as having explanatory value”—attempting to find what is absolutely fundamental, and placing it at the base of a hierarchy with other beings.¹⁸⁴ Grounding theory posits foremost that there are non-causal explanatory underpinnings between beings.

Mereology itself is the study of parthood as it relates to wholes, coming from the Greek “meros” meaning “part”. Within this subject there are three features relevant to this paper that have a logically ordered connection to one another: firstly composition, secondly synchronic identity and co-location, and lastly diachronic identity. First off is composition. Composition deals with mereological sums and whether or not such sums are legitimate. The “Special Composition Question” asks “Under which conditions do objects x_1, \dots, x_n , have a mereological sum y ?”¹⁸⁵ Although our intuitive response is that there *must* be some criteria that establishes a ‘ y ’ (holism), it has been hard to pinpoint for philosophers. This is where some point to synchronic identity: one may identify all the human tissue of a man named Tom as “tTom”. If Tom loses an arm, then tTom is gone, yet Tom still remains. This seems intuitively true, but does

¹⁸¹ Ibid., 72.

¹⁸² Ibid., 91.

¹⁸³ Ibid., 100.

¹⁸⁴ Ibid., 114.

¹⁸⁵ Ibid., 185.

it hold up to scrutiny? The principle of *indiscernibility of identicals* comes into play at this point. It states that ‘a’ is identical to ‘b’ if they both have the same features. There does not seem to be a way to discern a synchronic identity that is distinct from a thing’s parts in a given time and place despite modal thought experiments. One may again try to appeal to some diachronic identity thought experiment (where an armchair painted red in the afternoon (object ‘y’ at t_2) is still the same object as the blue armchair that it was in the morning (object ‘x’ at t_1)). But this too seems to give us no way to discern between a substance’s properties and the substance itself. Why is it not a different armchair: what properties are intrinsic to the armchair irrespective of the time?

There are two extremes to be noted, mereological nihilism (in which there are only ‘xs’ arranged “chair-wise” or “table-wise”) and mereological universalism in which there are a seemingly unlimited amounts of “scattered objects composed of disparate, unrelated things of different kinds...”¹⁸⁶ Attempts to find a middle-ground for ‘ys’ that can justify our common sense have come from recognizing how ‘ys’ persist through synchronic identity, co-location, and diachronic identity. Put another way, our intuitions tell us that there are mereological sums (such as Tom) which are co-spatiotemporally situated within more encompassing sums, yet are distinct and persists through many different spatiotemporal sums (such as tTom at the park). These are what Aristotle referred to as substances. However, again, the features that allow us to say these substances are discernable rather than identical to their parts have been hard to pin down. Any attempt to form an essence by marking starting points, ending points, space, or time as properties ends up looking arbitrarily concocted attempts to justify illusory patterns our brains construct. Thinking about how one may justifiably refer to a cloud as substance may help.

¹⁸⁶ Ibid., 187.

Moral Cognitivism

Moral cognitivism and moral noncognitivism are part of the debate on the nature of moral judgments. They address the question of whether moral statements express beliefs that can be true or false (cognitivism), or whether they express something else such as emotions or commands (noncognitivism).¹⁸⁷ Moral realism, anti-realism, error theory, moral perception, moral constructivism, and moral expressivism are part of the debate on the ontological status of moral values. These theories address the question of whether moral values exist independently of human beliefs, attitudes, or perceptions (realism), or whether they are dependent on them in some way (anti-realism, which includes sub-theories like constructivism, expressivism, and error theory). In the following, we will explain moral realist and anti-realist positions under cognitive and non-cognitive categories.

Moral cognitivism argues that moral judgments express beliefs that can be true or false, implying the existence of moral facts. This contrasts with non-cognitivism, which argues that moral judgments do not express truth-apt beliefs, but emotions or prescriptions.¹⁸⁸ For example, the statement, "Stealing is wrong," is a proposition that can be either true or false. The *moral perception* view, also known as moral sense theory, posits that we can intuitively or perceptually access moral truths, similar to how we perceive physical properties of the world.¹⁸⁹ We form moral beliefs based on these direct perceptions or intuitions. For example, we can directly perceive or intuit that "killing innocent people is morally wrong" without needing to infer this

¹⁸⁷ Caj Strandberg, "Cognitivism," *International Encyclopedia of Ethics*, ed. Hugh LaFollete (Hoboken, NJ: John Wiley & Sons, Ltd., 2013), np.

¹⁸⁸ Richard Boyd, "How to be a Moral Realist," *Essays on Moral Realism*, ed. Geoffrey Sayre-McCord (Ithaca, NY: Cornell University Press, 1988), 181-228; Nicholas Sturgeon, "Moral Explanations," *Essays on Moral Realism*, ed. Geoffrey Sayre-McCord, 229-255 (Ithaca, NY: Cornell University Press, 1988), 229-255.

¹⁸⁹ Robert Audi, *Moral Perception* (Princeton University Press, 2013), 1-74.

from other facts. *Moral constructivism* is a stance asserting that moral judgments can be true or false, similar to cognitivism. However, it differs by contending that the truth conditions of these judgments are shaped by agents through rational deliberation or social practices, rather than being independent realities.¹⁹⁰ The statement "Lying is bad" is true if and only if rational agents would agree to the rule "do not lie" under ideal conditions for rational deliberation. *Moral realism* is a stance affirming the existence of objective moral facts independent of our beliefs or perceptions.¹⁹¹ It aligns with cognitivism by holding that moral claims are truth-apt, expressing propositions that can be true or false. This view suggests that moral judgments go beyond individual or societal preferences to make claims about real moral features of the world.¹⁹² There are objective moral facts, so "torturing for fun is morally wrong" is not just a matter of opinion, but a truth about the world.

Moral Non-Cognitivism

Moral noncognitivism argues that moral claims do not express propositions and thus cannot be true or false. Instead, these claims express non-propositional attitudes, such as emotions or prescriptions.¹⁹³ When we say "cheating is bad," we are not describing a fact about the world, but expressing a negative attitude toward cheating. Moral expressivism, a form of noncognitivism, posits that moral statements do not describe the world, but express the speaker's

¹⁹⁰ Christine M. Korsgaard, *The Sources of Normativity* (Cambridge: Cambridge University Press, 1996), 90-135.

¹⁹¹ Russ Shafer-Landau, *Moral Realism: A Defence* (Oxford University Press, 2003).

¹⁹² Boyd, "How to be a Moral Realist"; Sturgeon, "Moral Explanations," np.

¹⁹³ Simon Blackburn, *Spreading the Word: Groundings in the Philosophy of Language* (Oxford: Clarendon Press, 1984).

attitudes or sentiments. According to this view, moral claims are not truth-apt; instead, they express evaluative attitudes. The statement "generosity is good" does not describe a fact about the world, but expresses approval of generosity. When put in emotivist terms, you might say, "Generosity... yay!" and "Selfishness... boo!"¹⁹⁴ *Error theory* combines cognitivism and moral skepticism, suggesting that while moral claims express propositions that can be true or false, all such claims are in fact false.¹⁹⁵ This is because, error theorists argue, our moral discourse wrongly assumes the existence of objective moral facts. When we say "kindness is a virtue," we are attempting to state a fact, but since there are no moral facts, all such claims are systematically false. *Anti-realism* encompasses positions that reject the existence of objective, mind-independent moral facts, such as moral noncognitivism, error theory, and moral subjectivism.¹⁹⁶ According to anti-realists, moral judgments do not correspond to any real properties or facts in the world.¹⁹⁷ Statements like "truth-telling is morally right" do not correspond to any objective, mind-independent moral facts or properties.

Moral Metaontology

Cognitivists would likely be interested in metaontology, as these areas concern what exists and how we talk about what exists.¹⁹⁸ If moral facts or properties exist, they can be assessed as true or false. Various metaontological positions could translate into different ways of

¹⁹⁴ Ibid.

¹⁹⁵ Richard Joyce, *The Myth of Morality*, (Cambridge University Press, 2001).

¹⁹⁶ J. L. Mackie, *Ethics: Inventing Right and Wrong*, (Penguin Books, 1977), 15-45.

¹⁹⁷ Joyce Richard, *The Myth of Morality* (Cambridge: Cambridge University Press, 2001), 90-124.

¹⁹⁸ W. V. Quine, *From a Logical Point of View*, (Harvard University Press, 1953).

approaching moral ontology. For example, fictionalists might see moral statements as useful fictions, whereas Meinongians might say that moral properties have some form of existence, even if they are not fully concrete.¹⁹⁹ Non-cognitivists might be more inclined to align with positions like Neo-Carnapians, who emphasize the role of language and might view moral statements as "pseudo-questions." Since non-cognitivists deny that moral statements have truth values, they may also be sympathetic to approaches that deny or downplay the existence of moral properties.

Moral Mereology

Mereology, with its focus on parts and wholes, might relate to how moral properties are constituted. If moral properties are real and exist in the world, how do they compose or relate to other properties? Indiscernibility, on the other hand, can tie into how specific moral properties or values are distinguished from one another. Cognitivists would likely be interested in these questions as they seek to understand the nature and structure of moral reality.²⁰⁰ Non-cognitivists might be less concerned with mereology and indiscernibility, as these concepts tend to presuppose some kind of structure or composition in the world. Since non-cognitivists deny that moral judgments refer to factual claims, the relationships between parts and wholes in the moral domain might be seen as irrelevant or nonexistent.

¹⁹⁹ Mark Eli Kalderon, *Fictionalism in Metaphysics* (Oxford University Press, 2005); Terence Parsons, *Nonexistent Objects* (Yale University Press, 1980).

²⁰⁰ Jonathan Dancy, *Moral Reasons* (Cambridge, MA: Blackwell, 1993). 1-17.

Moral Semantics

Moral semantics discusses both what moral terms mean (*descriptive semantics*) and why they mean what they do (*foundational semantics*)—thus having a metaontological and ontological component.²⁰¹ There are thick concepts (such as courage, generosity, or cruelty) and thin concepts (such as good, wrong, and ought). Thick concepts at their extremes are purely descriptive (concerning “is”-es and facts). Thin concepts at their extreme are purely normative (concerning values and oughts). Because of the discrepancy between their observational directness, it has been thought that there was a strong distinction between facts (thick concepts) and values (thin concepts).²⁰² However, most moral language is entangled, including both descriptive and normative elements.

The real question is whether the normative elements are factual (cognitivism) or fictional (error theory). We could be naturalistic or nonnaturalistic and reductionists or nonreductionists about thick and thin properties.²⁰³ Charles Pigden, for example, has argued for an error theory in which we may meaningfully use thick terms (such as “honest,” “kind,” “spiteful,” and loyal”) while denying the reality of their thin propositional coating (of “good,” “right,” “ought,” and “wrong”).²⁰⁴ Such a view is *naturalistic* because these thick terms emerge from the catalog of natural objects in the universe and *reductionist* because they can be fully defined without using

²⁰¹ Mark Schroeder, "Semantics, Moral," *International Encyclopedia of Ethics*, ed. Hugh LaFollete (Hoboken, NJ: John Wiley & Sons, Ltd., 2013), np.

²⁰² Catherine Z. Elgin, "Fact–Value Distinction," *International Encyclopedia of Ethics*, ed. Hugh LaFollete (Hoboken, NJ: John Wiley & Sons, Ltd., 2013), np.

²⁰³ Caj Strandberg, "Properties, Moral," *International Encyclopedia of Ethics*, ed. Hugh LaFollete (Hoboken, NJ: John Wiley & Sons, Ltd., 2013), np.

²⁰⁴ Charles R. Pigden, "Nihilism, Nietzsche and the Doppelganger Problem," *Ethical Theory and Moral Practice* 10, no. 5 (November 2007): 441-456; Philippa Foot, *Natural Goodness* (Clarendon Press, 2001).

any thin moral terms. To make this more tangible, we can think of several ways that values can be reduced.

- Value as instrumental—reducible to interest. This refers to a perspective similar to that of instrumentalism or pragmatism, where the value of something is determined by its usefulness or practical application, often measured in terms of human interest or advantage.
- Value as biological—reducible to desire. This can be seen as a form of biological naturalism or a hedonistic perspective in the context of axiology. The value of something is defined by the biological desires or instincts, like survival, pleasure, or reproduction.
- Value as teleological—reducible to final aims. This could refer to teleological ethics, where value is derived from a thing's purpose or end goal (its 'telos' in Greek). This is common in Aristotelian ethics, where 'good' is defined as what fulfills a thing's nature or purpose.
- Value as intrinsic—not reducible to anything else. This concept aligns with intrinsic value or inherent worth. In this view, something holds value in and of itself, independent of other factors like utility, biological desire, or end purpose. This is a key concept in theories of moral realism, especially deontological and virtue ethics.

Yet, as Caj Strandberg argues, the main appeal of nonnaturalism is that “it is generally presumed to deny that moral properties can be defined without using moral vocabulary.”²⁰⁵

Naturalistic reductionism may be internally consistent, but it does not seem to do justice to the normative elements we intuit. What it does do is show us is the content of moral knowledge.

1. On naturalistic reductionism, moral properties consist in natural properties and are definable without thin concepts.
2. On naturalistic nonreductionism, moral properties consist in natural properties and are definable using thin concepts.
3. On nonnaturalistic reductionism, moral properties do not consist in natural properties and are definable without thin concepts.
4. On nonnaturalistic nonreductionism, moral properties do not consist in natural properties and are definable using thin concepts.

Certain questions arise on each of these accounts.²⁰⁶ Is not moral language then archaic on (i)? What does the supervenience relation on (ii) amount to? Would not (iii) entail that thin moral properties are identical to divine phenomena (in some platonic form)? Will the supervenience relation between moral and nonmoral properties in (iv) always amount to

²⁰⁵ Strandberg, "Properties, Moral," np.

²⁰⁶ Ibid.

something mysterious (or “queer”)? It is beyond the scope of this paper to argue in-depth for any one position.

Thin concepts of “goodness” and “imperative,” however, do not seem reducible to anything other than themselves. They seem *sui generis* and recalcitrant. Moore’s “open question argument” suggests that good (simpliciter) cannot be reduced to happiness, for example.²⁰⁷ It always seems open to question what makes happiness (or whatever else) good. Similarly, imperatives seem to be distinct. As Harry Gensler says, “We cannot validly deduce an imperative from indicative premises that do not [already] contain “ought” or similar notions.”²⁰⁸ In other words, we *can* “deduce an ought from an is” if the “ought” is smuggled into the “is,” as David Hume and Henri Poincare have pointed out.²⁰⁹

If thin concepts such as these exist, then they are essential elements of moral properties. Screening emotions, other perceptions, and descriptive content off, the residue of causal data would then seem to be thin properties of goodness and imperativeness. (i) and (iii), if either are correct, will have to explain recalcitrant data or admit their causal influence.²¹⁰ Walter Sinnott-Armstrong argues that sometimes we must just learn to live with incompatible intuitions, such as holding to hard determinism yet attributing responsibility.²¹¹ Yet, hypotheses that try to fit

²⁰⁷ G.E. Moore, *Principia Ethica*. Cambridge University Press, 1903; Jussi Suikkanen, “Open Question Argument,” *International Encyclopedia of Ethics*, ed. Hugh LaFollete, np (Hoboken, NJ: John Wiley & Sons, Ltd., 2013).

²⁰⁸ Harry J. Gensler, “Deontic Logic,” *Historical Dictionary of Logic* (Lanham, MD: The Scarecrow Press, 2006), 66. Charles R. Pigden, “Hume on Is and Ought,” in *The Palgrave Handbook of Philosophical Methods*, edited by Christopher Daly, Palgrave Macmillan, 2015.

²⁰⁹ *Ibid.*, 64.

²¹⁰ Perhaps (i) would explain them as reified emergent properties and (iii) would explain them as divine attributes/ascriptions.

²¹¹ Walter Sinnott-Armstrong, “experimental philosophy,” *Cambridge Dictionary of Philosophy*, ed. Robert Audi, 3rd ed., np (Cambridge: Cambridge University Press, 2015), np.

recalcitrant data extraneously are ad hoc. In any case, the reducibility debate does help us make some axiological distinctions that are helpful.

Moral epistemology

Moral epistemology is the branch of philosophy that studies the nature, scope, and validity of moral knowledge and reasoning. It explores how individuals come to understand and justify moral judgments and beliefs, questioning the sources, reliability, and limits of knowledge about right and wrong. This field addresses issues such as whether moral knowledge is possible, how it differs from other types of knowledge, the role of intuition, emotion, and reason in forming moral beliefs, and how cultural, social, or personal factors influence our ethical understanding. Moral epistemology seeks to understand how we acquire moral knowledge and make ethical decisions, examining the processes and justifications behind our moral beliefs and practices.

Moral Intuitionism

Haidt's work in social intuitionist theory shows that we have immediate emotional responses that we post-hoc justify with moral language.²¹² We witness an event (such as eating rotten meat, homosexual incest, or corpse touching), and it affects us by moving us to disgust (known by facial recognition).²¹³ From there, we attribute moral properties to those events, such as impingement of sacredness or divinity and ascribe moral judgments (such as evil or

²¹² Jonathan Haidt, "The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment." *Psychological Review* 108, no. 4 (2001): 814-834.

²¹³ Haidt et al., "The CAD Triad Hypothesis," 574-586.

sinfulness).²¹⁴ Recognition of disgust in others, through mirror neurons and the like, produces a social phenomenon through empathic mimicry.²¹⁵ In the religious domain, this may be a precedent for creating ceremonial purity laws.

Usually, these false signals are corrected by the other senses. As Amerineni et. al. state, “Multisensory integration enhances the detection of external stimuli, facilitates object recognition, resolves ambiguities and conflicts, and decreases reaction times.”²¹⁶ Moral properties of the events conform to non-moral properties of the events, because the latter subvenes under the former. So other perceptions are necessary to determine the accurate reporting of events. However, because moral phenomena are only recognizable via the moral sense, senses such as olfaction and vision only serve as perceptual noise in attempting to disambiguate strictly moral properties. Disgust, for example, increases sensitivity to other visual and olfactory stimuli (as opposed to neutral emotions).²¹⁷ These lead to further emotional false positives due to reflective revision (awareness of emotions, which leads to inhibition). But should we account for moral emotions? What if emotions such as disgust are identical to moral properties (emotivism)?²¹⁸ What properties we decide to screen off depends on our views of moral properties (and moral ontology in general).

²¹⁴ Ibid.

²¹⁵ Joanneke Bastiaansen, Marc Thioux, and Christian Keysers, "Evidence for mirror systems in emotions," *Philosophical Transactions of the Royal Society* 364, no. 1528 (2009): 2391-2404.

²¹⁶ Rajesh Amerineni, Resh S. Gupta, and Lalit Gupta, “Multimodal Object Classification Models Inspired by Multisensory Integration in the Brain,” *Brain Sciences* 9, no. 3 (January 2019): 1-14.

²¹⁷ Kai Qin Chan, Roel van Dooren, Rob W. Holland, and Ad van Knippenberg, "Disgust lowers olfactory threshold: a test of the underlying mechanism," *Cognition and Emotion* 34, no. 3 (2020): 621-627.

²¹⁸ A. J. Ayer *Language, Truth and Logic* (Dover Publications, 1936); Jesse J. Prinz, *The Emotional Construction of Morals*, (Oxford University Press, 2007).

Natural Law Theory

Natural law theory asserts a belief in a universal law beyond human-made rules. Its foundation lies in the principle of universality, suggesting moral truths apply to all people. This concept began with ancient Greek philosophers, notably Aristotle, who in *Nicomachean Ethics* introduced the idea of a natural purpose or "telos" in beings, indicating that understanding these purposes could define morality. Stoic philosophers from Rome, such as Seneca and Marcus Aurelius, built on Aristotle's ideas. They believed in a universal "Logos" governing the cosmos, and by aligning with this Logos, humans could grasp inherent moral principles.²¹⁹

Christian theologians, especially Augustine and later Thomas, further developed these principles. While Augustine emphasized the alignment of divine and earthly laws, Thomas, in his *Summa Theologica*, integrated Aristotle's philosophy with Christian theology, arguing that human reason could discern divine law. During the Enlightenment, thinkers like Hugo Grotius and John Locke expanded on natural law. Grotius believed it existed beyond divine command, while Locke introduced natural rights, asserting inherent rights like life and liberty. His ideas influenced the American Declaration of Independence, which highlighted rights derived from natural law.

The 20th century revived interest in natural law, especially following World War II, emphasizing its role in protecting human dignity. Legal debates during this period, with scholars like Lon Fuller and Ronald Dworkin, explored the relationship between law and morality. Outside the Western context, natural law concepts appear in Islamic and Hindu traditions.

²¹⁹ George Duke and Robert P. George, eds., *The Cambridge Companion to Natural Law Jurisprudence* (Cambridge: Cambridge University Press, 2017) 17-102; John Finnis, *Natural Law and Natural Rights* (Oxford: Oxford University Press, 2nd ed., 2011), 18-28, 388-410.

Islamic law discusses Maqasid al-Shariah (the purpose of the law), emphasizing welfare-based objectives, while ancient Hindu texts reference principles of righteous behavior.

Moral Perception

With the behavioral turn of the social sciences, moral philosophers had come to disparage the moral sense as a “spooky” and “mysterious” sixth sense. However, more recent advances in perceptual sciences have also had an internal turn. In addition to the traditional senses—sight (vision), hearing, (audition), taste (gustation), smell (olfaction), and touch (somatosensation)—the perceptual science have come to nuance between varieties of touch. These include perception of temperature (thermoception), kinesthesia (proprioception), pain (nociception), balance (equilibrioception), and vibration (mechanoreception).²²⁰ Does this internal turn give room for a moral perception? Such an answer depends on whether it has “the characteristics of a sense” as stated in (c). Brian L. Keeley has proposed four criteria for individuating senses.²²¹

1. *Physics*: the external physical conditions upon which the senses depend.²²²
2. *Neurobiology*: the character of the putative sense organs and their modes of connection with the brain.²²³
3. *Behavior*: the ability to discriminate behaviorally between stimuli that differ only in terms of a particular physical energy type.

²²⁰ Amerineni et al., “Multimodal Object Classification Models Inspired by Multisensory Integration in the Brain,” 1-14. Other senses, such as perception of magnetic fields (magnetoreception) are mentioned in Carlos Lopez-Larrea, *Sensing in Nature* (New York, NY: Springer Science+Business Media, 2012).

²²¹ Brian L. Keeley, “Making Sense of the Senses: Individuating Modalities in Humans and Other Animals,” *The Journal of Philosophy* 99, no. 1 (January 2002): 5-28.

²²² Ibid., quote: “That is, we might distinguish the senses by reference to the physical qualities of their respective stimuli: vision is the detection of differences in electromagnetic stimuli; olfaction is the detection of differences in concentrations of chemical stimuli.”

²²³ Ibid., quote: “For example, vision is what we do with our eyes; audition is what we do with our cochlea and associated auditory brain areas.”

4. *Dedication*: the evolutionary or developmental importance of the putative sense to an organism.²²⁴

With A, concerning physics, we see moral philosophy on neutral ground. Because A is part of the theory in question, our answer for A will turn on prior assumptions. It may be that moral properties are identical with certain features of the natural world. But if there are moral properties that are nonnatural, then there are no physical instruments that can directly measure these nonnatural properties. With the visual sense, we can measure the wavelength of light in relation to the quale “red.” Moral phenomena are closer to nociception in that the quale (pain) is not discernible independent of the mind.

With B, concerning neurobiology, we see moral philosophy on strangely stable ground. Neuroscience has sought the moral brain and has not been found wanting.²²⁵ There are no regions of the brain specifically dedicated to morality, yet several regions are found to be indispensable.²²⁶ The parietal lobe is more concerned with moral cognition, while the limbic system is more concerned with the moral emotion (limbic system). Different parts of the frontal and temporal lobes functionally affect both. This has led some researchers to say that “the ‘moral brain’ does not exist *per se*: rather, moral processes require the engagement of specific structures of both the ‘emotional’ and the ‘cognitive’ brains. . .”²²⁷ There have been models offered to

²²⁴ Ibid., quote: “For example, we ought not attribute an electrical modality to an individual unless electrical properties of the world are part of the normal environment of that individual and to which the organism is attuned.”

²²⁵ Jorge Moll, et al. “The Neural Basis of Human Moral Cognition.” *Nature Reviews Neuroscience* 6, no. 10 (2005): 799-809. Joshua D. Greene, et al. “An fMRI Investigation of Emotional Engagement in Moral Judgment.” *Science* 293, no. 5537 (2001): 2105-2108.

²²⁶ Leo Pascual, Paulo Rodrigues, and David Gallardo-Pujol. “How does morality work in the brain? A functional and structural perspective of moral behavior,” *Frontiers in Integrative Neuroscience* 7, no. 65 (September 2013): 5.

²²⁷ Ibid.

explain both “brains” as working separately (cognitive control and conflict theory), concurrently (cognitive and emotional integration theory), and consecutively (social intuitionist theory).

Although there is no moral lobe nor a “moral, cognitive, and emotional integration theory,” this is to be expected both if the properties detected are nonnatural or reducible to natural processes. As with volition, its immaterial nature requires that it be mediated through, not instantiated in, physical structures. Thus, moral judgements and the like supervene on brain states, but they do not emerge from (in the sense of being completely reducible to) brain states.

Keeley seems to deemphasize the criterion of behavior, C. There are countless ways to group senses that seem to be behaviorally significant, so to individuate senses, we must first correctly individuate behaviors. Yet, there are significant groupings of behavior on the individual and community level (as we will see in the next section).

With D, dedication, we see moral philosophy on stable ground. We see the complexity of moral judgment develop over time in accordance with brain development, as expected with other senses. Children roughly seem to move from being a happy victimizer, to an unhappy victimizer, to an unhappy moralist, and finally to a happy moralist as become more aware of themselves and others.²²⁸ Tina Malti and Brigitte Latzko state, “Developmental studies support the conclusion that emotions in the context of moral conflict are a salient feature of children’s experience of rule violations and that they help children to increasingly differentiate their moral judgment from other social judgments.”²²⁹

²²⁸ Tina Malti, and Brigitte Latzko, "Children's Moral Emotions and Moral Cognition: Towards an Integrative Perspective," *New Directions for Child and Adolescent Development*, no. 129 (2010): 1-10.

²²⁹ Ibid.

Taking criteria A-D together, it seems that we are on stable ground to call moral perception a sense (even with some “mysterious” caveats on nonnatural accounts). What this means (and what (1) demands) is that if we are to derive hard evidence from moral philosophy, it will be at the expense of assigning primacy to moral perception in our model. As such, an expansive account of the empirical data would have to trace moral phenomena through the causal process.

A constructivist model cannot rely merely on cognition; an expressivist model cannot rely merely on emotions, an intuitionist cannot rely merely on a priori data (and so on) if they are to build robust moral knowledge. A nonnatural account of morality may trace a causal process that starts with moral properties supervening on non-moral events, leading to an agent with moral sense to intuit its sacrilegious nature, feel disgust, and assent to the belief that something evil has happened. A natural account of morality may trace a causal process as one where a “moral” agent feels anger at an event that elicits that emotion (such as infringement on autonomy) and post-hoc rationalizes the event as immoral.²³⁰

Moral Particularism

Moral particularism challenges traditional ethical theories that emphasize the importance of universal moral principles. At the heart of particularism is the stance of anti-principlism, which posits that no moral rule or principle is universally defensible and applicable to all situations without exception.²³¹ This perspective is deeply intertwined with the idea of holism

²³⁰ Kurt Gray, Liane Young, and Adam Waytz, “Mind Perception Is the Essence of Morality,” *Psychological Inquiry* 23, no. 2 (June 2012): 101-124.

²³¹ Jonathan Dancy. “Moral Particularism.” In *The Oxford Handbook of Ethical Theory*, edited by David Copp, Oxford University Press, 2006. 567-594.

about reasons. Holism asserts that the moral relevance or weight of a reason can shift depending on the situation. For example, causing pain might be morally objectionable in one context, but not necessarily in another. This leads particularists to emphasize the significance of context sensitivity in moral judgments. Instead of relying on overarching principles, moral reasoning, they argue, should be acutely aware of and tailored to the specific features of each individual situation. Consequently, particularists reject the idea that moral decisions can be guided by fixed algorithms or rule sets. They believe that no set formula can reliably lead to morally right decisions in every circumstance.²³² Lastly, moral particularism embodies a kind of epistemological modesty. It acknowledges that genuine moral understanding often springs from lived experiences and familiarity with specific situations, rather than from abstract reasoning or the mechanical application of principles.

Ethical Pluralism

Ethical pluralism offers a nuanced perspective on moral philosophy, positing that there exists a multiplicity of values that are intrinsically worthy of consideration. These values, which could range from principles like justice and freedom to virtues like kindness and loyalty, are not always harmonious with each other.²³³ In fact, pluralists emphasize the incommensurability of values, suggesting that these principles cannot always be neatly ranked or compared. This inherent diversity of values inevitably leads to situations where they might conflict. For instance, the cherished value of individual freedom can, at times, clash with the collective welfare of a

²³² Margaret Olivia Little, "Moral Generalities Revisited," In *Moral Particularism*, edited by Brad Hooker and Margaret Olivia Little (Oxford University Press, 2000), 276-304.

²³³ John Kekes, *The Morality of Pluralism* (Princeton University Press, 1993), 17-37.

community, as has been the case throughout human history.²³⁴ Given this landscape of diverse and sometimes conflicting values, ethical pluralists firmly reject the idea of ethical monism, which advocates for a singular guiding principle in all moral deliberations. Instead, they champion the importance of contextual decision-making. This approach mandates a deep dive into the specifics and particulars of each situation to discern which values should take precedence. Through this lens, ethical pluralism seeks to provide a more comprehensive and adaptable framework for navigating the complex moral terrain of real-world situations.

Moral Principlism

Moral principlism stands as a foundational framework in ethical deliberation, manifested most clearly in applied ethics, instantiated in various fields concerned with behavioral conduct. At its core, principlism identifies a set of guiding principles designed to navigate the complex terrain of ethical decision-making. Yet, principlism also recognizes that these general principles may not always offer clear-cut answers. Hence, the notion of specificity arises, suggesting that these overarching principles often require refinement and tailoring to fit the unique contours of each ethical situation. Through this blend of broad principles and contextual sensitivity, moral principlism offers a structured yet adaptable approach to ethical decision-making.

²³⁴ Isaiah Berlin and John Banville. *The Crooked Timber of Humanity: Chapters in the History of Ideas*. Princeton University Press, 2013.

Reflective Equilibrium

Reflective equilibrium, a cornerstone concept introduced by philosopher John Rawls, provides a systematic approach to refining moral and philosophical beliefs.²³⁵ This method begins with our initial intuitions, the foundational moral beliefs or judgments we hold about specific situations or dilemmas. Parallel to these are general principles, which are the overarching moral rules or theories we believe should govern our actions and judgments. However, there might exist tensions or inconsistencies between these specific judgments and general principles. Addressing this, the method of reflective equilibrium involves a process of mutual adjustment. This entails modifying either our particular judgments, our broader principles, or both, aiming to bring them into a more harmonious alignment. The ultimate goal is coherence, where there is a consistent and harmonious interrelation between our various moral beliefs. Yet, the journey to achieve this equilibrium is expansive. It emphasizes inclusivity, urging us to consider a comprehensive array of relevant beliefs and principles in our deliberative process. Moreover, this equilibrium is dynamic by nature. It is understood not as a static end-point but as an ongoing process, recognizing that new experiences, challenges, or philosophical arguments can necessitate a recalibration of our current equilibrium. Through this iterative and adaptive process, reflective equilibrium seeks to foster a more robust, coherent, and defensible system of beliefs.

The process of reflective equilibrium is a balancing act between specific moral judgments and overarching general principles. It is a methodological exercise in mutual adjustment, where particular judgments and broader principles are continuously refined until they resonate in

²³⁵ John Rawls, *Justice as Fairness: A Restatement*, ed. Erin Kelly (Cambridge, MA: Harvard University Press, 2001), 43-82.

harmony. This alignment process aims for the pinnacle of coherence, ensuring that individual judgments are congruent with the larger moral framework. Thus, the primary goal of reflective equilibrium is not merely decision-making but the creation of a harmonious and consistent system of moral beliefs.²³⁶

An adjacent concept is reflective deliberation. Reflective deliberation is a method of decision-making that combines introspection with the consideration of external viewpoints, particularly in ethical contexts. It involves critically examining one's beliefs and assumptions, while remaining open to different perspectives and feedback. This process integrates diverse viewpoints and information, fostering a holistic understanding with the goal of making well-considered, ethically sound decisions.²³⁷

Assessing Data Quality

Difficulties with moral data

Moral phenomena are inherently complex, arising from the interplay of individual psychology, social dynamics, cultural contexts, and philosophical perspectives. This complexity dictates an interdisciplinary approach for their study, integrating insights from multiple fields. As we move from applied ethics to descriptive ethics to normative ethics to metaethics, we move into more theory-laden territory. Whether it is due to an increase in scale of moral phenomena or the interactions with moral phenomena, movement toward metaethics tends to imply an increase

²³⁶ Norman Daniels. "Wide Reflective Equilibrium and Theory Acceptance in Ethics." *Journal of Philosophy* 76, no. 5 (1979): 256-282.

²³⁷ Valerie Tiberius, *The Reflective Life: Living Wisely with Our Limits* (NetLibrary, Inc., 2008), 106-127, 168-74.

in abstraction, noise, indirect observation, and coarse granularity. It also requires one assert the verity of some theories that are incompatible with others and have consequence for layers higher up on the stack.

Consequently, the data quality for moral phenomena is challenging to quantify, often relying on qualitative assessments, subjective reports, and interpretative analyses rather than straightforward empirical measurements. To evaluate this data quality, one must consider the representativeness of the data, the robustness of the methodologies, and the comprehensiveness of the interpretative frameworks. Unlike in the physical sciences, accuracy in this context is more about the depth of understanding and the inclusion of diverse perspectives.

That said, the complexities inherent in assessing data quality and understanding moral phenomena within the hierarchy of sciences are echoed across various disciplines, each facing unique challenges in their respective fields. This is especially evident in psychological phenomena such as metacognition, theory of mind, and conscious volition, as well as in large-scale phenomena in astrophysics and ecology, and in the intricate dynamics of social systems.

Starting with psychological phenomena, concepts like metacognition, theory of mind, and conscious volition share a common trait with moral phenomena: their intangible and subjective nature. These aspects of human cognition and behavior are deeply internal, not directly observable, and involve a layer of subjectivity that is difficult to quantify. For instance, metacognition, which involves an individual's awareness and understanding of their own thought processes, and theory of mind, which is about comprehending others' mental states, are complex constructs that are typically inferred from behavior or self-reported experiences.²³⁸ Similarly,

²³⁸ John H. Flavell, "Theory of Mind Development: Retrospect and Prospect," *Merrill-Palmer Quarterly* 50, no. 3 (2004): 274-290.

conscious volition, the experience of making decisions with intent, is a subjective phenomenon that eludes direct measurement. The challenge in these areas, akin to that in studying moral phenomena, is to devise methods that can reliably capture and interpret these complex, subjective, and often non-quantifiable aspects of psychology.

When we consider large-scale phenomena in the lower sciences, such as interstellar and biospheric phenomena, the challenges shift from subjectivity to scale. In fields like astrophysics, the study of galaxies involves grappling with vast, often incomprehensible scales and distances. Here, the difficulty lies in collecting data over such immense expanses and dealing with the complexities that arise from the enormous number of interacting variables. Similarly, in ecology, understanding biospheric interactions entails accounting for countless factors and relationships within ecosystems, often over large geographical areas and extended periods.²³⁹ Though more quantifiable compared to moral or psychological phenomena, the sheer scale and complexity introduce significant challenges in terms of measurement, observation, and modeling. The use of models and simulations is often necessary to understand these systems, but they can introduce their own uncertainties, especially given the limited or indirect nature of the data available.

At the higher end of the hierarchy, in the study of social systems, we encounter complexities similar to those in moral studies. Social systems are shaped by a myriad of factors including individual behaviors, cultural norms, economic conditions, political structures, and historical contexts. The study of these systems demands an interdisciplinary approach to understand the intricate interplay of these diverse elements. Like moral phenomena, the data used to study social systems are often qualitative, subject to various interpretations, and highly context dependent. The challenge is to analyze these systems objectively, despite the inherent

²³⁹ Michael Batty, *The New Science of Cities* (MIT Press, 2013).

subjectivity and variability of the data.

Across these different levels of the scientific hierarchy, whether it is the internal, subjective experiences in psychology, the vast and hard-to-measure scales in astrophysics and ecology, or the complex interplay of variables in sociology, the central challenges revolve around capturing, modeling, and interpreting phenomena that are not amenable to straightforward empirical measurement and analysis. Each field requires unique methodologies and approaches to overcome these challenges. In psychology, this might involve developing innovative behavioral experiments and self-reporting tools. In astrophysics and ecology, it might mean leveraging advanced technologies for data collection and sophisticated models for simulation. In sociology, it involves combining qualitative and quantitative methods to capture the nuances of social dynamics. Ultimately, these challenges necessitate a blend of indirect methods, qualitative data, and complex models, introducing varying degrees of uncertainty and interpretation in our scientific understanding of these diverse phenomena.

Locating morality on the hierarchy

<i>Physics</i>	Elementary Particles	Atomic Nuclei	Atoms	Molecules	Molecular Complex	Bulk Materials	Celestial Bodies	Interstellar Systems
<i>Biology</i>	Supra-molecular Chemistry	Organic Chemistry	Organelles	Cells	Tissues and Organs	Micro and Macro Organisms	Ecosystem and Geosystem	Biosphere
<i>Psychology</i>	Sensory Reception-Response	Nerve Net System	Brain Sentience	Emotional Response	Meta-cognition	Theory of Mind	Morality	Conscious Volition
<i>Sociology</i>	Norms	Roles	Institutions	Cultures	Civilizations	International System	Global Culture	Human Universals

On our example table, we placed morality as conditioned on physics (at least up to molecular complex), biology (at least up to micro- and macro-organisms), psychology (at least up to theory of mind), and as a condition for sociology (at least down to cultures). As we saw with the emergent hierarchy, phenomena that emerged at the upper levels of the hierarchy were

borne out of phenomena that emerged at lower levels of the hierarchy. Without elementary particles arranged into atomic nuclei, we cannot have atoms, molecules, or the molecular complex whereby supra-molecular chemistry can emerge. Without cells, we cannot have tissues and organs whereby nerve net systems can emerge. And without any of those, we cannot have sentience and thus do not have the capacity to detect moral phenomena. This indicates that each of these prior emergent phenomena must necessarily correlate to posterior emergence phenomena.

This does not mean that there are any direct correspondences between brain states and mental states, for example—in fact, it is arguable that we have never seen such one-to-one correspondence. But this does mean that if mental states do occur, that we should see brain activity of some sort, and thus arrangements of tissues, molecules, atoms, and so forth. By extension, where we see the detection of moral phenomena transpiring, we should see mental state change, brain activity, and so on. It would be highly suspicious if a person were to say they were perceiving some hallucination without activity in the frontal cortex, temporal lobes, hippocampus, parahippocampal gyrus, thalamus, amygdala, parietal cortex, or insula. By the same token, we should see activity in areas mentioned above (in our “moral neurology” section). The upshot is that for each lower level of emergence—that provide conditions which moral perception is dependent on—we have points of potential falsification. All the aforementioned helps us to answer (i)—the conditions for the emergent properties of moral phenomena. To answer (ii) and (iii), it will require a further detangling of different types of moral phenomena listed above (a project that goes far beyond the scope of this work).

Now, we must be clear as to what would be falsified here even if the emergent conditions were improperly positioned (as is often the case for pseudoscientific phenomena). If someone were to lie about their experience of moral phenomena, this would not indicate that the

ontological status of moral phenomena is somehow diminished. It only means that they are lying about their perceiving of moral phenomena. Thus, these conditional tests are tests of honesty and not of truth—though the former helps us get to the latter. Moreover, it may be the case that mental events happen without any brain events. Such is likely the with phenomena such as near-death experiences. However, these would need to be evidenced in other ways if they are to be considered likely. Thus, we must still rely on triangulation of testimony and other convergent quality checks. Similarly, emergent properties and phenomena that presuppose moral properties (as conditions for their existence) are opportunities for potential disconfirmation. For example, if we were to scale moral phenomena up on the individual level—say with a pattern of individual acts that support values—we should expect that the emergence of virtues (as associated with the list in the values in actions inventory above). What would be required to disconfirm the existence of objective moral phenomena is evidence that the emergence properties of moral detection are somehow illusory. This may come in the form of widespread and fundamental moral disagreement or some broader evidence for some metaphysical position (such as reductionism).²⁴⁰

The livability of data quality

One may argue that it depends on the threshold of data quality one needs for the situation. A scientific experiment funded by international backers will be different than the limited resources we all have moment to moment in our daily lives. The data quality to make important, even existential, decisions may be low grade and/or incomplete. This is the very nature of

²⁴⁰ Justin Horn, "Does Moral Disagreement Pose a Semantic Challenge to Moral Realism?" *Philosophia* 48, no. 3 (2020): 1059-1073.

heuristics.²⁴¹

In daily life, especially under constraints like limited time and resources, decisions are often made based on low-quality and incomplete data. This necessity arises from various factors. Firstly, the data available is frequently incomplete or imperfect, particularly in complex fields like psychology, ecology, or social policy. Time constraints further exacerbate this issue, as urgent situations demand quick decisions, leaving little room for extensive data gathering or analysis. Resource limitations also play a significant role, as high-quality data collection and thorough analysis often require resources that may not be readily available, especially in smaller organizations or underfunded areas. Additionally, the practicality and accessibility of high-quality data can be hindered by costs, technical barriers, or proprietary restrictions.

Human cognitive limits also influence decision-making, as people tend to rely on heuristics or biases in the absence of complete and quality data.²⁴² The dynamic nature of many situations means that data can quickly become outdated, making real-time decision-making challenging. To mitigate these limitations, individuals and organizations often employ strategies such as risk assessment and management, iterative decision-making, relying on expert judgment and experience, and seeking diverse perspectives. These approaches help navigate the complexities of making decisions with limited or low-quality data, a common reality in the practicalities of everyday life.²⁴³

There are situations where the quality of data is theoretically attainable yet practically

²⁴¹ Daniel Kahneman *Thinking, Fast and Slow* (1st ed.) (New York: Farrar, Straus and Giroux, 2011).

²⁴² Daniel Kahneman and Amos Tversky, "Choices, Values, and Frames," *American Psychologist* 39, no. 4 (1984): 341-350.

²⁴³ Herbert A. Simon, *Models of Bounded Rationality: Empirically Grounded Economic Reason (Volume 3)* (MIT Press, 1997), 398-99.

unattainable due to resource constraints. Making decisions based on (potentially) high quality data is always ideal yet historically elusive. Still, decisions need to be made. And we must quickly decide the degree to which we are responsible (or negligent) for our beliefs (*epistemic deontology*), the minimum data quality thresholds we are committed to (*admissibility of evidence*), and what practical constraints we allow to affect our decisions where precedent is unavailable (*prudential judgments*). Thus, the quality of moral data depends on the question, “In relation to what?” If we are to live consistently, we should recognize the implicit commitment to the reality of moral phenomena, the theories behind it, and the decisions based on it.

The parable of the lost man

Consider the following thought experiment.²⁴⁴ In 1982, Russian man had an appointment to meet his brother in the United States. On his way, he got lost using public transit and ended up in Omaha, Nebraska. For five years, he lived as a homeless man, attempting to talk to people who thought he was insane and speaking gibberish. Little did he know that given the demographics of Omaha, there was only a 0.005% chance that someone he came across would speak Russian. Even though the objective probability was low (nowhere near even 50%), the best shot he had was trying to do the only thing he could: try to talk to someone who might be able to understand. If that was our only option, would we not do the same? It would be negligent to withhold judgment and action. When it comes to differential diagnosis, lives may be on the line. When it comes to our eternal security, our life may be on the line.

Furthermore, every decision that we think we *ought* to make, whether consciously or not,

²⁴⁴ If any of these events happen to be true, it is by mere coincidence. This story is completely hypothetical and fabricated for the purposes of understanding the concepts attempting to be communicated.

is a reflection of our moral compass. When faced with limited resources, how we allocate them (a central concern of livability) or which consequences we deem more acceptable (a central concern of prudential judgments) are both deeply moral decisions. They reflect what we value, what we believe is right or just, and how we weigh the well-being of ourselves against that of others.

While livability and prudential judgments might seem like pragmatic concepts, they are inextricably linked to moral phenomena. Many of the practical decisions we make are a manifestation of our moral beliefs, values, and principles.²⁴⁵ Whether we are deciding on the allocation of scarce resources, prioritizing certain needs over others, or weighing the pros and cons of a particular course of action, we are always, in some way, engaging with and enacting our moral worldview.

Summary and Foregoing Remarks

In short, using our emergent hierarchy as a guide toward data quality, we indexed morality to something a little looser than theory of mind and a little tighter than cultural phenomena. If one accepts these levels of data quality as a minimum threshold for prudential judgments and everyday decision-making that one is responsible for, one should equally assent to the validity of moral data. Further, livability and prudential judgments, rooted as they are in moral phenomena, implicitly acknowledge the pragmatic truth of emergent moral properties. If any morals are imperative, it is morally imperative to believe in whatever theory best explains

²⁴⁵ Alasdair MacIntyre, *After Virtue: A Study in Moral Theory* (3rd edition), University of Notre Dame Press, 1984. 84-99.

morality—evolution, other minds, or even the Christian God (as we explore below). By extension, if one permits the inclusion of any emergent phenomena that is conditioned upon the existence of some moral property or phenomenon (or anything just as complex along the hierarchy of sciences), consistency and practical life demands the inclusion of moral phenomena in affecting data-driven decision-making. But questions still remain: what is it that best explains morality? Is it the Christian God? What specific view of the Christian God? Any answer will first require a delineation of what the moral phenomena are. We do so in the following section.

Chapter 4: Assessing Ecumenical Christian Theological Models

As stated before, theological models include two major aspects: God's attributes and God's actions. God's attributes include all the things about God that are not in relation to creation or other things outside of God. God's actions include all the things about God that are in relation to creation and other things outside of God. This is an artificial distinction, since there are innumerable attributes of God that require creation (or things outside God), at least conceptually, to make sense of the attribute. (For example, what is sovereignty without anything to be sovereign over but oneself?) Moreover, for any religions that make use of revelation, this is the practical way in which adherents even conceive of God—through non-inferential illumination or through some sort of a posteriori natural or human history. This is at least the case with most of the major world religions.

Natural Theology

Natural theology is distinguished from *revealed theology*. The former derives what can be known about God by reason (empirical and rational faculties) alone. The latter derives what can be known about God by information communicated directly by God, unmediated by nature and reflection. In this sense, natural and revealed theology have an analog with general revelation—truths God has revealed through patterns in natural and human history—and special revelation—miracles, prophets, prayer, and constellations of events.

Natural theology, however, is a branch of philosophy of religion, whereas general revelation is a branch of Christian theology. These two subjects may intersect most widely in what is called *ramified natural theology*, which uses reason to derive what can be known about

particular views of God (as in God as a Trinity, Tawhid, or Brahman).²⁴⁶ Relatedly, *doubly ramified natural theology* uses reason to derive what can be known about theological distinctives within those particular views of God (as in Calvinist, Arminian, Molinist, and Thomist schools of thought within Christianity).²⁴⁷

Though the project of natural theology arose among medieval theologians (notably Thomas Aquinas with his Five Ways), it was generally rejected by Reformers, then returned as a movement in the 17th and 18th centuries among deists and Christian philosophers, such as William Paley (whose work *Natural Theology* had considerable influence). John Cobb Jr.'s *A Christian Natural Theology* argued for a ramified process theology in the late modern period. Arguments in natural theology infer God from a priori (before experience) and a posterior (after experience) knowledge. Ontological arguments infer God from the nature of being. Cosmological arguments infer God from the contingency of the universe. Teleological arguments infer God from purpose found in the natural order. Moral arguments infer God from moral phenomena. The current renaissance of Christian philosophy among the Anglo-American world has brought with it a revitalization of traditional a priori and a posteriori arguments for God's existence.²⁴⁸

²⁴⁶ Richard Swinburne, 'Natural Theology, its "Dwindling Probabilities" and "Lack of Rapport,"' *Faith and Philosophy*. 21, no. 4 (2004): 533–546, 533.

²⁴⁷ David Baggett and Ronnie Campbell, "Omnibenevolence, Moral Apologetics, and Doubly Ramified Natural Theology," *Philosophia Christi* 15, no. 2 (2013): 337-352.

²⁴⁸ Some examples are as follows. Anselm's *ontological argument* has been reformulated using possible world semantics in Alvin Plantinga's *modal ontological argument*. Arguments from Aristotle, Augustine, Thomas, and others have been revived in Edward Feser's *Five Proofs*. The *cosmological argument* has gained mathematical and scientific rigor with William Lane Craig's *kalam cosmological argument*. Paley's *teleological argument* has likewise found new depth with the discoveries of irreducible and specified complexity in biology (cf. Michael Behe and Stephen C. Meyer) and the low likelihood of embodied rational agents existing given fine-tuning in astrophysics (cf. Robin Collins and Luke Barnes). Kant's *moral argument* has been expanded by David Baggett to include moral facts, knowledge, transformation, and moral rationality—as is our present concern.

To engage in constructive theology, Gordon Kaufman argues that there are three “moments” or “steps” (designated the *order of construction*) that give us the mechanism for developing our views about God.²⁴⁹

- In the first moment, we start by constructing knowledge of the world.
- In the second moment, we infer attributes of God from that knowledge of the world.
- In the third moment, we reconstruct (reimage) the world in light of the attributes of God.

This process is continually done as we update our understanding of the world, God, and the reimagining of the world—with each moment three becoming the new moment zero.²⁵⁰ Kaufman gives examples of experiences abstracted from the world to be used as building blocks in the first moment (such as events that lead to other events, otherness, contingent grounds, and agents). In the second moment, these building blocks are generalized as imaginative constructs whereby all imperfections are removed. So, events turn into cause and effect, otherness turns into a wholly other, contingent grounds turn to a grounding superstructure, and agents turn to a pure agent.²⁵¹ In the third moment, these metaphysical notions take on a relation to creation, especially the concrete roles God plays in response to human existence. Thus, the metaphysical notions take on anthropomorphic elements (such as fatherliness or kingliness) and metaphorical images (such as light and truth), salient to the human condition while remaining idealized.²⁵²

God's attributes may be classified according to what is communicable and incommunicable, immanent and emanant, absolute and relative, natural and moral, great and

²⁴⁹ Gordon Kaufman, *An Essay on Theological Method*, 3rd ed. (Atlanta, GA: Scholars Press, 1995), 55.

²⁵⁰ *Ibid.*, 94.

²⁵¹ *Ibid.*, 63-64.

²⁵² *Ibid.*, 65.

good, and more.²⁵³ In using reason to infer the attributes of God, there two routes: the positive (or *cataphatic*) and negative (or *apophatic*).²⁵⁴ Going either the positive route (via positive) or negative route (via negativa) aims to bring us to, what is called, *greatest possible being theology* (or GPB theology)—a adumbration of natural theology that can be later filled in by revealed theology.

Positive attributes are those in which information about God is known through descriptions of God's properties themselves. Negative attributes are those in which information about God is known through descriptions of the limitations of reality's properties (and thus God is known through the absence of their limitations). In positive theology, the use of univocal terms (or *univocity*) provides the basis for our language's capacity to speak meaningfully about God, even if our understanding is limited. Similarly, in negative theology, analogy (or *analogicity*) allows us to speak about God in terms that we understand, but with the understanding that these terms are not fully applicable to God as God is beyond our comprehension.²⁵⁵ As we see it, analogicity is a subset of equivocal language, with the distinction that the difference is in degree and not wholly unrelated. Negative theology can be useful for understanding how we gather conceptual and imaginative elements and infer from them ideas about God—especially while holding to a high view of God's incomprehensibility, infinity, indivisibility, and immutability. However, for our purposes, we have chosen to go the positive route, lest we fall prey to some variety of *explosion principle*—whereby negations do not put forth any predicates for

²⁵³ Millard Erickson, *Christian Theology* (Grand Rapids, MI: Baker Academic, 2013), 237.

²⁵⁴ Bernard McGinn, "Apophatic and Kataphatic Theology," *The Encyclopedia of Christian Literature*, ed. George Thomas Kurian and James D. Smith III (Lanham, MD: Scarecrow Press, 2010), 45-47.

²⁵⁵ Denys Turner, *The Darkness of God: Negativity in Christian Mysticism* (Cambridge: Cambridge University Press, 1995), 10-15.

explanatory usage.²⁵⁶

In consideration of the positive attributes, we will range over omnipotence, omnipresence, omniscience, and omnibenevolence. For space's sake, we will not consider the negative attributes (incomprehensibility, infinity, indivisibility, and immutability) except in relation to positive attributes. The sequence of these elements is arranged by their existential necessity. For example, consider the following. A God who does not possess aseity cannot then be expected to uphold all contingent creation. A God who possesses the truth-values of all possible worlds yet is changing in character or nature cannot be reliably trusted in moral categories. A God who is present in or outside of time yet is not loving has no reason to enter into a relationship with anything external. Thus, the sequence of these elements is presented with logical priority, as stated above.

Omnipotence

Relation to God	Relation to Creation
Absolute Power	Sovereign Control
Unlimited Agency	Sustaining Power
Inherent Capability	Primary Causality
Maximal Greatness	Determinative Will
Volitional Freedom	Permissive Will
Incorruptibility	Miraculous Intervention

Omnipotence, when discussed in the context of God, is an intricate attribute that denotes

²⁵⁶ It should be noted that negative theologies, despite using analogical language for all its reasoning, there is at least one univocal concept being used—implicitly or explicitly—the predicate or operator of *perfection*. Though, perfection by itself is not informationally rich enough unless applied to other univocal concepts.

absolute power. This means God possesses the unparalleled ability to bring about any state of affairs—sometimes stated as that which is logically possible (though it might be better stated as that which is semantically sensical). This power is not a derived one; it is inherent to God's very nature.²⁵⁷ God's omnipotence also implies unlimited agency, suggesting that there's no external force or condition that can restrict Him. Furthermore, this power is not just immense; it is of maximal greatness, indicating that it is beyond equaling or surpassing.²⁵⁸ Tied intrinsically to God's will, omnipotence is exercised with volitional freedom, meaning God chooses how and when to use this power.

When we consider omnipotence in relation to creation, it presents a picture of God's sovereign control over everything that exists. He not only initiated creation but continually upholds and sustains it. In some views of unlimited agency, while there are secondary causes in the world, like human actions, God is always the primary cause behind every event and phenomenon. His determinative will sets the parameters of reality, defining what is possible or impossible within the created order. But beyond this determinative will, there is also a permissive will where God allows certain events or actions, not as a direct act of His will but as an allowance within His sovereign plan. Finally, owing to His omnipotence, God can and does intervene in the natural order, superseding natural laws to perform what we recognize as miracles.

Though less discussed, underlying omnipotence is the idea of aseity. The term aseity is derived from the Latin "a se" which means "from oneself". In theology, divine aseity refers to the

²⁵⁷ Richard Swinburne. *The Coherence of Theism* (2nd edition) (New York: NY: Oxford University Press, 2016), 150-174.

²⁵⁸ Alvin Plantinga, *God, Freedom, and Evil* (Chicago: Eerdmans Publishing Co., 1989). 66-79.

property by which God exists in and of Himself, independently of anything else. That is, God does not depend on anything else for His existence; He is self-existent.²⁵⁹ Divine aseity is central to classical theism and has profound implications for our understanding of God's nature and attributes. Aseity includes logical necessity, metaphysical necessity, and non-contingency. Even if there are some things that exist necessarily and contingently (such as numbers in the mind of God), omnipotence suggests that God's existence is not dependent whatsoever on anything outside of God.

Omnipresence

Relation to God	Relation to Creation
Ubiquity	Pervasive Presence
Eternality	Sustaining Presence
Immanence	Relational Presence
Infinity	Concurrent Causality
Immutability	Temporal Immediacy
Transcendence	Revelatory Presence

In theological discussions about God, spatial and temporal omnipresence are vital attributes that depict His profound relationship with existence. Spatially speaking, God's omnipresence is characterized by ubiquity, meaning He is present in all locations simultaneously. This omnipresence is not just about spatial vastness; it is also about depth, as emphasized by the principle of immanence, which underscores God's intimate connection with the created world.

²⁵⁹ Sarah Adams and Jon Robson, "Analyzing Aseity," *Canadian Journal of Philosophy* (Edmonton) 50, Iss. 5 (February 2020): 251-267; Alvin Plantinga, *Does God Have a Nature?* (Marquette University Press, 1980). 140-46.

God is immense, transcending any conceivable spatial or temporal boundaries, yet remains immanent within the cosmos.²⁶⁰ Temporally, God's omnipresence is defined by eternity. He exists outside the confines of time, being both timeless and eternal. This constancy is further emphasized by His immutability, which affirms that God's omnipresence remains unchanging.

When we reflect on God's spatial and temporal omnipresence concerning creation, it paints a picture of a pervasive presence. Every fragment of the universe, from galaxies to atoms, is permeated by Him. More than just being everywhere, God's presence sustains the very fabric of existence. His relational presence signifies that He is not just a passive observer; He actively engages with His creation, especially with sentient beings. This omnipresence doesn't override secondary causes; instead, God works concurrently with them, ensuring that human agency remains intact. Time, from God's perspective, is immediate; every historical event, past, present, or future, is accessible to Him. Lastly, His omnipresence in creation serves as a revelatory tool. Through the intricacies of the cosmos, facets of God's nature and attributes become evident, providing insights into His character and essence.

Omniscience

Relation to God	Relation to Creation
Complete Knowledge	Providence
Infallibility	Foreknowledge
Eternality of Knowledge	Revelatory Knowledge
Necessary Knowledge	Responsive Knowledge
Contingent Knowledge	Moral Knowledge
Intuitive Knowledge	Relational Knowledge

²⁶⁰ T. J. Mawson, *The Divine Attributes (Cambridge Elements: Philosophy of Religion)* (Cambridge University Press, 2019), 15-28.

Middle Knowledge	Ideal Observation
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Omniscience points to the profound understanding that God has complete and exhaustive knowledge of everything. This knowledge is characterized by its infallibility; God is immune to errors or deception.²⁶¹ His knowledge spans time, granting Him an unbounded perspective where past, present, and future events are known with equal immediacy. Both necessary truths, like logical and mathematical facts, and contingent truths, which hinge on other factors including free will decisions, are within God's purview. Unlike human beings, who often employ discursive reasoning, God's knowledge is intuitive, direct, and immediate. The concept of middle knowledge, particularly emphasized in Molinism, suggests that God knows what any free creature would choose to do in any given circumstance.

Reflecting on omniscience in relation to creation, it becomes evident that this attribute plays a crucial role in God's providential care. His foreknowledge, especially of events stemming from human free will, ensures that all events, whether foreseen or responsive, align with His divine intentions. Moreover, God's omniscience is not a one-way street; it facilitates the revelation of knowledge to creation, granting sentient beings insights that they wouldn't otherwise possess. This knowledge also encompasses moral dimensions, with God having a perfect understanding of moral truths and the ethical implications of every action. Furthermore, His omniscience extends to the intricate mesh of relationships within creation, emphasizing His deep connection and responsiveness to every facet of the cosmos.

God's knowledge, as it relates to providence, can range over five labels: no knowledge, partial knowledge, exhaustive knowledge. When we say no knowledge, this is in the sense of

²⁶¹ Swinburne, *Coherence of Theism*, 175-199.

absolute absence of cognitive activity; what we can call mindless. Partial knowledge we may call *open* in the sense that there is a capacity to know, but it is akin to human or other creaturely learning—limited by the environment it is aware of. Exhaustive knowledge can come in three branches: exhaustive knowledge of what will happen in the actual world (free), exhaustive knowledge of what could possibly happen given the set of all possible worlds (natural), and exhaustive knowledge of what would happen given the set of all possible worlds (middle). We order it this way because a finite being will know what will happen once it happens. An infinitely powerful computer can know what could happen given the set of all axioms and their derivations. Only a being such as God can know what would happen, and the causal relations therein, prior to creation.

A somewhat closely related theory that helps us understand omniscience's relation to creation is *ideal observer theory*.²⁶² This is an intricate concept in ethical thought, characterized by several key elements. At the heart of this theory is the principle of impartiality, signifying that the ideal observer remains unbiased, not favoring any individual or group. This observer possesses omniscience, in that they are aware of all pertinent facts relating to a given moral circumstance. It is essential to note that this form of omniscience is domain-specific, focusing on moral facts, drawing a distinction from the theological understanding of God's absolute omniscience over all realms of knowledge. The ideal observer remains emotionally detached, understanding emotions but remaining uninfluenced by them. Their judgments exhibit consistency across analogous cases, and their perspective, marked by universality, is not limited by temporal or cultural constraints. Several guiding principles underline this theory. One is the

²⁶² Roderick Firth, "Ethical Absolutism and the Ideal Observer," *Philosophy and Phenomenological Research* 12, no. 3 (1952): 317-345.

assertion of moral objectivity, suggesting that objective moral truths exist and can be discerned by considering the judgments of the ideal observer. Another principle is moral intuition, a belief held by some that humans innately possess a sense of how the ideal observer would judge various situations. Consequently, the ideal observer's verdicts serve as the moral standard against which actions' morality is gauged. In relation to creation, would only know everything but would be impotent to change it, detached from it, and not willing the good for it—and thus not exemplify the other omni attributes.

Omnibenevolence

Relation to God	Relation to Creation
Perfect Goodness	Providence
Moral Exemplar	Grace
Unconditional Love	Redemptive Purpose
Maximal Compassion	Moral Order
Immutable Goodness	Relational Love
Universal Will to Good	Suffering Co-sufferer
Intrinsic Value Recognition	

Omnibenevolence suggests that God embodies perfect goodness, both in essence and in every action, devoid of any trace of evil.²⁶³ He stands as the moral exemplar, offering the ultimate benchmark for moral and ethical behavior. A defining feature of this divine benevolence is unconditional love; God's love is extended irrespective of merit, demonstrating a depth of affection that is unparalleled. His compassion is not just vast but maximal, reaching out to every

²⁶³ Swinburne, *Coherence of Theism*, 200-27.

corner of creation. This benevolence is anchored in an unchanging nature, emphasizing God's immutable goodness. His universal will towards the good signifies a divine desire for the optimal outcome for every being. This perspective is further enriched by His recognition of intrinsic value in all things, valuing them beyond mere utility.

When one considers omnibenevolence in its interaction with creation, the landscape is one of profound care and commitment.²⁶⁴ God's providential care, driven by His goodness, ensures the flourishing and well-being of all creation. His grace, an unmerited favor, is generously extended, often surpassing what is justly deserved. Even when confronted with the realities of evil and suffering, God's benevolence works tirelessly towards redemptive and restorative ends. This goodness is foundational to the moral fabric of the cosmos, guiding its inhabitants towards ethical alignment and harmony. But God's benevolence isn't an impersonal force; it is deeply relational, desiring a mutual and loving bond with sentient beings. And in moments of profound pain, God does not remain aloof; He empathetically co-suffers, sharing in the anguish of His creation.

There are a variety of ways in which God's love may be sorted. For example, Erickson illustrates love as care and affection, familial relations (such as God as the Father), and selfless sacrifice.²⁶⁵ Theologians agree upon two desires involved with love: to will the good of the beloved and to will the union with the beloved.²⁶⁶ The first has to do with the flourishing of the beloved in areas such as wisdom, moral knowledge, virtue, strength, health, skills, and the

²⁶⁴ Richard Swinburne, *Providence and the Problem of Evil*, (New York, NY: Oxford University Press, 1998), 221-53.

²⁶⁵ Ibid., Erickson. 262-264.

²⁶⁶ Ryan T. Mullins, *God and Emotion (Elements in the Philosophy of Religion)*, (Cambridge University Press. 2020), 41.

like.²⁶⁷ The latter has to do with personal presence and mutual closeness through shared attention and mutually openminded understanding.²⁶⁸ For our purposes of disambiguation, we will utilize the eight labels developed from the *triangular theory of love* in social psychology. These labels come from combinations of three components: passion, intimacy, and commitment. Their combinations yield the following: non-love, friendship, infatuation, empty commitment, romantic love, companionate love, fatuous love, and consummate love.²⁶⁹ Of course, it may be that such love is not reciprocated. As it relates to providence, non-love with imply a deistic conception of God's care for creation while consummate love would provide a way to unite the created order (or some part of it) with himself.

God's Providence: Divine Actions

God's actions go beyond God's providence. The latter implies that there is something outside of God to be provided for. For this reason, we will limit ourselves to providence—the activity of God, borne out of God's attributes, as it relates to creation.

	No Action	Some Action	More Action	Most Action	All Action
<i>Ontology</i>	Matter Monism	Mostly Matter	Dualism	Mostly Mind	Mind Monism
<i>Worldview</i>	Naturalism	Deism	Theism	Panentheism	Pantheism
<i>Interaction</i>	Physical Determinism	Conservation	Concurrence	Volitional	Occasionalism

²⁶⁷ Ibid.

²⁶⁸ Ibid., 42-45.

²⁶⁹ Robert J. Sternberg. "Triangular Theory of Love." *Encyclopedia of Social Psychology*, by Roy F. Baumeister, and Kathleen D. Vohs. Sage Publications, 2007. None of the components = nonlove, intimacy alone = friendship, passion alone = infatuated love, commitment alone = empty commitment, intimacy + passion = romantic love, intimacy + commitment = companionate love, passion + commitment = fatuous (foolish) love, intimacy + passion + commitment = consummate (complete) love.

<i>Providence</i>	None	Creation at Beginning	General Intervention	Special Manipulation	From Beginning to End
<i>Modes</i>	None	Laws Observation	Second Order Causal Creaturely Freedom Moral Evil	First Order Causal Miracles	Theological Determinism

God's providence can be heuristically divided into general actions and special actions. General actions are the non-contiguous and generally non-interventive actions in which God front-loaded the information-rich complexity into the predetermined processes of the natural order. It focuses more on the conservation and enabling powers of creation and creatures.²⁷⁰ We say "generally non-interventive" because there must be at least one action that was potentially interventive: the creation of the actual world. We say "non-contiguous" to allow for constellation miracles which may be non-interventive yet nonetheless provide a guiding sign for those who witness and not integral to redemption history.

Special actions are the contiguous interventive history that spans the set of religio-historical events related to the redemption of God's chosen people.²⁷¹ It focuses more on the divine government through either objective causal event chains or subjective responses bound by interpretations of natural events. How God decides to bring about his will depends on the degree of interaction he has on objective reality. We divide between God's will and interaction to tease apart possible ambiguities.

²⁷⁰ José M. Lozano-Gotor, "Divine Action." *Encyclopedia of Sciences and Religions*, edited by Anne Runehov and Lluís Oviedo (Springer Science+Business Media, 2013), np.

²⁷¹ General and special actions are not necessarily separable as general actions are conceivable as the regular occurrences of special actions.

Bruce Reichenbach defines providence as God's involvement with human affairs. He gives us eight pieces that help order the providence puzzle: God's sovereignty, God's goodness, God's power, God's knowledge, human freedom, prayer, miracles, enjoyment (humility and dance). "The task of reconciling all these themes and ideas is enormous. The endeavor has similarities to reconstructing a huge jigsaw puzzle. Puzzles are both magnetic and enigmatic."²⁷² The pieces we choose to affirm and deny will determine the outcome of the picture.²⁷³ David Fergusson's model states that there are five dimensions of providence: natural regularities, wisdom in nature and society, performative actions in history, work of the Spirit in the Church's activity, eschatological resurrection. The first two are said to be *outer* dimensions, while the last three are said to be inner dimensions. The problem of evil asks us a constraining question: in what way does God's providence (that is, his attributes and relationship to creation) account for evil in these five dimensions?

Swinburne writes, "The 'problem of evil' does not arise if one denies either the omnipotence or the perfect goodness of God (in the senses of these terms delineated in the last chapter)."²⁷⁴ Similarly, the problem of evil does not arise if one denies the reality of evil. Ronnie Campbell writes that such is the case for naturalists who hold to antirealist metaethics. Such a view seems impotent in explaining the salient facts surrounding evil—life, consciousness, the

²⁷² Bruce Reichenbach, *Divine Providence: God's Love and Human Freedom* (Wipf & Stock Pub., 2016), Location 116, Kindle.

²⁷³ David Fergusson, *The Providence of God (Current Issues in Theology)*, (Cambridge University Press, 2018), 298-304, Kindle.

²⁷⁴ *Ibid.*, Swinburne. 36.

metaphysics of good and evil, and responsibility.²⁷⁵ Other theological worldviews fair better.²⁷⁶

In the same way, our theological method constrains us further. It asks: what picture of theology arises from the sum total of the data taken from scripture, tradition, reason, and experience; and what pieces of the theodicy puzzle do these prior commitments preclude? The theodicies proffered above are the result of projects engaged in the enterprise of coherence of *generic* or *bare-bones* theism. As such, they are general enough to attach to and detach from thicker models of theism, such as Christianity and Calvinism. But how do they fit into something like Fergusson's model? What natural theodicies may call privation, greater good, free will, virtue-building, and justice in the afterlife; more ramified theodicies will call privation and demons, creation-order goods, freedom in Christ, soul-building, and treasure in heaven. Doubly ramified theodicies may use more theologically distinctive terms, or they may even deny one of Reichenbach's ingredients. Because open theism holds a limited view of divine knowledge, they are unable to retain the benefits of middle knowledge. Because Calvinism holds to a limited view of human freedom, they are unable to retain the benefits of the Bruce Little-styled free will defense.

²⁷⁵ Ronnie P. Campbell, Jr., *Worldviews & the Problem of Evil: A Comparative Approach* (Lexham Press, 2019), Location 915. Kindle.

²⁷⁶ Pantheistic worldviews that hold morality to be more than illusory have the problem of explaining how karmic cycles and other organizing principles are judged and managed. (Ibid., "Pantheism—Evil in a World Identical to God," Location 1434.) Although consciousness is implied, the origin of life, the disunity of good and evil, and human responsibility are not; making it less intrinsically probable. Process panentheism can explain the libertarian freedom required for responsibility. However, it requires the unnecessary complexity of Whitehead's metaphysics and takes the principle of creativity as a brute fact. (Ibid., "Panentheism—Evil in a World Experienced by God," Location 2065.) Moreover, it reduces morality to aesthetics and cannot explain the origin of the universe. (Ibid., 2079.) Theism seems to have the least difficulties. (Ibid., "Theism—Evil in a World Created by God," 2809.) Campbell says that animal pain is difficult to explain and naturalism has a edge in the predictability of natural laws over the unpredictable intervention of miracles (though the latter entails a risk that gives happenings more significance). And a finite, dynamic, and limited world is required for there to be genuine risk of free acts that go awry. Moreover, an inherently social God (such as the Trinity) seems to be required in explaining the loving aspect of God's nature.²⁷⁶ God would be in some sense contingent if his nature required creation. However, a loving God, sans creation would not exist "a se" if the love were not directed at separate persons within God himself.

Interactions

Free will may be seen as a subset of the laws of nature in that, if truly an axiom of reality, it may be treated as fundamental as any other law; and, if merely illusory, may be treated as reducible to any other laws. As it relates to providence, free will can be disambiguated in determinist, fatalist, compatibilist, libertarian, and libertine terms. Libertine will is completely unrestrained by moral responsibility and physical preconditions—whether this is grounded on quantum indeterminacy or radically voluntarist mental activity. Libertarian will, though constrained by internal and external factors (such as biology and environment), leaves room for choices (that could have been withheld or chosen otherwise) grounded solely on the agent's indeterminate volitions. Compatibilist views ground moral responsibility on agents, and place volition downstream from preconditioned interests and desires, either placed by God or nature (cf. Hobson's choice).²⁷⁷ Fatalist views employ a view of fate as preset by God and either ground it on the fixity of truth or on the fixity of the past.²⁷⁸ Determinist views of the will take humans to be pass-through entities for a universe predetermined from the beginning, leaving no room for agent causation (cf. Laplace's demon). Important to these distinctions is the deep question of metalogic: are propositions merely true or false (bivalence), or is there room for many-valued logics, of which "indeterminate" may be a legitimate value?²⁷⁹²⁸⁰ Theories of God's exhaustive knowledge must be reconciled to one's metalogical categories.

²⁷⁷ Bruce R. Reichenbach, *Divine Providence*, 44.

²⁷⁸ John Martin Fischer, "fate and fatalism," *Encyclopedia of Ethics* (2nd edition), edited by Lawrence C. Becker and Charlotte B. Becker (Routledge, 2001).

²⁷⁹ Roy T. Cook, "Bivalence," *A Dictionary of Philosophical Logic* (Edinburgh University Press, 2009).

²⁸⁰ Stephen L. Read, "many-valued logic," *Cambridge Dictionary of Philosophy* (3rd edition), edited by Robert Audi (Cambridge University Press, 2015).

Worldviews

The world, taken to include both the universe—as the collection of all physical objects—and the non-physical things—values, propositions, and entities; both concrete and abstract—from any one vantage point can be called a metaphysic or *worldview*.²⁸¹ There are numerous constructions of the various worldviews. These can be thinly formulated, dividing between mind-tending or matter-tending. Or than can be more thickly formulated, fleshed out in specific religions and ideologies. In the realm of divine providence, however, we focus on the visible spectrum of God-talk. On this spectrum we roughly observe the following: naturalism, deism, theism, panentheism, and pantheism.

Naturalism can be defined, in relation to providence, as the world devoid of any sort of deities or their relation to creation. Even such terms as “creation” used here are vacuous or privative since what exists could not have been created by some being irreducible to the natural world. Deism can be defined as a reductionist theology which is pared down to its bare essentials.²⁸² Providence, if there is any implied, can only refer what was wound up at the creation of the universe. Theism, by contrast, holds that God is distinct from creation yet stands in some continual relation to creation.²⁸³ Panentheism goes further and places the world in God in some immanent way, though God remains transcendent (the world does not exhaust God’s

²⁸¹ The term “metaphysic” here is a wordplay, referring (1) to one’s metaphysic (view of the nature of reality) in relation to other metaphysics and (2) to enterprise of moving toward first principles (the simplification of concepts that seem to generalize across all of reality—natural laws that extend even past physics).

²⁸² Alan W. Gomes, “Deism,” *The Encyclopedia of Christian Civilization*, edited by George Thomas Kurian. Wiley, 2012.

²⁸³ Antony Flew, “Theism,” *A Dictionary of Philosophy*, 3rd ed. (Macmillan Publishers Ltd, 2002).

existence).²⁸⁴ Pantheism, finally, asserts that the world does exhaust God's existence. All is God in the sense that they are one and the same.²⁸⁵

God's Will

God's will is concerned with what God wants and the manner in which he brings about what he wants. It is in this sense that God wishes according to his good pleasure.²⁸⁶ His will has been described as necessary in relation to himself and free in relation to creation. A distinction has also been drawn between his decretive (hidden) and preceptive (revealed) will. However, in terms of God's providence, the most useful distinction is between God's undesiring, intentional, circumstantial, and ultimate will.²⁸⁷ Undesiring will is the absence of any illocutionary acts. To flesh this out, this includes (but is not limited to): constatives (such as predictions), directives (such as imperatives), interrogatives (such as questions), commissives (such as promises), expressives (such as wishes), acknowledgements (such as condolences), and declarations (such as guarantees).²⁸⁸ This will help us see how these may further ramify intentional, circumstantial, and ultimate will. Intentional will can be defined as what God wishes, but which he allows to happen otherwise. Circumstantial will can be defined as God's will based on the set of less than

²⁸⁴ Marie Vejrup Nielsen, "Panentheism." *Encyclopedia of Sciences and Religions*, edited by Anne Runehov and Lluís Oviedo (Springer Science+Business Media, 2013).

²⁸⁵ Paul Lagasse, "Pantheism," *The Columbia Encyclopedia* (8th edition) (Columbia University Press, 2018).

²⁸⁶ E. F. Harrison. "Will," *Evangelical Dictionary of Theology* (3rd ed.), Walter A. Elwell, ed. (Baker Publishing Group. 2017).

²⁸⁷ M. E. Osterhaven, "Will of God" *Evangelical Dictionary of Theology* (3rd ed.), Walter A. Elwell, ed. (Baker Publishing Group. 2017).

²⁸⁸ Kent Bach, "Pragmatics and the Philosophy of Language," *Blackwell Handbooks in Linguistics: The Handbook of Pragmatics*, edited by Laurence Horn and Gregory Ward (Blackwell Publishers, 2006).

perfect circumstances. And God's ultimate will can be defined as the final consequences that will come about. Another useful distinction here is how God brings about his ultimate will. God may bring about his ultimate will through decree or commands—commands being an illocutionary speech act that motivates but does not necessitate the response of the agent to whom it is directed, and decree being the instantiation of an event (by God's word) which is unrelated to the obedience or disobedience of any agents.²⁸⁹

Laws of Nature

Laws of nature may be loosely defined as the principles that govern the workings of the world. As it relates to divine providence, the natural laws in some sense hold because of a covenant relation between God and creation.²⁹⁰ By analogy, if God is the sovereign Lord and creation is his property, then the laws of nature may be viewed as edicts. The difference, of course, being that these laws are not merely legislative but also executively enforced. Whether they necessitate the purposes of God, and how they do so (whether through some inherent teleological tendencies or external force) will depend on how laws of nature are more generally conceived. If God intends to accomplish his purposes through the laws of nature, it makes a significant difference whether such laws are unbreakable (having necessitating relation) or if they are merely useful fictions (epistemic generalizations based on regularities). In the former, it seems God would be required to front-load the outcomes from the beginning. In the latter, it seems God would be required to be on maximal maintenance duty. Here, we present seven

²⁸⁹ Paul Helm, *The Providence of God (Contours of Christian Theology)* (InterVarsity Press. 1993), 47-48.

²⁹⁰ D. C. Jones, "Nature, theology of," *Evangelical Dictionary of Theology* (2nd ed.) (Baker Publishing Group. 2013).

views.²⁹¹

The *regularity view* holds that laws are sequences of event-types in constant conjunction, but not logically necessary nor certainly set in causal relation. The *epistemic view* holds that laws are merely inductive generalizations that have a privileged epistemic status based on continued confirmation of expectations. Both the regularity and epistemic views have the issue of demarcating laws from accidents. The *inference-ticket view* holds that laws are actually disguised rules of inference rather than true propositions (though it is difficult to see how such universally quantified inferences could be without truth content). The *web-of-laws view* takes laws to be axioms and theorems, simplifying the data of the world a web of information-saturated principles. Similar to prior views, it is difficult to attribute mind-independent objectivity to the web-of-laws view. The *necessitarian view* holds that lawhood obtains when there is an a priori nomic relation among properties that are universal. By contrast, the *metaphysical contingency view* holds that such nomic relations are not logically or metaphysically necessary but are only discoverable a posteriori. The *metaphysical necessity view* holds that laws flow from the grounding essences of properties that require certain behaviors of their bearers. The necessitarian, metaphysical contingency, and metaphysical necessity each have problems in accounting for both the causal explanation and necessitating relation of natural laws.

Miracles

With an analogue with theories of interaction between the brain and the mind, in neuroscience and philosophy of mind, God's interaction with creation ranges from non-

²⁹¹ Stathis Psillos, "Laws of nature," *Philosophy of Science A-Z* (Edinburgh University Press, 2007) 135-140.

interactive to occasionalist views.²⁹² Because we are dealing with divine action, rather than merely human action, we will appropriate terminology taken from research on miracles. Thus, the range of labels include the following: non-interactive, conservationist, concurrent constellation, concurrent volition, occasionalist. The non-interactive view holds that God is absent any relation whatsoever with creation. The conservationist view holds that God has a minimal role of secondary causation in preserving the existence of free creatures who produce genuine natural effects.²⁹³ Concurrentist views hold that both God and creatures have genuine causal contributions in the production of effects.²⁹⁴ The constellation branch includes miracles defined as a significant number of improbable events that come together to transmit a religious message so that the interpretation motivates the causal contribution of the creature.²⁹⁵ The volition branch includes miracles defined as intervention that apparently violates the laws of nature (such as the conservation of energy). The occasionalist view holds that there is no secondary causation, and thus no significant creaturely freedom—it is God alone who produces effects in nature, precluding causal contributions from external substances.²⁹⁶

²⁹² Sukjae Lee, "Occasionalism," *The Stanford Encyclopedia of Philosophy* (Fall Edition), Edward N. Zalta (ed.), 2020.

²⁹³ Craig G. Bartholomew, *The God Who Acts in History: The Significance of Sinai* (Eerdmans Publishing, 2020), 175.

²⁹⁴ "[1] God acts immediately and directly in the action of a creature. [2] Neither God's action nor that of the creature would, by themselves, be sufficient for the action to take place. [3] Apart from this concurrence of action, neither action would exist." (Ibid., 177.)

²⁹⁵ Winfried Corduan. "Recognizing a Miracle," *In Defense of Miracles: A Comprehensive Case for God's Action in History*, ed. Geivett, R. Douglas and Gary Habermas (IVP Academic, 1997), 105.

²⁹⁶ Ibid., Bartholomew. 174.

Theodicies

There have been various solutions proposed in answering these problems of evil. Here, we focus on four: evil as a privation, the greater good principle, skeptical theism, and middle knowledge. Evil as privation and the greater good principle gives a birds-eye view of solutions to the problems and have been used to address a broad range of problems. William Hasker calls these “general-policy” theodicies because they justify “God’s permission of certain evils as being the consequence of a general policy that a wise and benevolent God might well adopt.”²⁹⁷ This is contrasted with specific-benefit theodicies, such as skeptical theism and middle knowledge, which attempt to defend meticulous providence—God working through each and every event to produce benefits, avert harms, and bring about his good purposes.²⁹⁸ Although it could be said that greater good theodicies are aimed at the logical problem and skeptical theism at the evidential problem, we will see that each theodicy plays a role in defeating crucial pieces of both versions. In theory, a grand unified theodicy should be complementary from general to specific.

Evil as Privation

Evil as a privation, especially in the tradition of Augustine, states that moral evil is not a thing in itself but rather the absence of being. R. Douglas Geivett explains: “Every being is good insofar as it has being. Evil is a parasite on being; it is not a substance as such. Rather, it is a privation in a substance. A thing is evil to the extent that it lacks some particular good that is appropriate to it.”²⁹⁹ This view undercuts a host of possible problems. If moral evil had its own

²⁹⁷ William Hasker, “An Open Theist View,” *God and the Problem of Evil*. 62.

²⁹⁸ Some have called this “meticulous providence” in which God is involved in all the details.

²⁹⁹ R. Douglas Geivett, “Augustine and the Problem of Evil,” *God and Evil: The Case for God in a World Filled with Pain* (InterVarsity Press, 2013) Locations 786-788, Kindle.

substance, a case could more easily be constructed in pinning God as being blameworthy for its existence. Why would God preserve its existence? More damning, why would God cause evil to exist in the first place? By contrast, viewing evil as corruption, deviation, dysfunction, deformity, good gone awry, or missing the mark of perfection, allows one to construct an argument from permissibility. God may permit responsible agents who commit evil acts to exist because of their conditional state of being possibly blameworthy and possibly praiseworthy. In this way, God does not sustain evil's existence but sustains those who commit evil acts to exist—a more modest contention.

Moreover, when couched in agent-relative terms, we can grade the quality of evil by its phenomenal character. For example, Michael Murray distinguishes between three levels of pain: (a) information-bearing neural states produced by noxious stimuli, resulting in aversive behavior, (b) a first-order, subjective experience of pain, and (c) a second-order awareness that oneself experiencing.³⁰⁰ Such a distinction helps us see that the pain experienced by humans with reflective awareness is different in quality than animals who may experience pain with unreflective awareness (similar to blindsight) and plants that exhibit nociceptor response. Given these distinctions, much of the evils associated with plants and animals may not be as pernicious as previously thought.

Greater Good

Phillip Cary explains the greater good policy as follows. “It is the twofold teaching that (1) no evil happens without God’s permission, and (2) God always has a good reason for

³⁰⁰ William Lane Craig, “The Molinist Response,” *God and the Problem of Evil*. 143.

permitting the evils that happen, because he uses every evil to bring about a greater good.”³⁰¹

Cary notes, “This greater good principle, as it is often called, is far from a complete answer to the problem of evil. It does not tell us how to find out what is the greater good that gives meaning to each particular evil we suffer.”³⁰² Such is the work of more specific-benefit theodicies.

The free-will defense may be considered a species of the greater-good theodicy aimed at the external logical problem of evil. This view holds that God thought the evil permitted by giving humans free will worth it. As John Feinberg puts it, “Free will is a value of the highest order, which God should have given.” Yet, genuine free will requires significant freedom. God cannot determine that everyone will freely do only what is good.³⁰³ Yet, God is justified in the evil he permits because, as Feinberg puts it, “free will is a good that far overbalances any evil produced by the use of such a will.”³⁰⁴ Bruce Little goes so far as to say that gratuitous evil—evils for which there no purpose—is the natural consequence of free will. “Significant human freedom means that we can obey as well as disobey God—those are real choices before us. A choice is a true choice if and only if it is a choice that can actually be made and corollary consequences follow—such such as in the Garden (Gen 2:17; Rom 1).”³⁰⁵

Swinburne has fleshed out ways in which God may have used the possibility of evil for

³⁰¹ Ibid., 26.

³⁰² Phillip Cary, “A Classic View,” *God and the Problem of Evil*. 15.

³⁰³ This point may be most clearly seen in the essential kenosis theodicy. This view, especially as propounded by Thomas Oord, demonstrates impossibility of God’s sovereignty overcoming human freedom, but showcases the ways in which God uses natural laws and societal patterns to work out his will.

³⁰⁴ John S. Feinberg, “Theodicy,” *Evangelical Dictionary of Theology*, ed. Walter A. Elwell. 2nd ed. Baker Publishing Group, 2013.

³⁰⁵ Bruce Little, “God and Gratuitous Evil,” *God and Evil*. Locations 458-460.

greater goods. He calls it the higher-order-goods defence: "the good of performing certain sorts of good action, namely those done in the face of bad states, and of having the opportunity freely to choose to do such actions."³⁰⁶ He argues that there is inherent value in beauty, thought and feeling (beliefs, incentive and deterrent desires, rightly focused emotions such as love), actions (libertarian freedom in the face of temptation, the ability to freely love, the opportunity to be used for right action, correct orientation to God). It is good that we should desire good things. "Often it is good that we should have and so desire to have food and drink (when we need them), sexual intercourse (with our spouse), fame (when we deserve it), and fortune (when we can rightly use it)."³⁰⁷ Yet, this allows that such desires have the possibility to go awry. Much of this hinges on the principle of honesty. Swinburne defines this as follows. "God has an obligation not to make a world in which agents are systematically deceived on important matters without their having the possibility of discovering their deception."³⁰⁸ He explains that this means "God must not create a world in which in general people cannot discover the truth of how it works and what is good and bad, at any rate over time, in cooperation."³⁰⁹

Without the real possibility—not merely the appearance—of sickness, disability, deformity, madness, and accident, we would not have the opportunity to respond with sympathy, courage, reforming zeal.³¹⁰ Without evil, we would have no opportunity to manifest

³⁰⁶ Richard Swinburne, "Natural Evil and the Scope for Response," *Providence and the Problem of Evil* (Oxford University Press, 1998), 167. Kindle.

³⁰⁷ Ibid., "The Fact of Moral Evil," 141.

³⁰⁸ Ibid., "The Range of Moral Evil; and Responsibility," 145.

³⁰⁹ Ibid.

³¹⁰ Ibid., 172.

any sort of goodness at all. By permitting natural evil, he makes possible many good states.³¹¹ In explaining this more meticulous view of providence, Swinburne argues for God's right and duties as a carer for humans as dependents (to the extent of our incompetence and distorted aims and values): advance directive (the prior choices already made), substituted judgment (the trend of how the agent would have acted had they been competent), what is objectively in the individual's best interest.³¹²

Moreover, much "soul forming" requires the genuine possibility of failure, the knowledge of real suffering (of animals and others), the ability to learn from preventable states, lack of perfect awareness of God (that may create undue influence on our choices), and the real possibility of bad consequences. Bad states of affairs have value in deterring callousness and appreciation of the good while real consequences have the value of deterrence, prevention, reform. James Spiegel writes that soul forming (sometimes called soul-making or soul-building) in the tradition of Irenaeus explains natural evil as an opportunity to build character, faith, and eschatological hope, in line with the scriptures.³¹³ We may consider this thicker view of greater good, coupled with soul forming, a middle ground between the general-policy and specific-benefit categories in that they hone in on particular situations and yet cover a broad array of ways in which God may repurpose evils for good.

Skeptical Theism

Skeptical theism is a response to the evidential problems of evil that says, given our

³¹¹ This principle may be applied to the phenomenal character of libertarian free will. It would seem like God is lying to us with such a widespread and epistemically basic illusion.

³¹² Ibid., 230.

³¹³ James Spiegel, "The Irenaean Soul-Making Theodicy," *God and Evil*, Location 932.

limited access to knowledge, we can only know proximate entailments between possible goods, evils, and whether one would outweigh the other in the long run.³¹⁴ Michael Bergmann states, “Given these knowledge limitations, it is not rational to infer, from our inability to think of any God-justifying reasons for permitting horrific suffering we know of, that there probably are none.”³¹⁵ Stephen Wykstra says that there are two claims of skeptical theism: (1) “If such a being as God does exist, what our minds see and grasp and purpose in evaluating events in our universe will be *vastly less* than what this being’s mind sees and grasps and purposes,” and (2) “if the first claim is true, then many evidential arguments that might seem to weigh heavily against theism do not come to much.”³¹⁶ He argues that skeptical theism is a misnomer and prefers *sensibly humble* theism, which avoids the tendency to conflate it with philosophical skepticism.³¹⁷ “It asks us, at bottom, to think very seriously about what is to be expected *if theism is true*—about what possibilities are *integral* to theism.”³¹⁸ And if explanations for evil are expected given more generic worldviews (such as mere theism), such explanations are expected in more specified versions of those worldviews (such as Christianity).

Middle Knowledge

One view of omniscience holds that God not only knows what can happen (*natural*

³¹⁴ This is seen most sharply with developments in “chaos theory,” where it has been demonstrated mathematically that just one flap of a butterfly’s wings can set off a causal chain that brings about a hurricane as a consequence.

³¹⁵ Michael Bergmann, “Skeptical Theism,” *Cambridge Dictionary of Philosophy* (3rd edition), ed. Robert Audi (Cambridge University Press, 2015).

³¹⁶ Stephen Wykstra, “A Skeptical Theist View,” *God and the Problem of Evil*. 107-108.

³¹⁷ *Ibid.*, 115.

³¹⁸ *Ibid.*

knowledge) and will happen (*free knowledge*) but also what would happen (*middle knowledge*) given the set of all possible worlds.³¹⁹ This includes knowledge of natural and moral evils that would occur in all possible worlds. What we may call the *middle knowledge theodicy* says that God's knowledge of what would happen in any given circumstance (including the choices of creaturely freedom and his responses) positions him to select the actual world (perhaps the best of all possible worlds) logically prior to his decree of creation. Thus, if all happenings in the actual world are under God's purview, then anything that has occurred, is occurring, or will occur are by his will, permission, or providence. William Lane Craig states, "A God endowed with middle knowledge can have morally sufficient reasons for permitting events that far transcend the foresight of any temporally bound person not so endowed."³²⁰ It is also important to note that middle knowledge would greatly reinforce previously mentioned theodicies where divine foreknowledge seems implied.

Revealed Theology

Adhering to biblical data rather than, or in concert with, natural theological data.

Although in the technical sense, this includes both special and general revelation when used in Christian theology, we are using it in the neutral theological sense. In such a form, it denotes the

³¹⁹ Thomas P. Flint, "The Molinist Account of Providence," *Divine Providence (Cornell Studies in the Philosophy of Religion)* (Cornell University Press. 1998), 76. Thomas Flint's model proposes five logically successive moments of God's knowledge in providence: (i) natural knowledge (the set of all logically possibilities based on God's necessary and prevolitional knowledge of himself; could), (ii) conditional creative act of will (actualization of decisions not guided by (thus prior to) middle knowledge), (iii) middle knowledge (the set of all counterfactual conditionals based on indeterminate acts of creaturely freedom and divine volitions; would), (iv) unconditional creative act of will (actualization of decisions concerning which beings and situations to create guided by (posterior to) middle knowledge) and (v) free knowledge (the set of all true propositions of the actual world based on the real happenings and postvolitional contingent truths; will).

³²⁰ Ibid., Craig, "A Molinist View," 45.

data specific to a specific religious viewpoint, distinct from what is secular—that is to say, what can be discerned apart from whatever religious source is relevant to that viewpoint. Although there are few major religions where this term makes any sense (and even becomes contradictory) once applied to their own view of revelation, it is still useful when distinguishing perfect being theology. As such, we can view perfect being theology as entertaining the idea of God in a world where we are given no epistemic help by any outside source (and yet able to detect attributes and relations of that outside source). All information about God (or religious view) outside of this entertained world is thus *revealed theology*.

Christian Revelation

Craig Bartholomew lists out five elements in divine revelation: the author, the situation, the content, the recipient, and the result.³²¹ He categorizes revelation as a species of divine action. This is compatible with our categorization insofar as the elements are common to the union set of divine attributes and divine actions. After all, a God who does not communicate (due to lack of attributes such as love or knowledge) is prevented from revelation as a sort of divine action. He states that the author, naturally considered to be God, gives guaranteed self-disclosure of his own free action within the divine economy, not limited by human constraints. The situation of revelation, as self-disclosure, is contained within the historical structure of the creation order and presented in a linguistically accommodated fashion to include the witnesses involved. The content of revelation is determined by the identity, actualized intentions, and communicative representation of the addressees, as they respond to these truths and create a new

³²¹ Ibid., Bartholomew. 183.

reality by them.³²² The recipient of revelation are the hearers who, in encountering God and receiving the revelation, have gained the responsibility to freely respond. The result of revelation is an enlivened religious life with greater intensity in devotion to virtue, holiness, and other actions that place one in loving communion with God. Faith here is the ontological ground that allows for causal interaction between human and divine substances. Taken together, revelation is an event where universal truths about God's relationship to humanity and the world are disclosed.³²³

Dimensions of Christian revelation

Craig Bartholomew defines providence as a doctrine of faith concerning God's ongoing activity in sustaining, accompanying, and ruling of creation.³²⁴ Although divine action and divine providence are semantically close, the latter exceeds the former in that it claims a certain degree of care, foreknowledge, and planning.³²⁵ What this means is that divine providence is in some sense a combination of divine attributes and divine actions.

If divine providence takes place, it must be fleshed out in terms of the divine attributes in relation to general actions and special divine actions. David Fergusson offers up a schema in which providence is artificially separated by five dimensions: natural regularities, wisdom in nature and society, performative actions in history, work of the Spirit in the Church's activity,

³²² The new reality, put this way, has a persistent character to it as event chains continue from the point of revelational intervention.

³²³ Ibid., 186.

³²⁴ Ibid., 165-172.

³²⁵ Ibid., Lozano-Gotor.

eschatological resurrection.³²⁶ As such, it may be asked: how does God show his knowledge, constancy, benevolence, grace, and will through laws of nature, nature and society, biblical history, church history, and the eschaton. Taken together, this may be referred to as metahistory or salvation history (*Helsgeschichte*), culminating in the Christ event.³²⁷

The word of God in Christian theology

A Christian bibliology affirms five articles of faith: (i) God has the highest authority, (ii) idolatry is giving authority to anything on par or greater than God, (iii) scripture has authority over churches and dogma, (iv) scripture is inerrant, (v) both God and scripture have rational-legal and/or charismatic authority. The following is an attempt to define God's authority, the Word's authority, and scriptural authority that affirms the five articles of bibliology above.

In this context, God is defined here as the ultimate authority from which everything else derives its authority. In metaphysics, God is the ground of being—the only being with aseity which all other things depend for their existence. In ethics, God can be viewed as the ideal observer and divine commander—perfect in valuating and ordering creation. In epistemology, God makes all things known by revelation—by nature in general revelation or theophany, prophecy, inspiration, or illumination in special revelation. The Word of God can be separated into three categories: (1) God's exhaustive voluntary self-disclosure—which leaves room for things God has not disclosed; (2) the Word made flesh—Christ as the paradigmatic Word of God (answering (a) in the affirmative); and (3) special revelation—infallibly salvific words and deeds

³²⁶ David Fergusson, "Providence Reconstructed," *The Providence of God (Current Issues in Theology)* (Cambridge University Press, 2018), 298-304. Kindle.

³²⁷ Ibid., Bartholomew, 162.

of God. Scripture is defined as reliably reported, recorded, and transmitted special revelation authorized and preserved by God (answering (b) and (c) in the negative). Dogma derives its authority from the church, which derives its authority from the Word of God which derives its authority from God. This preserves a nuanced understanding of the Word of God that the pastorate can affirm without teetering on bibliolatry.

A hermeneutical-exegetical method

Any hermeneutical-exegetical method takes seriously the idea that we can move from biblical data to theological theory—moving from more overtly special revelation to more overtly general revelation, more informationally rich in theory to more informationally rich in practice. In the theological models that we compare, we will not go through all the intricacies of each step. (That is far beyond the scope of our goals.) However, a full-throated comparison of Christian theologies who have a high regard for special and general revelation will require some analogous methodological inquiry. The process is as follows: we move from the context of the biblical writers (*biblical history and literature*) to the themes of divine attributes and actions appropriate to their goals (*biblical theology*), to the themes of divine attributes and actions across all biblical authors (*systematic theology*), to the broader theoretical implications of those themes (*philosophical theology*), to the broader practical implications of those themes (*practical theology*), and to the historical account of such inquiries (*historical theology*).

The content of biblical history and literature concerns the time, place, timeline, geography, authors, audiences, sources, texts, and copyists. These are rigorously determined through textual, sources, form, tradition-historical, redaction, canonical, inner-biblical intertextual, rhetorical, structural, Poststructural, narrative, and social-scientific criticisms.

Biblical theology is concerned with the patterns of themes and doctrines focused on by the individual biblical writers—their descriptions, local prescriptions, and universal prescriptions. Systematic theology is concerned with integrating doctrines common across all of the biblical authors—the Bible’s descriptions, local prescriptions, and universal prescriptions. Philosophical theology is concerned with the use of philosophical tools to analyze and evaluate the implications of doctrines—special and general revelation’s descriptions, local prescriptions, and universal prescriptions. Practical theology is concerned with social and ministerial application and, (ideally) data-driven integration of right beliefs (orthodoxy), right actions (orthopraxy), and right passions (orthopathy) in society—descriptions and prescriptions in practice—taken together as spiritual to be spiritual formation. Historical theology is concerned with how theology developed throughout church history to today—descriptions and prescriptions in practice over time.

Reconciling Competing Data

In the following section, we will describe our approach to the same categories as listed above and present the Apostles’ Creed as a case study. My position is that natural theology is a subdiscipline of philosophy of religion that overlaps general revelation—a doctrine of Christian theism—and can weigh in on theological distinctives. If the beliefs of Christianity (ecumenical and denominational) are cognitive, they can be tested.³²⁸ Moreover, the resurrection may

³²⁸ Here, I take “cognitive” to include propositional content—that is truth or false claims that correspond or do not correspond to the world, respectively.

retroactively confirm doctrines that are unverifiable by themselves. As such, we hold to a doubly ramified natural theology similar to Campbell and Baggett.

Epistemic approach

My epistemic approach is no different than the approach taken in assessing and evaluating knowledge claims in other disciplines, though the limitations imposed by disciplines to each discipline vary.³²⁹ We start with the proposition's content, use verificationist methods to determine data quality, and then use abductive virtues to find the best explanation of that data.³³⁰ We may dub this the *abductive verificationist* approach.

General revelation and natural theology

General revelation and natural theology seem to be largely overlapping terms yet distinct in their conceptual origins. General revelation, if it is a legitimate doctrine, has its roots within

³²⁹ The prooftexts that best represent my approach are Deuteronomy 29:29, Ecclesiastes 3:11, Job 38-41, and Ephesians 3. In these verses, we have God speaking to and through various authors and audiences: Moses to the nation of Israel, Qoheleth, Job of Uz, and Paul to the saints in Ephesus. These passages show that there are theological truths that his people are privy to and not privy to—known by creation and prophets. The secret things belong to the Lord, and the laws that are revealed we are expected to follow (Deuteronomy). He has set eternity in the hearts of man, yet we do not know what he has done from beginning to end (Ecclesiastes). The grandeur of creation calls out for belief in God and our obedience to his wisdom (Job). By the Spirit, the mystery of God's grace through Christ has been revealed by the apostles and prophets (Ephesians). These verses show that God has illumined the minds of the implied audiences whether or not God has made some explicit regenerative covenant with them. If there *are* cognitive limitations due to the destruction of the imago Dei—and we cannot know anything about God until my mind undergoes regeneration (Barth)—I could not even be aware of my sinful nature (Brunner).³²⁹ we would not know and proceed as if it were. Had it been that we were not yet a believer, someone may share the gospel, and the love conveyed may compel me (Wright) to partake in a novel layer of reality (McGrath).³²⁹ But until we can hold fast to some pivotal truths of the Christian faith, it seems that such fideism will fetter out into sincere questions of what we may partake in other communities of faith (Cobb). From a psychological perspective, children (between 18 and 24 months) begin to imagine and engage in pretend play *to test reality*.

³³⁰ Robert G. Hudson, "Verification Principle," *Encyclopedia of Empiricism*, edited by Don Garrett, and Edward Barbanell (Routledge, 1997); Mariana Vitti Rodrigues and Claus Emmeche, "Abduction and styles of scientific thinking," *Synthese* (February 2019).

Christian theology. For our purposes, we may describe it as the set of all things God has revealed, not specifically aimed at his covenant peoples—a view of natural theology from a specifically Christian point of view. Natural theology, if a plausible enterprise, has its roots in philosophy of religion. We may define this as the enterprise of accommodating our theory of God to the relevant data of the world and the adduction of data given our relevant theories about God. To conflate general relevant and natural theology would be to restrict the definition, precluding would-be natural theologians such as Aristotle, Whitehead, Spinoza, et al. Depending on doctrinal commitments, general revelation—being under the purview of prior theological beliefs—may constrain the range and quality of admissible data.

For example, Barth's Christology constrained his prolegomena to seemingly nothing. Yet, reason (evidence and rationality) is part of prolegomena, and there are legitimate ways in which prolegomena demarcates the bounds of special revelation. There are clear philosophical examples of this (epistemology determining our cognitive access to reality, metaphysics determining the possibility of miracles) and practical examples of this (Church history determining the canon, textual criticism determining the ordering and authenticity of original texts, comparative linguistics determining semiotics of scripture). As such, there must be a principled definition of natural theology and revelation, but also stability between the two. Otherwise, we end up with any sort of philosophical system (Cobb) or any sort of dogma (Barth), leaving some second-order philosophical theology, whether acknowledged or not, to patch up disparities between the two.

In my view, then, natural theology *is* possible. If natural theology is not possible, how do we test truth claims in scripture? If by scripture, then our starting point seems arbitrary compared to "scripture" of any other religion. If by non-contradiction, our starting point seems arbitrary

compared to the infinite number of empirically equivalent theories that do not contradict.³³¹

Moreover, suppose we can use non-contradiction to adjudicate between (purported) special revelations, inspired texts (such as the Quran), and inerrant texts (such as Jehovah Witness New World Translation). In that case, we can use it to adjudicate between doctrines interpreted from our special revelation and thus engage in natural theology.³³²

My position on general revelation and natural theology is closest to that of Campbell and Baggett's (below).³³³ However, we do not cleanly divide the limits of natural theology between ramified and doubly ramified or general from special revelation. (Though, we do think they are useful terms.) General revelation and natural theology tell us what can be known about God through the study of nature (human nature, order of the world, natural history). As such, neither seem to be entirely separable from special revelation in this way: history intersects general and special. Bruce Demarest writes, "The locus of general revelation may be divided into two categories: (1) internal, or the innate sense of deity and the moral conscience, and (2) external, or

³³¹ Stathis Psillos. "Underdetermination of theories by evidence." *Philosophy of Science A-Z*. Edinburgh University Press, 2007.

³³² In other words, even subjecting (purported) scriptures of other religions to tests of non-contradiction is using a tool of natural theology, albeit in its most modest form.

³³³ There are numerous positions on general revelation, in addition to what we surveyed above. (i) Barth denied any reality to it. (ii) Dutch Reformed believers (such as Keyper and Van Til) conceded it but denied that it registered as actual knowledge. (iii) Augustine, Luther, and Calvin held, similar to Brunner, that it a logos-enabled intuition some elementary knowledge of God. (iv) Aquinas amassed a huge body of natural theology through inductive rationality. Modern liberal theologians held to the belief that some form of natural theology was salvific. For (v) Otto and Tillich, it was a noncognitive mystical meeting. For (vi) Van Dusen and DeWolf, it was a scientific analysis of the universe's orderliness and individual environment that reflected God's saving will. (Bruce Demarest. "Revelation, General," *Evangelical Dictionary of Theology*, by Walter A. Elwell. 2nd ed. Baker Publishing Group, 2013.) If we were to include these such figures, I may say that my position is closest to Van Dusen, DeWolf, Wright, McGrath, Baggett, and Campbell. This does not mean I affirm all of their specifics. Unlike Van Dusen and DeWolf, I do not think that mere reflection on the orderliness of the universe is salvific. Rather, it seems to me that their scientific approach, which emphasizes the intelligibility of the universe, is legitimate. Similarly, unlike Wright, I do not think there is a benefit in limiting our epistemology to that of the Israelites or even the early church.

the *indicia* of nature and the course of providential history.”³³⁴ Having set his providence in history rather than some ethereal plane, the God of Christian theism has granted man the ability to subject at least some providential events to the methods of historical inquiry.

An abductive verificationist theology

Given my epistemic approach and views on natural theology and general revelation, we can grade scriptures and their implied theological propositions by degrees of verifiability, whatever the source. Such an approach may be offensive to scholars who are partial to Barth and Brunner (or even McGrath and Wright). We are not a priori excluding scriptures (such as the Adigranthe) nor cultic texts (such as the Book of Mormon). Nor are we granting special privileges to the words and deeds of Jesus. The concern may arise that, based on this method, we cannot affirm doctrines which are unverifiable.

Yet, if history can instantiate a miracle, it confirms the inspiration of some testimony.³³⁵ And it just so happens that salvific and ecumenical doctrines pivot on historically verifiable events—specifically, Jesus’s teachings and resurrection. In other words, Jesus’s resurrection, being a verifiable event in history, is the retroactive bridge that vindicates his teachings.³³⁶ Among these teachings are his claims to deity and eternality of scripture. Conversely, if history

³³⁴ Ibid.

³³⁵ Here, “miracle” is defined as a causal intervention into time and space, given some religio-historical context, that leaves an identifiable mark in the form of a discontinuity of the natural course of events *and* presents a sign as to God’s approval of the revelator.

³³⁶ Gary R. Habermas, “Historical Discussion,” *Philosophy of History, Miracles, and the Resurrection of Jesus* (Academx: Sagamore Beach, MA, 2012), 39.

cannot supply the data surrounding miraculous events, we have no distinguishing factor remarkable enough to select Christian revelation over any other supposed revelation.

To see how this is further fleshed out, we will look at the propositional claims in the Apostles' Creed to create a hierarchy based on the degrees of scriptural verifiability. This creed was chosen because of its ecumenical nature and our ability to neatly parse the propositional content. Although we do hold that doubly ramified natural theology is possible, in principle, theological distinctives (such as limited atonement) would fall under some less ecumenical creed (such as The Synod of Dort). The point here is to show what parts of the Christian faith are generally verifiable, such as through nature or history (V_G), testimony confirmed by a historically verified miracle, such as Jesus's teachings confirmed by the resurrection (V_M), and verifiable *only* by extension of the resurrection (V_R).³³⁷ They are inserted parenthetically among the creed as follows.

I believe in God (V_G), the Father almighty (V_M),
creator of heaven and earth (V_G).
I believe in Jesus (V_G) Christ, his only Son, our Lord (V_M),
who was conceived (V_G) by the Holy Spirit (V_R)
and born (V_G) of the virgin (V_R) Mary (V_G).
He suffered under Pontius Pilate (V_G),
was crucified, died, and was buried (V_G);
he descended to hell (V_R).
The third day he rose again from the dead (V_G).
He ascended to heaven (V_M)
and is seated at the right hand of God the Father almighty (V_M).
From there he will come to judge the living and the dead (V_M).
I believe in the Holy Spirit (V_M),
the holy (V_M) catholic church (V_G),
the communion (V_G) of saints (V_M),
the forgiveness (V_G) of sins (V_M),
the resurrection of the body (V_M),
and the life (V_G) everlasting (V_M). Amen.

³³⁷ These terms serve to replace terms such as natural theology, ramified, doubly ramified, general revelation and special revelation.

The upshot is that we have more objective certainty about generally verifiable propositions than we do about propositions verifiable *only* by extension of the resurrection. Our conclusions about God through natural theology can, and should, constrain our theological distinctives. As such, we should be modest about the conclusions drawn. (Even if some purely rationalistic argument can demonstrate belief in God, it does not mean God is impersonal, for example.) Moreover, this does not mean we cannot be morally certain about our convictions. Once we have assessed some proposition's objective probability, our volitional decision to commit to belief provides moral conviction for future actions. Unlike Cobb, who said that our philosophy should not mix with our convictions, it seems to me we can, and should, have both. One such manifestation of this is the doubly ramified approach, which we delineate below.

Scripture may be thought of as a grand narrative revealed by God. Yet, if any of the narrative has propositional content, that content can be subject to verificationist methods—weighting explanations to prioritize natural data or biblical data (where there is no natural data). As Daniel Hill put it, “Occasionally theologians try to contrast a set of propositions and the biblical narrative. This is misguided, for in a sense a narrative just is a set of propositions, albeit about events in time.”³³⁸ As such, my approach focuses primarily on how observational methods allow us to verify the content of propositions to various degrees. A similar integrative approach is followed by Baggett and Campbell below. Concerning ecumenical theologies, all of these are integrated species (even as they historically developed) of more general theological models, and thus fall within the logical constraints of divine attributes and actions, as we will see.

³³⁸ Daniel Hill, "Proposition," *Dictionary for Theological Interpretation of the Bible*, by Kevin J. Vanhoozer (Baker Publishing Group, 2005).

Ecumenical Theologies

These theological theories attempt to adhere both to natural theological data and scriptural data. It is far beyond the scope of this paper to demonstrate the latter. Suffice it to say that, given the ecumenical nature of the views below—adherence to the Rule of Faith and creeds borne out of the councils of Nicaea, Chalcedon, and others all the way up to the Great Schism—and the robust development of each of their theologies, they all have proven themselves to be viable candidates to sit at the discussion table. At minimum, these theological models affirm monotheism, the deity and nature of Christ, the Trinity, and reject Gnosticism, Marcionism, Sabellianism, Arianism, Nestorianism, Eutychianism, Monothelitism, and (for the most part) iconoclasm.

Thomistic classical theology

Actus Purus	Simplicity	Transcendence Immanence	Analogy of Being	Omnipotence Omniscience Omnipresence	Eternality	Perfect Goodness
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Classical theology, better known as classical theism, is a form of theism in which God is considered the absolute metaphysical ultimate, the source of all being and all positive attributes to their maximal degree. It is associated with concepts such as transcendence, immanence, perfect goodness, divine simplicity, and eternity. The following are significant doctrines found in classical theism, giving priority to Thomistic concepts, distinctions, and language that were developed by Thomas Aquinas and adherents thereafter.

In the theology of Aquinas, the concept of *actus purus* plays a pivotal role, depicting God as the embodiment of fully realized potentialities, underscoring His perfection and immutability.

This idea is closely related to the concept of *divine simplicity*, drawn from Neoplatonic tradition. Divine simplicity posits that God's essence and existence are one and the same, and that He is indivisible in nature.³³⁹ This simplicity aligns with the *actus purus* by portraying a God who is wholly actualized, without any division or unactualized potential.

Aquinas further explores God's nature through the concepts of *transcendence* and *immanence*. God's transcendence positions Him beyond all categories of being, while His immanence as the source and sustainer of everything illustrates a non-spatial, sustaining presence in creation. This dual nature of God reflects the fullness of His actualized existence (*actus purus*) and His indivisible simplicity, as He pervades all aspects of existence while remaining beyond them.

When Aquinas discusses God's attributes, he employs the *analogy of being*. This approach suggests that attributes like "good" or "wise" apply to both God and creatures but in different ways. This methodology aligns with the idea of divine simplicity and *actus purus*, as it attempts to describe a God who is fundamentally different from creation yet intimately involved with it. Aquinas's view of God as *eternal* — existing outside of time in a perpetual 'now' — connects with these attributes, emphasizing a God who is unbounded by temporal constraints, again reflecting the *actus purus* and divine simplicity.³⁴⁰

Finally, Aquinas's conception of God as *perfect goodness* ties these themes together. God as the ultimate Goodness from which all other goodness derives aligns with His being *actus purus*, the source of all existence (immanence), and transcendent beyond all being. This notion

³³⁹ Brian Davies, *The Thought of Thomas Aquinas* (Oxford University Press, 1992). 44-68.

³⁴⁰ Norman Kretzmann, *The Metaphysics of Theism: Aquinas's Natural Theology in Summa Contra Gentiles I* (Oxford, Clarendon Press, 1997), 235-36.

establishes God not just as a moral exemplar but as the very basis of moral order and justice, a culmination of His fully actualized, simple, and transcendent-immanent nature.

Eastern Orthodox theology

Apostolic Tradition	Theosis	Sacramental Worldview	Trinity & Christology	Ecclesiology	Eschatology	Hesychasm
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Eastern Orthodoxy, often simply referred to as Orthodoxy, is one of the three major branches of Christianity, alongside Roman Catholicism and Protestantism. The term generally refers to the Christian churches that followed the theological and ecclesiastical traditions of the Eastern Church in the Byzantine Empire.³⁴¹ Orthodox Christianity, in its self-perception as the protector of the *apostolic tradition*, commits to preserving the original teachings and practices handed down by the Apostles. This commitment underpins its distinctive theological and liturgical approaches.³⁴² Central to Orthodox theology is the concept of *theosis*, or divinization. This process of becoming more God-like through grace is seen as a transformative journey towards union with God, reflecting the deep spiritual aspirations embedded in the apostolic tradition. Theosis is interwoven with the Orthodox understanding of salvation and spiritual growth, emphasizing personal transformation within the framework of traditional teachings.

Orthodox practice is characterized by its *sacramental* view of the world, where the material realm is seen as a conduit for experiencing the divine. This sacramentalism is manifested in the rich, sensory experiences of Orthodox liturgies and the veneration of icons,

³⁴¹ Kallistos Ware. *The Orthodox Church: An Introduction to Eastern Christianity* (2nd edition) (New York, NY: Penguin Books, 1993), 11-52.

³⁴² Andrew Louth, *Modern Orthodox Thinkers: From the Philokalia to the Present* (Downer's Grove, Ill: IVP Academic, 2015), 48-53, 108-110, 194-213.

linking tangible practices with the spiritual truths of the apostolic tradition. The adherence to the *doctrine of the Trinity* and a distinctive *Christology*, affirming Christ's dual nature as both divine and human, aligns with Orthodox commitments to apostolic teachings.³⁴³ These doctrines, central to early Christian formulations, are crucial in Orthodox interpretations of Scripture and tradition.

In terms of *ecclesiology*, the Orthodox Church's self-identification as the One, Holy, Catholic, and Apostolic Church reflects its continuity with the early Church. Its conciliar decision-making, with the Ecumenical Patriarch holding a primacy of honor but not the same jurisdictional authority as the Roman Catholic Pope, underscores a commitment to a collective and historical understanding of church governance, rooted in the apostolic era.³⁴⁴ Orthodox *eschatology*, focusing on both the end times and the realized eschatology in the divine liturgy, reflects a temporal continuum from the apostolic age to the eschatological future. This eschatological perspective ties the liturgical experience to a broader cosmic narrative, bridging earthly worship with the heavenly realm. Lastly, *hesychasm*, a mystical tradition of contemplative prayer seeking direct experience with God, often through the "uncreated light" or divine "energies," embodies the Orthodox emphasis on direct, experiential knowledge of God.³⁴⁵ This mystical dimension of Orthodoxy, seeking to experience the realities spoken of in the apostolic tradition, complements its sacramental life and theological teachings, forming a holistic approach to faith that weaves together doctrine, liturgy, and spiritual practice.

³⁴³ John Meyendorff, *Byzantine Theology: Historical Trends and Doctrinal Themes* (New York: Fordham University Press, 1983), 19-41.

³⁴⁴ Ibid., 79-102

³⁴⁵ Ibid., 132-65, 163-188.

Molinist theology

Scientia Media	Counterfactuals of Creaturely Freedom	Compatibility of Divine Sovereignty and Human Freedom	God's Providential Control
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Molinism, named after the 16th-century Spanish Jesuit theologian Luis de Molina, is a system of thought within Christian theology which seeks to reconcile the providence of God with human free will. The following are some of the key concepts. Molina's concept of *middle knowledge*, or *scientia media*, introduces a nuanced layer to the understanding of divine knowledge.³⁴⁶ It sits between God's natural knowledge, which encompasses all possible worlds, and His free knowledge of the actual world. Middle knowledge specifically captures God's insight into the potential actions of free creatures in hypothetical situations. This form of knowledge is crucial for understanding how Molinism reconciles divine sovereignty with human freedom.

The *counterfactuals of creaturely freedom*, known through middle knowledge, are essential in this reconciliation.³⁴⁷ These subjunctive statements, such as "If Peter were in circumstance C, he would freely deny Christ three times," illustrate potential actions of creatures in various circumstances. They provide a detailed view of the myriad ways free will can manifest, forming a bridge between God's comprehensive foreknowledge and the reality of human choice. In Molinism, the interaction of divine sovereignty and human freedom is delicately balanced. The framework suggests that while God possesses the sovereignty to orchestrate events towards His desired ends, this orchestration respects and incorporates the free

³⁴⁶ Luis de Molina, *On Divine Foreknowledge (Part IV of the Concordia) Translated, with an Introduction and Notes*, by Alfred J. Freddoso (Cornell University Press, 1988), 1-61.

³⁴⁷ Flint, *Divine Providence*.

decisions of creatures.³⁴⁸ This understanding of *divine sovereignty* maintains that God's foreknowledge and actions are contingent upon the choices of free agents. It upholds human freedom by asserting that the actualization of the future is dependent on these free choices.

Molina's perspective on God's providential control further illustrates this balance. By choosing to actualize a particular world from among all possible worlds, God aligns His divine plan with the free choices of creatures. This selective actualization demonstrates a sovereignty that achieves divine purposes without overriding human freedom. It shows a God who is all-knowing and powerful, yet deliberately chooses to work within a framework that allows for genuine human agency and decision-making. In sum, Molinism presents a coherent system where divine knowledge, especially middle knowledge, plays a pivotal role in harmonizing God's comprehensive sovereignty with the authentic freedom of human beings. It portrays a God who is fully in control yet chooses to actualize a world where human choices are significant and consequential.

Calvinist reformed theology

Sovereignty of God	Total Depravity	Unconditional Election	Limited Atonement	Irresistible Grace	Perseverance of the Saints
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Reformed theism, also known as Reformed theology, is a theological tradition that emerged from the Protestant Reformation, particularly as articulated by John Calvin. It has a distinct set of beliefs about God and His relationship with the world. The following points are often summarized with the TULIP acronym: Total Depravity, Unconditional Election, Limited

³⁴⁸ William Lane Craig, *Divine Foreknowledge and Human Freedom: The Coherence of Theism: Omniscience* (Series: Brill's Studies in Intellectual History, Volume: 19) (Brill: Leiden, Boston. 1991), 222-78.

Atonement, Irresistible Grace, and Perseverance of the Saints. Similar to classical theology, we weight the views in favor of its most significant progenitor, John Calvin and the Calvinist doctrines that were developed more fully after him. Though some have argued that a truly Calvinist view of TULIP would instead be more nuanced.³⁴⁹ Nevertheless, we take a more general, even if oversimplified view of reformed theology.

In Reformed theology, the *sovereignty of God* is possibly the most foundational concept, underpinning all other doctrines.³⁵⁰ It posits God's supreme authority and control over everything, including human actions, which is executed through His providence. This overarching sovereignty sets the stage for understanding human nature and salvation in Calvinism. The doctrine of *total depravity* directly relates to God's sovereignty.³⁵¹ It suggests that sin has pervaded every aspect of a person, compromising their will and capacity to achieve salvation or please God on their own. This pervasive impact of sin underscores the necessity for divine intervention, as human beings are seen as incapable of seeking God or goodness without His grace.

Unconditional election is a further manifestation of God's sovereignty. This belief holds that God, by His sovereign will, elects certain individuals for salvation, independent of any merit or anticipated faith on their part. It highlights the idea that God's choices in bestowing grace and salvation are not influenced by human actions or decisions, but are solely determined by His sovereign will. The concept of *limited atonement* ties into God's sovereignty and the doctrine of

³⁴⁹ Donald W. Sinnema, "Calvin and the Canons of Dordt (1619)," *Church History and Religious Culture (Brill)* 91, 1-2 (2011): 87-103.

³⁵⁰ Geerhardus J. Vos, *Reformed Dogmatics (Single Volume Edition): A System of Christian Theology*, trans. Richard B. Gaffin (Lexham Press, 2020), 108-39.

³⁵¹ *Ibid.*, 275-78.

unconditional election. It asserts that Christ's atonement was purposefully effective only for those whom God has elected. This specificity ensures that God's sovereign plan for salvation is precisely realized, guaranteeing eternal salvation for the elect.³⁵²

The doctrine of *irresistible grace* complements these teachings. It posits that the grace extended by God to His chosen individuals is effective and transformative, overcoming any human resistance.³⁵³ This grace, a direct result of God's sovereign will, inevitably leads the elect to faith, aligning with the notion of unconditional election and limited atonement. Lastly, *perseverance of the saints* builds upon these concepts, affirming that those chosen by God are eternally secure in their salvation. This doctrine ensures that the elect, once saved by the irresistible grace of God, will continue in faith, sustained by His power.³⁵⁴ It reflects the culmination of God's sovereign plan in salvation, from election to eternal security, highlighting a salvation narrative that is entirely dependent on and directed by God's sovereign will and power.

Openist theology

Future Possibilities	Free Knowledge	Relationality	Centrality of Love	Creaturely Freedom	Response to Evil
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Better known as open theism, but also known as "Openness theology" or "the openness of God," is a theological view that emphasizes the relational nature of God and the genuine

³⁵² Ibid., 303-88.

³⁵³ Ibid., 620-73.

³⁵⁴ R.C. Sproul, *Chosen by God: Revised and Updated* (Tyndale Elevate, 2021), 103-86.

dynamic interaction between God and His creation.³⁵⁵ The following are some key features of Open Theism. Open Theism presents a distinctive view of the future, seeing it as open and shaped by the free actions of moral creatures, rather than as a predetermined or fully known reality. This concept of *future possibilities* directly influences the understanding of *God's knowledge*. In this, while God's omniscience is affirmed, it is nuanced to accommodate the open nature of the future. God knows all that can be known, but since future events depend on free choices, they are seen as possibilities and probabilities, rather than fixed outcomes. This perspective on divine knowledge aligns with the belief in a dynamic and open future.

The emphasis on *relationality* in Open Theism is intertwined with these concepts. The portrayal of God as responsive and adaptable in the biblical narratives—where He changes His mind or reacts with surprise—is seen as reflecting God's engagement with an open and evolving future.³⁵⁶ This relational aspect of God complements the view of an open future, suggesting a God who interacts and adjusts to the unfolding choices of His creatures. Central to Open Theism is the portrayal of *love as God's primary attribute*. This perspective sees God's love as self-giving and responsive, a characteristic that leads to His willingness to limit His control over the world. This limitation is seen as necessary to foster genuine, free relationships with His creatures, dovetailing with the concept of an open future shaped by free decisions.³⁵⁷

³⁵⁵ Clark Pinnock, Richard Rice, John Sanders, William Hasker, and David Basinger, *The Openness of God: A Biblical Challenge to the Traditional Understanding of God*. Downers Grove, IL: InterVarsity Press, 1994. 101-54.

³⁵⁶ Gregory A. Boyd, *God of the Possible: A Biblical Introduction to the Open View of God* (Grand Rapids, MI: Baker Books, 2000), 53-112.

³⁵⁷ John Sanders. *The God Who Risks: A Theology of Divine Providence* (Downers Grove, IL: InterVarsity Press, 2007), 233-76.

The interpretation of *God's sovereignty* in Open Theism is directly related to these ideas. It maintains God's sovereignty but redefines it in a way that allows for human freedom and an open future. God's decision to create a world with open possibilities is seen as an expression of His sovereign will, facilitating meaningful human choices and cooperation with His divine purposes. Finally, Open Theism's approach to the *problem of evil* is informed by its views on the future, divine knowledge, and relationality. It posits that God does not cause evil, but rather works to bring good out of every situation, aligning with the belief in an open future and a responsive God.³⁵⁸ This approach allows for the possibility that some evils are not part of God's predetermined plan or foreknowledge, emphasizing His ongoing, relational engagement in a world characterized by free choices and uncertain outcomes.

Integrative Theology

An *integrative theology* is the result of combining divine attributes and divine actions with revealed theologies. Although it has taken us some time to get here, conceptually speaking, it is not unexpected that theologians have attempted to integrate their revealed position with the natural positions, even if unconsciously or implicitly.³⁵⁹ After all, when we are trying to understand God, and yet God's attributes and actions are underdetermined by the biblical data, speculation and inferences seek coherence.³⁶⁰ As one can imagine, these topics have been and

³⁵⁸ Pinnock, Clark. *Most Moved Mover: A Theology of God's Openness (Didsbury Lectures)* (Eugene, OR: Wipf & Stock, 2000), 113-178.

³⁵⁹ Gordon R. Lewis and Bruce A. Demarest. *Integrative Theology (Three Volumes in One)* (Grand Rapids, MI: Zondervan, 2010), 15-43.

³⁶⁰ Moreland and Craig, *Philosophical Foundations*, 1048.

can be explored ad infinitum. Thus, we limit ourselves to the omni attributes and providential actions (sorted into general providence, laws of nature, miracles, and evil) explicated above and their relationship with the ecumenical theologies (also explicated above). We will start first with divine attributes, then move on to divine actions. (Note the use of “theism” at the end of each ecumenical view, put there to denote their integrative nature.)³⁶¹

	Classical	Orthodox	Molinist	Reformed	Openist
<i>Omnipotence</i>	Actus Purus	Uncreated	Potent	Sovereign	Relational
<i>Omnipresence</i>	Fully	Mystical	Universal	Manifested	Dynamic
<i>Omniscience</i>	Infallible	Apophatic	Foreordination	Foreordained	Present
<i>Omnibenevolence</i>	Goodness	Energetic	Will	Decreed	Response
<i>General Providence</i>	Universal	Energies	Middle	Predestination	Process
<i>Laws of Nature</i>	Secondary	Logoi	Concordism	Concourse	Free
<i>Miracles</i>	Occasional	Synergia	Scientia Media	Intervention	Persuasion
<i>Evil</i>	Privation	Privation	Permission	Supralapsarian	Irenaean

Thomistic classical theism

As stated before, the concept of God's omni- attributes in Thomism is rooted in the idea of *actus purus*, portraying God as fully actualized and devoid of potentiality. This foundational concept underpins the omni- attributes, illustrating God's absolute perfection and unchangeability. This characterization of God highlights His absolute perfection and unchangeability, underscoring that He is the sole being whose essence and existence are synonymous.³⁶² In this framework, God's omnipresence is interpreted not as a physical occupation of space but as a divine sustaining presence, maintaining the existence of all entities.

³⁶¹ At the outset, we must mention that much of the integrations, where they have not been explicitly developed, are highly speculative. Our attempts to label novel ideas in this section are meant to show the compatibility of the concepts and not meant to assert what is considered established by theologians of their respective camps.

³⁶² Norman Kretzmann and Eleonore Stump, *The Cambridge Companion to Aquinas* (New York, NY: Cambridge University Press, 1993), 52-100.

This omnipresence signifies an intimate involvement of God in all aspects of the universe, transcending spatial limitations and is thus *fully present*.

Similarly, God's omniscience, as understood in Thomism as *infallible* knowledge, encompasses a comprehensive understanding of all actual and potential events.³⁶³ Being outside the constraints of time, God perceives all occurrences simultaneously and eternally, suggesting that nothing is beyond His knowledge. The notion of perfect goodness in Thomistic thought equates God's essence with goodness, indicating that any goodness in creation is a direct reflection of God's inherent and perfect goodness. All created entities possess goodness only to the extent that they partake in God's existence, thereby indicating that every form of created good originates from the divine essence of God.³⁶⁴

God's providence is explored through the concepts of *universal causality* and the role of secondary causes. Thomism posits God as the cause of everything that exists, integrating secondary causes such as natural laws and human free will into this divine causality.³⁶⁵ These secondary causes are not seen as independent but as integral parts of God's primary causality, functioning under His sovereign will. This perspective allows for the coexistence of divine providence with human freedom and the natural order. In the context of miracles, Thomism acknowledges that God can, at times, act directly in the world, bypassing secondary causes, aligning somewhat with occasionalism. However, this is seen as the exception rather than the rule, with God typically working through secondary causes. The Thomistic approach to the

³⁶³ Ibid., 17-32.

³⁶⁴ Ibid., 205-24.

³⁶⁵ Ibid., 45, 102-15, 148, 241.

problem of evil is framed through the concept of the *privation of good*.³⁶⁶ This view defines evil not as a substance or entity but as a lack or absence of something good that should be present. It is a perspective that seeks to reconcile the existence of evil with a fundamentally good God and a good creation, viewing evil as a deficiency rather than an opposing force.

Eastern Orthodox theism

The concept of *theosis* is central to understanding God's omnipotence. This process of becoming more like God through His divine energies implies a recognition of God's ultimate power, allowing humans to partake in that power in a limited way. The distinction between God's essence and His *divine energies* is crucial in this tradition. These energies are the activities through which God manifests in the world, reflecting His omnipotence in action.

The omnipresence of God is often discussed in terms of *panentheism* a belief that God is in all things and all things are in God (at least in eschatological view of theosis).³⁶⁷ This belief underscores God's omnipresence, as He is present in and beyond the universe. The role of the Holy Spirit, believed to be everywhere present and filling all things, further reflects the omnipresence of God in Eastern Orthodox theology. When it comes to omniscience, *apophatic theology* acknowledges the limits of human understanding while implicitly affirming God's omniscience, recognizing that His nature and knowledge surpass human comprehension. Additionally, *apostolic tradition* encompasses the teachings and practices of the Orthodox

³⁶⁶ Ibid., 77-112.

³⁶⁷ Philip Clayton, "Panentheism," In *Cambridge Dictionary of Christian Theology*, edited by Ian A. McFarland, David A. S. Fergusson, Karen Kilby, et. Al. (Cambridge University Press, 2011).

Church, inspired by the Holy Spirit, and reflects the belief in the collective wisdom and knowledge of the Church, guided by an omniscient God.

Similar to classical theism, omnibenevolence in Eastern Orthodoxy is often exemplified through the concept of *agape*, the term for divine love. This represents the perfect, unconditional love of God and is a key aspect of His character, reflecting His omnibenevolence. The concept of *synergy* also plays a role, referring to the cooperative relationship between God and humans. In this interaction, God's grace, a manifestation of His omnibenevolence, works with human effort in the process of salvation.

Molinist theism

Perhaps more than the other views, Molinism does not, to our knowledge, have specific technical terms that capture its integration with the omni- attributes. This is perhaps due to its emergence from prior theological traditions. Having focused primarily on the reconciliation of God's actualization of this world with the reality of creaturely freedom, the omni- attributes are only further delineated in regard to its solutions. Thus, as we have done in the preceding, we have created our own labels where they have not been developed.

In Molinism, the integration of God's omni- attributes with the reality of creaturely freedom and divine providence is articulated without specific technical terms, but certain concepts are key to its understanding. These concepts, though not traditionally labeled, are essential in explaining Molinism's unique approach to the divine-human relationship and the nature of God. The concept of *potent sovereignty* in Molinism reflects the harmonization of God's omnipotence with His sovereign will, particularly through the lens of *middle knowledge*

(scientia media).³⁶⁸ It suggests God's supreme power includes foreknowledge of all potential outcomes and free choices, thus coordinating divine power with human freedom. This concept is deeply linked to God's omniscience, as it is through His knowledge of all possibilities that His omnipotence is effectively and benevolently applied. *Universal presence* in Molinism interprets God's omnipresence as a universal, providential presence that maintains and upholds creation.

While focusing primarily on *omniscience* and *omnipotence*, this term implies God's omnipresence is crucial in actualizing His foreknown and foreordained plans, interlinking with His omniscient understanding of all possible worlds and omnipotent enactment of the chosen world.³⁶⁹ The term *knowledgeable foreordination* encapsulates the Molinist view of God's omniscience, especially regarding middle knowledge. It implies God's foreknowledge of every possible scenario and free decision enables Him to ordain events according to His will and benevolence. This term is directly connected to Molinist omnipotence, as it is through God's comprehensive knowledge that He can enact His omnipotent will without compromising human freedom.

Benevolent will signifies the integration of God's omnibenevolence with His will and knowledge in Molinism, particularly in relation to middle knowledge. It indicates God's perfect goodness aligns with His knowledge of potential realities, ensuring the best possible outcomes in a world where human freedom is respected. This concept intertwines with God's *omniscience* and *omnipotence*, guiding the actualization of a world that aligns with His benevolent nature. Molinism introduces the concept of *middle providence*, extending beyond traditional notions of general (natural) and special (supernatural) providence. It introduces an intermediate category

³⁶⁸ Flint, *Divine Providence*.

³⁶⁹ Molina, *Divine Foreknowledge*.

specifically related to human free actions, operating in harmony with human freedom and connected to God's foreknowledge of individual choices, a cornerstone of middle knowledge. This middle providence portrays providential guidance that respects human autonomy while remaining sovereign. In its approach to natural laws, *Molinism* adopts a *concordism* perspective, positing that God's providential plan aligns seamlessly with these laws. This view suggests that divine providence operates through and in accordance with natural laws, indicating a harmonious interplay between divine action and the natural order.

Middle knowledge is also used to augment explanations of miracles. This knowledge pertains to God's understanding of what any free creature would do under any circumstance. With this knowledge, God orchestrates miraculous events through the free actions of creatures, integrating human freedom with divine intervention in a unique manner. Regarding the problem of evil, Molinism presents a *theodicy of permission*. This viewpoint acknowledges that evil exists because God permits it for morally sufficient reasons, often related to greater goods. This approach attempts to reconcile the existence of evil with a benevolent and omnipotent God, suggesting that the allowance of evil serves a higher, often inscrutable, divine purpose.

Calvinist reformed theism

In Calvinist theology, the understanding of God's relationship with the world and humanity is shaped by several key concepts, focusing on divine sovereignty and the nature of God's interaction with creation. Central to Calvinist thought is the concept of *sovereign power*, which highlights God's supreme authority over all aspects of existence, including human actions. This belief holds that God ordains everything that transpires, which encompasses individual actions. Yet, it maintains that this divine sovereignty does not nullify human choice and

responsibility. This theological stance seeks to reconcile God's omnipotence with human moral agency, asserting that while God is the ultimate authority, humans still make authentic choices with real consequences.

The notion of *manifested presence* is also significant in Calvinism. While affirming God's omnipresence in terms of His knowledge, power, and authority, Calvinists often focus on a special or "manifested" presence of God. This is where God reveals Himself in extraordinary ways, such as in the Incarnation, within the Church, or through sacraments. It represents moments or contexts where God's presence is perceived more intensely or specifically. Another key aspect is *foreordained knowledge*. This concept posits that God's omniscience includes not only knowing all things but also decreeing all that happens. It upholds God's sovereignty, affirming that nothing happens outside His will or knowledge. This perspective also addresses the problem of evil and human responsibility, suggesting that while God decrees events, the existence of evil and the necessity for moral accountability remain real and significant.

Calvinism's view of God's *omnibenevolence* is framed as *decreed goodness*. This viewpoint asserts that God's goodness is manifest in His decrees, including those permitting evil and suffering. According to this belief, all of God's actions are fundamentally good as they are part of His overarching plan for His glory and the ultimate benefit of His people. This perspective attempts to reconcile the presence of evil and suffering with the belief in a benevolent and sovereign God. Predestination is a pivotal doctrine here, emphasizing God's sovereign choice in salvation. It asserts that God, before creation, chose certain individuals for salvation based on His will alone, independent of any foreseen merit. *Double predestination* makes sense of evil being brought to justice as an act of goodness. This can be extended even

further, in the sense that all blameworthiness is imputed to the hell-elected party and goodness to God by His decree.

The concept of *concourse*, or concurrence, describes the interplay between divine and natural causality in Calvinism. It posits that God's actions (as the primary cause) and the actions of creatures (as secondary causes) occur simultaneously, contributing collaboratively to a single outcome. This notion seeks to reconcile God's overarching sovereignty with the realities of natural processes and human choices. In terms of miracles, Calvinism views them as sovereign interventions by God into the natural world, serving as manifestations of His absolute authority and ability to act beyond established natural patterns. They testify to God's omnipotence and His freedom to operate outside natural law's usual boundaries. The concepts of *supralapsarianism* and *infralapsarianism* concern the sequence of God's decrees. They debate whether God's decision regarding election occurred logically before or after His decision to permit the fall of humanity. In *supralapsarianism*, the allowance of evil and the fall are integral to God's plan, focusing on the glorification of the elect. Both views incorporate the occurrence of evil and human fall into God's plan, but *supralapsarianism* highlights the primacy of divine sovereignty from eternity past. Together, these themes in Calvinist theology offer a cohesive understanding of divine sovereignty, the nature of God's interaction with creation, and the complexities of human free will, evil, and redemption.

Openist theism

A central concept in open theism is *relational power*. This idea suggests that God's omnipotence is exercised in cooperation with His creatures, rather than unilaterally. It posits that God, while capable of doing anything logically possible, chooses to limit His power voluntarily.

This limitation is a conscious choice made to allow for genuine human freedom and authentic relationships, portraying God as supremely powerful yet engaged in a reciprocal relationship with creation.

The belief in a *dynamic presence* is also crucial to open theism. It posits that God's omnipresence is characterized by active and responsive interaction with the world, rather than passive observation. This concept emphasizes a God who is intimately involved in the evolving narrative of the world and its inhabitants, responsive to human actions and choices. In the realm of divine knowledge, open theism introduces the concept of *present knowledge*. This view holds that God has perfect knowledge of the past and present, but the future is open and not fully determined. This perspective asserts that the future, being shaped by the free will of creatures, is not entirely known to God. It maintains His comprehensive understanding while affirming the significance of human freedom and decision-making.

Open theism characterizes God's omnibenevolence as *responsive goodness*. In this view, God's benevolent actions and intentions are influenced and shaped by the free actions of His creatures. It underscores the importance of God's love, depicting a deity deeply connected to and affected by the experiences of His creatures, empathizing and suffering alongside them.

The term *process providence* in open theism refers to a view of divine providence where God is seen as responsive and adaptive, engaging with creation in an ongoing process. It illustrates the dynamic nature of God's interaction with the world, emphasizing a God who is continually responding and adjusting to the unfolding realities of creation.

In open theism, the concept of *free process* views the laws of nature as largely independent processes. God is seen as having limited His intervention, allowing the natural order to operate according to its established laws. This idea supports the integrity of the created world

and underscores the existence of genuine freedom and contingency, suggesting a universe not rigidly controlled or predetermined by God. Regarding miracles, open theism often adopts a view of *divine persuasion* over unilateral divine action. This perspective suggests that God works in harmony with the laws of nature and human freedom to bring about miraculous events, subtly guiding and influencing natural processes and human decisions to achieve extraordinary outcomes. Finally, the *Irenaean Theodicy* is often associated with open theism. This theodicy suggests that evil and suffering have a role in spiritual development and growth, positing that God allows these aspects as a means for humans to develop virtues and mature in their relationship with Him. It views evil and suffering as instrumental in the process of human moral and spiritual evolution, indicating a purposeful inclusion of these elements within the divine plan.

Chapter 5: Toward an Analysis of the Abductive Moral Argument

An Integrative Moral Argument

A doubly ramified moral argument

Baggett and Campbell argue that natural theology is useful in confirming Christian theism and clarifying contentious theological distinctives. If “bare” natural theology “first establishes the case for theism generally,” ramified natural theology “takes us from generic theism to particular religious claims, such as Islam or Christianity.”³⁷⁰ Doubly ramified natural theology, then, is a “more fine-grained analysis of natural theology made possible by bringing to bear specific theological insights” that resolve “disputes over quite central questions—even if outside the innermost core of beliefs common to all Christians.”³⁷¹ Baggett and Campbell use the abductive moral argument as their case study.

Starting with a set of salient moral facts—such as objectively moral duties, values, freedom, responsibility, etc.—their abductive moral argument uses inference to the best explanation and its associated criteria to select from the pool of explanatory candidates.³⁷² The generic God of Greek philosophy offers an omnipotent, omniscient, and omnibenevolent being as one of those candidates. Such a being seems sufficient to explain the moral facts at hand. Yet, as Baggett and Campbell point out, this being may not contour closely enough to abrogate issues such as the evidential problem of evil (for those like Yoram Hazony) or arbitrariness objections

³⁷⁰ Baggett and Campbell. “Omnibenevolence,” 111-114.

³⁷¹ Ibid., 125.

³⁷² Ibid., 113.

to a radically voluntaristic God (for those like Antony Flew).³⁷³ If these objections hold, one could not reconcile God's omnipotence and omnibenevolence nor distinguish Ockham's radical God from the greatest conceivable being of Anselm.

Here, they state, the Christian has the upper hand in offering a complete candidate hypothesis that adheres more closely to the salient moral facts: the Trinity, *imago Dei*, and crucifixion. These three essential Christian doctrines convey an essentially loving God (participating in a perichoretic relationship *sans* creation), human beings with the relational property necessary to be loved, and an omnibenevolent being who would become incarnate and die for the sins of the world.³⁷⁴ Love, as the grounding attribute for God's relationship to us in Christian theism, expiates the moral facts where generic theism misses the mark. Further, on the doubly ramified level, such a God gives us reason to renounce the Calvinist doctrine of limited atonement. As Baggett and Campbell state, "If Jesus did not die for some, then God has not shown his love for them in any ultimately significant way."³⁷⁵ As such, an abductive approach to natural theology shows that at least one point of Calvinism is deficient.

As Campbell and Baggett show, if the enterprise of natural theology is plausible, it cuts across generic or "bare-bones" theism (mere natural theology), ecumenical or "creedal" Christian theism (ramified natural theology), as well as theological distinctives (doubly ramified natural theology). Natural views of God better explain moral phenomena when not including historical and theological data. Revealed views of God better explain moral phenomena when including them. Doubly ramified views, however, are the most granular accounts of all. These views treat

³⁷³ Ibid., 116-120.

³⁷⁴ Ibid., 121-123.

³⁷⁵ Ibid., 123.

views such as GPB theology as a mere adumbration to be filled in—accounting not just for physical natural and human nature, but also biblical and church history (which ultimately encompasses all of human history). For our purposes, this sort of moral argument serves as a successful pilot test in the plausibility of extending the moral argument into more specified theological models.

Data-driven double ramification

As stated earlier, moral arguments (ranging from deductive to abductive) argue that God is the only sufficient ontological foundation for the full range of moral phenomena. The deductive form (MA_D) is expressed in modus tollens as follows:

(MA_D1) If God does not exist, objective moral values and duties do not exist.

(MA_D2) Objective moral values and duties do exist.

Therefore,

(MA_D3) God does exist.³⁷⁶

We see the effect of the negations when formalized as follows, where G = God, P_V = the phenomenon of moral values and P_O = the phenomenon of moral obligations.

1. $\neg G \supset \neg (P_V \wedge P_O)$
2. $P_V \wedge P_O$
3. $\neg \neg (P_V \wedge P_O)$
4. $\therefore \neg \neg G$
5. $\therefore G$

(3) is valid by simplification of the double negation. Implicitly contained in MA_D1 is the enthymeme MA_D1_a nothing other than God can be a sufficient ontological foundation for moral values and duties. We may also express MA_D1_b which says there may be subjective moral values

³⁷⁶ David Baggett and Jerry Walls, *The Moral Argument: A History* (Oxford University Press, 2019), 204, Kindle.

and duties that exist and MA_{D1c} that there are other potential ontological foundations for objective (and subjective) moral values and duties, but that they are insufficient.

These and other aspects of morality and God are expressed in the abductive form (MA_A) of the moral which may be formalized as follows: given the set of all moral phenomena ($P \mid P = \{p_1 \dots p_n\}$) and candidate explanations $H \mid H = \{H_1 \dots H_n\}$ of P , God exists (H_G) is the best explanation of P , thus increasing the likelihood of H_G . Unlike the deductive model, this formalization has the expressive power to capture any individual moral phenomenon or a set of moral phenomena as well as any members that combine to compose proposed explanations. However, if a hypothesis is to remain the “best explanation” it must accommodate to new data. In that sense, explanations directly or indirectly correspond to phenomena.

Thus, for example, when presented with the *Euthyphro Dilemma* (E)—where God seems arbitrary for calling something good or inferior for appealing to the Good—God is then specified as “God who is the Good.” Thus, the hypothesis “God exists” is given the propositional conjunct “God is the Good” (D). Similarly, when presented with the *extended arbitrariness* objection (X)—where a voluntaristic God could also accommodate the phenomena yet be evil—the best explanation adds the conjunct “God is an Anselmian Greatest Possible Being” (A) to remain the best.³⁷⁷ In the same way as these two examples, it has been said that God must also accommodate the moral phenomena of personhood (S) which requires the existence of relationality even before creation. As a response, the conjunct “God is a perichoretic Trinity” (T) has been proposed because it allows for relationships of personhood within the Godhead from all

³⁷⁷ David Baggett and Jerry L. Walls, *Good God: The Theistic Foundations of Morality* (Oxford University Press, 2011), 207.

eternity. With $P \mid P = \{p_1 \dots p_n\}$ including the Euthyphro Dilemma, extended arbitrariness, and personhood, and the hypotheses we can rewrite the MA_A as follows.

Given $P \mid \{p_1 \dots p_n\} \cup \{E, X, S\} \in P$ and $Tt \mid H_G \cup \{D, X, A, T\} \in Tt$,
 Tt is the best explanation of P , thus increasing the likelihood of Tt .

This can be simplified and put in likelihood terms:

$$p(Tt/P) > p(H_G/P)$$

So, what does this look like when we focus on a specific moral phenomenon? Let us take love theory as an example (see the “Love Theory” section above). Since love is a moral phenomenon, some have argued that it has shaping power to moral meta-theories—grounding deontic and utilitarian assignments on the virtue of love—and logical construction to moral claims—as dynamics of loving action between persons.³⁷⁸ At the very least, it exhibits deontological, utilitarian, virtuous and social aspects. If love exists, then at least one moral phenomenon exists, and if at least one moral phenomenon exists, then moral phenomena exist.³⁷⁹

$$\begin{array}{l} L \supset Pa \\ Pa \supset P \\ L \\ \therefore P \end{array}$$

This adds probabilistic confirmation of (MA_D2) . From here, we can also go two other routes, updating the deductive and abductive arguments. For the deductive argument, add extra premises to make it more fine-grained, including factors of love:

- (MA_{DF1}) If God does not exist, love is not moral.
- (MA_{DF2}) If love is not moral, we should not have attraction, connection, trust, and respect for others.
- (MA_{DF3}) We should have attraction, connection, trust, and respect for others.

³⁷⁸ J. L. A. Garcia, “Love and Moral Structures: How Love can Reshape Ethical Theory,” *The Routledge Handbook of Love in Philosophy* (Routledge, 2019), 326-330.

³⁷⁹ Of course, taking the expansive approach that we affirm, this would be just one factor in the overall argument.

- (MA_{DF}4) Love is moral.
(MA_{DF}5) God does exist.

For the abductive argument, love as a moral datum (L) has comparative significance for theory selection. Since love is a member of the set of all moral phenomena ($\{L\} \in P$), any explanations of P must be accommodated for L to maintain its status as “best explanation.”

In their article on the doubly ramified implications of the moral argument, David Baggett and Ronnie Campbell show that if Calvinism is true, then God is not omnibenevolent because love, on the Calvinist view, has no ultimate significance for unbelievers.³⁸⁰ Given the factors of love, we can further delineate this as: if God does not have attraction, connection, trust, and respect for the unbeliever on Calvinism, then God is not omnibenevolent on Calvinism.

In perhaps a more salient rhetorical fashion, we can even say that if God does not exist or if Calvinism is true (for the deductive and abductive forms, respectively), that God is aversive, disconnecting, distrusting, and disrespecting of unbelievers. If we were to extend this into God’s romantic and parental love for us, we would say God shows no concern for us, shows signs of neglect (perhaps child abuse), and will not give us an inheritance, and shows contempt, criticism, defensiveness, and stonewalling for unbelievers’ pleas. Here, we demonstrate the logical validity of extending the doubly ramified moral argument to incorporate specific moral phenomena.

Quantifying certainty with Bayes

Bayesian reasoning, at its core, is a formal method of statistical inference that offers a way to update subjective beliefs (expressed quantitatively as probabilities) in light of new data or

³⁸⁰ Baggett and Campbell, “Omnibenevolence,” 349-52.

evidence.³⁸¹ This framework provides a mathematical model for quantifying beliefs and their revisions, and their associated uncertainties. In the context of qualitative or introspective matters, Bayesian reasoning's utility lies in its ability to incorporate subjective beliefs and allow for a quantitative, structured way to update these beliefs. Bayesian reasoning provides a mechanism to account for uncertainty and personal beliefs, even when the phenomena of interest are not easily captured with numerical data or are subjectively interpreted. In Bayesian terms, prior probabilities represent initial beliefs before new evidence is observed, while posterior probabilities represent updated beliefs after considering new evidence. The likelihood quantifies the evidence. This updating process is governed by Bayes' Theorem. To calculate Bayes Theorem, we use

$$p(H|E) = [p(E|H) \times p(H)] / p(E)$$

where H is some hypothesis, E is some evidence, and p is the probability. We can rewrite this, plugging in the following: Ecumenical Christian Theological Model Qualified by Evidential Virtues (XM_{EV}) and Moral Phenomena Qualified by a Hierarchy of Emergence (MP_{HE}). Thus,

$$p(XM_{EV} | MP_{HE}) = [p(MP_{HE} | XM_{EV}) \times p(XM_{EV})] / p(MP_{HE})$$

Thus,

$$p(MA) = [p(MP_{HE} | XM_{EV}) \times p(XM_{EV})] / p(MP_{HE})$$

We can also use the odds form of Bayes for more decision-making purposes. This is written as

$$o(H|E) = o(H) \times lr(E)$$

where o(H|E) are the posterior odds of the hypothesis given the evidence. o(H) are the prior odds of the hypothesis. lr(E) is the likelihood ratio of the evidence, which is p(E|H) / p(E|~H).

Thus,

³⁸¹ Colin Howson and Peter Urbach. *Scientific Reasoning: The Bayesian Approach* (3rd edition) (Chicago: Open Court Publishing, 2006), 237-64.

$$p(MA) = o(XM_{EV}) \times [p(MP_{HE} \mid XM_{EV}) / p(MP_{HE} \mid \sim XM_{EV})]$$

Subjective probability theorists suggest several ways for individuals to quantify their degree of confidence in a belief. These methods involve assigning a subjective probability, a numerical measure that reflects their personal degree of belief or confidence that an event will occur. The most straightforward method is simply to *introspect* and decide on a probability that seems to fit your degree of belief. For example, you might decide that you are 70% confident that it will rain tomorrow based on the dark clouds you see today. You could also consider how much you would be willing to bet on an event happening versus not happening—called the *odds ratio*. This method is associated with the idea of "odds" and can be particularly useful when paired with Bayes' theorem.³⁸² If you would be willing to bet \$4 on something happening for every \$1 you would bet on it not happening, you could consider this a reflection of 80% confidence in the belief. Sometimes, people calibrate their subjective probabilities by comparing them with *known probabilities*. For example, you might not be sure how confident you are that a certain candidate will win the election, but if you feel about as confident in that as you do in getting a head when you flip a fair coin, then you might assign a subjective probability of 0.5 to the candidate winning.

Another approach involves the use of *scoring rules*, which provide a numerical score based on the accuracy of probabilistic predictions. The idea is to assign probabilities in such a way that you expect to maximize your score over time. The Brier score and logarithmic score are two commonly used scoring rules, especially in medical decision-making.³⁸³ In more formal or

³⁸² Jaynes, *Probability Theory*, 601-3.

³⁸³ Erika Graf, "Brier Scores," In *Encyclopedia of Medical Decision Making*, edited by Michael W. Kattan (Sage Publications, 2009); Barbara Moore, "Decision Rules."

scientific settings, there are a variety of *elicitation techniques* used to help experts express their beliefs in probabilistic terms. These may involve asking a series of questions designed to narrow down the expert's degree of confidence, or using graphical tools that allow the expert to visualize and adjust their probability assignments.³⁸⁴

The method most in line for what we are discussing is the betting ratios method, as bets are quantitative analogs to decisions and contrasts with unarticulated high and low views of the moral argument. The extension of Bayes' theorem for an arbitrary number of hypotheses and data could be represented as follows:

$$p(H_1, H_2, \dots, H_n \mid D_1, D_2, \dots, D_n) = [p(D_1 \mid H_1) \times P(H_1 \mid H_2) \times p(D_2 \mid H_2) \times p(H_2 \mid H_3) \times \dots \times p(D_n \mid H_n) \times P(H_n)] / p(D_1, D_2, \dots, D_n)$$

Thus,

$$p(XM_{EV1}, XM_{EV2}, \dots, XM_{EV2n} \mid MP_{HE1}, MP_{HE2}, \dots, MP_{HEN}) = [p(MP_{HE1} \mid XM_{EV1}) \times p(XM_{EV1} \mid XM_{EV2}) \times p(MP_{HE2} \mid XM_{EV2}) \times P(XM_{EV2} \mid XM_{EV3}) \times \dots \times p(MP_{HEN} \mid XM_{EVn}) \times P(XM_{EVn})] / p(MP_{HE1}, MP_{HE2}, \dots, MP_{HEN})$$

Inclusion of an arbitrary number of hypotheses allows for a more nuanced and complex analysis. In real-world problems, often, we do not just have a single hypothesis about our data, but multiple, sometimes nested or hierarchical, hypotheses that we want to compare. Incorporating multiple hypotheses allows for a richer exploration of the data and the hypotheses themselves. This flexibility allows a Bayesian model to capture the complexity and richness of the problem at hand more accurately. Additionally, including multiple hypotheses in the Bayesian framework provides a natural way to perform model comparison. Each hypothesis could represent a different model, and the posterior probabilities of these models given the data

³⁸⁴ L. Bojke, and M. Soares, "Decision Analysis: Eliciting Experts' Beliefs to Characterize Uncertainties." In *Encyclopedia of Health Economics*, edited by A. Culyer (Elsevier Science & Technology, 2014).

can be compared directly. This allows for an assessment of which model or hypothesis is most supported by the data, taking into account both model fit and complexity.

Including an arbitrary number of data points in the Bayesian formula enables a dynamic and continuous update of beliefs. As new data come in, they can be incorporated into the analysis, and our beliefs about the hypotheses can be updated accordingly. This approach reflects the real-world flow of information where data often comes in sequences or streams rather than all at once. The ability to include an arbitrary number of data points also allows for more robust and accurate inference, especially when dealing with complex models. More data generally means more information about the underlying phenomenon, which can lead to more precise estimates and stronger conclusions. The ability to handle an arbitrary amount of data is particularly useful in the context of big data, where extremely large datasets are increasingly common. With a Bayesian framework, these large datasets can be incorporated into the analysis in a principled way, potentially leading to more accurate and reliable results. For our concerns, the Bayesian formulation provided allows for a more precise quantitative representation of one's abductive moral argument and their conditionalization. So long as one commits to a set of moral phenomena that meets their quality threshold, these members can be the explicandum to their theological model's explicans. From there, one's personal moral argument can be evaluated by the evidential virtues then quantified with Bayes.³⁸⁵

³⁸⁵ This approach allows for such modular customization that even if one's theological model is naturalistic, their "moral argument" can still be qualified and quantified.

Evidential Virtuosity

To evaluate how theological models align with evidential virtues, we start by contextualizing the core tenets and beliefs of each model. Every theological perspective offers distinctive insights into God's nature, knowledge, sovereignty, and the divine relationship with creation. At the same time, we use the three evidential virtues as our evaluative benchmarks: evidential accuracy to gauge the model's alignment with empirical observations; causal adequacy to probe into the identification of causes or reasons; and explanatory depth to measure the richness of an explanation.

In our exploration of evidential accuracy, we will begin with the "goodness-of-fit," assessing how well the model's tenets resonate with various moral phenomena. Some elements may align seamlessly with certain moral viewpoints, while others may present contrasts. This leads us to "anomaly detection," where we pinpoint potential discrepancies between the model and specific moral phenomena.

For causal adequacy, our approach necessitates a deep dive into the model's proposed causal framework. We focus on its representation of the cause-and-effect dynamics between God, humanity, and the broader universe. We then relate the theological insights to the classic quartet of causes—material, formal, efficient, and final. Furthermore, we analyze how causation—both in terms of dependence and production—is portrayed, especially regarding divine intervention and action.

Lastly, when addressing explanatory depth, we adopt a two-pronged strategy. Through the "event-event view," we scrutinize the model's depiction of the interconnectedness of events, especially in relation to human decisions and divine purpose. The "law-like view" allows us to

assess the model's stance on moral constants, gauging its ability to strike a balance between objective moral standards and individual or situational ethics.

Thomistic classical theism

Thomistic Elements	Confirmatory	Consistent	Anomalous	Disconfirmatory
<i>Natural Law</i>	Research Ethics (as it's a form of applied ethics) Professional Ethics (laws governing professional behavior)	Descriptive Ethics (observing moral realities)	Some aspects of Normative Ethics (depending on interpretation)	Metaethics (if detached from objective moral standards)
<i>Teleology and the Final End</i>	Environmental Ethics (end goal of sustainability) Animal Ethics (principle of inherent value)	Human Ethics (life, liberty, etc. as ends)	Business Ethics (if profit is the only end)	Moral Sociology (if solely focused on cultural relativism)
<i>Virtue Ethics</i>	Moral Virtue & Vice (as they delineate virtues)	Moral Development (growth in virtues)	Egoism (if it is antithetical to virtues)	Legal Ethics (if only focused on external laws without inner virtues)
<i>Role of Reason</i>	Quality of Life Inventory (requires reasoning about life's quality) Moral Foundations (reasoned foundations for morality)	Journalistic Ethics (truth and accuracy)	Moral Neurology (while it studies the reason, it is more about physical processes)	Emotional elements of Moral Virtue & Vice (where reason is secondary)
<i>Divine Command</i>	Professional Ethics (laws as commands) Legal Ethics (justice as a divine command)	Descriptive Ethics (describing what 'is' rather than what 'ought' to be)	Normative Ethics (where the ethics are secular)	Some aspects of Metaethics (if completely separated from divine commands)
<i>Conscience</i>	Moral Psychology (study of moral conscience) Counseling Ethics (respect for individual conscience)	Normative Ethics (informing what one ought to do)	Love Theory (more about feelings than moral judgments)	Legal Ethics (if solely focused on external regulations)
<i>Sin</i>	Moral Virtue & Vice (vice as sin)	Moral Development (overcoming sinful tendencies)	Egoism (focused on self-interest without considering it sinful)	Moral Neurology (doesn't label neurological issues as 'sin')
<i>Grace and Morality</i>	Virtue Ethics (virtues often require grace)	Moral Development (grace assisting growth)	Moral Foundations (might not always acknowledge need for grace)	Egoism (as it does not factor in divine grace)

	Human Ethics (grace helping to actualize principles like respect for persons)			
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Thomas Aquinas anchored his ethical philosophy in natural law, asserting that the universe's moral order is embedded in God's nature and discernible through human reason. This moral compass, in tandem with virtues like wisdom and courage, guides our actions towards their ultimate purpose: union with God. Aquinas emphasized the role of reason in recognizing this divine law, but also acknowledged the importance of divine commands, such as the Ten Commandments, for clearer moral guidance. For complex moral situations, principles like the double effect help discern the right path, all aiming towards humanity's ultimate goal: the Beatific Vision, or direct communion with God.

Thomism emphasizes reason's ability to discern moral truths, and its foundational belief in natural law theory proposes that there is an objective moral order accessible to human reason. Therefore, moral phenomena that echo objective values, principles of inherent worth, or the necessity for rational moral discernment are inherently confirmatory for Thomistic classical theism. Thomism holds a rich tapestry of beliefs that extend beyond mere moral propositions. Hence, many moral phenomena, even if they do not directly stem from Thomistic thought, can find a place within its broad framework. For example, principles around environmental ethics or certain professional ethics might not be explicitly Thomistic, but they can be harmonized with Thomistic principles of stewardship, responsibility, and the pursuit of the common good.

Any moral phenomena emphasizing moral relativism, for instance, would be somewhat anomalous for Thomism, which emphasizes objective moral truth. However, a nuanced Thomistic scholar might argue that while cultures perceive moral truths differently, there remains an objective moral order they all, in some way, point to. If there are moral phenomena

implying, for instance, that reason is entirely unreliable in discerning moral truth, or that there is no objective moral order whatsoever, such phenomena would be disconfirmatory for Thomism. Thomistic thought places a high premium on reason and the existence of an objective moral order rooted in the nature of things.

Thomistic classical theism, founded on natural law, provides a comprehensive framework for understanding various moral phenomena. This approach resonates with categories like applied ethics, professional ethics, and normative ethics. Additionally, its teleological aspect, focusing on final causes or end purposes, correlates with moral phenomena such as environmental ethics and virtues emphasizing specific goals. However, anomalies may arise with moral phenomena that favor individualistic, relativistic, or hedonistic approaches, given Thomism's basis in an objective, universal moral order. Subjective experiences, emotions, or societal influences might not always align with Thomistic ethics' objective and rational nature.

In its causal framework, Thomistic metaphysics (unsurprisingly) encompasses all four Aristotelian causes, offering a robust explanation for moral phenomena. Foundational aspects of ethics, including principles and virtues, align well with the formal and final causes in Thomism. The "material" aspects of moral actions, like human rights and environmental issues, correlate with the material cause, while the efficient cause pertains to moral agents and their actions, resonating with human ethics and moral development. Thomistic perspectives on causation emphasize production, detailing how causes lead to effects, especially in natural order. This aligns with moral phenomena emphasizing objective standards and natural ends. However, more complex causation systems in moral phenomena, such as societal influences, might find a less direct representation in Thomism. Perhaps the most glaring of these is the moral phenomenon of love. Thomism philosophy defines God's love (and thus its variation of omnibenevolence) as

willing good toward others. This, even in its most generalized form is different from the “anthropomorphized” definitions as found in love theory.

The Thomistic approach offers depth by explaining the universe's interconnectedness and God's providence, aligning with moral phenomena that stress community and a broader moral order. However, phenomena focusing on individual experiences or specific societal contexts might find these explanations too general. Thomistic philosophy, grounded in objective, universal principles, particularly natural law, provides a law-like explanation for many moral phenomena seeking universal standards. Yet, phenomena leaning towards relativism or emphasizing specific societal constructs might view Thomistic explanations as too rigid or overarching.

Eastern Orthodox theism

Eastern Orthodox Elements	Confirmatory	Consistent	Anomalous	Disconfirmatory
<i>Theosis (Deification)</i>	Research Ethics (transformative ethical practices) Moral Virtue & Vice (becoming partakers of the divine)	Moral Development (ongoing transformation)	Business Ethics (if profit is the only aim)	Egoism (focused solely on self-interest)
<i>Philokalia (Love of the Beautiful)</i>	Environmental Ethics (love and care for creation) Quality of Life Inventory (appreciating life's beauty)	Moral Virtue & Vice (cultivating virtues that align with beauty and goodness)	Legal Ethics (if solely focused on technicalities)	Moral Foundations (if they do not recognize beauty)
<i>Hesychasm</i>	Moral Psychology (inner spiritual life)	Moral Development (cultivating inner stillness)	Business Ethics (external focused)	Moral Neurology (focused on brain structures rather than inner spiritual practices)
<i>Synergy</i>	Human Ethics (cooperative human effort) Moral Development (collaboration between divine grace and human effort)	Descriptive Ethics (depicting human-divine interaction)	Egoism (focused solely on individualism)	Legal Ethics (if it does not acknowledge divine collaboration)

<i>Apophatic Theology</i>	Metaethics (exploring the limits of moral language)	Normative Ethics (understanding the ineffability of ultimate moral principles)	Moral Neurology (explicit in its descriptions)	Moral Sociology (if it claims exhaustive understanding of moral phenomena)
<i>Toll Houses</i>	Moral Development (understanding and overcoming challenges)	Human Ethics (journey of moral life)	Business Ethics (more externally focused)	Moral Neurology (does not factor spiritual moral tests)
<i>Sacramental Life</i>	Human Ethics (receiving moral guidance) Moral Virtue & Vice (sacraments aiding in virtue cultivation)	Moral Development (sacraments supporting growth)	Moral Foundations (if they do not consider sacraments)	Egoism (does not consider community sacramental life)
<i>Asceticism</i>	Moral Virtue & Vice (practice of virtues) Moral Development (growth through discipline)	Professional Ethics (disciplined practice)	Hedonism (opposite of ascetic practice)	Love Theory (if focused solely on emotional pleasures)
<i>Noetic Understanding</i>	Moral Psychology (understanding the heart)	Moral Development (cultivating inner intuition)	Business Ethics (external pragmatic considerations)	Moral Neurology (focused on rational brain structures)
<i>Akribeia and Oikonomia</i>	Professional Ethics (balancing strictness and leniency)	Legal Ethics (interpreting and applying laws)	Egoism (individualistic perspective)	Moral Foundations (if they don't allow for flexibility)

Eastern orthodox morality is deeply rooted in the concept of theosis, the transformative journey of humans becoming partakers in the divine nature. This process emphasizes personal sanctification and transformation, drawing from spiritual guides like the philokalia, a collection on inner spirituality. Central to this transformation is hesychasm, a mystical practice promoting inner stillness and unending prayer. Synergy, the collaboration between God's grace and human free will, plays a significant role in one's salvation and virtuous living. This synergy is framed within the apophatic theology, where knowledge of God is defined by negation, highlighting human limitations and the mystery of the divine.

Moral guidance is further provided by the church's canons and penitential disciplines, with penances being therapeutic rather than punitive. The sacraments, particularly confession and the Eucharist, infuse grace into the believer's life. Practices like fasting and prayer, falling under asceticism, further detach believers from worldly temptations, fostering a closer union

with God. The Orthodox understanding of morality is also shaped by noetic understanding, a spiritual intuition distinct from rational thought. In navigating the balance between strict adherence and pastoral leniency, the concepts of akribeia (adherence to canonical rules) and oikonomia (flexibility of pastoral care) come into play, ensuring moral decisions are both rigorous and compassionate.³⁸⁶

Eastern Orthodox theism heavily emphasizes the concept of theosis or divinization, suggesting humanity's ultimate goal is union with God. Therefore, moral phenomena that underscore transformative personal growth, inherent human dignity, or the interplay between divine grace and human cooperation would be directly confirmatory. Elements such as "respect for persons" or principles emphasizing the intrinsic worth of beings would resonate strongly with the Orthodox understanding of human beings created in the "image and likeness" of God. The Eastern Orthodox tradition, with its rich liturgical, ascetic, and mystical heritage, encompasses a wide array of moral and spiritual principles. As a result, diverse moral phenomena, from environmental ethics to certain aspects of professional ethics, can find harmony within the Orthodox worldview, especially when viewed through the lens of creation's sacramentality or the interconnectedness of all beings.

Aspects of moral psychology, or certain sociological constructs around morality, might initially seem out of place within Eastern Orthodox Theism. However, given the Orthodox Church's tradition of apophatic theology (knowing God by what He is not) and its willingness to engage with "mysteries" beyond rational comprehension, such phenomena can be approached with an open, contemplative stance. If there are moral phenomena that starkly emphasize moral relativism or undermine the sanctity and inherent worth of human life, they would be at odds

³⁸⁶ Meyendorff, *Byzantine Theology*, 48-49.

with Eastern Orthodox beliefs. For instance, principles that might deny the intrinsic value of life or propose a deterministic worldview where human beings lack genuine freedom could be seen as disconfirmatory.

Eastern Orthodox Theism, with its emphasis on theosis or deification, aligns with moral phenomena associated with personal growth, development, and ethical transformation. This theological tradition also echoes in its concept of philokalia, or the love of the beautiful, resonating with moral phenomena that emphasize aesthetic values, environmental ethics, and moral virtues. However, anomalies might surface in contexts where moral phenomena stress autonomous individualism, as Eastern Orthodox thought significantly focuses on communal spirituality and interconnectedness. Additionally, moral phenomena that emphasize strict, rule-based ethics might find some dissonance with the tradition's mystical and transformative aspects.

The theology's emphasis on sacramental life resonates with the formal cause, offering a structured way for believers to engage with the divine. The transformative journey of theosis is associated with the final cause, representing the ultimate purpose of human spiritual development. Moreover, the concept of synergy, symbolizing the cooperative effort between divine grace and human free will, relates to efficient causation in moral actions. Eastern Orthodox theism presents a rich understanding of causal dependence, viewing everything as reliant on God's sustaining grace, which aligns with moral phenomena emphasizing interconnectedness and community. The transformative processes of theosis and hesychasm detail the causal mechanisms of spiritual growth, contributing to the production aspect.

In terms of explanatory depth, the tradition's focus on historical events like Christ's incarnation, crucifixion, and resurrection, links moral and theological truths to historical events, aligning with moral phenomena that value tradition and historical virtues. However,

contemporary ethical issues might require additional interpretations to align with these ancient events. While deeply rooted in tradition and scriptures, Eastern Orthodox morality tends to be more experiential and mystical, providing profound insights into existence, beauty, and spiritual transformation, yet not always offering rigid "laws" for every moral scenario. Consequently, moral phenomena seeking universally applicable principles or objective standards might find Eastern Orthodox explanations more contextually nuanced than strictly law-like.

Eastern Orthodox theism, on the other hand, offers a rich tapestry of experiential and mystical theology. While it might not employ the scholastic rigor of Thomism, its emphasis on divine-human synergy, the transformative process of theosis, and the sacramental view of reality provides it with a unique lens to view and explain moral phenomena. Its holistic approach, which integrates liturgy, asceticism, and theology, ensures a depth and breadth that resonates powerfully with various facets of the moral landscape.

Molinist theism

Molinist Elements	Confirmatory	Consistent	Anomalous	Disconfirmatory
<i>Middle Knowledge</i>	Descriptive Ethics (God's knowledge of potential moral scenarios) Normative Ethics (understanding what individuals would do under certain moral directives)	Moral Psychology (how free agents would react)	Love Theory (more about feelings than choices)	Moral Neurology (focused on physical structures rather than choices)
<i>Counterfactuals of Creaturely Freedom</i>	Research Ethics (potential decisions in various situations) Moral Development (what one might choose at different stages)	Human Ethics (potential choices)	Moral Neurology (more deterministic)	Egoism (focused on self without considering broader implications)
<i>Divine Providence and Human Free Will</i>	Moral Virtue & Vice (God's providence in shaping virtues and allowing vices) Professional Ethics (freedom within a providential framework)	Moral Development (balance of divine providence and personal choice)	Moral Foundations (if deterministic)	Hedonism (pure pursuit of pleasure without providence)

<i>God's Permission of Evil</i>	Theodicy (explaining the existence of evil) Moral Virtue & Vice (understanding the role of vice)	Moral Development (overcoming permitted challenges)	Business Ethics (if profit without considering morality)	Normative Ethics (if they deny the possibility of evil)
<i>Potential Worlds and Actual World</i>	Descriptive Ethics (outlining potential moral frameworks) Human Ethics (choices shaping the actual world)	Quality of Life Inventory (how choices affect life quality)	Egoism (focused on individual without broader implications)	Love Theory (if it does not consider broader consequences)
<i>Divine Causality and Secondary Causes</i>	Legal Ethics (primary laws and their interpretation) Professional Ethics (core principles and their application)	Moral Development (understanding divine and human influences)	Hedonism (sole pursuit of pleasure without causality)	Moral Neurology (if it denies any causality)
<i>Foreknowledge and Predestination</i>	Moral Virtue & Vice (foreknown development of virtues) Professional Ethics (understanding predestined principles)	Human Ethics (knowing one's predestined path)	Moral Foundations (if they deny any predestination)	Egoism (solely self-determined without foreknowledge)

Molinism, rooted in the concept of middle knowledge, posits that God has knowledge of all potential scenarios, including how free creatures would act in any given circumstance. This ensures the existence of genuine human free will, which is pivotal for moral responsibility. This view brings into focus counterfactuals of creaturely freedom—statements that describe what any free being would do in specific situations, harmonizing the concepts of human freedom and divine providence. In Molinism, while God's providence never overrides human will, God's permission of evil is understood as a necessary outcome of a world with genuinely free creatures.

Amidst infinite potential worlds, the actual world is the reality God chose to instantiate, where free choices, goodness, and the permission of evil align with His intentions. Molinism aligns with incompatibilism, suggesting that God's providential control and real human free will coexist harmoniously. This balance between divine causality and secondary causes like human choices clarifies the nature of moral agency. Molina proposed that while God's grace for salvation is universally given, human free will determines its effectiveness. Lastly, Molinism's

perspective on Foreknowledge and Predestination suggests that even though God knows and predestines certain events, this does not infringe upon free will. Consequently, individuals are morally accountable for their actions, given their choices are not causally predetermined by external influences or divine will.

Molinism hinges on the concept of God's "middle knowledge" (*scientia media*), which is His knowledge of what free creatures would do in any possible circumstance. Moral phenomena that emphasize the harmony between divine foreknowledge and human free will, such as the "principle of equal consideration" or "respect for persons," confirm the Molinist perspective. The idea that individuals have genuine choices and yet exist within a divinely ordered cosmos aligns well with such phenomena. Molinism's flexibility in accounting for both divine sovereignty and human freedom means it can accommodate a wide array of moral principles. Phenomena like environmental or professional ethics, though not inherently Molinist, can be interpreted within its framework, especially when viewed in light of human agency working within a divinely-ordained structure.

Certain aspects of moral sociology or those moral principles that lean heavily towards determinism might be considered anomalous. Molinism's emphasis is on genuine human freedom within the ambit of God's providence, so any phenomena that seem to negate that freedom would require deeper theological grappling within the Molinist context. If there are moral phenomena advocating a strict form of determinism, where human choice is entirely an illusion, or those that negate the possibility of divine foreknowledge, they would stand in tension with Molinism. Principles suggesting that the future is entirely open and unknowable, or that human beings operate without any form of divine providence, could be seen as disconfirmatory to the Molinist stance.

Molinist theism, centered around God's middle knowledge including counterfactuals of creaturely freedom, aligns with moral phenomena related to human choice, freedom, and potential moral outcomes. It emphasizes God's foreknowledge of every potential decision without directly determining those decisions, mirroring moral concepts of human responsibility, autonomy, and the ethical consequences of choices. However, this framework might encounter anomalies with moral phenomena stressing deterministic outcomes or constrained human freedom, as it strongly upholds free will alongside divine foreknowledge. Certain subjective or emotional moral aspects, like moral emotions or personal experiences, may not directly correlate with Molinism's focus on logical possibilities and counterfactuals.

In Molinist thought, God's providence, understood as not violating human free will, acts as the efficient cause behind events. Counterfactuals of freedom relate to the formal cause, outlining potential event patterns based on various decisions. The theology's view on God's ultimate aims, in sync with human freedom, ties to the final cause. Molinism implies a dependency of events on God's knowledge, aligning with moral phenomena that value information and understanding in moral decisions. The production aspect here is more nuanced; while God is aware of all potential outcomes, He does not directly produce or determine events, allowing for genuine human causation. The theology offers deep explanatory insights into events, providing a framework where God knows all potentialities based on human decisions. This aligns with moral phenomena that focus on future implications and interconnected decisions. While Molinism does not prescribe strict moral "laws," its focus on God's knowledge of all possible worlds based on varying choices suggests a structured understanding of how moral decisions play out and their consequences.

Molinist Theism's position of neutrality is largely derived from its attempt to bridge two often conflicting views: God's exhaustive foreknowledge and genuine human freedom. By positing that God has knowledge of what any free creature would freely do in any given circumstance, it offers a solution to the tension but does not fully commit to the deterministic or libertarian ends of the spectrum. This centrist approach gives it a balanced, neutral stance in many discussions of moral phenomena. While Molinism offers valuable insights into divine-human relations and the reconciliation of divine foreknowledge with human freedom, its very effort to harmonize these views places it in a neutral position. It does not lean too heavily into determinism or full indeterminism, making it a moderate and balanced theological system in terms of the evidential virtues. This neutrality allows it to engage with a wide range of moral phenomena without strongly confirming or disconfirming any particular one.

Calvinist reformed theism

Calvinist Elements	Confirmatory	Consistent	Anomalous	Disconfirmatory
<i>Total Depravity</i>	Moral Virtue & Vice (all aspects of humanity are tainted) Moral Development (explains the inherent challenges)	Human Ethics (understanding of inherent flaws)	Quality of Life Inventory (might see human potential more optimistically)	Hedonism (ignoring depravity)
<i>Unconditional Election</i>	Professional Ethics (God's choice not based on human merit) Legal Ethics (divine choice beyond human actions)	Descriptive Ethics (explains the elect)	Normative Ethics (if it emphasizes free-will based choices)	Moral Sociology (if it denies any divine election)
<i>Limited Atonement</i>	Moral Virtue & Vice (specific redemption from vices)	Human Ethics (specific individuals' redemption)	Egoism (individual redemption without divine intervention)	Love Theory (universal love concepts)

<i>Irresistible Grace</i>	Moral Development (inevitable growth for the elect) Human Ethics (inevitable adherence to ethics for the elect)	Moral Virtue & Vice (inevitable growth in virtue for the elect)	Hedonism (acting against God's grace)	Moral Neurology (if it denies any divine intervention)
<i>Perseverance of the Saints</i>	Moral Virtue & Vice (believers' continued growth in virtues) Moral Development (continuous moral growth)	Human Ethics (sustained moral life)	Egoism (ignoring divine sustainment)	Moral Foundations (if they deny any divine sustainment)
<i>Covenant Theology</i>	Legal Ethics (covenants as divine laws) Professional Ethics (ethical covenants in professions)	Moral Development (growth within covenants)	Business Ethics (if solely profit-driven without covenant consideration)	Love Theory (if it does not consider divine covenants)
<i>The Third Use of the Law</i>	Legal Ethics (guidance from the moral law) Human Ethics (applying the Ten Commandments)	Professional Ethics (adhering to moral guidelines)	Moral Neurology (purely scientific without moral law)	Hedonism (ignoring moral law)
<i>The Sovereignty of God</i>	Descriptive Ethics (God's control over all moral realities) Normative Ethics (God's ultimate moral standards)	Moral Virtue & Vice (God's influence on virtues)	Hedonism (acting against God's sovereignty)	Egoism (self-determination without considering divine sovereignty)
<i>Common Grace</i>	Environmental Ethics (God's grace in sustaining the environment) Professional Ethics (God's grace in professions)	Human Ethics (universal human decency)	Egoism (focusing only on individual without recognizing common grace)	Moral Neurology (purely scientific without recognizing grace)
<i>Total Inability</i>	Moral Virtue & Vice (human inability to cultivate virtue without grace) Moral Development (challenges due to inability)	Human Ethics (limitations without grace)	Business Ethics (if it assumes complete human capability)	Hedonism (ignoring the need for grace)

The Calvinist reformed perspective hinges on the idea of total depravity, positing that every facet of humanity is marred by sin, emphasizing the profound need for divine grace in moral actions. This viewpoint is intertwined with the doctrines of Unconditional Election, suggesting God's sovereign selection of individuals for salvation, and Limited Atonement, asserting Christ's sacrifice was uniquely for the elect. These doctrines are enveloped by the

notion of irresistible grace, underlining that God's saving grace is unyielding and cannot be rejected.

Central to this theology is the sovereignty of God, which dictates that all events, including moral choices, are under God's orchestration. Yet, this does not absolve humans of moral responsibility; they are still accountable for their actions. The doctrine of Providence further elaborates this balance between divine control and human agency. In the midst of these profound theological precepts, the Regulative Principle in worship sets the moral bounds, emphasizing adherence only to what God explicitly commands. Meanwhile, the two kingdoms doctrine offers clarity on the distinct moral roles of God's spiritual and civil realms. Together, these principles sculpt a comprehensive moral landscape rooted in both divine decree and genuine human responsibility.

Central to Calvinist reformed theism is the doctrine of predestination and the absolute sovereignty of God in salvation. Moral phenomena that emphasize God's providence, the innate depravity of humans without divine intervention, and the idea of an elect group resonate strongly with this framework. Phenomena like "distributive justice" or "respect for persons" may reflect the Reformed idea that humans are made in the image of God and thus have intrinsic worth, even if tainted by original sin. Calvinist reformed theism has a comprehensive theological framework, encompassing soteriology, ecclesiology, and more. As such, diverse moral phenomena, from aspects of research ethics to certain professional ethical principles, can be harmonized with Reformed principles of God's general revelation, common grace, and the cultural mandate given to humanity.

Moral phenomena that suggest a synergistic approach to salvation (a cooperative effort between humans and God) would be somewhat anomalous in the Calvinist framework that

emphasizes monergism (salvation as solely the work of God). However, nuanced Reformed scholars might have varied approaches to engage with these phenomena, perhaps differentiating between salvation and sanctification processes. If there are moral phenomena that advocate for absolute human autonomy in spiritual matters or those that deny the idea of original sin and human depravity, they would conflict with Reformed principles. Similarly, principles that might suggest universal salvation without exception would stand in tension with the Reformed doctrines of election and reprobation.

In Calvinist reformed theism, the belief in God's sovereign decree, wherein all events are preordained, aligns with moral phenomena that consider destiny, fate, or the broader scope of history. Similarly, the doctrine of total depravity corresponds with views on the fallen nature of humanity, moral failings, or inherent human weaknesses. However, anomalies may arise in this framework with moral phenomena that emphasize human autonomy, freedom, or potentialities, given the strong emphasis on predestination. Additionally, concepts underscoring the goodness or potential goodness of humanity can contrast with the notion of total depravity.

The theology views God's sovereign decree as the efficient cause of all events, seeing each as part of His divine plan. It also places significance on God's covenants, particularly the covenant of grace, which acts as the formal cause by providing a structured pattern of divine interaction with humanity. The ultimate glorification of God and the salvation of the elect are central to the final cause in this belief system. Calvinism strongly highlights the dependency of all events and outcomes on God's will, aligning with moral phenomena that stress overarching powers, determinism, or destiny. The production aspect in this theology is significant, with God actively ordaining all events according to His plan. This approach provides a deep, interconnected view of events, all woven into God's sovereign plan, which aligns with moral

phenomena emphasizing broader narratives, histories, or interconnected outcomes. Furthermore, it underscores the moral laws as outlined in the Bible, especially regarding God's covenants, offering a structured, law-like understanding for many moral phenomena that seek objective moral standards. However, it might be less accommodating to moral phenomena that emphasize flexibility, individual choice, or situational ethics due to its structured and deterministic nature.

Calvinist reformed theism, with its strong emphasis on God's sovereignty and determinism, offers a coherent internal system. However, when it comes to addressing a broad spectrum of moral phenomena, especially those emphasizing human freedom and potentiality, it might face challenges. Its deterministic elements, particularly around predestination, can sometimes restrict its explanatory scope, especially in contexts that prioritize human autonomy and agency.

Openist theism

Open Theism Elements	Confirmatory	Consistent	Anomalous	Disconfirmatory
<i>God's Dynamic Relationship with Creation</i>	Research Ethics (dynamic decision-making processes) Professional Ethics (dynamic professional relationships)	Moral Development (dynamic growth)	Hedonism (static pursuit of pleasure)	Moral Neurology (if viewed as deterministic)
<i>Genuine Human Freedom</i>	Human Ethics (genuine choices and responsibilities) Moral Virtue & Vice (choices leading to virtue or vice)	Legal Ethics (freedom within laws)	Moral Foundations (if deterministic)	Egoism (sole self-interest without broader consequences)
<i>The Open Future</i>	Descriptive Ethics (describing potential moral scenarios) Normative Ethics (choices shaping the future)	Quality of Life Inventory (choices affecting future quality of life)	Hedonism (ignores future consequences)	Moral Neurology (if deterministic)
<i>God's Risk-taking</i>	Business Ethics (taking risks for outcomes) Research Ethics (risks in experiments)	Moral Development (risks in moral choices)	Egoism (avoiding risks)	Legal Ethics (if risks are avoided at all costs)

<i>God's Reactive Nature</i>	Human Ethics (responsiveness to human choices) Moral Development (God's adjustments to human growth)	Journalistic Ethics (reactive adjustments to truth)	Moral Neurology (purely physical reactions)	Hedonism (ignores consequences)
<i>Providence as Persuasive</i>	Professional Ethics (persuading ethical behavior) Counseling Ethics (persuasive guidance)	Moral Development (growth through persuasion)	Business Ethics (if coercive)	Moral Foundations (if viewed as deterministic)
<i>The Problem of Evil</i>	Moral Virtue & Vice (understanding the role of vice) Legal Ethics (addressing wrongs)	Human Ethics (understanding human flaws)	Hedonism (ignores evil for pleasure)	Love Theory (if it denies the existence of evil)
<i>Relational Prayer</i>	Counseling Ethics (relational guidance) Chaplaincy Ethics (relational spiritual support)	Moral Development (relational growth)	Business Ethics (if transactional)	Egoism (individualistic without relational aspects)
<i>God's Suffering with Creation</i>	Environmental Ethics (God's care for creation) Animal Ethics (compassion for suffering animals)	Human Ethics (compassion for human suffering)	Hedonism (ignoring others' suffering)	Moral Neurology (if devoid of compassion)
<i>Importance of Community</i>	Social Work Ethics (community-based support) Professional Ethics (community standards)	Moral Development (growth in community)	Egoism (solely self-focused)	Business Ethics (if solely profit-driven without community consideration)

Open theism revolutionizes traditional theological thinking by emphasizing a dynamic relationship between God and His creation. Central to this is the idea that both God and creatures can genuinely influence one another, suggesting a profound relationality with deep moral implications for human interactions with the divine and fellow humans. It presents a scenario where humans have libertarian free will, ensuring that moral decisions are neither predestined nor arbitrary but genuinely free, intensifying the weight of moral responsibility. This theology uniquely asserts an open future, in which the unfolding of events is not exhaustively settled or even wholly known by God, further highlighting that human moral choices play a pivotal role in shaping what is to come.

In this view, God willingly takes risks, highlighting the significant implications of human decisions. Instead of a God who unilaterally determines every outcome, He persuades creatures towards desired actions, setting the stage for a more cooperative form of moral governance. This approach to divine-human interaction provides fresh insights into the problem of evil, attributing certain unforeseen evils to the misuse of free creaturely will. The implications of such an understanding reach even the act of prayer, suggesting it is not merely about requests but possesses the potency to influence God's decisions. While the future remains open, Open theists still anchor themselves in the eschatological hope, trusting in the eventual victory of good over evil. The overarching narrative then becomes one of a God who not only dynamically interacts with His creation but also suffers alongside it, underscoring the profound moral and communal importance of every action, prayer, and decision in this ever-evolving relationship.

Open theism pivots on the idea that the future is genuinely open and that God's foreknowledge is dynamic and responsive to human free-will decisions. Moral phenomena emphasizing human agency, responsibility, and the genuine possibility of change, such as "principle of equal consideration" or "respect for persons," would directly resonate with this framework. The tenet of Open theism, which views God as being in a genuine relationship with humans and the universe, suggests God is deeply impacted by human choices and decisions. Given Open theism's emphasis on human free will, moral phenomena related to environmental, research, or professional ethics, which underscore human responsibility and agency in diverse situations, can harmoniously coexist within the Open theistic worldview.

Certain elements of moral psychology or deterministic ethical systems might seem initially at odds with Open theism's emphasis on open futures and contingent events. However, these phenomena can be engaged within the Open Theistic framework by differentiating between

moral freedom and natural determinism or by emphasizing different layers or tiers of divine knowledge. Moral phenomena that emphasize a deterministic worldview, where human choices are merely illusions or where the future is entirely preordained and static, would be in tension with Open theism. Principles that might suggest that God's foreknowledge is exhaustive and unchanging, thus negating genuine human freedom or the dynamic nature of the future, would be considered disconfirmatory.

Open theism emphasizes a dynamic relationship between God and creation, positing that while God is aware of all possible futures, He does not predetermine them. This view aligns with moral phenomena related to human autonomy, free will, potentialities, and the openness of the future. The idea that God can change His mind or respond to human actions and prayers is consistent with concepts emphasizing human agency, co-creation, and relational ethics. However, discrepancies may arise in relation to moral phenomena that lean towards strict determinism, fatalism, or predestined outcomes, as this theological approach underscores the uncertainty of the future. Moral concepts emphasizing an unchanging, immovable divine nature might conflict with this more dynamic and responsive depiction of God.

The interaction between God and creation can be likened to the efficient cause, with both divine and human roles in shaping outcomes. The open-ended nature of the future and its possibilities relate to the formal cause, outlining potential patterns and outcomes. Despite its focus on the openness of the future, this theology links God's ultimate goals of goodness, love, and relationship to the final cause. The theology posits a mutual dependence between God's will and human actions, highlighting cooperative causation that aligns with moral phenomena emphasizing partnership and relational causality. The production aspect suggests a collaborative effort where, although God sets the broader framework and continuously interacts with creation,

humans significantly influence specific events and outcomes.

This approach offers an interconnected view of events, suggesting a world influenced by both divine action and human choice. It aligns with moral phenomena that emphasize individual actions and interconnected decisions, providing a structured yet flexible understanding of moral phenomena. This accommodates both objective moral principles and individual, situational ethics, recognizing the moral guidelines set forth in scriptures and the character of God as a guide for morality.

Open theism, while offering a refreshing and innovative perspective on God's knowledge and the open nature of the future, can face challenges in its alignment with traditional moral phenomena. Its deviation from classical theistic understandings, especially concerning divine foreknowledge and providence, might pose challenges in achieving consistent evidential accuracy. Additionally, its relatively recent development means it has not undergone the same rigorous scholastic refinement as older theological systems.

Conclusion

The moral argument is one of the oldest arguments for God from natural theology. In the aforementioned, we clarified the distinction between the two parts of the argument: the explicandum of moral phenomena and the explicans of Christian theological models. In the former, we used the emergent hierarchy of sciences to evaluate the data quality of moral phenomena. In the latter, we used evidential theoretical virtues to evaluate the theory quality of Christian theological models.

First, we started with a historical survey of moral arguments, ending with its most developed form from Baggett and Walls. This version most explicitly states the use of abductive inference, starting with salient moral phenomena (moral facts, knowledge, rationality, and transformation), couched within an expansive epistemology, then explaining these data with an Anselmian divine commander.

Second, we took a closer look at abduction and what theories must exemplify to be good explanations: theoretical virtues, specifically focusing on evidential virtues (evidential accuracy, causal adequacy, and explanatory depth). We then turned to what makes for good data quality (concreteness, signal, directness of observation, and granularity) and settled on an emergent hierarchy of sciences as an index for the continuum—with three variables determining its location on the hierarchy: emergent conditions, scale, and interactions with other emergent properties.

Third, we presented a classification of moral phenomena, labeling each as we noted the increase in theory-ladenness as it moves from applied, to descriptive, to normative, to metaethical. We then located morality as conditioned on molecular complexes in physics, macro-organisms in biology, and theory of mind in psychology, and as a condition for culture in

sociology. This ended with a comparative assessment of its data quality and a demonstration of our implicit admission of moral data (and lower quality data) for prudential judgments in everyday living.

Fourth, we provided a theoretical framework for theological models that would later serve as explanations for moral phenomena. The framework provided a key for integrating the divine omni attributes and providential theism of God as defined in natural theology with the more theory-specific details of the historic ecumenical theologies: Thomistic classical, Eastern Orthodox, Molinist, Calvinistic reformed, and Openist.

Fifth, we began by presenting Baggett and Campbell's doubly ramified moral argument as a successful pilot test of extending the moral argument into specific theological models, with a logically rigorous accommodation of moral phenomena, and a precise quantitative representation of any given abductive moral argument. Finally, we focused our sights on the evidential virtuosity of each ecumenical theologies--evaluating their evidential accuracy given the confirmatory nature of the cataloged moral phenomena, causal adequacy, and explanatory depth.

Two key takeaways were: (i) the moral argument cannot solely rely on theories to explain the set of all moral phenomena without first adjudicating which are admissible and (ii) that any formulation of the moral argument must articulate its positions on moral phenomena, especially the more theory-laden ones, before resolving the question of which theological model is the best explanation. After particular phenomena and parameter values of theological models are chosen, only then can a proper set theoretic abductive inference be drawn, and a subjective Bayesian quantity be assigned.

Directions for Future Research

There are methodological, phenomenological, explanatory, and decision-making recommendations for the direction of future research. In the methodological arena, we only touched upon the evidential virtues of the theoretical virtues. There are still the coherential, aesthetic, and diachronic categories of virtues that can be explored—much of them weigh on the likelihood of explanations (albeit not as heavily as evidential virtues). The other side of the methodological coin is the emergent hierarchy and its relationship with other data quality metrics. The quality metrics themselves have new paths that continue to be trailblazed, especially with the recent developments with generative artificial intelligence (AI). But more interesting is the potential for new ground to be broken with more robust modeling of emergent hierarchies. These models, once more fully developed, will be the spine of the skeleton which muscles can later take and run with.

From the phenomenological side, there is certainly room for a much broader and more observationally rigorous catalog. Although we attempted to provide enough scholarship to be representative of the areas, there is certainly room for a more exhaustive and more representative catalog. There has been a lot of work done at the intersection of experimental philosophy and ethics. However, these have not been developed with an emergent hierarchy perspective in mind. We can certainly retrospectively data mine scholarship to be retrofitted onto the emergent hierarchy model.

But the most interesting potential comes from predictions, given the non-reductive version of the model. For example, experimental ethicists can look at the dysfunction of moral perception and its effects both on emergent conditions (such as the nervous system, brain, emotions, and empathy) and properties for which it is a condition. Can we expect that

psychopaths react with moral behavior even if their conscious awareness is impaired (as with the visual cortex-impaired variation of blindsight)? How are moral judgments affected by an inability to think recursively? Again, on the emergent model, we should expect both top-down causal changes on conditions and bottom-up changes on the emergent phenomenon for which it is a condition. Furthermore, as stated above, the moral phenomena cataloged did not decidedly take sides where phenomenal entities conflicted or even contradicted. This significantly determines which theory is most confirmed by the data. Given that some data are theory-laden more than others—such as normative ethics and metaethics—positions on these will necessarily require more distinguishing data (perhaps from other fields) to sort out. Once these positions are taken, a subset of the catalog we provided will help lead one to the most likely explanation.

On the explanatory side, we have not had the space to explore the evidential virtuosity of other worldviews (such as naturalism, deism, panentheism, pantheism), non-perfect being models, other major religions (such as Islam, Judaism, Buddhism, Hinduism), Christian cults (Mormonism, Jehovah's Witness), or more individualistic positions. These have been discussed to a wide extent in their respective literature, but not with advances in data quality or abduction in mind. Moreover, my formalizations of the moral arguments, at all levels, were taken from a variety of sources and could be more standardized for clarity and precision—particularly in the realm of integrative theological models, where there is much room for development. What is more, one can take from the competing theological models and develop a more robust model that accommodates all the data in a more theoretically virtuous way.

But, perhaps the most interesting direction, however, is the way these theological models can be rhetorically manifested once they are evaluated. We are talking, here, about communicating moral arguments with the creative arts. Here we include a list that hopefully

covers most of the creative categories: craftsmanship, architecture, interior design, production and performing arts, studio arts and visual communication, graphic design and digital animation, musicianship, cinematic arts, and creative writing. These have endless possibilities and, more importantly, have a much more practical rhetorical impact on educating the equally endless sub-populations on the various ideas involved. Moreover, explanations include elements of epistemic deontology that inform the decision-making of existential affairs. Can one live life consistently while accepting or rejecting explanations of moral phenomena? These topics have not even been broached and yet naturally fit into a full-blooded picture of moral arguments.

Lastly, and perhaps most importantly, the cataloging of phenomena and delineation of model elements can be duplicated and be applied toward a broad array of disciplines. From the sciences to the humanities to the creative arts, there are innumerable ways in which research is conducted. One of the goals of this paper was to present a case study that tests the traditional limits of methodological inquiry. Moral phenomena and the existence of God, as subjects of study, are as entangled and ambiguous as they come and yet as practical as they come. To make progress in clarifying concepts, demystifying causal relationships, and exploring actionable consequences of such a topic is to make progress in areas as disparate as philosophy, science, politics, and religion all at once.

Bibliography

- Adams, Robert Merrihew. *Finite and Infinite Goods: A Framework for Ethics*. New York: Oxford University Press, 1999.
- Adams, Sarah and Jon Robson, "Analyzing Aseity," *Canadian Journal of Philosophy* (Edmonton) 50, Iss. 5 (February 2020): 251-267; Alvin Plantinga, *Does God Have a Nature?* (Marquette University Press, 1980). 140-46.
- McGrath, Alister. *Re-Imagining Nature: The Promise of a Christian Natural Theology*. Wiley. 2017.
- Amerineni, Rajesh, Resh S. Gupta, and Lalit Gupta. "Multimodal Object Classification Models Inspired by Multisensory Integration in the Brain." *Brain Sci* 9, no. 1 (2019): 3.
- Anjum, Afifa, and Naumana Amjad. "Values in Action Inventory of Strengths: Development and Validation of Short Form-72 in Urdu." *Current Psychology* 40, no. 5 (2021): 2039-51.
- Annas, George J., and Michael A. Grodin. *The Nazi Doctors and the Nuremberg Code: Human Rights in Human Experimentation*. New York: Oxford University Press, 1992.
- Aquinas, Thomas. *Summa Theologica*. Translated by Fathers of the English Dominican Province. Zurich: Benziger, 1947.
- Audi, Rober. *Cambridge Dictionary of Philosophy*. 3rd Edition. New York: Cambridge University Press, 2015.
- Audi, Robert. *Epistemology: A Contemporary Introduction to the Theory of Knowledge*. 3rd Edition. New York: Routledge, 2011.
- . *Moral Perception*. Princeton: Princeton University Press, 2013.
- Augustine. *The City of God*. Translated by Henry Bettenson. London: Penguin Books, 1984.
- Aurelius, Marcus. *Meditations*. Translated by Martin Hammond. Penguin Classics, 2006.
- Ayer, A. J. *Language, Truth and Logic*. New York: Dover Publications, 1952.
- Babbie, Earl. *The Practice of Social Research*. 14th Edition. Boston: Cengage Learning, 2015.
- Baggett, David, and Jerry L. Walls, *God and Cosmos: Moral Truth and Human Meaning*. New York: Oxford University Press, 2016.
- . *The Moral Argument: A History*. New York: Oxford University Press, 2019. Kindle.
- . *Good God: The Theistic Foundations of Morality*. New York: Oxford University Press, 2011.

- Baggett, David, and Ronnie Campbell. "Omnibenevolence, Moral Apologetics, and Doubly Ramified Natural Theology." *Philosophia Christi* 15, no. 2 (2013): 337-353.
- Banks, Cyndi. *Criminal Justice Ethics: Theory and Practice*. 4th Edition. Thousand Oaks, CA: Sage, 2016.
- Banks, Sarah. *Ethics and Values in Social Work*. 4th Edition. New York: Springer, 2012.
- Barnes, Jonathan. *Aristotle's Posterior Analytics*. 2nd Edition. Oxford: Clarendon, 1994.
- Baron, Reuben M., and David A. Kenny. "The Moderator–Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations." *Journal of Personality and Social Psychology* 51, no. 6 (1986): 1173-82.
- Bartholomew, Craig G. *The God Who Acts in History: The Significance of Sinai*. Grand Rapids: Eerdmans, 2020.
- Batterman, Robert. *The Devil in the Details: Asymptotic Reasoning in Explanation, Reduction, and Emergence*. New York: Oxford University Press, 2002.
- Batty, Michael. *The New Science of Cities*. Cambridge: MIT Press, 2013.
- Baumeister, Roy F., and Kathleen D. Vohs. *Encyclopedia of Social Psychology*. Sage Publications, 2007.
- Beauchamp, Tom L., and James F. Childress. *Principles of Biomedical Ethics*. New York: Oxford University Press, 1979.
- Bechtel, William, and Robert C. Richardson. *Discovering Complexity: Decomposition and Localization as Strategies in Scientific Research*. Cambridge: MIT Press, 2010.
- Beck, W. David. *Does God Exist?: A History of Answers to the Question* (Downers Grove, IL: InterVarsity Press, 2021
- Bedau, Mark A., and Paul Humphreys. *Emergence: Contemporary Readings in Philosophy and Science*. Cambridge: MIT Press, 2008.
- Bekoff, Marc, and Jessica Pierce. *Wild Justice: The Moral Lives of Animals*. Chicago: University of Chicago Press, 2009.
- Berlin, Isaiah. *The Crooked Timber of Humanity: Chapters in the History of Ideas*. 1st Edition. Princeton: Princeton University Press, 1990.
- Berto, Francesco, and Matteo Plebani. *Ontology and Metaontology: A Contemporary Guide*. London: Bloomsbury Publishing, 2015.
- Blackburn, Simon. *Spreading the Word: Groundings in the Philosophy of Language*. New York: Oxford University Press, 1984.

- Boettner, Loraine. *The Reformed Doctrine of Predestination*. Grand Rapids: Eerdmans, 1954.
- Boyd, Gregory A. *God of the Possible: A Biblical Introduction to the Open View of God*. Grand Rapids: Baker Books, 2000.
- Bradshaw, David. *Aristotle East and West: Metaphysics and the Division of Christendom*. Cambridge: Cambridge University Press, 2004.
- Braswell, Michael C., Belinda R. McCarthy, and Bernard J. McCarthy. *Justice, Crime, and Ethics*. 9th Edition. New York: Routledge, 2017.
- Brower, Jeffrey E. *Aquinas's Ontology of the Material World: Change, Hylomorphism, and Material Objects*. Oxford: Oxford University Press, 2014.
- Burnham, Kenneth P., and David R. Anderson. *Model Selection and Multimodel Inference: A Practical Information-Theoretic Approach*. New York: Springer, 2002.
- Cadge, Wendy. *Paging God: Religion in the Halls of Medicine*. Chicago: University of Chicago Press, 2012.
- Calvin, John. *Institutes of the Christian Religion*. Translated by Henry Beveridge. Peabody, MA: Hendrikson, 2011.
- Campbell, Jr., Ronnie P. *Worldviews & the Problem of Evil: A Comparative Approach*. Lexham Press, 2019.
- Carroll, Archie B. "Corporate Social Responsibility: Evolution of a Definitional Construct." *Business & Society* 38, no. 3 (1999): 268-295.
- Cartwright, Nancy. *How the Laws of Physics Lie*. Oxford University Press, 1983.
- Chandola, Varun, Arindam Banerjee, and Vipin Kumar. "Anomaly Detection: A Survey." *ACM Computing Surveys* 41, no. 3 (2009): 1-58.
- Churchland, Patricia S. *Braintrust: What Neuroscience Tells Us about Morality*. Princeton: Princeton University Press, 2011.
- Cohen, Jacob. *Statistical Power Analysis for the Behavioral Sciences*. Hillsdale, NJ: L. Erlbaum Associates, 1988.
- Cook, Roy T. *A Dictionary of Philosophical Logic*. Edinburgh University Press, 2009.
- Copan, Paul, and Chad Meister. *Philosophy of Religion: Classic and Contemporary Issues*. Malden, MA: Blackwell Publishing, 2008.
- Copp, David. *The Oxford Handbook of Ethical Theory*. Oxford: Oxford University Press, 2006.
- Corey, Gerald, Marianne Schneider Corey, and Cindy Corey. *Issues and Ethics in the Helping Professions*. 10th Edition. Boston: Cengage Learning, 2019.

- Craighead, W. Edward and Charles B. Nemeroff. *The Corsini Encyclopedia of Psychology and Behavioral Science*. 4th Edition, Hoboken, NJ: John Wiley & Sons, Ltd., 2010.
- Craver, Carl. *Explaining the Brain: Mechanisms and the Mosaic Unity of Neuroscience*. Oxford: Oxford University Press, 2007.
- Daly, Herman E., and Joshua Farley. *Ecological Economics: Principles and Applications*. Washington: Island Press, 2004.
- Dancy, Jonathan. *Moral Reasons*. Oxford: Blackwell, 1993.
- Daniels, Norman. "Wide Reflective Equilibrium and Theory Acceptance in Ethics." *Journal of Philosophy* 76, no. 5 (1979): 256-282.
- Davies, Brian. *The Thought of Thomas Aquinas*. Oxford: Oxford University Press, 1992.
- Davis, Stephen T. *God, Reason, and Theistic Proofs*. Edinburgh: Edinburgh University Press, 1997.
- Delaney, C. F. *Rationality and Religious Belief*. Notre Dame, IN: University of Notre Dame Press, 1979.
- Delattre, Edwin J. *Character and Cops: Ethics in Policing*. 6th Edition. Washington: AEI Press, 2011.
- Dobson, Andrew. *Citizenship and the Environment*. Oxford: Oxford University Press, 2003.
- Douglas, Geivett and Gary Habermas. *In Defense of Miracles: A Comprehensive Case for God's Action in History*. IVP Academic. 1997.
- Dowe, Phil, *Physical Causation*. Cambridge: Cambridge University Press, 2000.
- Dworkin, Ronald. *Taking Rights Seriously: With a New Appendix, a Response to Critics*. Cambridge: Harvard University Press, 1978.
- Edwards, Jonathan. *The Works of Jonathan Edwards*. Edited by Clyde A. Holbrook. Vol. 3, New Haven: Yale University Press, 2017.
- Elkington, John. *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*. Mankato, MN: Capstone Publishing, 1999.
- Elwell, Walter A. *Evangelical Dictionary of Theology*. 2nd Edition. Grand Rapids: Baker Books, 2013.
- Esty, Daniel C., and Andrew S. Winston. *Green to Gold: How Smart Companies Use Environmental Strategy to Innovate, Create Value, and Build Competitive Advantage*. New Haven: Yale University Press, 2006.

- Fairweather, Abrol. *Virtue Epistemology Naturalized Bridges Between Virtue Epistemology and Philosophy of Science*. New York: Springer, 2014.
- Fergusson, David. *The Providence of God: A Polyphonic Approach*. Current Issues in Theology 11. Cambridge: Cambridge University Press, 2018.
- Feser, Edward. *Five Proofs of the Existence of God*. San Francisco: Ignatius Press, 2017.
- . *Aquinas: A Beginner's Guide*. Oxford: Oneworld Publications, 2009.
- . *Aristotle's Revenge: The Metaphysical Foundations of Physical and Biological Science*. Neunkirchen-Seelscheid: Editiones Scholasticae, 2019.
- Firth, Roderick. "Ethical Absolutism and the Ideal Observer." *Philosophy and Phenomenological Research* 12, no. 3 (1952): 317-345.
- Flavell, John H. "Theory of Mind Development: Retrospect and Prospect." *Merrill-Palmer Quarterly* 50, no. 3 (2004): 274-290.
- Fletcher, Jean. "Introduction." *Chaplaincy and Spiritual Care in Mental Health Settings*, edited by Jean Fletcher, 12-18. London: Jessica Kingsley Publishers, 2019.
- Flew, Antony. *A Dictionary of Philosophy*. Edited by Antony Flew. 3rd Edition. New York: Macmillan, 2002.
- Flint, Thomas P. *Divine Providence: The Molinist Account*. Cornell Studies in the Philosophy of Religion. Ithaca, NY: Cornell University Press, 1998.
- Floridi, Luciano. *The Philosophy of Information*. Oxford: Oxford University Press, 2011.
- Fodor, Jerry A. *In Critical Condition : Polemical Essays on Cognitive Science and the Philosophy of Mind*. Cambridge, Mass: A Bradford Book, 1998.
- Friedman, Lawrence M., Curt D. Furberg, and David L. DeMets. *Fundamentals of Clinical Trials*. 4th Edition. New York, NY: Springer, 2010.
- Friedman, Milton. *Capitalism and Freedom*. Chicago: University of Chicago Press, 1962.
- Frisch, Michael B. *Quality of Life Therapy: Applying a Life Satisfaction Approach to Positive Psychology and Cognitive Therapy*. Hoboken, NJ: John Wiley & Sons, Ltd., 2006.
- Fuller, Lon L. *The Morality of Law*. Revised Edition. The Storrs Lectures Series. New Haven: Yale University Press, 1969.
- Gelman, Andrew, John B. Carlin, Hal S. Stern, David B. Dunson, Aki Vehtari, and Donald B. Rubin. *Bayesian Data Analysis*. 3rd Edition. Chapman and Hall/CRC Texts in Statistical Science. Boca Raton, FL: Chapman and Hall/CRC, 2013.

- Gensler, Harry J. *Historical Dictionary of Logic*. Historical Dictionaries of Religions, Philosophies, and Movements Series 65. Lanham, MD: The Scarecrow Press, 2006.
- Gigerenzer, Gerd, and Ralph Hertwig, and Thorsten Pachur. *Heuristics: The Foundations of Adaptive Behavior*. New York: Oxford University Press, 2011.
- Gilligan, Carol. *In a Different Voice: Psychological Theory and Women's Development*. Cambridge: Harvard University Press, 2016.
- Gilson, Étienne. *The Christian Philosophy of St. Thomas Aquinas*. Translated by L.K. Shook. Notre Dame: University of Notre Dame Press, 1994.
- Gleick, James. *Chaos: Making a New Science*. London: Penguin Books, 1987.
- Glennan, Stuart and Phyllis Illari. *The Routledge Handbook of Mechanisms and Mechanical Philosophy*. New York, NY: Routledge, 2018.
- Granovetter, Mark. "The Strength of Weak Ties." *American Journal of Sociology* 78, no. 6 (1973): 1360-1380.
- Greene, Joshua D. *Moral Tribes: Emotion, Reason, and the Gap Between Us and Them*. New York: Penguin Books, 2013.
- , et al. "An fMRI Investigation of Emotional Engagement in Moral Judgment." *Science* 293, no. 5537 (2001): 2105-2108.
- Grotius, Hugo. *On the Law of War and Peace*. Translated by A.C. Whithorn: Andos Books, 2019.
- Gutmann, Amy, and Dennis Thompson. *Democracy and Disagreement: Why Moral Conflict Cannot Be Avoided in Politics, and What Should be Done About It*. Cambridge: Belknap Press, 1996.
- Guyatt, Gordon H., Andrew D. Oxman, Gunn E. Vist, Regina Kunz, and Yngve Falck-Ytter. "GRADE: An Emerging Consensus on Rating Quality of Evidence and Strength of Recommendations." *BMJ: British Medical Journal* 336, no. 7650 (2008): 924.
- , Andrew D. Oxman, Regina Kunz, James Woodcock, Jan Brozek, Mark Helfand, Pablo Alonso-Coello, Yngve Falck-Ytter, Roman Jaeschke, Gunn E. Vist, Elie A. Akl, Piet N. Post, Susan L. Norris, Joerg Meerpohl, Vijay K. Shukla, Mona Nasser, Ben Djulbegovic, and Holger J. Schunemann. "GRADE Guidelines: 8. Rating the Quality of Evidence—Indirectness." *Journal of Clinical Epidemiology* 64, no. 12 (2011): 1303-10.
- Habermas, Gary R. *Philosophy of History, Miracles, and the Resurrection of Jesus*. Academx: Sagamore Beach, MA. 2012.
- Haidt, Jonathan. *The Righteous Mind: Why Good People Are Divided by Politics and Religion*. New York: Pantheon Books, 2012.

- , Paul Rozin, Laura Lowery, and Sumio Imada. “The CAD Triad Hypothesis: A Mapping Between Three Moral Emotions (Contempt, Anger, Disgust) and Three Moral Codes (Community, Autonomy, Divinity).” *Journal of Personality and Social Psychology* 76, no. 4 (1999): 574-586.
- Hall, David L., and James Llinas. *Handbook of Multisensor Data Fusion: Theory and Practice*. Electrical Engineering and Applied Signal Processing Series. Boca Raton, FL: Chapman and Hall/CRC, 2009.
- Hanson, Norwood Russell. *Patterns of Discovery: An Inquiry into the Conceptual Foundations of Science*. Cambridge: Cambridge University Press, 1958.
- Harman, Gilbert. “The Inference to the Best Explanation,” *Philosophical Review* 74, no. 1 (January 1965): 88-95.
- Harrison, E. F. “Will.” In *Evangelical Dictionary of Theology*, edited by Walter A. Elwell. 2nd Edition. Grand Rapids: Baker Books, 2013.
- Hart, David Bentley. *The Experience of God: Being, Consciousness, Bliss*. New Haven: Yale University Press, 2013.
- Hartshorne, Charles, and William L. Reese. *Philosophers Speak of God*. Chicago: University of Chicago Press, 1953.
- Hasker, William. *God, Time, and Knowledge*. Ithaca, NY: Cornell University Press, 1998.
- Helm, Paul. *The Providence of God*. Contours of Christian Theology. Downers Grove, IL: IVP Academic, 1994.
- Hempel, Carl G. *Aspects of Scientific Explanation*. New York: Free Press, 1965.
- Hickam, John H. “The Diaphragm and the Differential Diagnosis,” *JAMA* 183, no. 6 (1961): 463-465.
- Hidalgo, César A. *Why Information Grows: The Evolution of Order, From Atoms to Economies*. New York: Basic Books, 2015.
- Christopher Hitchcock and James Woodward, “Explanatory Generalizations, Part II: Plumbing Explanatory Depth,” *Noûs* 37, no. 2 (2003): 181-199.
- Holland, John H. *Emergence: From Chaos to Order*. New York: Basic Books, 1998.
- Honderich, Ted. *The Oxford Companion to Philosophy*. 2nd Edition. Oxford: Oxford University Press, 2005.
- Howson, Colin, and Peter Urbach. *Scientific Reasoning: The Bayesian Approach*. 3rd Edition. Chicago: Open Court, 2006.
- James Spiegel, “The Irenaean Soul-Making Theodicy,” *God and Evil*. Kindle.

- James Woodward, *Making Things Happen: A Theory of Causal Explanation* (New York, NY: Oxford University Press, 2003)
- Jaynes, Edwin T. *Probability Theory: The Logic of Science*. Cambridge: Cambridge University Press, 2003
- Jeurissen, Ronald. "Reviewed Work: Cannibals with Forks: The Triple Bottom Line of 21st Century Business," *Journal of Business Ethics* 23, no. 2 (January 2000): 229-231.
- John Baille. *Natural Theology: Comprising "Nature and Grace" by Professor Dr. Emil Brunner and the reply "No!" by Dr. Karl Barth*. Wipf and Stock Publishers: Eugene, OR. 2002.
- John L. Mackie. *The Cement of the Universe*. New York, NY: Oxford University Press, 1980.
- Jojanneke Bastiaansen, Marc Thioux, and Christian Keysers, "Evidence for mirror systems in emotions," *Philosophical Transactions of the Royal Society* 364, no. 1528 (2009): 2391-2404.
- Jonathan Haidt, "The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment." *Psychological Review* 108, no. 4 (2001): 814-834.
- Jordan, Andrew, and Timothy O'Riordan. "The Precautionary Principle in Contemporary Environmental Policy and Politics." In *Protecting Public Health and the Environment: Implementing the Precautionary Principle*. edited by Carolyn Raffensperger and Joel Tickner, Island Press, 1999.
- Joyce, Richard. *The Myth of Morality*. Cambridge University Press, 2001.
- Judd, Charles M., Gary H. McClelland, and Carey S. Ryan. *Data Analysis: A Model Comparison Approach to Regression, ANOVA, and Beyond*. 3rd Edition. New York: Routledge, 2017.
- Justin Horn. "Does Moral Disagreement Pose a Semantic Challenge to Moral Realism?" *Philosophia*, 2020, Vol.48 (3), 1059-1073.
- Kahneman, Daniel. *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux, 2011.
- , and Amos Tversky. *Choices, Values, and Frames*. Cambridge University Press, 2000.
- Kai Qin Chan, Roel van Dooren, Rob W. Holland, and Ad van Knippenberg, "Disgust lowers olfactory threshold: a test of the underlying mechanism," *Cognition and Emotion* 34, no. 3 (2020): 621-627.
- Kalderon, Mark Eli. *Fictionalism in Metaphysics*. Oxford University Press, 2005. Parsons, Terence. *Nonexistent Objects*. Yale University Press, 1980.
- Kamali, Mohammad Hashim. *Principles of Islamic Jurisprudence*. Islamic Texts Society, 2003. Olivelle, Patrick. *The Law Code of Manu*. Oxford University Press, 2004.

- Karen S. Kitchener, "Intuition, Critical Evaluation and Ethical Principles: The Foundation for Ethical Decisions in Counseling Psychology," *The Counseling Psychologist* 12, no. 3 (1984): 43-55.
- Kattan, Michael W. *Encyclopedia of Medical Decision Making*. Thousand Oaks, CA: Sage, 2009.
- Kaufman, Gordon. *An Essay on Theological Method*. 3rd Edition. Oxford: Oxford University Press, 1995.
- Keeley, Brian L. "Making Sense of the Senses: Individuating Modalities in Humans and Other Animals." *The Journal of Philosophy* 99, no. 1 (2002): 5-28.
- Keim, Daniel A., et al. "Visual Analytics: Definition, Process, and Challenges." In: Kerren A., Stasko J.T., Fekete J., North C. (eds) *Information Visualization. Lecture Notes in Computer Science*, vol 4950. Springer, Berlin, Heidelberg, 2008.
- Kekes, John. *The Morality of Pluralism*. Princeton University Press, 1993.
- Kim, Jaegwon, "Making Sense of Emergence," *Philosophical Studies* 95, no. 1 (1999): 3-36.
- . *Physicalism, or Something Near Enough*. Princeton University Press, 2005.
- Kitchener, Karen S. *Foundations of Ethical Practice, Research, and Teaching in Psychology and Counseling*. Routledge, 2000.
- Korsgaard, Christine M. *The Sources of Normativity*. Cambridge: Cambridge University Press, 1996.
- Kovach, Bill, and Tom Rosenstiel. *The Elements of Journalism: What Newspeople Should Know and the Public Should Expect*. Three Rivers Press, 2001.
- Kretzmann, Norman. *The Metaphysics of Theism: Aquinas's Natural Theology in Summa Contra Gentiles I*. Clarendon Press, 1997.
- Kurian, George Thomas, and James D. Smith III. *The Encyclopedia of Christian Literature*. Vol. 1, Lanham, MD: Scarecrow Press, 2010.
- Kurian, George Thomas. *The Encyclopedia of Christian Civilization*. Vol. 1, New York: Wiley & Sons, 2012.
- Kurt Gray and Daniel M. Wegner, "Dimensions of Moral Emotions," *Emotion Review* 3, no. 3 (July 2011): 258-260.
- Kurt Gray, Liane Young, and Adam Waytz, "Mind Perception Is the Essence of Morality," *Psychological Inquiry* 23, no. 2 (June 2012): 101-124.
- LaFollete, Hugh. *International Encyclopedia of Ethics*. 1st Edition. New York: Wiley & Sons, 2013.

- Lakatos, Imre. *The Methodology of Scientific Research Programmes*. Cambridge University Press, 1978.
- Laurence Horn, Laurence, and Gregory Ward. *Blackwell Handbooks in Linguistics: The Handbook of Pragmatics*. Blackwell Publishers, 2006.
- Lee, Sukjae, "Occasionalism", *The Stanford Encyclopedia of Philosophy* (Fall Edition), Edward N. Zalta (ed.). 2020.
- Leo Pascual, Paulo Rodrigues, and David Gallardo-Pujol. "How does morality work in the brain? A functional and structural perspective of moral behavior," *Frontiers in Integrative Neuroscience*, Vol. 7 Iss. 65, (September) 2013. 1-8.
- Leon Gmeindl et al., "Tracking the will to attend: Cortical activity indexes self-generated, voluntary shifts of attention," *Attention, Perception, & Psychophysics* 78, no. 7 (2016): 2176-2184.
- Lewis, David. *Counterfactuals*. Wiley-Blackwell, 2001
- Lewis, Gordon R., and Bruce A. Demarest. *Integrative Theology*. Grand Rapids, MI: Zondervan, 1994.
- Li, Ming, and Paul Vitányi. *An Introduction to Kolmogorov Complexity and Its Applications*. Springer, 1993.
- Linda Zagzebski, "Does Ethics Need God?" *Faith and Philosophy* 4, no. 3 (July 1987): 294-303
- Little, Margaret Olivia, and Brad Hooker. *Moral Particularism*. Oxford University Press, 2000.
- Locke, John. *Two Treatises of Government*, edited by Peter Laslett. Cambridge Tests in the History of Political Thought. Cambridge: Cambridge University Press, 1988.
- Longe, Jacqueline L. "Cognition." *Gale Encyclopedia of Psychology*, edited by Jacqueline L. Longe. 3rd Edition. Farmington Hills, MI: Gale, Cengage Learning, 2016.
- Lopez, Shane J. *The Encyclopedia of Positive Psychology*. Hoboken, NJ: John Wiley & Sons, Ltd., 2009.
- López-Larrea, Carlos. *Sensing in Nature*, Advances in Experimental Medicine and Biology 739. New York: Springer Science+Business Media, 2012.
- Lossky, Vladimir. *The Mystical Theology of the Eastern Church*. Cambridge, UK: James Clarke & Co., 1957.
- Loux, Michael J. *Metaphysics: A Contemporary Introduction*. Routledge, 2006
- Lozano-Gotor, José M. "Divine Action." *Encyclopedia of Sciences and Religions*, edited by Anne Runehov, and Lluís Oviedo. Springer Science+Business Media, 2013.

- Luban, David. *Legal Ethics and Human Dignity*. Cambridge University Press, 2007.
- Lucas, Arthur M. "Introduction to *The Discipline* for Pastoral Care Giving." In *The Discipline for Pastoral Care Giving: Foundations for Outcome Oriented Chaplaincy*, edited by Larry VandeCreek and Arthur M. Lucas, 1-34. New York: Routledge, 2012.
- Luther, Martin. *The Bondage of the Will*. Translated by J. I. Packer and O. R. Johnston. Rev. ed. Grand Rapids, MI: Fleming H. Revell, 1957.
- MacIntyre, Alasdair. *After Virtue: A Study in Moral Theory*. University of Notre Dame Press, 1984.
- Mackie, J. L. *Ethics: Inventing Right and Wrong*. Penguin Books, 1977
- Malti, Tina, and Latzko, Brigitte. "Children's Moral Emotions and Moral Cognition: Towards an Integrative Perspective." *New Directions for Child and Adolescent Development*, no. 129 (2010): 1-10.
- Marder, Michael. *Plant-Thinking: A Philosophy of Vegetal Life*. Columbia University Press, 2013.
- Mariana Vitti Rodrigues and Claus Emmeche. "Abduction and styles of scientific thinking," *Synthese*. (February 2019).
- Martin, Adrienne. *The Routledge Handbook of Love in Philosophy*. New York: Routledge. 2018.
- Martin, C.F.J. *Thomas Aquinas: God and Explanations*. Edinburgh: Edinburgh University Press, 1997.
- Martyn, Susan R., Lawrence J. Fox, and W. Bradley Wendel. *The Law Governing Lawyers: National Rules, Standards, Statutes, and State Lawyer Codes*. Wolters Kluwer Law & Business, 2017.
- McChesney, Robert W. *Rich Media, Poor Democracy: Communication Politics in Dubious Times*. The New Press, 2000.
- McCullagh, Christopher Behan. *Justifying Historical Descriptions*. Cambridge Studies in Philosophy. Cambridge: Cambridge University Press, 1984.
- McFarland, Ian A. *Cambridge Dictionary of Christian Theology*. Cambridge: Cambridge University Press, 2011.
- McGrath, Sarah. "Moral Knowledge by Perception," *Philosophical Perspectives* 18, (2004): 209-228.
- Meister, Chad, and James K. Dew. *God and Evil: The Case for God in a World Filled with Pain*. Downers Grove, IL: InterVarsity Press, 2013.

- Menzies, Peter. *Causation and Counterfactuals*, ed. John Collins, Ned Hall, and L.A. Paul, 139-180 (Cambridge, MA: MIT Press, 2004)
- Meyendorff, John. *Byzantine Theology: Historical Trends and Doctrinal Themes*. New York, NY: Fordham University Press, 1983.
- . *Christ in Eastern Christian Thought*. St. Vladimir's Seminary Press, 1987.
- Michael Balls, "It's Time to Reconsider The Principles of Humane Experimental Technique," *Alternatives to Laboratory Animals* 48, no. 1 (2020): 40-46; W.M.S. Russell and R.L. Burch, *The Principles of Humane Experimental Technique* (Essex: Methuen & CO Ltd., 1959).
- Michael Keas. "Systematizing Theoretical Virtues." *Synthese*. 195. 2018. 2761–2793
- Millard Erickson, *Christian Theology* (Grand Rapids, MI: Baker Academic, 2013)
- Mitchell, Melanie. *Complexity: A Guided Tour*. Oxford University Press, 2009.
- Mitchell, Sandra D. *Unsimple Truths: Science, Complexity, and Policy*. Chicago, IL: University of Chicago Press, 2009.
- Molina, Luis de. *On Divine Foreknowledge: Part IV of the Concordia*. Translated by Alfred J. Freddoso. Ithaca, NY: Cornell University Press, 1988.
- Moll, Jorge, et al. "The Neural Basis of Human Moral Cognition." *Nature Reviews Neuroscience* 6, no. 10 (2005): 799-809
- Molnar, George. *Powers: A Study in Metaphysics*. Oxford University Press, 2003
- Moreland, James Porter, and William Lane Craig. *The Blackwell Companion to Natural Theology*. Malden, MA: Blackwell Publishing, 2009.
- Morgan, M. Granger, and Max Henrion. *Uncertainty: A Guide to Dealing with Uncertainty in Quantitative Risk and Policy Analysis*. Cambridge: Cambridge University Press, 1990.
- Muller, Richard A. *Post-Reformation Reformed Dogmatics: The Rise and Development of Reformed Orthodoxy*. Grand Rapids, MI: Baker Academic, 2003.
- Mullins, Ryan T. *God and Emotion (Elements in the Philosophy of Religion)*. Cambridge University Press. 2020.
- Mumford, Stephen and Rani Lill Anjum, *Getting Causes from Powers*. New York, NY: Oxford University Press, 2011.
- Myers, Glenford J. *The Art of Software Testing*. John Wiley & Sons, 1979.

- National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. *The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research*. U.S. Government Printing Office, 1978.
- Nicholas Thomas Wright, *History and Eschatology: Jesus and the Promise of Natural Theology*. Baylor University Press: Waco, TX.2019. 63-271.
- Okasha, Samir. *Philosophy of Science: A Very Short Introduction*. Oxford University Press, 2002
- Palamas, Gregory. *The Triads*. Edited by John Meyendorff, Paulist Press, 1983.
- Paul Helm. *The Providence of God (Contours of Christian Theology)*. InterVarsity Press. 1993.
- Pearl, Judea. *Causality: Models, Reasoning, and Inference*. Cambridge University Press, 2009
- Peirce, Charles. 1931-58. *Collected Papers of Charles Sanders Peirce*. Vols. 1-6, ed. C. Harshorne and P. Weiss; vols. 7-8, ed. A. W. Burks. Cambridge, MA: Harvard University Press
- Perszyk, Kenneth. *Molinism: The Contemporary Debate*. Oxford, UK: Oxford University Press, 2011.
- Peter Lipton. *Inference to the Best Explanation (International Library of Philosophy)*, 2nd Edition. Routledge, 2004.
- Peter Railton. "The Affective Dog and Its Rational Tale: Intuition and Attunement," *Ethics* 124, no. 4 (July 2014): 813-859.
- Peterson, Christopher, and Martin Seligman. *Character Strengths and Virtues: A Handbook and Classification*. New York: Oxford University Press, 2004.
- Peterson, Robert A. *Election and Free Will: God's Gracious Choice and Our Responsibility*. Grand Rapids, MI: Baker Academic, 2007.
- Philippa Foot, *Natural Goodness*. Clarendon Press, 2001.
- Pigden, Charles R. "Nihilism, Nietzsche and the Doppelganger Problem." *Ethical Theory and Moral Practice* 10, no. 5 (2007): 441-456.
- . *Hume on Is and Ought*. New York: Macmillan, 2010.
- Pinnock, Clark, Richard Rice, John Sanders, William Hasker, and David Basinger. *The Openness of God: A Biblical Challenge to the Traditional Understanding of God*. Downers Grove, IL: InterVarsity Press, 1994.
- Pinnock, Clark. *Most Moved Mover: A Theology of God's Openness*. Grand Rapids, MI: Baker Academic, 2001.
- Plantinga, Alvin. *Does God Have a Nature?* Marquette University Press, 1980.

- Pomazansky, Michael. *Orthodox Dogmatic Theology: A Concise Exposition*. Platina, CA: St. Herman of Alaska Brotherhood, 1994.
- Popper, Karl. *Conjectures and Refutations: The Growth of Scientific Knowledge*. Routledge, 1963
- Prinz, Jesse J. *The Emotional Construction of Morals*. Oxford: Oxford University Press, 2007.
- Psillos, Stathis. *Philosophy of Science A-Z*. Edinburgh University Press, 2007
- Quine, Willard Van Orman. *Word and Object*. MIT Press, 1960.
- . *From a Logical Point of View*. Harvard University Press, 1953.
- R. Douglas Geivett. *God and Evil: The Case for God in a World Filled with Pain*. InterVarsity Press. 2013.
- Rajesh Amerineni, Resh S. Gupta, and Lalit Gupta, "Multimodal Object Classification Models Inspired by Multisensory Integration in the Brain," *Brain Sciences* 9, no. 3 (January 2019): 1-14.
- Ramachandran, Vilayanur. *Encyclopedia of Human Behavior*. 2nd Edition, Frisco, CO: Elsevier Science & Technology, 2012.
- Ratzsch, Delvin. *Science & Its Limits: The Natural Sciences in Christian Perspective*. Contours of Christian Philosophy. Downers Grove, IL: InterVarsity Press, 2009
- Rawls, John. *A Theory of Justice*. Belknap Press of Harvard University Press, 1971.
- Reamer, Frederic G. *Social Work Values and Ethics*. Columbia University Press, 2018.
- Regan, Tom. *The Case for Animal Rights*. University of California Press, 1983.
- Reichenbach, Bruce R. *Divine Providence: God's Love and Human Freedom*. Eugene, OR: Cascade, 2016.
- Resnik, David B. *The Ethics of Science: An Introduction*. New York: Routledge, 1998.
- Rhode, Deborah L. *Legal Ethics*. Foundation Press, 2000.
- Rice, Richard. *The Openness of God: The Relationship of Divine Foreknowledge and Human Free Will*. Eugene, OR: Wipf and Stock Publishers, 2004.
- Robert G. Hudson. "Verification Principle." *Encyclopedia of Empiricism*, edited by Don Garrett, and Edward Barbanell. Routledge, 1997.
- Roger White, "The Economic Advantage of Prediction over Accomodation," *Mind* 112, no. 448 (2003): 653-683.

- Rollin, Bernard E. *The Unheeded Cry: Animal Consciousness, Animal Pain, and Science*. Ames, IA: Iowa State Press, 1998.
- Rolston III, Holmes. *Environmental Ethics: Duties to and Values in The Natural World*. Temple University Press, 1988.
- Romanides, John S. *Franks, Romans, Feudalism, and Doctrine: An Interplay Between Theology and Society*. Brookline, MA: Holy Cross Orthodox Press, 1981.
- Rothman, Kenneth J., Sander Greenland, and Timothy L. Lash. *Modern Epidemiology*. Wolters Kluwer Health/Lippincott Williams & Wilkins, 2008
- Runehov, Anne and Lluís Oviedo. *Encyclopedia of Sciences and Religions*. Springer Science+Business Media, 2013.
- Russell, W. M. S., and R. L. Burch. *The Principles of Humane Experimental Technique*. Methuen, 1959.
- Saad, Marcelo, Roberta de Medeiros, and Amanda Cristina Mosini, “Are We Ready for a True Biopsychosocial-Spiritual Model? The Many Meanings of ‘Spiritual’,” *Medicines (Basel)* 4, Iss. 4 (2017): 79.
- Sagan, Carl. *The Demon-Haunted World: Science as a Candle in the Dark*. Random House, 1995
- Salkind, Neil J. *Encyclopedia of Research Design*. Thousand Oaks, CA: Sage, 2010.
- Salmon, Wesley C. *Causality and Explanation*. Oxford University Press, 1998
- Salmon, Wesley C. *Four Decades of Scientific Explanation*. University of Minnesota Press, 1989.
- Salmon, Wesley. *Scientific Explanation and the Causal Structure of the World*. Princeton, NJ: Princeton University Press, 1984.
- Sanders, John. *The God Who Risks: A Theology of Divine Providence*. Downers Grove, IL: InterVarsity Press, 1998.
- Sayre-McCord, Geoffrey. *Essays on Moral Realism*. Ithaca, NY: Cornell University Press, 1988.
- Schlosberg, David. *Defining Environmental Justice: Theories, Movements, and Nature*. Oxford University Press, 2007.
- Schmemmann, Alexander. *For the Life of the World: Sacraments and Orthodoxy*. St. Vladimir's Seminary Press, 1973.
- Schrödinger, Erwin. *What is Life? With Mind and Matter and Autobiographical Sketches*. Cambridge University Press, 1944.
- Seneca. *Letters from a Stoic*. Translated by Robin Campbell. Penguin Books, 1969.

- Shafer-Landau, Russ. *Moral Realism: A Defence*. Oxford University Press, 2003.
- . *Whatever Happened to Good and Evil*. Oxford University Press, 2004.
- Sheafor, Bradford W., and Charles R. Horejsi. *Techniques and Guidelines for Social Work Practice*. Pearson, 2016.
- Silver, Nate. *The Signal and the Noise: Why So Many Predictions Fail—but Some Don't*. Penguin, 2012.
- Silverman, Craig. *Regret the Error: How Media Mistakes Pollute the Press and Imperil Free Speech*. Sterling, 2007.
- Simon, Herbert A. *Models of Bounded Rationality: Empirically Grounded Economic Reason*. MIT Press, 1982.
- Snarey, John. "The Cross-Cultural Universality of Social-Moral Development: A Critical Review of Kohlbergian Research." *Psychological Bulletin* 97, no. 2 (1985): 202-232.
- Sober, Elliott. "Simplicity." *Oxford Handbook of Philosophy of Science*, edited by Paul Humphreys. Oxford University Press, 2016.
- Souryal, Sam S. *Ethics in Criminal Justice: In Search of the Truth*. Anderson Publishing, 2014.
- Sowa, John F. *Knowledge Representation: Logical, Philosophical, and Computational Foundations*. Brooks Cole Publishing Co., 1999.
- Sproul, R.C. *Chosen by God*. Wheaton, IL: Tyndale House Publishers, 1986.
- Steinhart, Eric. *More Precisely: The Math You Need to Do Philosophy*. New York: Broadview Press, 2009.
- Stump, Eleonore. *Aquinas*. London, UK: Routledge, 2003.
- Sue, Derald Wing, and David Sue. *Counseling the Culturally Diverse: Theory and Practice*. Wiley, 2016.
- Swift, Christopher. *Hospital Chaplaincy in the Twenty-first Century: The Crisis of Spiritual Care on the NHS*. Ashgate, 2009.
- Swinburne, Richard. *Providence and the Problem of Evil*. New York: Oxford University Press, 1998.
- . *The Coherence of Theism*. 2nd Edition, New York, NY: Oxford University Press, 2016.
- . *The Existence of God*. New York, NY: Oxford University Press, 2004.
- . "Natural Theology, its 'Dwindling Probabilities' and 'Lack of Rapport,'" *Faith and Philosophy*. 21(4) (2004), 533–546, 533.

- Gieryn, T. F. "Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists," *American Sociological Review* 48, no. 6 (1983): 781-795.
- Tabore Onojighofia Tobore, "Towards a Comprehensive Theory of Love: The Quadruple Theory," *Frontiers of Psychology* 11, no. 862 (2020): 1-15.
- Taylor, Paul W. *Respect for Nature: A Theory of Environmental Ethics*. Princeton University Press, 1986. 99.
- te Velde, Rudi A. *Aquinas on God: The 'Divine Science' of the Summa Theologiae*. Aldershot, UK: Ashgate, 2006.
- Thaler, Richard H., and Cass R. Sunstein. *Nudge: Improving Decisions About Health, Wealth, and Happiness*. Yale University Press, 2008.
- Kuhn, Thomas. *The Structure of Scientific Revolutions*, 4th Edition. University of Chicago Press. 2012.
- Thomas P. Flint. "The Molinist Account of Providence," *Divine Providence (Cornell Studies in the Philosophy of Religion)*. Cornell University Press. 1998
- Trochim, William M.K., and James P. Donnelly. *The Research Methods Knowledge Base*. Cengage Learning, 2006.
- Turner, Denys. *The Darkness of God: Negativity in Christian Mysticism*. Cambridge: Cambridge University Press, 1995
- Tversky, Amos, and Daniel Kahneman. "Judgment under Uncertainty: Heuristics and Biases." *Science* 185, no. 4157 (1974): 1124-31.
- Vafeas, Nikos. "Board Structure and the Informativeness of Earnings." *Journal of Accounting and Public Policy* 19, no. 2 (2000): 139-160
- Van Fraassen, Bas C. *Laws and Symmetry*. Oxford University Press, 1989.
- VandeCreek, Larry, and Arthur M. Lucas. *The Discipline for Pastoral Care Giving: Foundations for Outcome Oriented Chaplaincy*. Routledge, 2001.
- Vozzola, Elizabeth C., and Amie K. Senland. *Moral Development: Theory and Applications*, 2nd Edition. New York: Routledge, 2022.
- Walter Sinnott-Armstrong, "experimental philosophy," *Cambridge Dictionary of Philosophy*, ed. Robert Audi, 3rd ed., np (Cambridge: Cambridge University Press, 2015), np.
- Ward, Stephen J. A. *Ethics and the Media: An Introduction*. Cambridge University Press, 2011.
- Ware, Timothy (Bishop Kallistos Ware). *The Orthodox Church*. New Edition. London, UK: Penguin Books, 1993.

White, Roger. "The Economic Advantage of Prediction over Accommodation," *Mind* 112, no. 448 (2003): 653-683.

Wickham, Hadley, and Garrett Grolemund, *R for Data Science: Import, Tidy, Transform, Visualize, and Model Data*. Sebastopol: CA: O'Reilly Media, Inc., 2016.

William Lane Craig. *Divine Foreknowledge and Human Freedom: The Coherence of Theism: Omniscience (Series: Brill's Studies in Intellectual History, Volume: 19)*. Brill: Leiden, Boston. 1991.

Wilson, Edward O. *The Diversity of Life*. W.W. Norton & Company, 1992.

———. *Consilience: The Unity of Knowledge*. New York: Vintage Books, 1998.

Winkler, Robert L. *An Introduction to Bayesian Inference and Decision*. 2nd ed. Gainesville, FL: Probabilistic Publishing, 2003.

Wolfram, Charles W. *Modern Legal Ethics*. West Publishing Company, 1986.

Zizioulas, John D. *Being as Communion: Studies in Personhood and the Church*. Crestwood, NY: St. Vladimir's Seminary Press, 1985.